

APPLICATION

Study field "Health Care" for assessment

Study field	<i>Health Care</i>
Title of the higher education institution	<i>Latvijas Universitāte</i>
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Self-evaluation report

Study field "Health Care"

University of Latvia

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1. Information on the Higher Education Institution/College

1.1. Basic information on the higher education institution/ college and its strategic development fields,.

The University of Latvia (hereinafter – UL) was founded in 1919 and is the only classical university in Latvia, retaining its status as the largest higher education institution in the country in terms of the number of students in 2021. The University of Latvia is a university of science, incorporating and developing the country's main study and scientific research potential in the field of humanities, natural, technical, and social sciences.

Mission: The mission of the University of Latvia is expressed in its motto "*Scientiae et Patriae*" (For Science and Fatherland). The University of Latvia (UL) contributes to the global science, higher education, knowledge, technology transfer and innovation, and ensures the growth of Latvian democracy and culture, the development of the Latvian language and the prosperity of the national economy

Vision: Space for excellence, environment for development, time for responsibility. The UL is a university of science of high international standing. The UL creates an interdisciplinary, open and innovation-oriented excellent work and study environment. The activities of the University of Latvia are the basis for the sustainable development and economic transformation of the Republic of Latvia.

Values:

- University community;
- Excellence;
- Science-based development;
- Openness;
- Cooperation;
- Academic freedom.

The University plays an important role not only in the development of the higher education system in Latvia but also in the growth of the country's economy, providing cutting edge studies and research, based on the unity of higher education and science. The University actively participates in solving topical problems of the state and society, and is the centre of intellectual life in Latvia, where new knowledge is created, while nurturing the national language, culture and promoting the development of the state and society. The University of Latvia focuses its efforts on providing quality studies and developing scientific excellence, creating structures open to interdisciplinary and transdisciplinary research and studies, ensuring high return on invested resources, sustainable and environmentally friendly use of resources. The University is developing as a modern international academic centre, creating an environment and infrastructure for excellence in studies, research and innovation.

The study process at the University of Latvia is implemented at 13 faculties[1], 7 branches[2] and 3 medical colleges[3]. Research activities are also performed at 18 research institutes[4], and various research, training and consultancy activities are conducted in 28 study centres[5]. The UL Regional Centre[6] coordinates and supervises the activities of the University's branches, as well as promotes cooperation between the University and local authorities in the fields of human resources development, education and interdisciplinary research. The UL has more than 230 bilateral

cooperation agreements with universities in 51 countries[7]. The UL Culture Centre[8] is responsible for 21 amateur arts groups - choirs, dance groups, vocal ensembles, early music ensembles, theatre, a brass band and a ceramics studio. The UL Sports Centre[9] organises the UL sports activities for up to 40 different sports in 11 sports - basketball, wrestling, group fitness classes, football, floorball, table tennis, kendo, general fitness, volleyball, cheerleading and self-defence. The activities of the UL are also performed by the

The UL Museum[10], the UL Botanical Garden[11], the UL Rhododendron Nursery “Babīte”[12], the UL Academic Publishing House[13], and the UL Baldone Observatory[14]. The UL Foundation[15] and the UL Alumni Club[16] have also been operating successfully.

As of 1 October 2021, the UL has 3,250 employees, including 1,420 UL academic staff and 1,830 UL general staff. The University's financial performance is characterised by a turnover of EUR 81 million and an equity ratio of 73%. The main activities of the University take place in Riga, at 19 Raiņa Boulevard and Torņkalns Academic Centre, as well as in several locations in Riga and in the UL regional branches in Aluksne, Bauska, Cesis, Jēkabpils, Kuldīga, Madona and Tukums.

The UL is ranked 601-800 in the Times Higher Education World University Ranking of 2021, its academic staff and students publish more than nine hundred scientific publications annually in the Scopus and Web of Science databases.

The UL offers study programmes at all levels, covering 28 science branches and 22 fields of study. The University's 13 faculties offer 140 study programmes. See **Table 1.1.1** for the fields of study, the number of study programmes and the accreditation periods.

Table 1.1.1

Study fields, number of study programmes and accreditation periods (02.11.2021.)

No	Study Fields	Number of Study Programmes	Accreditation Period
1.	Architecture and Construction	1	31.05.2013-31.12.2022.
2.	Life Sciences	3	29.05.2013-31.12.2023.
3.	Economics	8	08.09.2021-09.09.2027.
4.	Physics, Materials Science, Mathematics and Statistics	7	29.05.2013-31.12.2023.
5.	Geography and Earth Sciences	6	24.04.2017-24.04.2023.
6.	Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Management, and Computer Science	5	29.05.2013-22.08.2023.
7.	Internal Security and Civil Defence	3	05.06.2013-31.12.2024.
8.	Information and Communication Sciences	5	16.06.2021-17.06.2023.
9.	Education, Pedagogy and Sports	24	12.06.2013-31.12.2024.
10.	Chemistry, Chemical Engineering and Biotechnology	3	24.05.2013-31.12.2023.
11.	Arts	1	16.10.2015- 02.06.2022.
12.	Psychology	3	21.06.2019-21.06.2025.

No	Study Fields	Number of Study Programmes	Accreditation Period
13.	Sociology, Political Science and Anthropology	9	12.06.2013-31.12.2024.
14.	Social Welfare	2	14.05.2013-31.12.2022.
15.	Religion and Theology	3	22.05.2013-31.12.2023.
16.	Law	4	21.06.2019-21.06.2025.
17.	Translation	2	14.05.2013-31.12.2024.
18.	Management, Administration and Real Estate Management	8	29.09.2021-30.09.2027.
19.	Language and Culture Studies, Native Language Studies and Language Programmes	21	26.06.2013-31.12.2024.
20.	Health Care	13	31.05.2013-31.12.2022.
21.	History and Philosophy	6	24.05.2013-31.12.2023.
22.	Environmental Protection	3	05.06.2013-31.12.2024.

UL study programmes in several fields of study are also available in seven UL branches located in the regions of Latvia. In the academic year 2021/2022, 11 different fee study programmes in 3 study fields, ranging from first-level (college) higher education study programmes, the professional bachelor's study programmes to master's study programmes, are being implemented in the branches. See **Table 1.1.2** for the number of study fields and study programmes in the branches.

Table 1.1.2

Number of study fields and study programmes implemented in the regional branches of the University of Latvia, data as of 2021

Branches	Aluksne (founded 1997)	Bauska (founded 1997)	Cēsis (founded 1995)	Jēkabpils (founded 1996)	Kuldīga (founded 1996)	Madona (founded 1997)	Tukums (founded 1996)
Number of study fields	3	1	2	1	2	1	1
Number of study programmes	5	3	7	4	9	3	6
Number of students	75	146	428	99	302	99	333

As of 1 October 2021, the total number of students studying at the University of Latvia is 15 590, 40% of whom are financed by the state budget. Around 10% of students study at the UL branches. In total, almost five thousand new students are enrolled every year (see **Figure 1.1.1**).

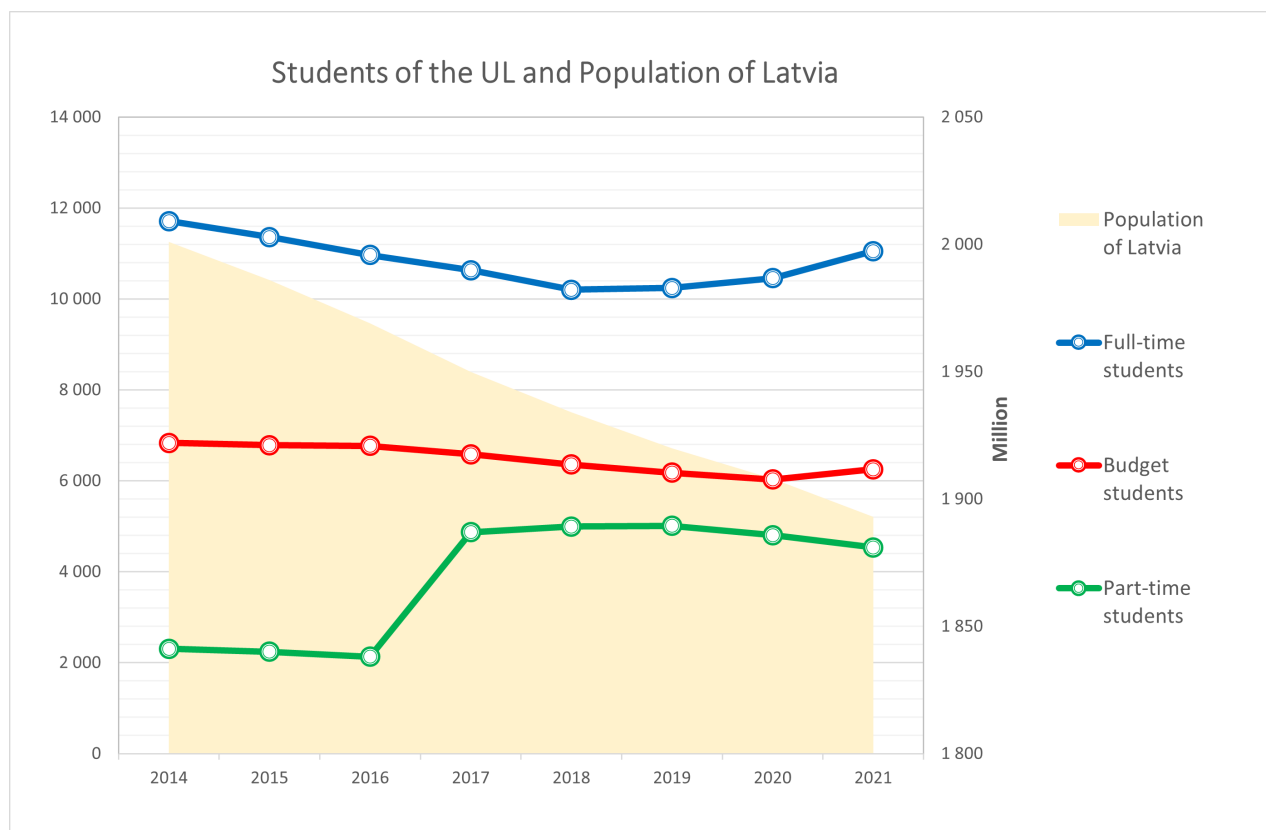


Figure 1.1.1 The number of students at the University of Latvia against the population of Latvia, 2014-2021.

Strategy: On June 28, 2021, the Senate decision No.2-3 / 90 approved the UL medium-term development strategy for the period from 2021 to 2027[17]. With the cooperation of the involved parties and the analysis of the national and international competitiveness of the University of Latvia, the mission of the University of Latvia has been revised and strategic goals have been defined in six development directions - three in each - in the core business and institutional areas. Development goals have been set in the fields of science, studies, public education, as well as in the fields of staff and organizational culture, environment and governance. The UL Strategy 2027 envisages the further development of the University as an internationally recognised science centre, the development of unique study and lifelong learning programmes, as well as the offer of competitive working and study conditions. The University continues the work initiated in the previous strategic period to achieve the highest level of scientific excellence, as well as promote student-oriented studies and develop a modern study environment. The involvement and contribution of the University to the society of Latvia are being purposefully promoted. The University is improving the working conditions and environment necessary for talent development. Sustainable growth is playing an increasingly important role and is becoming a cross-cutting principle in all its areas of activity. Significant attention is paid to ensuring academic integrity and strengthening the value-oriented organisational culture of the University. See **Table 1.1.3** for the current strategic goals and development directions of the University.

Table 1.1.3

The UL Strategic Goals Map, 2021-2027

Development directions	Strategic goals
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Development of principal activities

1.V. Scientific excellence	1.M. Internationally recognized research university
2.V. Development of studies	2.M. Unique study offer and high competitiveness of graduates
3.V. Contribution to society	3.M. University activities as a basis for the growth of Latvia

Institutional development

4.V. Talent development	4.M. Development- and excellence-oriented HR policy
5.V. Environment and governance	5.M. Green thinking, attractive, sustainable university environment and effective administrative support
6.V. Organisational culture	6.M. Inclusive, cooperation- and innovation-focused culture

The results of the implementation of the UL Strategy 2027 will be measured by twenty-one performance indicators, five of which have been designated as the UL Key Performance Indicators (KPIs). These are research funding from foreign sources per full-time equivalent of academic staff in EUR, co-publications with foreign partners in *SCOPUS* and *Web of Science databases* (%), the percentage of graduates who are satisfied (rated at least "good") with the quality of their studies (%); the percentage of foreign students at LU (%), as well as the commercialization revenue (EUR/thousands).

[1] <https://www.lu.lv/en/studies/faculties-1/>

[2] <https://www.lu.lv/par-mums/struktura/filiales/> (available only in Latvian)

[3] <https://www.lu.lv/en/about-us/structure/college/>

[4] <https://www.lu.lv/en/about-us/structure/institutes/>

[5] <https://www.lu.lv/en/about-us/structure/ul-centres/>

[6] <https://www.lu.lv/par-mums/struktura/lu-regionalais-centrs/> (available only in Latvian)

[7] <https://www.lu.lv/en/cooperation/international-cooperation/>

[8] <https://www.kultura.lu.lv/> (available only in Latvian)

[9] <https://www.lu.lv/en/sports/about-us/about-ul-sport-center/>

[10] <https://www.lu.lv/en/about-us/structure/ul-museum/>

[11] <https://www.botanika.lu.lv/en/>

[12] <https://www.rododendri.lu.lv/en/>

[13] <https://www.apgads.lu.lv/en/>

[14] <https://www.baldonesobservatorija.lu.lv/> (available only in Latvian)

[15] <https://www.fonds.lv/en/>

[16] <https://www.ak.lu.lv/> (available only in Latvian)

[17]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_LV/1._VISPAREJIE_DOKUMENTI/LU_strategija_buklets_2021.pdf (available in Latvian and English)

1.2. Description of the management structure of the higher education institution/ college, the main institutions involved in the decision-making process, their composition

(percentage depending on the position, for instance, the academic staff, administrative staff members, students), and the powers of these institutions.

Up until the introduction of the [Higher Education Reform](#) (hereinafter - HER), the Constituent Assembly, the Senate, the Rector and the Academic Arbitration Court ([Constitution of the University of Latvia](#), Section 5.1) were the governing, management and **main decision-making bodies** of the University. In February 2022, a new governing body of the university will start operating - the Council of the University elected by the Cabinet of Ministers of the Republic of Latvia ([Law on Higher Education Institutions](#), Section 12(1)) (see **Table 1.2.1**).

Table 1.2.1

Terms of election, representation and terms of office of the main decision-making bodies of the University

	Changes	Term of election	Total number of participants	Academic staff representation	General staff representation	Student representation
Constitutional Assembly	Prior to AIR	3 years	300	66.7%	8.3%	25%
	After AIR	3 years	200	>60%	-	>20%
University Council	From 01.02.2022.	4 years	11		5	
Senate	-	3 years	50	76%	4%	20%
Rector	-	4 years	1		1	
Academic Arbitration	-	3 years	5	80%	0	20%

POWERS

Constitutional Assembly

Prior to HER: The Constitutional Assembly is the supreme representative body of the UL. ([Constitution of the University of Latvia](#), Section 5.3)

After HER: The Constitutional Assembly of the University is the representative body of the academic staff, general staff and students of the University. ([Law on Higher Education Institutions](#), Section 13)

Competence prior to HER: adopt and amend the Constitution of the University of Latvia; adopt the Statutes of the Constitutional Assembly; approve the Statutes of the Senate; elect and dismiss members of the Senate; elect and dismiss the Rector; hear the Rector's report on the activities of the University of Latvia; approve the Statutes of the Court of Academic Arbitration; elect and dismiss members of the Audit Commission; elect and dismiss members of the Court of Academic Arbitration. The Constitutional Assembly has the right to adopt for consideration and decision other conceptual issues concerning the activities and development of the University. ([Constitution of the University of Latvia](#), Section 5.3)

Competence after HER: **Approves** the University's constitution and amendments thereto, elects the Rector; **may propose** the Rector's dismissal; hears the Rector's annual report on the university's activities; elects members of the Senate from among the academic and general staff; may recall members of the Senate; elects the Academic Arbitration Court. ([Law on Higher Education Institutions](#), Section 14)

University Council (after HER)

Competence after HER: The Council of a state-run University is a collegial decision-making body of a state-run University, which is responsible for the sustainable development, strategic and financial supervision of the University, as well as ensures the operation of the University in accordance with its development strategy. ([Law on Higher Education Institutions](#), Section 14.¹)

University Council approves the University's constitution and amendments thereto and submit them for approval at the Constitutional Assembly; approves the university's development strategy and monitors the progress of its implementation; approves the University's budget and financial plan, as well as annual reports; monitors the functioning of the cooperation and financing agreement between the University and the State; monitors the functioning of internal control and risk management systems, reviews their adequacy and effectiveness; approves policies defining the University's management processes and general principles of their functioning; decides on: the structure of the University, the establishment, reorganisation and liquidation of the University's structural units, the establishment and liquidation of the University's branches and institutions, the University's participation in commercial companies, foundations and associations, the remuneration policy of the University's staff, the attraction of investments, the University's credit commitments, the University's real estate development plan, the appointment of the University's auditor; approves the regulations for the election of Rector; nominates one or more candidates for election to the position of Rector at the Constitutional Assembly, concludes an employment contract with the Rector and evaluates the activities of the Rector; may initiate the removal of the Rector from office, as well as decide on the removal of the Rector from office, observing the provisions of the Law on Higher Education Institutions. The Council seeks the opinion of the Students' Council before taking decisions concerning the number of tuition fees, the closure of study fields and programmes, and scholarships established by the University. (*Law on Higher Education Institutions*, Section 14.²)

Senate

Prior to HER: The Senate is collegial management and decision-making body established by the staff of the University, which approves the rules and regulations governing the activities of the University.

After HER: The Senate is a collegial supreme academic decision-making body of the University, responsible for the excellence, development and compliance with internationally recognised quality standards of the University's education, research and creative activities. The Senate regulates the academic, creative and scientific activities of the University. (*Law on Higher Education Institutions*, Section 15(1))

Competence prior to HER: Approves the rules and regulations governing the activities of the UL. The UL Senate elects Honorary Doctors and Honorary Members of the UL, the Court of Honour of the UL, the Advisory Council of the UL; elects and dismisses the Chair of the Senate (professor) and his/her deputy(s), organises the election of the Rector, approves the UL budget, Vice-Rectors and the UL Directors, the UL Chancellor, Deans, Directors of the UL Scientific Institutes and other heads of the UL core structural units, the Regulations of the Advisory Council, Regulations of the Administration of the UL, upon the proposal of the Rector; approves study programmes and their directors, the Secretary of the Senate (on the proposal of the Chair of the Senate), approves the regulations or statutes of the associations, foundations, public agencies, commercial companies, institutions and other institutions established for the achievement of the objectives specified in the Satversme (Constitution), the regulations on academic and administrative positions, the Constitution of the Student Council of the University of Latvia, the conceptual documents regulating the study process, the Regulations of the Court of Honour of the University of Latvia, the Rules of Procedure of the University of Latvia, the decisions of the Academic Arbitration Court of the University of Latvia; decides on the establishment, reorganization or liquidation of faculties, scientific institutes and other core structural units, as well as associations, foundations, public agencies, commercial companies, institutions and other institutions, on the use of the name and attributes of the University of Latvia, on essential issues of economic activity, incl. acquisition, pledge or alienation of real estate, for convening a Constitutional Assembly. The Senate may also accept for consideration other significant issues of activities of the University of Latvia, as well as provide an explanation regarding the application of the norms of the Constitution of the University of Latvia. (*Constitution of the University of Latvia*, Section 5.6)

Competence after HER: **Develops the draft Constitution of the University and its amendments. The Senate is responsible for the compliance of the Constitution with the development needs of the University and regulatory enactments; approves the development plan of the study process of the University, submits proposals to the council regarding the fields of study to be developed;** on the proposal of the Rector decides on: the opening, development and closure of study fields, the opening, content and development of study programmes, as well as the closure, requirements, procedures and examinations for the acquisition of degrees and qualifications; **approves the development plan of the scientific and artistic creative activity of the University**, encourages the implementation of specific directions of scientific activity; determines the requirements for election to academic positions and the evaluation criteria for the academic staff; determines the requirements and procedures related to the observance of academic integrity; **nominates the members of the University Council in accordance with the procedures specified in the Constitution of the University; may initiate the removal of the Rector from office, as well as decide on the removal of the Rector from office; provide an opinion and make proposals regarding the development strategy, budget, establishment, reorganization and liquidation of the structural units of the University and the real estate development plan prior to their consideration by the Council.** The Senate has the power to set up committees to coordinate and resolve individual issues. (*Law on Higher Education Institutions*, Section 15.¹)

Rector

Prior to HER: The rector is the highest official of the UL who implements the general administration of the UL and represents the UL without special authorisation.

After HER: The Rector is the highest official of a higher education institution who implements the general administration of the higher education institution and represents the higher education institution without special authorisation. (*Law on Higher Education Institutions*, Section 17(1))

Competence prior to HER:

The Rector is in charge of the activities of the University and is responsible for the compliance of these activities with the Law on Higher Education Institutions and other regulatory enactments, as well as with the Constitution of the University. The Rector, in accordance with his competence, issues orders and determines the competences of the Vice-Rectors, Chancellor and Directors. (*Constitution of the University of Latvia*, Section 5.10)

Competence after HER: The Rector ensures the management of the University and is responsible for the achievement of the goals set out in the University's development strategy, as well as for the efficient and lawful use of the University's financial resources in accordance with the law, other normative acts, as well as the University's constitution, decisions of the Council and the Senate. The Rector exercises the representative functions of the University, performs other activities to ensure the success of the University and represents the University in cooperation with other institutions and individuals. The Rector issues orders within the scope of his/her competence. **The Rector ensures the elaboration of the study and scientific development plan of the University and submit it to the Senate for approval**, ensures the elaboration of the development strategy of the University and **submits it to the Council for approval after receiving the approval of the Senate of the University**. The Rector, in cooperation with the University departments, ensures the implementation of the University development strategy.

The Rector appoints and dismisses Vice-Rectors and Deans, as well as determines their areas of competence, authority and responsibility, in accordance with the objectives set out in the University's development strategy. The Rector is responsible for the successful implementation of the University's personnel policy. The Rector ensures the preparation of the budget of the University and, **after obtaining the approval of the University Senate, submits it to the Council for approval**. The Rector is responsible for the implementation of the budget and **submits the annual accounts of the University to the Council for approval**. The Rector, in accordance with the mandate of the Council, manages the funds of the University, including the necessary actions related to the University's credit obligations and the attraction of investments. **The Rector takes decisions on the acquisition, encumbrance or disposal of immovable property in accordance with the real estate development plan approved by the University Council.** The Rector, within the scope of his/her competence, is responsible for the compliance of the activities of the University with this Law and other regulatory enactments. (*Law on Higher Education Institutions*, Section 17.¹)

Academic Arbitration Court

Competence prior to HER: Examines applications from students and academic staff concerning restrictions or violations of academic freedoms and rights set forth in the Constitution of the University, as well as disputes between the UL officials, as well as administrative bodies of structural units in subordinate relations. (*Constitution of the University of Latvia*, Section 5.15)

Competence after HER: Examines applications of students and academic staff concerning limitations or violations of academic freedoms and rights stipulated in the Constitution of the University, disputes between officials of the University, as well as governing bodies of departments in subordination relations, **in the cases specified in the Law on Higher Education Institutions, examines applications regarding contestation of an administrative act or actual action and makes relevant decisions regarding the same, as well as performs other tasks stipulated in the Constitution of the University.** (*Law on Higher Education Institutions*, Section 19)

For information on the governance structure of the UL ([UL Structure LV](#), [ENG](#)), its composition and competencies, see Section 1.2 of the *UL Quality Management System Manual*.

1.3. Description of the mechanism for the implementation of the quality policy and the procedures for the assurance of the quality of higher education. Description of the stakeholders involved in the development and improvement of the quality assurance system and their role in these processes.

The quality policy of the University is a continuous evolution toward excellence to ensure balanced and sustainable outcomes that meet the needs of all stakeholders. The Quality Policy[1] and the resulting Quality Action Policy[2] are a set of quality-related principles, objectives and the actions necessary to achieve them, implemented by the University in accordance with

internationally recognised standards in higher education and organisational governance (see **Figure 1.3.1**). The aim of the Quality Policy is to contribute to the achievement of the mission, strategic objectives[3] and sustainable development of the University by setting out guidelines and principles that can be used to ensure a consistently high quality of performance. The Quality Policy and the Quality Action Policy, together with other policies and processes, ensure the coherent planning and implementation of the activities of the University. The Quality Policy and Quality Action Policy are an integral part of the Quality Management System, it applies to all areas of the UL activity and envisages their implementation at all levels of the UL management. Quality is defined as a measure of excellence that characterises the ability of the UL to meet and exceed the foreseeable and future needs of its stakeholders, and to ensure that its processes comply with industry regulatory and standard requirements. The UL provides a set of activities and methods by which quality is planned, implemented, systematically assessed and continuously enhanced, thereby contributing to the achievement of the UL's stated objectives and to meeting the needs of its stakeholders.

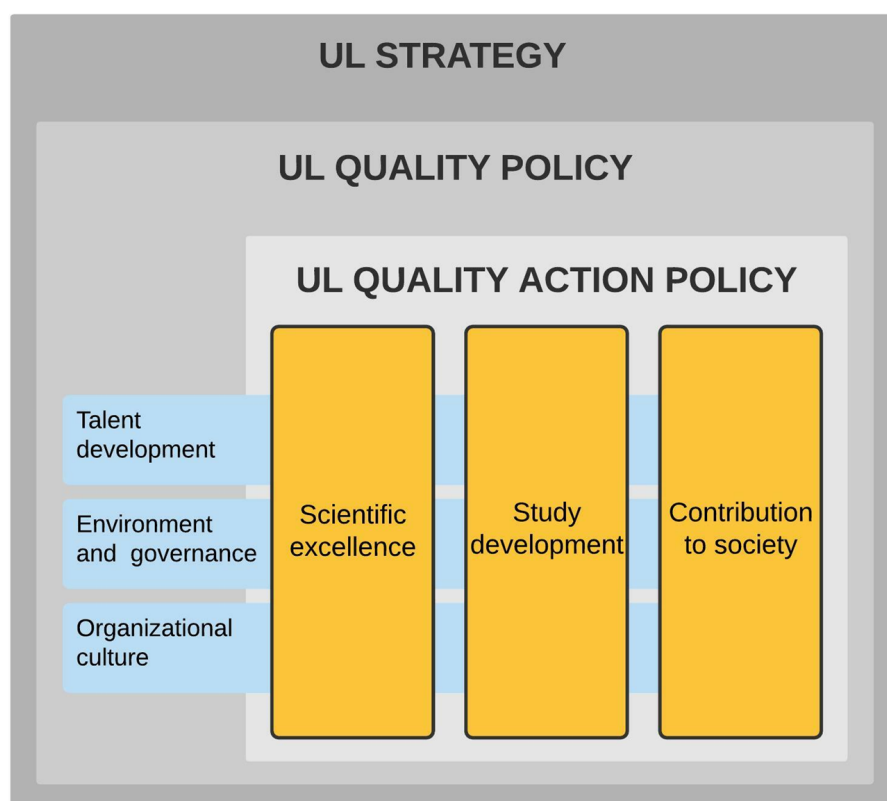


Figure 1.3.1 Hierarchy of Quality Policy and Action Policies at the University of Latvia

Quality management has been implemented at the University since 2010. **The quality management system** of the University is implemented in accordance with the principles of Total Quality Management (TQM), integrating the approach of excellence into the corporate culture of the University. For the implementation of Total Quality Management, the UL uses an internationally recognised and practically applicable quality management methodology – the EFQM (European Foundation of Quality Management) Excellence Model. The quality management system is enhanced in the core activities areas by developing **internal quality assurance systems** integrated into the quality management system and based on current industry standards and frameworks. The internationally recognised "Results - Approach - Deployment - Assessment and Refine" (RADAR) methodology is used to ensure the cyclicity and continuity of quality management at the UL, and the "Plan - Do - Check - Act" (PDCA) approach is used in quality assurance systems. **Figure 1.3.2** provides a diagram of a quality management system with an

integrated quality assurance system for studies. For a more detailed description of the Quality Management System of the University, see Section 2.1 of the *UL Quality Management System Manual*.

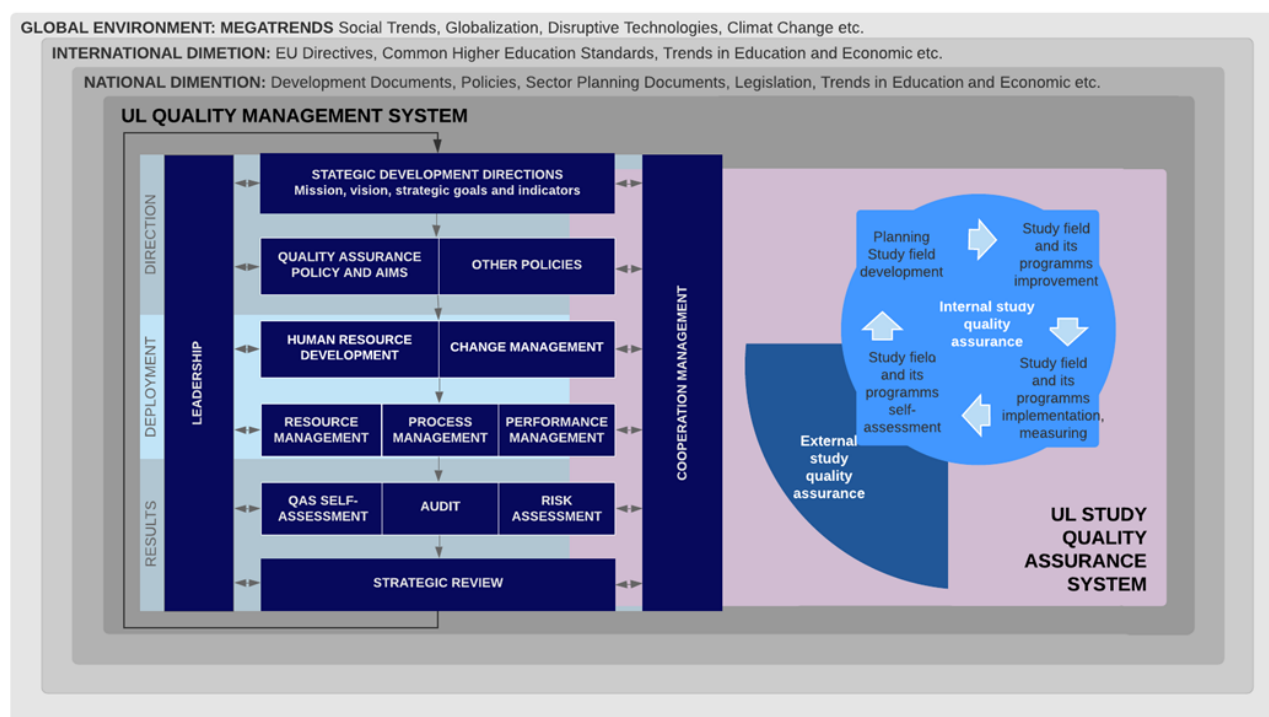


Figure 1.3.2 The UL Quality Management System and Principles of the Quality Assurance System

To ensure the quality of higher education, the **Quality Assurance System for Studies at the University of Latvia** is implemented, which includes procedures for planning, ensuring, measuring and evaluating the quality of higher education in accordance with the requirements of Latvian legislation, the *European Standards and guidelines for quality assurance in the European Higher Education Area* (ESG), as well as for internal needs. The University of Latvia provides planning for the development of the study field and improvement of the existing study programmes for a period of 6 years. The procedure for the implementation of study programmes is laid down in the internal legal acts of the University, including the development of new study programmes, admission conditions, matriculation and registration for studies, development, implementation and review of study courses and modules, planning, implementation and assessment of study placements, organization of examinations and final examinations, rotation, the principles of academic integrity and their observance, matriculation, issuance of diplomas and certificates, recognition of previous education or professional experience, the procedure for conducting surveys, the submission of student proposals and complaints, contestation of administrative decisions, doctoral dissertation promotion process, etc. The University ensures that the measurements and data necessary for quality assessment and improvement are taken and collected and used for both immediate corrective action and regular evaluation and planning of further improvement. The 6-year study field development plan is monitored annually, the measurements are analysed, and the SWOT is discussed, if necessary, by making changes to the operational study programme implementation plans, to the study field plan or, when assessing the overall development of the study fields within the framework of the UL Strategic Control, by making changes to the UL Strategic Action Plan. For more information on quality assurance of studies, see Section 3.1 of the *UL Quality Management System Manual*. For a breakdown of responsibilities for quality management and assurance, see Section 2.5 of the *UL Quality Management System Manual*.

The quality assurance system of the University is based on the participation of key stakeholders in the quality assessment and improvement of the University's activities. Stakeholders of the UL are natural or legal persons, local and foreign, who use the services of the UL or whose socio-economic situation is affected by the activities of the UL. The main stakeholders are defined in point 12 of the *UL Quality Policy*. For a description and examples of the roles of key stakeholders in quality management, see Section 3.2, sub-section 1.2, Table 3.6 of the *UL Quality Management System Manual*.

[1]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/2/Kvalitates_politika_majas_lapai_ENG.pdf (available in English)

[2]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/2/Kvalitates_ricibpolitika_majas_lapai_ENG_new.pdf (available in English)

[3]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_LV/1._VISPAREJIE_DOKUMENTI/LU_strategija_buklets_2021.pdf (available in Latvian and English)

1.4. Fill in the table on the compliance of the internal quality assurance system of the higher education institution/ college with the provisions of Section 5, Paragraph 2(1) of the Law on Higher Education Institutions by providing a justification for the given statement. In addition, it is also possible to refer to the respective chapter of the Self-Assessment Report, where the provided information serves as justification.

1.	The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.	<p>The University has formulated a Quality Policy in line with its strategy, which is detailed in the Quality Action Policy.</p> <p>For quality assurance of higher education, the Studies Quality Assurance System (in compliance with ESG) has been implemented and integrated into the Quality Management System (in compliance with EFQM). For more information, see Part I, Section 1.3 of this document and Section 3.1 of the UL Quality Management System Manual.</p> <p>The establishment, maintenance and improvement of the quality management system at the University of Latvia are performed by the management and heads of core structural units (deans of faculties) and their delegated employees. The Academic Department is responsible for the establishment, implementation and improvement of the study quality assurance system, in close cooperation with the heads of study fields and directors of study programmes. Two collegiate committees have been established for quality assessment with the participation of the UL stakeholders: the Quality Advisory Committee and the Study Programme Quality Assessment Committee. For more information, see Section 2.5 of the UL Quality Management System Manual.</p>
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2.	A mechanism for the creation and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof, has been developed.	<p>The establishment and internal approval of study programmes are stipulated in the Regulations of the University of Latvia on Study Programmes and Continuing Education Programmes (UL Senate Decision No 102 of 24.04.2017). For more information see Section 2.4 of this report, as well as sub-section II of Section 3.1 the UL Quality Management System Manual.</p> <p>Periodic quality review of study programmes is stipulated in the "Procedure for Preparation of Annual Reports on the UL Study Fields" (UL Order No.1/290 of 14.07.2020). For more information see Section 2.4 of this report, Section 3.1, sub-sections IX and X of the UL Quality Management System Manual.</p>
3.	The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and made public.	<p>Information related to learning outcomes, including assessment, is contained in course descriptions, the preparation and updating of which, as well as the rules for their publication, are stipulated in the UL course development and updating procedure. The conduct and assessment of entrance and final examinations, as well as the assessment and recognition of learning outcomes achieved in previous education or professional experience, are regulated by the relevant regulations of the University.</p> <p>The desired ethical and fair conduct and justice are ensured at the University of Latvia by internally regulating issues related to academic freedom and academic integrity, electing and ensuring the Academic Arbitration Court, and ensuring the operation of the Academic Ethics Committee, as well as regulating the principles of protection of intellectual property rights. For more information see Quality Management System Manual, Section 3.2, sub-section 2.1.</p>

4.	Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.	<p>The principles of personnel management at the University of Latvia in the areas of personnel selection, labour relations, motivation system and personnel development are defined in the UL Personnel Management Policy. Accordingly, the development of academic staff is planned for the medium term, and training plans are drawn up for the year. The qualification requirements of the staff are defined in the internal regulatory enactments of the University of Latvia in accordance with the external regulatory enactments, and the requirements for ensuring the quality of work - within the framework of regular staff appraisal, including the analysis of students' satisfaction with the delivered study courses, as well as the results of scientific activity. For more information on attracting, engaging, developing and retaining staff: see the UL Quality Management System Manual, Section 3.2, sub-section 3.2.</p>
5.	The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available, and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.	<p>Information on students' achievements is accumulated in the information system LUIS of the University of Latvia and analysed in the framework of study course implementation (including student-centred approach) and study programme improvement. Satisfaction of students and graduates with the study programme is monitored through communication activities of staff involved in the implementation of study programmes, representation of students and graduates in decision-making and advisory bodies, as well as by conducting surveys in accordance with the Procedure for the Organisation of Regular Surveys to Evaluate the Study Process at the University of Latvia (UL Order No.1/334 of 23.08.2016). For more information on the involvement of stakeholders in quality assurance see Section 3.2, sub-section 1.2 of the UL Quality Management System Manual. Issues related to the efficiency of academic staff, available study resources and their costs are monitored in the core structural units (faculties, institutes, etc.) as well as centrally. For more information on study information management, see Section 3.1, sub-section VII of the UL Quality Management System Manual.</p> <p>The UL performance management system introduced and implemented at the University of Latvia monitors key performance indicators of the University of Latvia on the basis of which further strategic decisions are made. For more information, see Section 3.2, sub-section 7 of the UL Quality Management System Manual.</p>

6.	The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing their quality assurance systems.	<p>The development of each study field is planned in accordance with the 6-year development strategy of the University. The monitoring of the plan and the evaluation of its effectiveness are carried out within the framework of the annual self-assessment of the study field. These processes take place at the level of the Study Field Council, the core structural unit(s) implementing the study field (a study field may be implemented by several faculties), as well as at the level of the administration and the Senate.</p> <p>The UL provides the external evaluation required by the legislation, obtaining additional external quality certificates for individual programmes. For more information, see Part II, Section 2.4 of this report.</p> <p>In order to promote the quality and competitiveness of the study programmes of the University of Latvia, the University of Latvia creates and finances internal grant projects (University of Latvia Study Quality Improvement Fund), as well as attracts external funds.</p>
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2.1. Management of the Study Field

2.1.1. Aims of the study field and their compliance with the scope of activities of the higher education institution/ college, the strategic development fields, as well as the development needs of the society and the national economy. The assessment of the interrelation of the study field and the study programmes included in it.

The aim of the health care study field "Health Care" is to ensure the acquisition of quality education based on high-quality study results, providing graduates with the necessary knowledge, skills and competence, introduction of innovative study process methods and training of highly qualified professionals, graduating from study programmes of that level, preparation of competent professionals, highly demanded in the labour market both in Latvia and abroad, providing the opportunity to obtain a successive education in accordance with the European Qualifications Framework, starting with bachelor's, continuing with master and finishing with doctoral studies. Within the study field, 14 study programmes of different types and levels are implemented – professional, bachelor's, master's, doctoral study programmes, as well as medical residency programmes, preparing high-level professionals in the field of health care for the Latvian economy. To ensure the involvement of research and academic institutions in the research of problems relevant to Latvian health care and the use of national-level health data stored in various databases, a common health care quality and efficiency analysis database was created in 2017^[1]. This database was created in accordance with the order issued by the Ministry of Health of the Republic of Latvia (hereinafter – MoH), the Centre for Disease Prevention and Control (hereinafter – CDPC), the National Health Service (NHS), Emergency Medical Service (hereinafter – EMS), Health

Inspectorate in cooperation with the Faculty of Medicine of the University of Latvia (hereinafter – MF) took part in its development[2]. The establishment of the database is considered to be an important condition for the full implementation of the study programme Epidemiology and Medical Statistics. For an in-depth study of the database and its use in research, a study course “Health care data and their practical application in research projects” is designed. Graduates of Epidemiology and Medical Statistics will be able to summarize “big data”, generated as a result of international research.

The Research Programme of the University of Latvia was also taken into account in the development of the programmes[3]. It indicates the need to create a model of a state research university, achieving the competitiveness of its research in the European Research Area, increasing the recognition of the UL science branch in the Baltics and the world, thus promoting the development of Latvian society and economy. To reach the objective, the research programme of the University of Latvia defines priority research directions, from which diverse screening and intervention research, clinical medicine research, research on the microbiome and infectious diseases, and biomedicine and pharmacy research are carried out in the branch of medical sciences at the University of Latvia. The objectives of the group of medicine and life science branch for the next five years are divided according to the four development directions set by the University of Latvia:

- scientific capacity and development of competitiveness;
- the relevance of research to the needs of the economy and the transfer of knowledge;
- human resource development;
- promotion of international scientific cooperation.

One should be aware that the implementation of the research programme in the field of medicine and life sciences will lead not only to results directly measurable by the above indicators but also to socio-economic benefits (eg indirect economic benefits in terms of improved public health)[4]. To reach the objectives, the institutional development plan and a human resources development plan have been developed. Tasks, deadlines and responsibilities have been identified for each objective.

The above-mentioned objective of the study field directly reflects the strategy and goals of the University of Latvia – the University of Latvia combines diverse studies and scientific activities to provide world-renowned higher education, create new knowledge and apply it in solving important problems for the Latvian economy and society, and support the successful development of the society by transferring the concentrated competence of the University of Latvia.

The role of the study field is to promote Latvia's economic breakthrough with a qualified and educated workforce in the field of health care, providing highly qualified, professional teaching staff who are active not only in their professional work but also contribute to scientific research, promoting the development of science.

UL is a modern centre of academic and professional studies, which in connection with research in natural, social, technical sciences, humanities and medicine provides various types and levels of higher education opportunities both for the residents of Latvia and other countries. Within the study field of Health Care, several study programmes are implemented in English, attracting foreign students from Europe and other countries of the world. Students are provided with a modern study environment in the newly established Academic Centre – Centre of the Natural Sciences and the House of Science, thus ensuring the availability of modern technology and new well-equipped laboratories in the study process of the study field programmes.

UL Strategy 2027 defines the UL development directions, objectives and actions, the UL Quality Action Policy defines study quality tasks and objectives, in the strategies of basic structural units

currently in the making their general development is planned, in relation to the directions to be implemented, but the development of the study field is provided in the Study Field Development Plan, which all the faculties collaborate on.

The study field "Health Care" includes 14 study programmes of different levels, i.e. four Bachelor's, three Second-level higher professional, six Master's and one Doctoral study programme. The development of all study programmes is based on the goal of preparing competent health care specialists for the needs of the Latvian economy, as well as attracting students from the European Union and other countries, coordinating study results with the relevant requirements of the European Union, labour market, personal and public interests. The goal of the qualitative studies in the study field "Health Care" is to implement high-quality, science-based and internationally recognized studies that provide competent, intelligent and internationally competitive practitioners, teachers and scientists for the development of the national economy and society. According to the supply and demand predictions for the labour force with higher education, health care and social welfare is the thematic education group where the demand will exceed the supply in 2022 (by 7%). According to predictions, by 2025, most of the 9.5 million new jobs in the EU labour market will be created in the service sector including the health care professions[5]. The content of study programmes is developed based on the demand of the labour market, surveys of employers, following the standards and guidelines for quality assurance in the European Higher Education Area, recommendations of medical professional organizations, it is regularly improved based on feedback and recommendations from students, lecturers, employers and graduates. The study programmes included in the study field provide students with a meaningful and successive opportunity to continue studies within one direction, corresponding to Level 6 to 8 of the European Qualifications Framework, thus obtaining a Bachelor's, Master's and Doctoral degree, for example, in study programmes *Pharmacy* (Bachelor's), *Pharmacy* (Master's) and *Medicine and Pharmacy* (Doctoral). In ensuring the qualitative studies in the study field "Health Care", the University of Latvia observes the requirements of the regulatory enactments of the Republic of Latvia regulating higher education, as well as the standards and guidelines for quality assurance in the European Higher Education Area. The academic and professional study programmes included in the study field "Health Care" at the University of Latvia and its scientific potential contribution to the sustainable development of the Latvian economy and society. The study programmes implemented in the study field "Health Care" are listed in **Table 2.1.1.1**.

Table 2.1.1.1

Study programmes included in the study field "Health Care"

No	LRI code	Study programme's name	Level
1.	49721	Medicine	The second level higher professional study programme
2.	42722	Radiography	The Professional Bachelor's study program
3.	42723	Nursing	The Professional Bachelor's study program
4.	49724	Dentistry	The second level higher professional study programme
5.	43722	Optometry	The academic Bachelor's study programme
6.	43725	Pharmacy	The academic Bachelor's study programme
7.	45722	Nutrition Science	Academic Master's study programme
8.	45723	Nursing	Academic Master's study programme

9.	45725	Pharmacy	Academic Master's study programme
10.	47722	Optometry	The professional Master's study programme
11.	45813	Sports Science	Academic Master's study programme
12.	45726	Epidemiology and Medical Statistics	Academic Master's study programme
13.	50721	Medicine	The second level professional higher education (residency) study programme
14.	51721	Medicine and Pharmacy	The Doctoral study programme

The qualitative studies in the study field "Health Care" programmes are mainly influenced by:

1. local and international requirements, guidelines, as well as development trends regulating the field of higher education;
2. the current and future needs of students, as well as the wishes and satisfaction of existing students;
3. economic trends and requirements.

The quality of studies is ensured by:

1. a diverse offer of study programmes in line with the development trends of the industry and focused on students,
2. higher education based on practice and research, focusing on students' competence as a result of the teaching and learning process,
3. joint studies in several fields, principles of project work, as well as teaching methods based on innovations and technologies,
4. competent academic staff,
5. modern study environment and efficient organization of the study process.

Within the study field, an interdisciplinary approach to cooperation with other faculties of the University of Latvia is provided, for example, the academic Bachelor's study programme Optometry (43722) and the professional Master's study programme Optometry (47722) are implemented at the Faculty of Physics, Mathematics and Optometry of the University of Latvia, the academic Master's study programme Science of Sports (45813) is implemented at the Faculty of Biology of the University of Latvia. Teachers of other faculties are also involved in the programmes of the study field "Health Care", thus ensuring interdisciplinarity in the implementation of study courses and programmes.

Within the framework of the study direction, the inter-university joint academic Master's study programme Nutrition (45722) is also implemented in cooperation with the University of Latvia, the Latvia University of Life Sciences and Technologies (hereinafter – LLU) and Riga Stradiņš University (hereinafter – RSU).

The second level higher professional study programme Medicine (hereinafter – SP Medicine) fully complies with the requirements of the European Community Directive 2005/36/EC: duration 6 years (Directive requirement – not less than 5 years), a number of hours according to the Directive requirement – not less than 5500 hours). As the profession belongs to the regulated professions, the content of the programme is similar in all countries of the European Community. The principle of the content organization may differ depending on whether the programme is **subject-based**, **system-based**, or **problem-based**.

The Professional Bachelor's study programme *Radiography* (hereinafter – PBSP Radiography) is unique and the only one in Latvia where students acquire the basic knowledge required for professional activities in the largest component of radiography – X-Ray imaging, as well as knowledge and skills in computed tomography, magnetic resonance, ultrasonography, nuclear medicine and radiation therapy, thus meeting the demand for wide range professionals in the current labour market. Specialists trained in this way are able to ensure the so-called rotation principle in the radiology departments of medical institutions, where one specialist is able to work with several devices and different methods after a very short introductory course, thus ensuring the continuous professional development of staff.

The aim of the professional Bachelor's study programme *Nursing* (hereinafter – PBSP Nursing) is to educate specialists in the nursing profession who provide patient care, participate in medical treatment, manage patient care work, perform patient education in health issues, providing a scientific basis for professional activity and promoting the personal development of students.

The aim of the second level higher professional study programme *Dentistry* (hereinafter – SP Dentistry) is to educate qualified dentists whose theoretical and manual skills are appropriate to start practising in general dentistry independently, using a knowledge-based approach to promoting, restoring and maintaining oral health, being able to apply knowledge equally corresponding to the trends and needs of Latvian and world dental care.

In Latvia, the UL Bachelor's study programme *Optometry* (hereinafter – BSP Optometry) is unique, because no other higher education institution implements a similar study programme. The advantage of the UL is that the UL BSP Optometry is the only Bachelor's study programme in optometry in Europe that is also offered in English, except for Great Britain. After graduating from BSP Optometry, a student becomes a dispensing optician, an optician or an optometrist's assistant. While in Switzerland and the United Kingdom a separate study programme is required to become an assistant to an optometrist or an optician. On the other hand, after completing the studies of an optician in Great Britain and still wanting to become an optometrist, a student must start three years of studies in optometry.

The objective of the Bachelor's study programme in *Pharmacy* (hereinafter – SP Pharmacy) is to provide students with the necessary set of knowledge and practical skills to continue their education in the Master's degree programme in Pharmacy and to achieve the level of pharmacist education specified in Directive 2005/36/EC. The content of the programme envisages the acquisition of skills necessary for the labour market in pharmacy and information technologies, knowledge of medicines and substances used in the manufacture of medicines, as well as the latest scientific achievements in the basic disciplines of pharmacy. The content of the studies provides for the acquisition of good pharmaceutical practice competencies and emphasizes the importance of a scientifically based approach in the health care system. The UL is the only one in Latvia to implement the academic Bachelor's study programme Pharmacy, based on the Bologna Process of 3+2 in higher education. The advantage of the UL Pharmacy studies is the division of programmes into Bachelor's and Master's levels, according to the Bologna Declaration. This division allows students to plan their careers and involvement in the changing labour market more flexibly.

The joint Master's study programme *Nutrition Sciences* (hereinafter – SP Nutrition Sciences) is a unique and the only academic Master's study programme in nutrition sciences in Latvia, which provides continuing education opportunities for specialists with higher professional education in Medicine or Dentistry, Bachelor's or Master's degree in Biology, Chemistry, Environmental Sciences, Nursing, Public Health, Health Care, Physiotherapy, etc., Pharmacy, Biochemistry, Food Technology, Sports Pedagogy and other related industries. SP Nutrition sciences prepares competitive specialists for the development of public health who know the theory of nutrition and are able to

use it in scientific research and practical solution of nutrition issues in accordance with EU and WHO and Latvian strategic trends, and who are able to independently formulate and critically analyse scientific and professional problems of nutrition.

The aim of the Master's study programme in *Nursing* (hereinafter – SP Nursing) is to provide students with a set of theoretical and practical knowledge in the field of health sciences in nursing and related sciences, developing students' research skills and promoting professional growth and intellectual potential.

The aim of the Master's study programme *Pharmacy* (hereinafter – SP Pharmacy) is to provide students with a set of theoretical and practical knowledge in the sub-branches of pharmaceutical science and related sciences for independent research in the development and defence of a master's thesis, as well as to prepare students for work in pharmaceutical companies.

The aim of the Professional master's study programme *Clinical Optometry* (former title Optometry) (hereinafter – SP Clinical Optometry) is to provide Professional Master's studies in optometry corresponding to the economic development and social needs of the country, promoting the competitiveness of highly qualified optometrists in the changing socio-economic conditions of Latvia and Europe, developing research skills and competences. SP Clinical Optometry is the only study programme of its kind in Latvia, awarding a Professional Master's Degree in clinical optometry and an optometrist qualification upon graduation. Latvia is also the only country in the Baltics that offers Master's level studies in optometry. In Estonia, optometrists are trained at the college level, obtaining only a diploma equivalent to a Bachelor's degree (duration of studies – 3.5 years). In Lithuania, a new Bachelor of Science programme in Optometry is yet to be launched at Vilnius University in the near future.

The aim of the Master's study programme in *Sports Science* (hereinafter – SP Sports Science) is to provide students with the opportunity to research, analyse and develop the beneficial aspects of sports and physical activities – physical, mental, emotional and social, improving health and quality of life for all individuals, from children and youth to seniors, from patients with serious pathologies to professional high-performance athletes, thus promoting the growth of the intellectual potential of academically educated professionals, and promoting the transfer of research-based interdisciplinary knowledge to topical sports science subjects.

The aim of the Master's study programme *Epidemiology and Medical Statistics* (hereinafter – SP Epidemiology and Medical Statistics) is to provide highly qualified specialists in epidemiology and medical statistics to the Latvian and Baltic health systems at the regional, national and international levels, who know and develop epidemiological and other research methodologies. and interpret the results on the basis of the latest international knowledge and in accordance with the standards required by international organizations.

The aim of the second level professional higher education study programme *Medicine* (hereinafter – SP Medicine (residency)) is to ensure the acquisition of theoretical knowledge and skills in accordance with DIRECTIVE 2005/36/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL and Cabinet Regulation No 268 “Regulations on the Competence of Medical Practitioners and Students Acquiring First or Second Level Professional Higher Medical Education Programmes in Medical Practice and the Amount of Theoretical and Practical Knowledge of these Persons” adopted on 24 March 2009 to prepare specialists for certification in accordance with Cabinet Regulation No. 943 “Procedure for Certification of Medical Practitioners” adopted on 18 December 2012. SP Medicine (residency) In Latvia, a similar study programme is implemented only at RSU entitled *Residency in Medicine*. Acquisition of the UL programme, including the theory section, is more focused on studies in a real work environment in a medical institution, communication with patients and medical staff. The added value of the UL programme is the opportunities for scientific cooperation in an

interdisciplinary context. During SP Medicine (residency) studies, active research activities are possible in cooperation with other faculties and scientific institutes. For example, a resident of the Dermatovenereology programme developed a diploma thesis on the topic "*Automated evaluation of facial acne elements using smartphone images*", working on a joint project with colleagues from the Biophotonics Laboratory of the Institute of Atomic Physics and Spectroscopy of the University of Latvia. And a resident of the Ophthalmology programme, who defended her diploma thesis on the topic "*The effect of mydriasis on the calculation of the intraocular lens*", also obtained a Master's degree in Optometry (Faculty of Physics, Mathematics and Optometry) before the residency programme. The active participation of students/residents in solving the issues of study organization is appreciated at the University of Latvia. PSKUS, RAKUS and BKUS have established resident/student councils, which decide on the use of funding for residents' self-education and research activities.

The aim of the Doctoral study programme *Medicine and Pharmacy* (hereinafter – SP Medicine and Pharmacy) is to educate highly qualified scientists and specialists in academic work in various fields of medicine and pharmacy. At the University of Latvia, it is possible to carry out intensive interdisciplinary cooperation not only with scientific research institutions but also with other faculties of the university - the Faculty of Chemistry, the Faculty of Physics, Mathematics and Optometry, the Faculty of Biology, the Faculty of Geography and Earth Sciences, etc. For example, the doctoral study programme specializes in the interdisciplinary development of new non-invasive diagnostic methods for diseases (in collaboration with the Faculty of Physics, Mathematics and Optometry) based on the analysis of breath samples. Together with the Faculty of Geography and Earth Sciences and the Faculty of Chemistry, an ERDF project is being implemented, in which doctoral students are involved (2017-2020 project – ERDF 1.1.1.1 Practical research. LU No. ESS2017/ 189 Processing of Vaccinium genus berries: "green" technologies and innovative, pharmacologically characterized products for biopharmacy). In cooperation with specialists from the Faculty of Chemistry, doctoral students develop various nanosystems and study the transport of sparingly water-soluble drugs, as well as conduct research on coniferous compounds (polyprenols) aimed to develop new dosage forms from natural resources available in Latvia.

The quality of SP Medicine and Pharmacy is confirmed by the competitiveness of young doctors of science in the labour market of the EU countries, the conclusion of studies with publications included in the world's leading databases of scientific literature, and the recognition of graduates of the study programmes. The uniqueness of the programmes is also determined by the need to train specialists of different levels who are competitive in both the Latvian and EU labour markets (research and economy), in directions that correspond to the RIS3 smart specialisation directions, are able to conduct both basic research and develop innovative solutions. Doctoral studies ensure excellence in research, working towards the doctoral thesis, acquisition of the latest research methods and their successful application, skills in the organization of research work. As a result of doctoral studies, the acquisition of a wide range of competencies is ensured, which guarantees employment after graduation, the ability to participate in research, society, economic management, and the rapidly changing labour market, taking into account its diversification. The SP Medicine and Pharmacy at the EU level is regulated by the EU Sustainable Development Strategy documents (Europe 2020)[6], European Sustainable Development Strategy[7], Strategy for Smart Specialisation[8].

[1] *Cooperation Agreement of 13 February 2017 on the Establishment of a Health Care Quality and Efficiency Monitoring System (SPKC Agreement Registration No. 1-10.1/2017-2, NHS Agreement Registration No. 10-2222-2017, EMS Agreement Registration No. 1-15/2017/1 and VI registration number 2017/3).*

[2] The UL and SPKC agreement of 2017, within the framework of the effective co-operation project programme on the implementation of the project "Development of a public health care quality and efficiency monitoring system" (Reg. No. ZD2017/20443, project scientific leader J. Bārzdīņš)

[3] <https://www.lu.lv> > LU.LV > LU_Petniecibas_programma_

[4] https://www.lu.lv/fileadmin/user_upload/lu_portal/zinas/2018/julij/LUstrat_Kopsavilk_250517.pdf

[5] "Informative Report on Medium and Long-Term Labour Market Forecasts", Ministry of Economics, June 2016 (pp. 36, 68, 42 and 78).

[6] http://ec.europa.eu/europe2020/index_en.htm

[7] <http://ec.europa.eu/environment/eussd/>

[8] Science, Technology and Innovation Development Guidelines 2014-2020 (approved by Cabinet Order No. 685 of 28 December 2013)

<https://likumi.lv/ta/id/263464-par-zinatnes-tehnologijas-attistibas-un-inovacijas-pamatnostadnem-2014-2020-gadam>

2.1.2. SWOT analysis of the study field with regard to the set aims by providing explanations on how the higher education institution/ college expects to eliminate/improve weaknesses, prevent threats, and avail themselves of the given opportunities, etc. The assessment of the plan for the development of the study field for the next six years and the procedure of the elaboration thereof. In case there is no development plan elaborated or the aims/ objectives are set for a shorter period of time, information on the elaboration of the plan for the development of the study field for the next assessment period shall be provided.

The study field "Health Care" is developing both in the improvement of study programmes and in terms of the number of study programmes. Both in connection with the development of new study programmes and the development of annual self-evaluation reports, the SWOT analysis of the study field is analysed and updated every year.

The strengths of the study field "Health Care" at the University of Latvia are:

1. High professional and research activity of the teaching staff – high professional and academic qualification.
2. The content of education in the study field "Health Care" programmes meets the needs of the labour market – the high demand of graduates in the labour market.
3. The study field is implemented in a classical type university – in the educational process synergy with other faculties in the acquisition of basic medical sciences and systemic competencies is possible.
4. The programmes included in the study field ensure continuity in accordance with the levels of the European Qualifications Framework.
5. The establishment of the House of Science ensures the concentration of the study and research of medicine, health care, natural sciences and life sciences of the University of Latvia in one place, thus promoting the synergy of the study field and research, as well as ensuring the efficient use of the resources of the University of Latvia.
6. In the study process, the wide possibilities of research activities are used, using the potential of the scientific structural units of the University of Latvia.

7. A large network of cooperation partners, which includes leading Latvian medical institutions, scientific institutions and non-governmental organizations, including professional associations, as well as foreign institutions.
8. The study field "Health Care" is multidisciplinary, which is ensured by the involvement of specialists from various directions of science in the teaching of courses.
9. Diversity of study programmes – an opportunity to synergistically use the existing infrastructure necessary for studies, thus optimizing the costs of study programmes per student.
10. Educational export experience.
11. Extensive representation of leaders and members of professional associations in the study process.
12. A modern e-learning environment is used in the study process.
13. Regular modernisation of the material and technical base.
14. Cooperation with foreign universities through participation in joint research projects, ERASMUS+, NordPlus, etc. student and staff mobility programmes.
15. Involvement of doctoral students in student training and supervision of final theses, which allows renewing the academic staff.
16. Participation of lecturers in various projects and working groups related to the transformation of health care in the Ministry of Health and its subordinate institutions.
17. Recognition of the School of Young Doctors and its use to also attract students to the medical colleges of the University of Latvia.

The above advantages clearly ensure the high quality of study field "Health Care" programmes and opportunities for further development.

The weaknesses of the study field "Health Care" at the University of Latvia are:

1. Low activity of the academic staff and students in popularizing the study programmes among the audience of secondary school students – future students.
2. The potential of students in scientific research is not fully exploited.
3. Difficulties in ensuring communication with foreign students due to insufficient state language skills of students in Latvian medical institutions.
4. Insufficient integration of foreign students in the domestic student environment and in the self-government institutions of students of the University of Latvia and in the interest education.
5. Lack of a clinical base owned by the University of Latvia and limited opportunities in the choice of the offered infrastructure.

Recognizing the advantages and seeing the weaknesses, there are opportunities for the development of the study field "Health Care".

Opportunities:

1. In health care, there is an increased demand for medical professionals with additional competencies (management, financial literacy, etc.), in the offer of which the UL as a classical university has advantages.
2. The current and future attraction of the EU structural funds and other means of financing to increase the quality of studies, develop the material and technical base in the University of Latvia and the medical colleges of the University of Latvia, in research and human resource development projects.
3. The further development of the Torņakalns complex (campus) will ensure the positive impact of the modern study environment (auditoriums) on the study process and closer inter-faculty cooperation.

4. To continue the involvement of specialists working in the Ministry of Health and its subordinate institutions in teaching separate courses in the study field of health care, increasing the development of students' competencies.
5. Extensive opportunities to link research topics with current and practical health care problems, increasing the motivation of specialists working in public administration to continue their doctoral studies at the University of Latvia.
6. With the growing prestige of medical education at the University of Latvia in the world, there is an opportunity to improve the study programmes in the study field "Health Care".
7. A further attraction of structural funds and other financing means for increasing the quality of studies.
8. A further attraction of high-quality guest lecturers in the study field programmes.
9. Intensification of further cooperation with foreign universities, including within the framework of exchange programmes for teachers and students (ERASMUS+, NordPlus, etc.).
10. Participation of lecturers in the development and implementation of various projects related to health care education, thus attracting additional funding.
11. Involvement of teachers and students in scientific research of local and international significance, using opportunities for cooperation with other universities and research institutes.
12. Extensive opportunities to develop interdisciplinary study programmes.
13. To promote the continuous professional development of lecturers in the study field "Health Care", following the innovations in health care, as well as the directives of the European Union.
14. By participating in the working groups of the Ministry of Health of the Republic of Latvia and other ministries, to promote mutual and timely exchange of information in solving health sector issues.
15. The intensified attraction of foreign students to the study field "Health Care".
16. Opportunity to develop an outpatient clinic in the Torņakalns complex of the University of Latvia in the long run, which will provide additional opportunities for training clinical skills.

Threats:

1. Insufficient funding from the state grant for higher education in the study field "Health Care", despite the high and even critical demand in the labour market.
2. The insufficient number of state-funded budget places in the study field "Health Care" programmes.
3. Insufficient number and amount of state-funded scholarships, which forces students to work parallel to their studies, endangering the termination of studies due to failure.
4. The demographic situation of the country with the dynamics of the decrease in the number of students.
5. Enhancing competition in the education sector between domestic and foreign universities.
6. Relatively insufficient knowledge of secondary education graduates in the natural science subjects.
7. Risk of influence of unfavourable political decisions for the University of Latvia.
8. The unstable and unpredictable economic situation in the country.

In order to reduce the influence of the weaknesses of the study field, the following measures have been introduced:

1. Popularization of study programs for the audience of secondary school students - prospective students

The School of Young Doctors (hereinafter - JMS) has been established at the Faculty of Medicine of

the University of Latvia, the school hosts 100 participants every year, who actively participate in JMS lectures, excursions and other events. During the classes, young people gain insight into human anatomy and histology and learn about surgical and oncological diseases, their origin and treatment. Lecturers of the Faculty of Medicine introduce young people to the causes of injuries and their treatment methods, outline the most interesting topics in obstetrics and gynaecology, as well as reveal the latest issues in paediatrics. The course also includes classes in pharmacology, seminars on functional examination tests and the use of molecular biology methods in medicine. In addition to specialized topics in the field, students also gain insight into the history of medicine, medical ethics, and law and nursing. Any 11th-grade student can apply for the JMS membership. Tuition at the school is free and lasts for one year, once a month, on the last Saturday of the month. Classes are scheduled from January to November. They are dynamic and intense while allowing the spring of 12th-grade to be devoted to high school graduation. JMS graduates obtain a certificate, which gives them the opportunity to receive 10 additional points for admission to the undergraduate study programs "Medicine" and "Pharmacy" implemented by the University of Latvia.

This year, the University of Latvia provides an opportunity for all those wishing to study to receive the study programme information booklets in their mailbox. This is a great opportunity not only to get to know the study direction and faculty but also to find out the opinion of the UL students and graduates about the studies and study environment. Each booklet has a separate section "Opportunities for students", where prospective students can find out about various events organized by the University of Latvia, faculties and other organizations, which will help to get to know the study environment, programs, extracurricular opportunities and other useful information. The booklet also includes a section on the UL and traditions, study environment, opportunities to study in the budget, in the regions, go abroad to study and career opportunities for the UL students and graduates.

The event "Student's shoes" is taking place at the University of Latvia, where students are given the opportunity to "try on student's shoes" - one day they can feel in the student's "skin". This opportunity is to attend lectures with a student of the faculty and find out how studies are taking place in a particular programme.

2. Involvement of students in scientific research

Involvement of students as volunteers in scientific research post-doctoral research projects, LZP fundamental and applied research projects, state research programmes, and International programs and projects.

3. Communication opportunities for foreign students in Latvian medical institutions

In addition, foreign students are given the opportunity to learn Latvian in Part C, and mixed groups are formed in practical classes, giving students of both streams to learn languages.

4. Students' mobility

At the end of each academic year, the Mobility Department of the University of Latvia organizes a survey among incoming exchange students and prepares a report on students' views on studies at the University of Latvia. Despite the fact that these indicators are improving every year, this year, too, integration students with local students rated the integration the lowest. Students have noted that they did not feel integrated and belong to the UL student community during their studies. It was noted that greater integration of foreign students in the learning process would benefit both local students and exchange students, as this would introduce them to the culture of different countries. Students cite the situation of COVID-19 and distance learning as one of the obstacles to closer integration of exchange students, which gives confidence that next year foreign students will

evaluate integration positively.

5. Clinical base options

In the programmes implemented at the Faculty of Medicine, the clinical base will be supplemented by the 10th building of PSKUS, where repairs and the House of Health planned by the University of Latvia are currently underway.

Aware of the threat to the development of the study field of Health Care, it is regularly thought and worked to supplement the study places financed from the state budget, for example, SP Nursing from 26 to 400 state budget places. Also, taking care that the relatively insufficient knowledge of secondary education graduates in the exact subjects does not affect their studies and we offer, the final exam preparation marathon "Tips for exams", which has already become a tradition, will take place. This year, not only 12th-grade but also 11th-grade students are invited to the event. This year, the event will take place again in person, but with the opportunity to follow it live on the LU website and social network Facebook. The teaching staff of the University of Latvia and the teaching staff of the State Education Content Center will provide useful advice, which must be repeated before taking the centralized examinations - how to prepare for the examinations psychologically and how to apply the knowledge accumulated over the years in the examination.

The directors of the study programs of the study field of Health Care regularly follow the current events of the field and consult with the representatives of the respective field and experts on the compliance of the content of the study program with the labour market and the possibilities of its improvement. In order to find out the opinion of the involved parties, several surveys are organized, the results of which are discussed with the deans of the faculties, the head of the study field, study program directors, the Health Care Council and staff in various meetings, as well as feedback is encouraged. For events: a survey of students, the aim of which is to find out the opinion on the quality of the study process, the work of lecturers and administration, satisfaction with the chosen study program; staff survey, the aim of which is to find out job satisfaction, available resources, as well as student assessment, graduate survey after graduation to find out the opinion on the content of the study program, implementation, impact on graduate growth and continuation of studies. For example, employer survey: oral and written (written survey is conducted at the end of the internship, filling in the internship company or organization's reference on the student's readiness for the labour market in a particular speciality; an oral survey conducted by the study program director). Some examples of obtaining and implementing feedback in practice can be mentioned in the field of study: for example, a new study course "Practical Manipulation Techniques" was created in SP Medicine, a new study course "Psychology" was created in SP Pharmacy or a new study course "Qualitative Research Methods in Nursing"

The tasks of the development plan of the study field "Health Care" for 2022-2027 were developed by the head of the Health Care Study Field and the program directors in cooperation with the Council of the Health Care Study Field and in consultation with the deans of the involved faculties.

Development plan of the study field "Health Care" for 2022-2027 (refer to *Annex*).

It is planned to achieve two strategic objectives in the next period:

1. **To improve the student-centred training process** by offering individual study planning opportunities, greater flexibility in the acquisition of courses and examinations, as well as learning in real work environment situations.
2. **To reorganize the infrastructure of study programmes in the study field "Health Care", consolidating the acquisition of study courses within one infrastructure**, reducing the long-term infrastructure operational costs and creating an optimal environment for the acquisition of interdisciplinary courses and research.

The planned activities, responsible persons and deadlines for achieving the set goals are shown in **Table 2.1.2.1.**

Table 2.1.2.1

Development plan of the study field "Health Care" for 2022-2027

Objective	Action to be taken	Responsible for implementation	Deadline
1. STUDENT-CENTRED LEARNING PROCESS			
1.1. Digitisation of study content , envisaging to implement 10% of study content in e-course format and 20% in the online format, as well as to improve active study courses in Moodle e-study environment	1) To identify specific courses that will be fully implemented in e-course format and define the study content that will be implemented online	Head of the study field	30.06.2023.
	2) To define the necessary tools and programmes to achieve the goal		
	3) To develop amendments to the regulations of the University of Latvia, envisaging remuneration of staff for specific activities in the preparation and management of e-courses	Deans of faculties	31.12.2024.
	4) To train lecturers	Directors of study programmes	
	5) To purchase the defined tools and software	Deans of faculties	31.12.2027.
	6) To develop and implement specific e-learning courses in the study process	Directors of study programmes	
	7) To improve the existing study courses with the offered e-environment opportunities (lecture presentations, compulsory reading materials, self-examination tasks, final examination in the e-environment) - not fewer than three courses every year	Directors of study programmes	31.12.2027.
1.2. Simulation of real work environment situations	1) To supplement the procedures and situations that can be simulated in the specific study courses	Directors of study programmes	30.06.2024.
	2) To calculate the cost of augmented moulages, software and infrastructure		
	3) To purchase the necessary additional tools and programmes	Deans of faculties	31.12.2025.
	4) To train the involved academic staff	Directors of study programmes	31.12.2026.
	5) To start the implementation of the study course Practical procedure techniques in the Medicine study programme	Directors of the relevant study programmes	31.12.2027.
	6) To create an Interactive Clinical Case Collection Archive	Directors of the relevant study programmes	31.12.2027.

1.3. Increasing student learning and research capacity	1) To organize seminars for students on the availability of digital information (various databases) and its use in the process of developing diploma theses/bachelor theses/term papers.	Directors of the relevant study programmes and Head of the study field	30.06.2024.
	2) To involve as a paid employee at least one bachelor's or master's level student in the research projects implemented in the study field per year	Project Managers	31.12.2027.
	3) To improve the process of realization of internships for English students – new internships in Latvia and Europe, where communication in English is possible – at least two new co-operation agreements during the accreditation period of the study field.	Deans of faculties	31.12.2027.
1.4. Internationalisation of studies	1) Inform students / doctoral students about opportunities to participate in mobility in ERASMUS+ and Nordplus programmes.	Senior expert in study development	31.12.2027.
	2) To establish international student contacts, for example, by holding joint meetings between education groups of students of different universities.	Senior expert in study development	31.12.2027.
	3) Involvement of highly qualified teaching staff of foreign universities in teaching courses	Deans of faculties and directors of study programmes	31.12.2027.
1.5. Acquisition of competencies corresponding to the current requirements of the labour market	1) To attract specialists working in medical institutions, pharmaceutical companies and institutions subordinate to the Ministry of Health, institutions of state and municipal capital companies in teaching separate courses in the study field of health care, increasing the development of students' competencies	Deans of faculties	31.12.2027.
	2) To enhance the involvement of employers in the study process, for example, by organizing employer seminars and open lectures for students, organizing study visits and internships in companies		
1.6. Improvement of study course content and design quality evaluation criteria and student feedback	1) To develop a study quality evaluation system for active study courses	Directors of study programmes	30.06.2024.
	2) To audit and improve student surveys		31.12.2025.

1.7. Professional development of new lecturers	1) To involve new lecturers - doctoral students, at least three doctoral students per year in the implementation of study courses (lectures, seminars, practical classes)	Directors of study programmes	31.12.2027.
	2) To improve the motivating system for the participation of lecturers in mobility programmes	Deans of faculties	30.06.2024.
	3) To ensure supervision and observation of new teaching staff with the aim to improve their teaching skills	Directors of study programmes and Head of the study field	30.06.2024.
	4) To provide in-service training for lecturers in digital skills, writing scientific publications and mobility, using local, national and EU funding	Deans of faculties	31.12.2026.
1.8. Development of new study programmes	1) To create five new study sub-programmes in the second level professional higher education study programme Medicine (residency)	Directors of the relevant study programmes	31.12.2027.
	2) Discuss the concepts of new study programmes (SP), evaluate the risks, benefits and possible competition of SP implementation	The Council of study field "Health Care"	31.12.2027.
1.9. To increase the prestige of study programmes	To accredit both study programmes of optometry, obtaining the accreditation of the study programme of the European Diploma in Optometry	Directors of the relevant study programmes	31.12.2027.
2. INFRASTRUCTURE REORGANISATION			
2.1. Creation of new infrastructure	Actively participate in the planning and establishment of an academic health science centre (House of Health and Technology), which will provide additional training in clinical skills and expand research opportunities for students and academic staff	Deans of faculties	31.12.2025.
2.2. Consolidation of existing infrastructure	Move the Student Clinic and Dispensing Laboratory from Kengaraga street (rented premises) to the House of Nature and equip it with new devices	Directors of the relevant study programmes	31.12.2022.

2.1.3. The structure of the management of the study field and the relevant study programmes, and the analysis and assessment of the efficiency thereof, including the assessment of the role of the head of the study field and the heads of the study programmes, their responsibilities, and the cooperation with other heads of the study programmes, as well as the assessment of the support by the administrative and technical staff of the higher education institution/ college provided within the study field.

Collegial responsibility for the management of the study field lies with the decision-making bodies

of the University of Latvia – the Senate, the Study Programme Quality Assessment Commission of the University of Latvia (chaired by Vice-Rectors), the faculty councils and study field councils. The management of the University of Latvia is responsible for the functioning of the study quality management system, management of results, supervision of the process and provision of audits. The head of the study field and the deans, study programme directors are responsible for the quality of the study field and the study programmes implemented within it. Each member of the teaching staff is responsible for the quality of the content and implementation of the lecture course, research activities and professional development. The responsibility of students is defined in their rights and obligations to promote the implementation of the goals of the University of Latvia and excellence in studies by participating in the collegial institutions of the University of Latvia and regularly expressing their opinion in student surveys. Every employee and student at the University of Latvia is also involved in the implementation of quality management and quality assurance, both individually and through representation in the collegial advisory bodies of the University of Latvia. See the management of the study field and its study programmes at the University of Latvia in **Figure 2.1.3.1**.

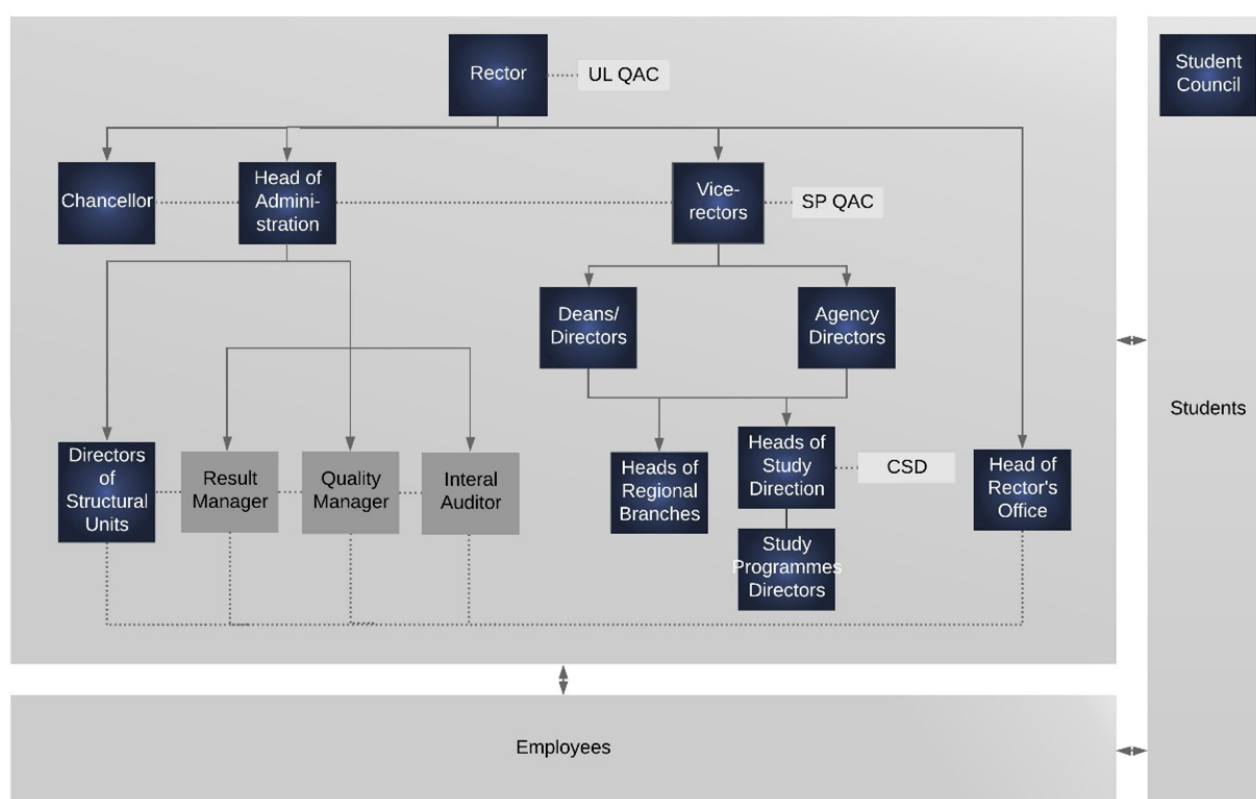


Figure 2.1.3.1 Division of responsibilities for quality management at the University of Latvia

Each UL study programme has a study programme director who manages the development and implementation of this study programme. The sphere of responsibility of the director of the study programme is related to ensuring the development, management and implementation of the study programme, review, evaluation and improvement of the study programme (*Regulations on the Management of the Study Fields of the University of Latvia*[1], p.22).

The director of the study programme is approved by the Senate upon the proposal of the Faculty Council, which represents the relevant branch of science. If the study programme covers several sub-programmes, the head of the sub-programme may be approved in each sub-programme by the decision of the Faculty Council (see **Figure 2.1.3.2**).

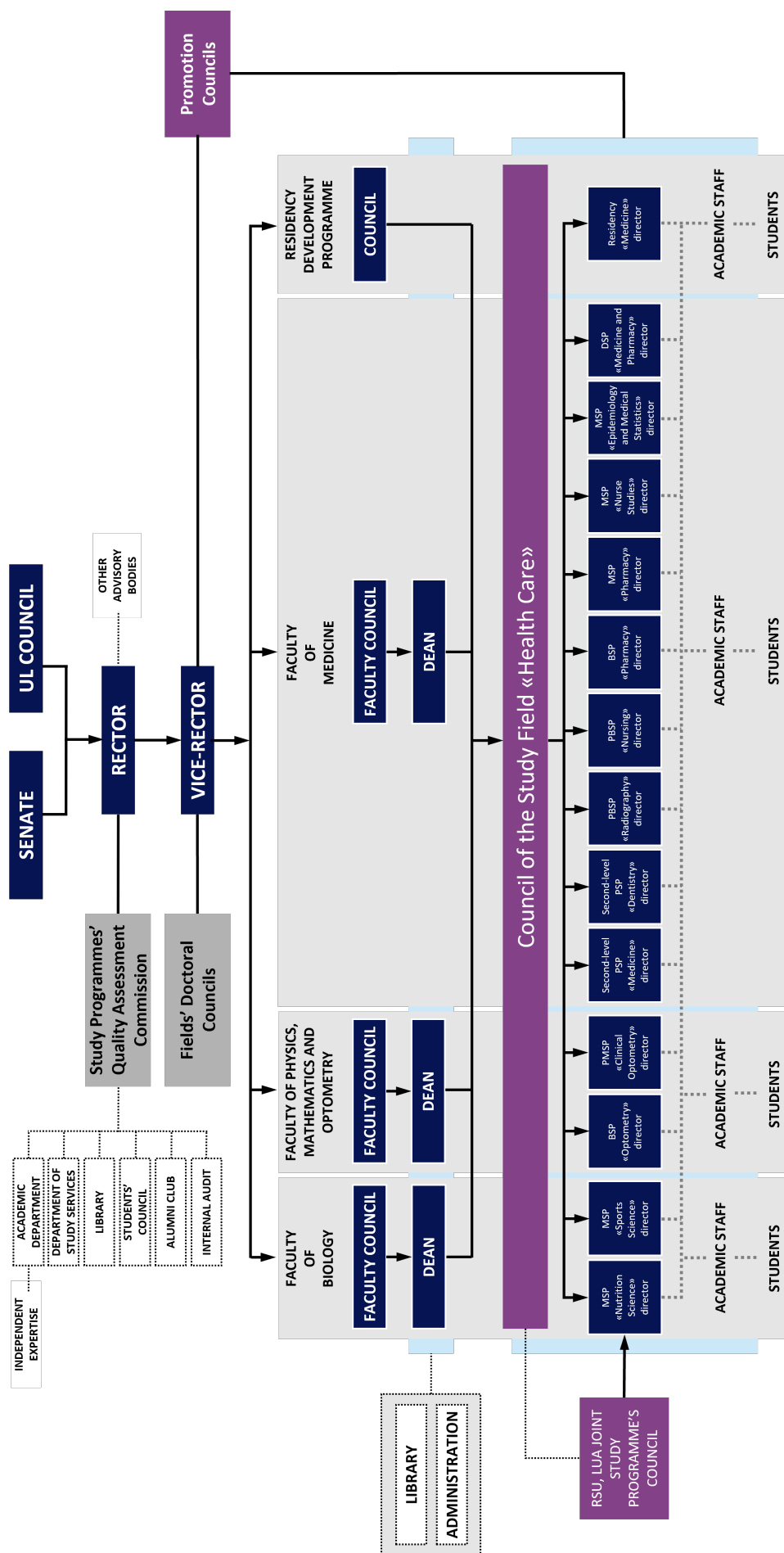


Figure 2.1.3.2 Management scheme of the study field of the University of Latvia and the study programmes included in it.

The director of the study programme is a member of the study programme council of the respective field and coordinates his/her activities with it. The director of the study programme is responsible to the dean, the head of the study field, the study programme council, the faculty council, the vice-rector, and the rector. The competence of the director of the study programme is to ensure the compliance of the content of the study programme with the regulatory enactments, and the improvement of the study programme, incl. development of changes in study programmes in accordance with the trends of the industry and the labour market, as well as taking into account the needs of the involved parties. The duties of the director of the study programme also include ensuring cooperation with Latvian and foreign higher education institutions and directors of other study programmes of the University of Latvia in matters of study content coordination and exchange of experience, as well as with employers and practice places in matters of study content.

Management and development of the study field "Health Care", incl. reviewing, evaluation and planning of its development, coordination of the external evaluation of the study field, as well as promotion of co-operation between the structural units involved in the implementation of the study field shall be ensured by **the Head of the Study Field "Health Care"**. The competence of the head of the study field is the supervision of the study programmes of one study field, ensuring the compliance of the study field with the Development Strategy of the University of Latvia, topicality and development, as well as the implementation of coordinated management and cooperation of the study programmes. The heads of the study field in cooperation with the directors of the study programmes and the director of the Regional Centre of the University of Latvia, in cases when the programmes included in the study field are implemented in the LU branches, ensure the review of the study programmes included in the study field, as well as development planning and implementation. The heads of the study field organize the work of the study field councils, as well as regularly organize the development and submission of the annual study field report for review and approval by the Study programme Council and the Faculty Council. The heads of the study field in cooperation with the directors of the study programmes included in the field and the Study Department of the University of Latvia ensure the accreditation and re-accreditation of the study field. The head of the study field can be the dean of the faculty, the head of the department or the director of the study programme included in the study field. The head of the study field is approved by the order of the Rector of the University of Latvia upon the proposal of the Department of Studies of the University of Latvia or the decision of the Faculty Council. The study field councils supervise the academic, professional and doctoral study programmes of all levels corresponding to one study field. The head of the study field is active in the study field council, all directors of the study programmes included in the study field, representatives of students in the respective programmes are not less than 20% of the study field council, promoting the representation of study programmes of all levels, as well as a maximum representation of study programmes in student self-government, representatives of employers and co-operation partners of the study field (candidates are proposed by the heads of structural units, heads of study fields, directors of study programmes and heads of sub-programmes). **The Council of Study Fields** approves the development strategy of study fields, evaluates and submits for approval to the Study Programme Quality Assessment Commission the concepts of new study programmes of all levels in the relevant study field, evaluates and submits for approval to the Faculty Council annual study field reports, as well as changes in study programmes.

The faculty councils, consisting of representatives of the academic and general staff, elected for three years, and student representatives, who make up at least 20% of the councillors, are the main decision-making body of the faculty and decide on the faculty's academic, economic, financial and other issues of activity that are within the competence of the faculty or should be forwarded to the Senate. The MF Council consists of 11 academic staff representatives, 3 representatives of the students and 1 general staff representative. The Council of Faculty of Physics, Mathematics and

Optometry consists of 19 representatives of the academic staff, 6 representatives of the students, 2 representatives of the general staff, the Council of the Faculty of Biology consists of 14 representatives of the academic staff, 3 representatives of the students and 1 representative of the general staff.

Within the study field, several programmes are implemented in close cooperation with other faculties of the University of Latvia – the Faculty of Physics, Mathematics and Optometry of the University of Latvia and the Faculty of Biology of the University of Latvia and the academic Master's study programme *Sports Science* is supervised by the mentioned faculties, as well as the lecturers of these faculties are involved in other study field programmes, ensuring a high-quality study process. Thus, the study field acquires an interdisciplinary approach in the implementation of study programmes, there are wider opportunities for the improvement and development of study programmes. An important role in the implementation of the study field is played by the **chairs** and **departments**, the goals and tasks of which are determined by the regulations approved by the Faculty Council, and the scientific institutes, the activities of which are determined by the regulations approved by the Senate of the University of Latvia. **The heads of the chairs and divisions** of the faculties, in accordance with the branches and sub-branches of science under their responsibility, are involved in the development and implementation of study programmes, incl. in the development of the content of study programmes, as well as in ensuring co-operation with the heads of divisions and departments of other faculties, in the planning, evaluation and development of the academic staff, in ensuring and evaluating the quality of methodological work. MF includes 10 chairs and 3 research centres – *Centre of Social Pediatrics*, *Centre of Continuing Education* and *Centre of Health Management and Informatics Centre*. The heads and lecturers of the departments, as well as the representatives of the scientific centres, are part of the Faculty Council and SPP, thus getting involved in and ensuring the process of realization, improvement and development of the study field. It is important to ensure the representation of students' interests in the management of the study field, therefore the students' representatives are included in the Faculty Council, SPP, the UL Senate, Constitutional Assembly, Study Programme Quality Assessment Commission and other administrative structures. The involvement of the **Student Council** and **student self-government** in quality management and quality assurance is binding according to the function set out in the Latvian Law on Higher Education Institutions of students' interest representation in the university decision-making bodies ([Law on Higher Education Institutions](#), Section 53, paragraph 3). The Constitution of the Student Council of the University of Latvia sets the task of the Student Council to promote the quality of studies and academic traditions, democracy and individual initiative, students' self-confidence and personal development, healthy lifestyle, youth civic integration and participation in society ([Constitution of the Student Council of the University of Latvia](#), p.6.10). According to the regulations of the faculties, it is the responsibility of the students' self-government of each faculty to represent and defend the interests of the students at the Faculty. On a daily basis, students have the opportunity to express their proposals, suggestions, and complaints to the programme directors, who are most often able to resolve issues quickly and efficiently. However, if the problem cannot be solved through the programme director, then the management of the faculty is involved in solving the issue – the dean, the study director, who always tries to help and resolve the actual issue. The responsibility of students is defined in their rights and obligations to promote the implementation of the goals of the University of Latvia and excellence in studies by participating in the collegial institutions of the University of Latvia and regularly expressing their opinion in student surveys.

The **LU Administration** provides the support functions in the implementation of the management of the study field, the main goal of which is to ensure the legal fulfilment of the LU mission, goals and strategy, as well as to provide support to the LU staff and other LU employees. The LU Administration was significantly reorganized starting the implementation of the “LU Strategy 2027”,

based on the audit of the efficiency of the structural units of the LU Administration performed in November 2021, thus strengthening the strategic and quality management functions in the structural units of the Administration. The establishment of the Academic Department, strengthening the unity of higher education and science, is one of the most significant changes in the integration of the Department of Studies of the University of Latvia and the Department of Science of the University of Latvia. The Administration of the University of Latvia includes the following structural units: Academic Department, Study Service Department, Communication Department, Legal Department, Personnel Management Department, Information Technology Department, Finance and Accounting Department, Document Management Division, Infrastructure Management Division, Real Estate Revenue Division, Institutional Data Analysis Center, Project Support Center, the Programme of Development of Academic Center, Study Development and Management Improvement Programme. The LU administration operates in the following composition - Chancellor of the University of Latvia, the internal auditor, the quality manager, the head of the work safety system, and the information technology security manager. The study process is supported by the Culture Center, the Sports Center and the Pre-study Training Center, which are under the supervision of the Head of the Administration. **The Academic Department** has the most important role in the management of the field of study. The Academic Department consists of the Academic Policy Division, the Science Projects Division, the Study Quality Assurance Division and the Lifelong Learning Division.

The competence of the Academic Department is:

- to monitor the requirements of the regulatory enactments in force in the Republic of Latvia and their changes, national and European Union development policy documents, as well as standards and good practices in the field of academic activities and lifelong learning;
- to ensure the development of the functional strategies, policies and regulatory framework in accordance with the Strategy of the University of Latvia and to supervise their implementation in these fields;
- to ensure the development, implementation, supervision and continuous improvement of studies, as well as science quality assurance systems (or processes);
- to ensure the evaluation of academic and lifelong learning processes and risks, regular review of methods and procedures, identification and provision of necessary control and preventive measures in accordance with the practice implemented by the University of Latvia;
- to ensure analytical identification of the results of academic activities and lifelong learning and the possibilities of their improvement;
- to develop proposals for the Leading Department of the University of Latvia.

The Department of Study Quality Assurance:

- monitors the compliance of internal regulation in all study levels and lifelong learning;
- coordinates the medium-term development plan of studies and lifelong learning in cooperation with faculties;
- manages the implementation of the medium-term development plan;
- supervises and provides methodological support in developing new study programs and implementation and improvement of the existing programmes;
- organizes and coordinates external quality assessment;
- provides centralized administration of doctoral student admission, doctoral study process and promotion work;
- provides support in the process of implementation and improvement of studies and lifelong learning at all levels;
- evaluates results and competitiveness of studies and lifelong learning programs;

- participates in resource evaluation.

The Study Services Department consists of the Academic Services Division, the Admissions Division and the Mobility Division, which are competent:

- to organize and ensure the matriculation and exmatriculation of Latvian and foreign students, the circulation of study documents and its registration;
- to maintain the register of graduation documentation (qualifications), including the register of diplomas and graduates;
- to provide students with social, cultural and other support functions, as well as to provide students with consultations and information on social security;
- to inform potential applicants and applicants about the study process and study organization, as well as to ensure the administration and implementation of mobility programmes.

The Quality Manager and the Internal Auditor of the University of Latvia participate in the development, maintenance, implementation, evaluation and improvement of the study quality management system. (*Regulations of the Administration of the University of Latvia, p.50-51, approved by Resolution No. 1-4 / 559 of the Senate of the University of Latvia of 15.11.2021*). **The Center for the Development of Academic Competence of the University of Latvia** is being established within the Department of Personnel Management in accordance with the new regulations of the Administration of the University of Latvia and the functions will be provided include:

- developing and improving personnel professional growth, career and succession planning systems;
- implementation of measures to promote the growth of staff, as well as to ensure the methodological management of the structural units of the University of Latvia in matters of management of the academic staff.

Cooperation with the **students' self-government of the faculty** plays an important role in the management of studies representing the interests of the students in the activities of the faculty, including in solving the issues of the academic, social and cultural environment,. Members of the Student Self-Government are represented in **the Student Council of the University of Latvia**, thus participating in the management system of the University of Latvia.

The study results of the University of Latvia and the results of the study fields and programmes are evaluated, as well as proposals for the further development of the programmes are provided by **the Study Programme Quality Evaluation Commission** (hereinafter – SP KNK). The commission reviews and provides opinions on study programmes, incl. evaluates applications for the concept of new study programmes, new study programmes and proposals for closing programmes, significant changes in accredited study fields that require a decision of the SP KNK, as well as applications for new study modules and sub-programmes. When evaluating the concepts of new study programmes, study programmes and annual reports of study fields, SP KNK relies on the opinion of anonymous, independent experts. SP KNK consists of Vice-Rectors, Chairman of the Academic Commission of the Senate or his authorised person, Director and representatives of the Study Department, representative of the Student Service Department, internal auditor, quality manager, representative of the Science Department, representative of the UL Library, delegated representative of the Student Council and delegated representative of the UL Alumni Club.

[1]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/3/Nolikums_par_LU_s_tudiju_virzienu_parvaldibu.doc_ENG_2020.pdf

2.1.4. Description and assessment of the requirements and the system for the admission of students by specifying, inter alia, the regulatory framework of the admission procedures and requirements. The assessment of options for the students to have their study period, professional experience, and the previously acquired formal and non-formal education recognised within the study field by providing specific examples of the application of these procedures.

The enrolment process at the University of Latvia is regulated by the Enrolment Rules^[1] and the subordinate orders laying down the procedures for the academic year in question:

1. enrolment requirements and criteria for undergraduate programmes;
2. enrolment requirements and criteria for graduate programmes;
3. enrolment requirements and criteria for doctoral programmes;
4. enrolment requirements and criteria for residency programmes;
5. enrolment procedure for the academic year;
6. estimate of the registration fee;
7. tuition fees in programmes;
8. the number of study places for enrolment;
9. procedure for preparation of entrance examination materials;
10. enrolment commission;
11. entrance examination commissions;
12. time and place of entrance examinations.

Enrolment to undergraduate studies takes place centrally, using the “Unified Enrolment in Undergraduate Programmes”, which unites enrolment in 12 Latvian higher education institutions. The competition for study places is based on the results of the Centralised Examinations or on the marks of a certificate - for persons who have been exempted from the Centralised Examinations or have obtained secondary education abroad. In study programmes that do not have appropriate centralized examinations, additional requirements for certain marks of the certificate are added, in programmes that require special skills or compliance, an additional entrance examination is determined. As a result of the competition, applicants are ranked according to the points obtained. The programmes may provide advantages for the winners of the state study olympiads, for example, in the second level professional higher education study programme Medicine, applicants who have won grades 1 to 3 of the Latvian national or international chemistry or biology olympiads receive additional points. Additional points are also awarded to graduates of the School of Young Medics of the University of Latvia, who are applicants for SP Medicine or BSP Pharmacy, and BSP Optometry, for the winners of grades 1 to 3 of the Latvian national or international physics, chemistry, biology or mathematics olympiads or physical sciences or biological sciences, or medical and health sciences group of the National Pupils' Research Work Conference, or for the winners of the 1st to 3rd place of the Open Physics or Mathematics Olympiad (for more information on the admission requirements, see the description of each study programme).

Enrolment in master's level study programmes is decentralized, in each faculty, but within the same deadlines. Admission is based on assessments obtained during undergraduate studies. In programmes where previous education in various fields is allowed, an entrance examination is used to determine the suitability of the applicant's prior knowledge for the field of the study programme. In the Professional Master's Study Programme in Clinical Optometry, an additional admission condition for persons who have no previous education in a bachelor's degree in optometry: before starting studies a course of continuing education in optometry must be completed in the amount of

20 CP (Optometry Basic). In the PMSP Clinical Optometry applied for accreditation, persons who do not have a previous bachelor's degree in optometry will have to start their studies in the study programme with a preliminary year in order to acquire the knowledge required for successful professional master's studies.

Enrolment requirements for the second level higher professional education study programme Medicine (residency programme) are defined in the UL Enrolment Rules^[2]. The competition is organized in compliance with the Cabinet Regulation No. 685 "Regulations on Distribution of Residents and Financing of Residency" adopted on 30 August 2011. Citizens of Latvia, as well as non-citizens of Latvia, citizens of the European Union and the European Economic Area, as well as citizens of the Swiss Confederation and permanent residents of the European Community who have a valid residence permit, have the right to be admitted to and study in the programme. Knowledge of the state language at the highest C1 level is a mandatory requirement. If the applicant has obtained basic medical education abroad, the opinion of the Academic Information Centre is required, which educational document or academic degree awarded in Latvia corresponds to the educational document obtained abroad, as well as the Latvian Medical Association qualification recognition certificate.

In the second level higher professional education study programme Medicine since 2019/2020 the Unified Enrolment Commission has been established, the regulations of which have been developed by a working group of managers involved in the study process of the residency at the University of Latvia and RSU, as well as students nominated by the students' self-government of both universities. The composition of the Unified Enrolment Commission consists of two equal chairmen of the commission (1 representative each from the UL and RSU), their deputies (one from the UL and RSU) and student representatives (also 1 person from each higher education institution). Approved interview commissions for each speciality join the admission process. Representatives of the interview commission are the heads of the programme of each specific speciality of both universities, one representative from a professional association who does not have an employment relationship with one of the universities, as well as a representative from the employer (meaning a representative from the management level). The functions of the Commission are defined in the Cabinet Regulation No. 685 "Procedure for Enrolment, Distribution and Financing of Residents", Paragraph II, **Enrolment and Distribution of Residents**, Clause 5: *Higher education institutions that implement the highest professional study programme for obtaining the professional qualification of a doctor (hereinafter – higher education institution), through the Unified Enrolment Commission of higher education institutions (hereinafter – Enrolment Commission): organize the application of applicants and the selection of applicants.*

The number of state-funded study places in medical specialties is determined by the Ministry of Health on the basis of the following data:

1. Information provided by medical institutions on the number of doctors required;
2. Number of doctors not working full time;
3. Number of unemployed doctors;
4. The projected number of doctors who will reach retirement age in the next five years;
5. Mutual analysis of statistical data on the provision of doctors in the Member States of the European Union;
6. Demographic situation and development forecasts;
7. Predictions of the number of medical personnel for full-time workloads.

Admission to the residency programme is based on the developed competition criteria. If the applicants have equivalent results, according to the competition criteria, preference is given to residency applicants who have an agreement with a state or municipal medical institution that

provides health care services paid from the state budget outside Riga, to start employment in the relevant medical institution outside Riga after completion of the residency programme. The right of LU applicants to submit complaints about violations in the admission procedure is provided by the Unified Admission Regulations, determining the procedure for submitting, reviewing and appealing a decision. The number of student places at the expense of natural or legal persons is determined by the University of Latvia but is guided by the real demand of specialists in the country. The University of Latvia provides information on these students to the Ministry of Health.

Admission to doctoral studies is centralized. The applicant must submit the topic of the dissertation and agree upon the supervisor. The applicant's suitability is evaluated by the branch doctoral council. More detailed information on the requirements for admission to doctoral studies can be found on the website of the University of Latvia in the section I want to study[3].

LU provides an opportunity to start studies also in later study stages, in accordance with the *Procedure for starting studies in later study stages at the University of Latvia* (LU order no. 1/128 of 08.06.2009). A precondition for starting studies at later stages is the recognition of previously acquired study courses or knowledge, skills, competencies, study results acquired in previous education, which are regulated by the *Regulations on Knowledge, Skills Acquired Outside Formal Education or Professional Experience, competences, recognition of study results achieved in previous education and equating academic activity at the University of Latvia* (Decision No. 2-3-3 / 86 of the Senate of the University of Latvia of 28 June 2021) (hereinafter – the Regulations) and *Knowledge and skills acquired outside and the rules for the recognition of competences and study results achieved in previous education at the University of Latvia* (LU 04.11.2021. Order No. 1-4 / 543). On the basis of the student's application, the possibility of recognizing study courses acquired in another Latvian higher education institution, university abroad or in the previous study period at the University of Latvia is considered. According to Clause 8 of the Regulations, previously acquired study courses may be recognized at the same or lower study level.

Enrolment in the later stages of the study direction takes place at PBSP Nursing and PBSP Radiography, students are admitted in a specific semester, in accordance with the previously acquired education, thus a large number of study courses are recognised within the study direction. Recognition of study courses also takes place in other study direction programmes, for example, SP Medicine often recognises study courses, because students come from another higher education institution after the first or second year of study. The programmes differ between the universities both in terms of the number of ECTS study courses and the semester of the study course, but an individual study plan is created for the students and the students successfully integrate into the study programme. Students also choose to recognize individual study courses, which gives them the opportunity to devote time to better acquisition of other study courses. The number of students by study programmes for which study courses have been recognized is shown in **Table 2.1.4.1**.

Table 2.1.4.1

Number of students who have recognized study courses

Study programmes	The number of students for whom study courses have been recognized from 01.09.2013-01.01.2021.
PBSP Nursing	993
SP Medicine (Latvian)	279
PBSP Radiography	103

BSP Pharmacy	83
SP Medicine (English)	81
BSP Optometry (Latvian)	44
SP Dentistry	25
KMSP Nutrition	7
BSP Optometry (English)	6
MSP Nursing	4
MSP Pharmacy	3
IN TOTAL	1628

Opportunity to recognize learning outcomes from previous education (including further education) or professional experience is less often used, which could be explained by the relatively complex process required for both a person wishing to recognize learning outcomes from previous education or professional experience, also to the commission for the recognition of knowledge, skills and competences acquired outside formal education or professional experience. *Regulations on the evaluation and recognition of study results achieved in previous education or professional experience at the University of Latvia*[4].

Recognition of study results obtained in previous education or professional experience within the study direction was performed by the Study Programme Council until July 2020, since 9 July 2020, when the Health Care Study direction Council was approved, these functions are performed by the study direction council. In February and March 2020, recognition procedures were performed for two students of the professional Bachelor's study programme Nursing - for one of the study courses in the amount of 16.5 ECTS and practice in the amount of 27 ECTS was recognised, for the other student study courses in the amount of 22.5 ECTS and practice in the amount of 27 ECTS were recognised.

All procedures are published and available in the system of regulatory enactments of the University of Latvia, which is available to every employee and student of the University of Latvia.

Student enrolment procedure and requirements:

[Terms of admission at University of Latvia](#)

The regulatory framework governing recognition procedures:

[Regulations on the recognition of knowledge, skills, competence acquired outside of formal education or in professional experience, recognition of study results achieved in the previous education, and referencing of academic activity at the University of Latvia](#)

[1] [Enrolment rules at the University of Latvia](#)

[2] <https://www.lu.lv/gribustudet/uznemsanas-kartiba/rezidentura/>

[3] <https://www.lu.lv/gribustudet/uznemsanas-kartiba/doktorantura/>

[4] https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/3/regulation-on-recognition-and-referencing-2021.pdf

2.1.5. Assessment of the methods and procedures for the evaluation of students' achievements, as well as the principles of their selection and the analysis of the compliance of the evaluation methods and procedures with the aims of the study programmes and the needs of the students.

In accordance with the Law on Higher Education Institutions of the Republic of Latvia, the internal regulation of the University of Latvia *"Procedure for Development and Updating of University of Latvia Study Courses"* has been developed, stipulating that the information on the conditions for commencement of each study course, its objectives and tasks, requirements for acquiring credit points, the content of the study course, the organization of contact classes, the organization and tasks of students' independent work, planned study results (knowledge, skills, competence) and their examination methods and evaluation criteria shall be included in all descriptions of study courses available to students in the LU Information System (LUIS) and LU e-learning environment. Registration and accounting of student results evaluations take place in the e-environment of the corresponding study course. The study results of each study programme and each study course at the University of Latvia are formulated as a set of knowledge, skills and competence. The courses of the study programmes have been developed in accordance with the principles of gradation and succession. In order to ensure this, within the study programmes, the planned study results have been mapped at the level of the study programmes and at the level of study courses. The results of the mapping of study programmes can be viewed in the study programme reports and relevant appendices for each study programme.

At the beginning of studies, students are informed about the organization and implementation of the study programmes, but starting with the acquisition of each individual study course, lecturers inform about the course organization, content, acquisition requirements, planned study results, examinations and evaluation criteria, as well as explain the essence of the study course in achieving the overall study results of the programme. Students can get acquainted with the criteria and conditions for evaluating students' progress and binding procedures in the descriptions of study courses and e-learning environment, as well as at the beginning of each course in the first lesson, when each lecturer introduces students to the course organization, evaluation criteria and the procedure for the performance of examinations, without changing these requirements and evaluation criteria during the semester. In the description of each study course, the goals, tasks, knowledge, skills and competences to be acquired are precisely indicated, as well as the requirements for obtaining credit points are indicated. For the specific methods used in the course examinations in the process of assessment of students' achievements, see the descriptions of the study programmes.

The organization of study course examinations and assessment of students' achievements takes place in accordance with the "Law on Higher Education Institutions" and the LU Constitution *"Procedure for Organizing Study Course Examinations at the University of Latvia"* (LU Senate Decision No. 211 of 29.06.2015) for the assessment of full-time and part-time student learning outcomes.

There are two types of examinations in each study course: intermediate examinations (total assessment of intermediate examinations shall not be less than 50% of the total assessment) and final examination of the study course (assessment shall not be less than 10% of the total assessment). The tests may be written or oral, or a combined form (written and oral). For the assessment of students' achievements, the form and methods of examinations are chosen, which correspond to the teaching methods used in the study process in contact classes and in the

organization of students' independent work.

Passing the exam is a mandatory requirement to obtain credit points for the study course. The procedure and criteria for the assessment of the intermediate examination shall be determined by the responsible structural unit in accordance with the specifics of the study course. The assessment of the acquisition of the study course is calculated in the centralized success registration system of the University of Latvia according to the algorithm specified in the course description, taking into account the assessments obtained in the intermediate examinations and exam, and is recorded in the examination protocol.

The types of intermediate examinations are test, independent work, practical work, laboratory work, report, paper and other types of work according to the specifics of the study course. The number and type of intermediate examinations are specified in the description of the study course. In order for a student to obtain an assessment of the course, the assessment obtained in the examination must be successful. Acquisition of the course can be assessed as successful even if the exam has been passed unsuccessfully and such an opportunity is specified in the description of the study course. The total assessment of the course acquisition is calculated in the e-learning environment of the University of Latvia according to the algorithm specified in the course description, taking into account the assessments obtained in the intermediate examinations and exams.

In accordance with the specific nature of the study course, the attendance requirements for practical sessions have been determined.

At the end of each study course, there is a final examination of the study course: exam or defence (of the course work, final project, semester work, field course, practice). The procedure for the defence and evaluation of the course work, final work project, semester work, field course and practice is specified in the regulatory enactments of the University of Latvia.

The evaluation system in the sub-programmes of SP Medicine is different for each speciality, however, the unifying thing is: after each study course the examination of theoretical knowledge in the form of multiple-choice questions and/or special questions, analysis of clinical cases. Compulsory (100%) completion of practical work, which provides for the acquisition of a certain minimum of practical skills, and 75-100% attendance of seminars, depending on the requirements of the subspecialty. If for some reason a lecture/seminar is missed, the resident must prepare a review of the latest literature on the missed topic, which, according to the appropriate assessment of the lecturer, allows it to be equated to attending a missed class. The total assessment of the acquired study course is a test, which can be received only if the requirements of the study course are met.

At the end of the residency, there is a State Examination (examination of theoretical knowledge in a written test, analysis of clinical cases, etc., depending on the relevant speciality sub-programme) and defence of research work (diploma thesis in residency). If an agreement is reached with the Latvian Medical Association (in Latvian - LĀB) relevant speciality certification commission, then the UL Residency Final State Examination is combined with the LĀB professional certification examination.

Research work is a compulsory part of the residency. The development of the research work is led by the supervisor, who is a specialist in the specific field, most often he teaches at the University of Latvia. Residents are encouraged to choose a research topic as early as possible, and no later than the second half of the penultimate academic year. Residents present and defend the results of their research in a state examination. The diploma thesis is evaluated with a mark in the 10-point system.

Study results are evaluated on a 10-point scale. If it is allowed by external regulatory enactments, then, with the permission of the Vice-Rector of the University of Latvia, the study results can be assessed as “passed” or “failed”. The study course is considered to have been successfully completed if the evaluation in the 10-point system is no lower than “4” (almost average) or “passed”. In this case, the student obtains credit points for the acquisition of a particular course.

The evaluation of study results criteria described above is used in each study course in a 10-point system for the assessment of students' knowledge, skills and competence. The study results formulated in each study course and the explanation of assessments (see **Table 2.1.5.1**) published in the “Procedure for the Development and Updating of Study Courses at the University of Latvia” are used as the basis for formulating the criteria.

Table 2.1.5.1

Explanation of scores in a 10-point system

Learning Level:	Grade (deciphering)	Explanation (in accordance with Cabinet Regulation No. 141, No. 512 No. 240 and Decision No. 211 of the Senate of the University of Latvia of 29.06.2015)
very high skill level	10 (with distinction)	knowledge, skills and competence exceed the requirements of the study programme, study module or study course, indicate the ability to conduct independent research and a deep understanding of problems
	9 (excellent)	knowledge, skills and competences completely comply with the requirements for the acquisition of the study course, having the skill to independently use the acquired knowledge.
high skill level	8 (very good)	the requirements for the acquisition of the study course are completely fulfilled, but a sufficiently deep understanding is lacking on certain issues in order to use the knowledge independently for solving more complicated issues
	7 (good)	in general, the requirements for the acquisition of the study course are fulfilled, but sometimes an inability to use the acquired knowledge independently is established
average skill level	6 (almost good)	the main requirements for the acquisition of the study course are fulfilled, but an insufficiently deep understanding of an issue and inability to use the acquired knowledge is established.
	5 (average)	in general, the study course, study module or study course is acquired, but insufficient knowledge of a few issues and inability to use the acquired knowledge is established.
	4 (almost satisfactory)	in general, the study programme, study module or study course has been acquired, however, there is an insufficient understanding of some basic concepts, there are significant difficulties in the practical use of the acquired knowledge

low skill level	3 (poor)	superficial and incomplete knowledge, the student is not able to use it in particular situations.
	2 (very poor)	superficial knowledge about certain issues only, the larger part of the study programme, study module or study course is not acquired.
	1 (very, very poor)	no understanding about the basic issues of the subject, almost no knowledge of the study course.

The adequacy of assessment methods and procedures for achieving the goals of study programmes and the needs of students is analysed and improved, taking into account the experience of lecturers, analysing the study results achieved by students and the results of surveys comparatively in several academic years. In the surveys, students acknowledge that clearly planned study results and assessment criteria are very important for studying, as well as receiving regular feedback on students' achievements in the study process. To ensure this, lecturers systematically analyse their experience, cooperate with colleagues, analyse student achievements and improve course descriptions and e-learning environment by developing assessment criteria corresponding to the planned study results, thus ensuring the justification of assessment.

When evaluating the study results, the basic principles of evaluation formulated in Cabinet Regulation No. 141 (20.03.2001) "Regulations regarding the State Standard for First Level Professional Higher Education", No. 512 (26.08.2014) "Regulations regarding the State Standard for Second Level Professional Higher Education", No. 240 (13.05.2014) "Regulations regarding the State Academic Education Standard" are observed:

- **the principle of openness of assessment** – in accordance with the set objectives and tasks of the study programmes, as well as the goals and tasks of the study courses, the higher education institution has determined a set of requirements for the assessment of study results;
- **the principle of assessment review possibilities** – the higher education institution determines the procedure for reviewing the obtained assessment;
- **the principle of mandatory assessment** – it is necessary to obtain a successful assessment of the acquisition of the entire content of the study programme;
- **the principle of diversity of the types of tests** used in the assessment – different types of tests are used in the assessment of the study programme acquisition;
- **the principle of conformity of the assessment** – in the examination work the student is given an opportunity to prove knowledge, skills and competence in the appropriate tasks and situations. The amount of content to be included in the examinations corresponds to the content specified in the course programmes.

The basic criteria for the evaluation of final theses are determined by the *"Requirements for the development and defence of final theses (Bachelor's, Master's, Diploma and Qualification Thesis) at the University of Latvia"* (Order No 1/38 of the University of Latvia of 3 February 2012). Additional criteria for the evaluation of the Final Thesis can be determined, which are approved by the Faculty Council upon the proposal of the department council. The descriptions of the study programmes in the study field "Health Care" indicate the specific requirements for the organisation and evaluation of final examinations.

The examination of the final thesis in the Bachelor's and Master's study programme of the study

field is a Bachelor's or Master's Thesis, which has to be defended and is evaluated by the State Examination Commission. The final examination of the BSP Optometry consists of a *Bachelor's Thesis* (defence) and a *Bachelor's Exam* – the exam contains 120 questions with multiple choice answers that cover theoretical knowledge of vision in various areas of Optometry. Also at the end of PMSP Clinical Optometry examinations consist of a *Master's Thesis* (defence) and a *Qualification Exam in Optometry*, which consists of two parts – a theoretical part with 200 multiple choice questions and a practical part, where the student assesses the patient's visual function and eye health.

SP Medical final examinations are the *Diploma work* (defence) and *Final examination in medical treatment*, which consists of 3 parts – practical examination in internal diseases, practical examination in surgery, theoretical (oral) exam in medical treatment. The final examination of SP Dentistry consists of a *Diploma thesis* (defence) and a *Final examination in dentistry*, which consists of a written and oral examination. In the above-mentioned study programmes, the most extensive and comprehensive tests of knowledge and skills take place, as they consist of both practical skills and theoretical knowledge tests. In each of the parts of the final examination (oral, written, practical) the student must obtain at least 4 points in order to be able to give the final grade, each part has a grade value %, which results in the overall grade of the final test.

2.1.6. Description and assessment of the academic integrity principles, the mechanisms for compliance with these principles, and the way in which the stakeholders are informed. Specify the plagiarism detection tools used by providing examples of the use of these tools and mechanisms.

In its activities, the University of Latvia observes the principles and norms of honest and responsible conduct, which are described in the Code of Academic Ethics of the University of Latvia (LU Senate decision No.2-3 / 46 of 26.04.2021) and the Regulations on Academic Integrity at the University of Latvia (LU Senate 26.04.2021 decision No.2-3 / 48), these regulations are publicly available to every the UL employee and student.

In order to prevent violations of the principles of academic integrity, the University of Latvia established the Unified Computer Plagiarism Control System (hereinafter - the System) (LU Order No. 1/125 of 22 April 2014). With the help of the system, the examination of students' final and doctoral theses is performed. A procedure has also been developed describing the further actions to be taken (Appendix to Order No. 1/125 of the University of Latvia of 22.04.2014) in cases where signs of plagiarism are detected.

The UL, as the developer and maintainer of this system, regularly improves it and offers other Latvian higher education institutions the opportunity to use this system on the basis of a cooperation agreement. Currently, based on the cooperation agreement, this system is used by seven Latvian universities, Daugavpils University, Liepaja University, Latvia University of Agriculture, Riga Stradins University, Rezekne Academy of Technology, School of Economics and Culture, as well as Riga International School of Economics and Business Administration.

- The system automatically compares the final theses uploaded to these university systems, incl. materials available on the Internet, and in case the coincidence of the fragments of the works reaches a certain percentage, the directors of the study programmes are sent an overview of these examination results, where at the same time the identical fragments of the texts in the works of different authors can be viewed in parallel. The programme directors

pass this information on to the supervisor and reviewer for the final evaluation and, in case of a suspected breach of academic integrity, forward the results of this analysis to the final examination committee for review and final decision.

Within the study field “Health Care”, in 2017, four cases of plagiarism were detected in three study programmes, in which three cases students were exmatriculated for a significant violation of LU internal regulations and one was warned about exmatriculation, in 2018 six cases were detected in two study programmes but in 2019 one case of plagiarism was detected. In all cases, students were warned about ex-matriculation, which means that students must improve their dissertation in accordance with the requirements and can submit their defence no earlier than after one year.

Cases of plagiarism indicate that the system is working effectively and that there is no breach of the principles of academic integrity. The cooperation of several higher education institutions in the field of using the system promotes more effective control of study papers in each higher education institution and in Latvia as a whole, and this system works successfully in practice, raising the significance and quality of final theses.

2.2. Efficiency of the Internal Quality Assurance System

2.2.1. Assessment of the efficiency of the internal quality assurance system within the study field by specifying the measures undertaken to achieve the aims and outcomes of the study programmes and to ensure continuous improvement, development, and efficient performance of the study field and the relevant study programmes.

The operation of a successfully functioning, sustainable study programme in accordance with the goals of the study field and the study programme of the University of Latvia is ensured by systematically defining and implementing quality assurance procedures, including continuous monitoring and analysis of study programme implementation, use of measurements for operative preventive and improvement measures. Ensuring the levels of management involved in ensuring the quality of the study programme allows to implement the programmes in a predetermined form according to predefined procedures, promptly responding to possible changes in the situation, making quality-related decisions collegially or according to the division of competencies. An important methodological tool for quality assurance is the Handbook of the Quality Management System of the University of Latvia, which, among other things, identifies in detail the practice of the University of Latvia in the implementation of the ESG.

When implementing quality improvement measures within the internal quality assurance system, the following activities are the most important:

- Active involvement of the representatives of the academic staff of the University of Latvia:
 - medical profession standard development working group;
 - in the process of recognition of the profession of optometrist as well as nursing as a medical profession, which included the development of changes in external regulatory enactments;
 - European Commission directives on the initiation of changes in regulated professions for the qualification of a pharmacist obtained in Latvia with a diploma of a pharmacist or a master's degree in health sciences in pharmacy. Only the University of Latvia awards a master's degree in pharmacy in Latvia, therefore such amendments to

regulatory enactments clearly shed light on the quality of the content of the study programme implemented by the University of Latvia and, in a sense, international recognition.

- Work on obtaining the accreditation of the European Council of Optometry and Optics has been started, increasing the value of the diploma obtained at the University of Latvia internationally;
- A new study programme “Epidemiology and Medical Statistics” has been developed and implemented;
- In response to potential changes in legislation, including changes in the professional standard, the academic master's study programme “Optometry” was closed;
- The faculties implementing the study field started working in new modern premises at the Academic Center of the University of Latvia, at the same time supplementing the material and technical base, including the acquisition of simulations, computed tomography and magnetic resonance simulation programs CTSim and MRISim, virtual ultrasonography equipment, etc. With the support of the International Atomic Energy Agency project, materials for practical use in radiotherapy (immobilization equipment, planning systems) have also been purchased;
- In the negotiations conducted by the representatives of the University of Latvia with the Ministry of Education and Science, including on the basis of the results of the evaluation of the quality of study programmes, a significant increase in budget places has been achieved in some study programmes;
- Active participation and cooperation with professional associations has been implemented, study programmes of the study field are recommended and opinions are received, as well as involvement in the implementation of joint projects; ensuring the proactive participation of the academic representatives of the study field in various external councils and committees of the University of Latvia;
- International cooperation projects have been implemented, the results of which have been used in the improvement of study programmes, citing as an example changes in the professional bachelor's study programme “Radiography”.

Significant work has been done to reduce drop-outs, the implementation of a student-centred approach and individual work with students has been developed, including in response to the conditions created by the COVID-19 pandemic. The management of internships and practical work has been significantly developed, taking into account the difficult impact of the pandemic on the implementation of practical work. The involvement of students in mitigating the effects of COVID-19, including the implementation of vaccination and the work of the COVID-19 units, was supported, taking this experience into account in the assessment of practice or individual courses. Decisions on the implementation of the study process related to the changes caused by the pandemic were made in the Study Field Council. E-studies, visual materials, recorded videos from practice, etc. were also significantly intensified. The material and technical base and information were greatly expanded and its availability in e-studies was significantly expanded. Surgery and patient examinations were more often videotaped to provide off-site training. In response to the students' feedback, discussions were held with the academic staff on e-communication, and flexible application of consultation times was ensured.

Various activities are implemented for regular analysis and updating of study programmes, as well as for determining the need for improvement of the study process, including purposeful cooperation with employers and professional organizations, formal and/or informal surveys of employers and social partners, focus group discussions, surveys of students on the quality of the study course and organization of the study process, questionnaires of graduates and students on the quality of study programmes, career monitoring of graduates, etc. Quality assurance is based on active

international cooperation with analogous study programmes abroad, involvement of employers and social partners in the development of study content, participation in the assessment of student's achievements during the entire study process, development of qualification papers, provision of practical research, etc.

Professors, associate professors, assistant professors, lecturers working in the field of health care are members of the board of various professional organizations and associations, for example, lecturer **Ilze Aizsilniece** is the president of the Latvian Medical Association (LMA); lecturer **Sarmīte Veide** is the head of the Latvian General Practitioners Association; professor **Gustavs Latkovskis** is the Chairman of the Certification Council of the LMA, a member of the Board of the Latvian Society of Cardiology, the President of the Baltic Society of Atherosclerosis, a member of the European Society of Atherosclerosis; professor **Viesturs Boka** and professor **Alvils Krams** are members of the board of the LMA; associate professor **Maija Radziņa** is the Chief Radiologist of the Ministry of Health and President of the Latvian Association of Radiologists; professor **Uga Dumpis** is the Chief Infectologist of the Ministry of Health; professor **Andrejs Ērglis** is the Chief Cardiologist of the Ministry of Health; associate professor **Jānis Eglītis** is the Chief Oncologist, chemotherapist of the Ministry of Health; lecturer **Dita Raiska** is the president of the Latvian Nurses Association; lecturers **Evija Bakša-Zveja** and **Inese Budzila** are members of the Board of the Latvian Nurses Association, professor **Gunta Krūmiņa** is a member of the Board of the Latvian Association of Optometrists and Opticians (LAOO) and the Chair of the Qualifications Board; associate professor **Aiga Švede** is a Member of the Ethics Commission of LAOO, which provides an opportunity to include topicality of the field in the study process and at the same time ensures continuous feedback to inform the involved parties about the learning outcomes and competences achieved by students and graduates.

The results of surveys of students, graduates and employers are used for the improvement of both individual study courses and study programmes, for example, based on student surveys, changes are made in the composition of lecturers, etc. Based on the results of employer surveys, study programmes are being improved, for example, BSP Pharmacy, on the recommendation of employers, includes the study course *Psychology*, to improve knowledge in psychology, as well as to acquire psychological endurance techniques, as well as Pharmaceutical care simulation laboratories to work in a pharmacy.

Cooperation is ensured between the lecturers involved in the implementation of the study field programmes, including mutual evaluation of lecturers (observation) and regular evaluation of lecturers in the departments of faculty/ies and the chairs. For example, before the election of the academic staff, an open lecture or scientific seminar of the candidate for the academic position is organized. An open lecture or scientific seminar can take the form of a video conference.

Topicalities of quality assurance of the study field and results of the study programmes, annual report, changes in study programmes, and other issues are regularly reviewed and discussed, previously in the Study Programmes Council, now in the Council of the study field "Health Care" and in the Faculties Councils. 14 study programmes from 3 faculties of the UL are implemented in the study field. The directors of all study programmes in the study field, student representatives and representatives of employers have represented in the Council of study field "Health Care" Council. Student representatives are also involved in the work of the Faculty Council.

Regular reports, changes and self-evaluations of the study field are evaluated by the Council of Study Field, the Faculty Council and the Study Programme Quality Assessment Commission of the UL, including independent experts who evaluate the documentation before approval by the Senate of the UL.

2.2.2. Analysis and assessment of the system and the procedures for the development and review of the study programmes by providing specific examples of the review of the study programmes, the aims, and regularity, as well as the stakeholders and their responsibilities. If, during the reporting period, new study programmes have been developed within the study field, describe the procedures of their development (including the process of the approval of study programmes).

The quality of the study field and the study programmes included in it is managed by using the Plan-Do-Check-Act or Deming Cycle, planning the development and improvement of the study field for a period of six years, cascading its goals and tasks up to the level of each study programme and the needs of effective planning by regularly monitoring the requirements, needs and initiators of the involved parties, in accordance with the UL Development Strategy, taking into account national and international policies and trends, as well as the impact of global environmental trends on the UL activities up to the level of each study programme.

Within the framework of the **study quality assurance system of the University of Latvia** (see **Figure 2.2.2.1**), the development of the study field and the interconnection of the study programmes included in it, the development of new study programmes, as well as the results of each existing study programme are planned, controlled, evaluated and reviewed, providing the involvement of the responsible persons of all the management levels of the study field, as well as the representatives of the main involved parties in ensuring the quality of studies. The review of study programmes is regulated by the procedure for preparation of the annual reports of the study fields of the University of Latvia (Order No. 1/290 of 14 July 2020 of the University of Latvia).

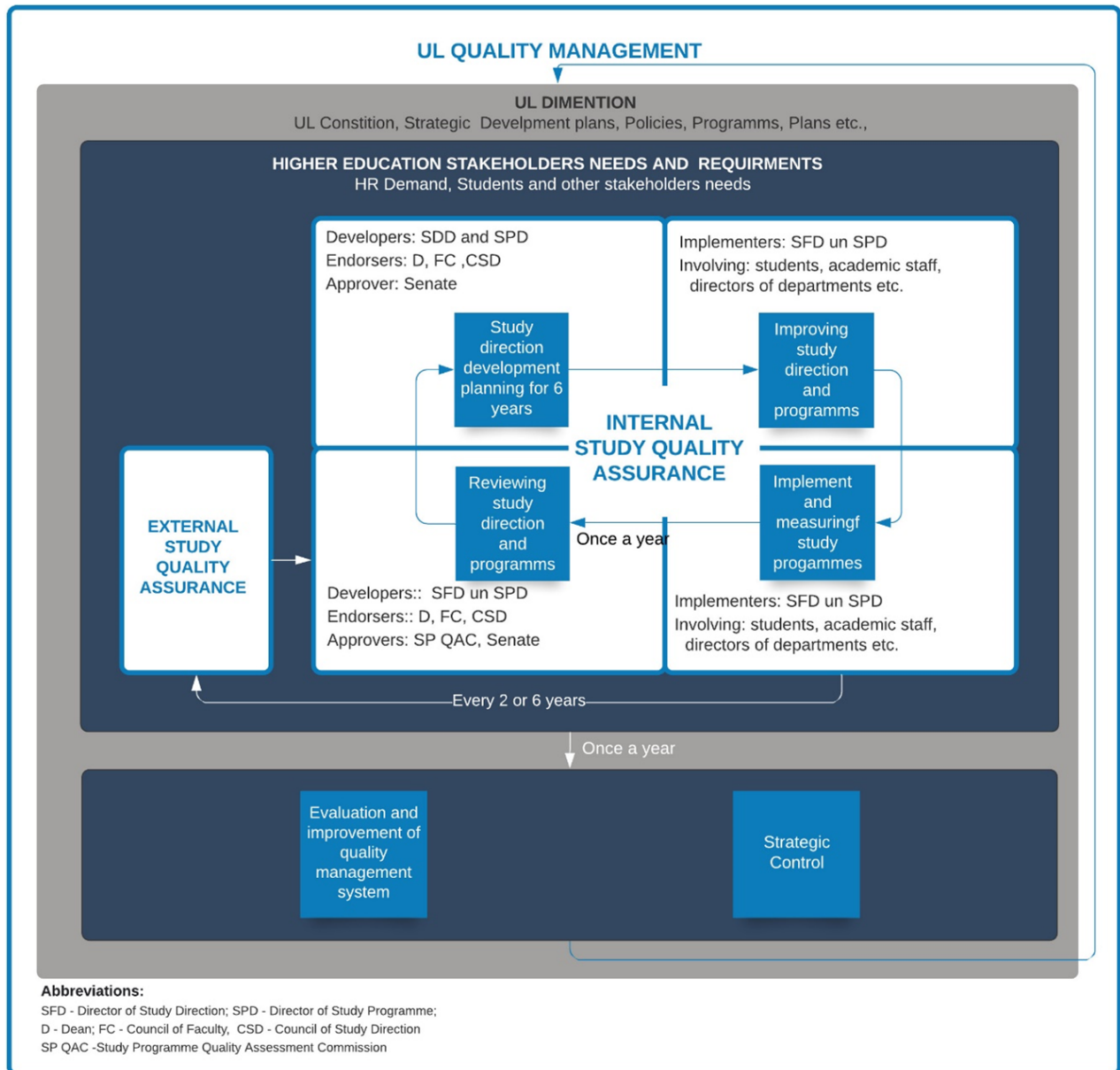


Figure 2.2.2.1 The UL study quality assurance system

The development of new study programmes is regulated by the *Regulations of Study Programmes and Continuing Education programmes*^[1] of the University of Latvia (approved by the Senate of the University of Latvia Decision No. 102 of 24.04.2017), it is implemented in several stages, including coordination and assessment at all levels of government involved in approving the concept of the study programme, as well as coordinating and approving the description of the study programme at the end of the process. For a detailed description of the programme development and concept content, see the *Quality Management System Manual*, Chapter 3.1, Section II. During the accreditation period of the study field, a new Academic Master's Study Programme in Epidemiology and Medical Statistics was developed, which is the only one at the Baltic level. The programme has been developed within the framework of the project "Development of Internationally Competitive and Latvian Economic Development Enhancing Study Programmes at the University of Latvia" (project No.8.2.1.0/18/A/015).

In the process of self-assessment and development of new study programmes, responsibilities are divided between the directors of study programmes, the head of the study field, the Council of the study field, the Faculty Council, the Academic Department and the Study Programme Quality

Assessment Commission, as well as the Senate.

The heads of the study fields of the University of Latvia, in cooperation with the directors of the study programmes, prepare the self-assessment reports of the study field every academic year (hereinafter – the Self-Assessment). Self-assessments are approved by the faculty councils and submitted to the Academic Department. The Academic Department evaluates the adequacy of self-assessments and provides self-assessments for evaluation to the SP KNK, which includes all the UL Vice-Rectors, Chairman of the UL Senate Academic Commission, the UL Students' Representative, the UL Alumni Club Representative, the UL Library Representative, Internal Auditor, as well as representatives of several the UL departments – the Academic Department and the Department of Student Services. The self-assessment reports reflect the implementation of the programmes, current events, changes in the programmes and the process of improvement, the assessment of the stakeholders – both the results of the student surveys and the assessment of the employers. In the process of self-assessment of study programmes, as well as the development of a new study programme, the Academic Department also provides independent expertise, the implementation of substantiated proposals which are considered at the SP KNK meeting. Accreditation self-assessment reports are prepared using the annual self-assessment results. The recommendations of the group of accreditation and licensing assessment experts and the study quality commission are evaluated by the Council of Study Field, preparing a plan for the implementation of expert recommendations, which is agreed with the SP KNK. More information on the content of the self-assessment of study programmes and the process of ensuring external accreditation in Sections IX and X of Chapter 3.1 of the UL Quality Management Manual.

The development of new study programmes at the University of Latvia takes place in accordance with the procedures specified in the Regulations of the Study Programme and Continuing Education Programmes of the University of Latvia and includes the following stages:

- elaboration of the concept of the study programme in coordination with the vice-rector of the field and the dean of the faculty, and its approval by the faculty council;
- assessment of the study programme concept, attracting experts, and approval by the Study programme Quality assessment Commission of the University of Latvia (SP KNK);
- development of a full-scale study programme, assessment with the involvement of an expert, and approval both in the Faculty Council and in the Senate of the SP KNK and the University of Latvia.

The heads of the study fields of the University of Latvia, in cooperation with the directors of the study programmes, prepare the self-assessment reports of the study field every academic year. Self-assessments are approved by the faculty councils and submitted to the Academic Department. The Academic Department evaluates the adequacy of self-assessments and provides self-assessments for evaluation to the SP KNK, which includes all the UL Vice-Rectors, Chairman of the UL Senate Academic Commission, the UL Students' Representative, the UL Alumni Club Representative, the UL Library Representative, Quality Manager, as well as representatives of several departments – the Academic Department and departments of Student Services. Involving both internal and external experts and cooperating with the University of Latvia Alumni Club in involving experts. The aim of the review of study programmes is to evaluate and improve the quality of their content and implementation. The self-assessment reports reflect the implementation of the programmes, current events, changes in the programmes and the process of improvement, and the assessment of the stakeholders – both the results of the student surveys and the assessment of the employers.

Based on the decision of the SP KNK, the opinions prepared by the experts are evaluated in the Study Programme Councils, preparing a plan for the implementation of the experts'

recommendations.

The following are involved in the review of study programmes:

- study programme directors – their area of responsibility is related to ensuring the development, management and implementation of the study programme, review, assessment and improvement of the study programme (refer to Regulations on the Management of the Study Fields of the University of Latvia, Section 22);
- head of the study field – his/her responsibilities include the development of the study field strategy, ensuring accreditation and re-accreditation, in cooperation with the programme directors – annual self-assessment of the quality and development of the study field, improvement, etc.;
- Dean of the Faculty – responsible for the organization of the Faculty's study work, economic, financial activities and record-keeping, reports annually to the Faculty Council and the Rector, etc. (see the Constitution of the University of Latvia, approved at the Constitutional Assembly sitting of the University of Latvia on 29 March 1996);
- The Council of Study Field – functions include strategic management of the study field, development planning and supervision, including quality assurance and improvement reports, development of new study programmes and assessment and approval of changes in study programmes (see Regulations on the management of study fields at the University of Latvia, Section 7);
- Faculty Council – evaluates and approves changes in study programmes, self-assessment reports of study fields, etc. (see the Constitution of the University of Latvia, approved at the sitting of the Constitutional Assembly of the University of Latvia on March 29, 1996);
- Academic Department – analyses study programmes and courses, provides proposals for their improvement, reorganization or closure, etc.
- UL Study programme Quality assessment Commission – evaluates new study programmes, significant changes in existing study programmes, annual self-assessments of study fields, results of study fields and programmes and prepares proposals for the Faculty Council and the UL management on further programme development, etc.;
- UL Senate – evaluates and approves conceptual documents regulating the study process, self-assessment reports of study fields, etc.

In order to obtain feedback from the parties involved in the study process and related to the results of their activities, the following surveys are regularly organized at the University of Latvia:

- a survey of the first-year students on the commencement of studies;
- a survey of the first-year students on the first experience of studies;
- a survey on study courses and the work of teaching staff, including a survey on study practice and a survey on course papers and final theses (hereinafter – survey on courses);
- a survey of the first-year students in the study programme;
- a survey of those students who have expressed a wish to terminate their studies at their own request, or of those who have already terminated their studies, hereinafter – a survey of those who have dropped out of studies;
- graduate survey;
- employer survey;
- a survey on the “trial” of the second study programme.

The results of the surveys are analysed and discussed within the study field, as well as reflected in the annual self-assessment reports.

Every year, the head of the study field in cooperation with the programme directors prepares a Self-Assessment Report, which reflects the improvement activities carried out in the study field and

study programmes.

Improvement of the programmes takes place by reviewing the study results of the programmes, regularly updating the study courses, evaluating the content, including topics corresponding to the innovations and current events of the study field, changing the number of study courses if necessary, increasing or decreasing the number of CP, combining study courses with similar topics, avoiding duplication, new courses are introduced, those that have become obsolete are removed, new forms of study are introduced in study courses, for example, laboratory works are introduced with the aim to improve students' research skills, as well as competence-based education is introduced, the material and technical equipment is significantly improved, especially in recent years, microscopes are bought, modern methodological materials, such as moulages, etc. are purchased.

In preparation for the European quality assessment, significant changes have taken place in the Bachelor's study programme and Professional master's study programme during the reporting period, the content of the study courses has been significantly changed, new study courses have been introduced, previous ones have been replaced, etc., thus improving the study programme and study courses requirements.

During the reporting period, 3 new study programmes have been developed within the study field – SP Dentistry (2014) – the programme is implemented in English, MSP Sports Science (2019), MSP Epidemiology and Medical Statistics (2020), significant changes and a new license has been received from PBSP Nursing, five new sub-programmes have been created in SP Medicine, and the development of new study programmes is planned in the future. The study field has been supplemented with new study programmes that are competitive in the offer of local and foreign study programmes.

[1]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/3/Study_and_continuing_education_programmes.pdf

Documents available in English

<https://www.lu.lv/en/about-us/documents/>

2.2.3. Description of the procedures and/or systems according to which the students are expected to submit complaints and proposals (except for the surveys to be conducted among the students). Specify whether and how the students have access to the information on the possibilities to submit complaints and proposals and how the outcomes of the examination of the complaints and proposals and the improvements of the study field and the relevant study programmes are communicated by providing the respective examples.

At the University of Latvia, observing the principles of democracy and equality, as well as the quality management policy of the University of Latvia, the participation of applicants and students in the assessment of the UL study process is ensured at all stages of the study process, from admission to the final work. In matters regarding the enrolment procedure, the UL applicants have the right to submit complaints to the chairman of the admission commission.

The right of LU applicants to submit complaints about violations in the admission procedure is provided by the Admission Regulations at the University of Latvia (LU Senate Decision No. 2-3/68 of 31 May 2021), determining the procedure for submitting, reviewing and appealing a decision.

In turn, in order to improve the quality of studies, students have the right to submit proposals and complaints about the course of study processes, incl. on the evaluation of examinations and final theses. In order to ensure the quality of the study process, the University of Latvia has developed and implemented the *"Procedure for Submission and Review of Student Proposals and Complaints"* (see Order No. 1/21 of 18 February 2002). The procedure determines the form in which students individually or in groups may submit proposals and complaints in writing, as well as the procedure for their registration and evaluation. Proposals and complaints about the study process can be submitted to the deans of the faculties (about the list of classes, the organization of studies at the faculty, the quality of studies implemented by the faculty and its improvement, non-performance of duties by faculty staff, etc.). Proposals must be replied to within 15 days or 30 days if additional information is required. It is important that Paragraph 17 of the mentioned procedure directly stipulates that: "At the end of each academic year, the Dean of the Faculty must submit to the LU management a report on the complaints received during the previous academic year and the decisions made in this regard." This indicates the cyclical monitoring of internal control mechanisms and the submission of complaints, decision-making, observance of students' rights and interests, which is important in ensuring the proper functioning of this system and also in its possible improvement.

For the full assessment of the study processes of the University of Latvia, the *"Procedure for Organizing Study Course Examinations at the University of Latvia"* has been developed and implemented, which sets out the right of students to submit complaints about the procedural or assessment procedure. The student has the right to submit an application to the lecturer who has assessed the examination within five working days from the notification of the assessment to LUIS (provided that the student has requested a justification of the assessment from the lecturer before submitting the complaint). The lecturer must review the application within 5 working days. If the lecturer considers that the student's application is not substantiated, he/she shall submit the application to the head of the department for review and decision-making.

An important guarantor of the internal quality control of the University of Latvia and the proper realization of students' rights at the end of their studies is the *Regulations on Final Examinations at the University of Latvia* (see Decision No. 183 of the Senate of the University of Latvia of 27 December 2011), where Clause 5.19 stipulates that the student has the rights to submit an appeal: 1) if the dean has not given him or her permission to take the final examinations; 2) on the course of the final examination. The regulations explicitly state that a motivated appeal must be submitted to the chairman of the appeal commission within three working days after the announcement of the results of the final examination or the refusal to include them in the list of students who are allowed to take the final examinations. It is important that the head of the study field (dean of the faculty) should establish the appeal commission not later than two weeks before the examination. The Regulations provide for the procedural procedure for the submission and review of appeals, as well as the right of students to submit a complaint to the Vice-Rector regarding procedural violations in the work of the Faculty Appeals Commission. As can be seen, also in relation to the final examinations, the University of Latvia has established a proper two-stage system for the submission and review of complaints, which ensures the observance of students' rights and interests in the acquisition of study programmes included in the study field. The Dean of the University of Latvia MF approves the appeals committee for the academic year, which includes lecturers. It should be noted that the representatives of the academic staff included in the MF Appeals Commission are not part of the final examination commission of the specific study

programme in order to ensure objectivity and neutrality in the examination of appeals.

The University of Latvia also has an Academic Arbitration Court, the regulations of which provide for the possibility to apply to this collegial institution for any issues related to studies, including the control of the observance of assessment principles.

Students have the right to contest the order on ex-matriculation adopted by "*Procedure for the competition (rotation) of study places subsidized by the state budget of the University of Latvia*" (see *Decision No. 381 of the Senate of the UL of 25 June 2010*). In its turn, the "*Procedure for Application of Tuition Fee Reliefs (UL Order No. 1/89 of 14 April 2009)*" envisages the possibility for students to contest decisions on granting or not granting tuition fee exemptions within one month of notifying the student by submitting a written application to the Rector.

In its turn, the "*Procedure for Termination of Studies at the University of Latvia*" (see *the decision No. 178 of the Senate of the UL of 01.12.2008*) provides the right to contest the decision of the dean regarding the refusal to grant a study break to a student. The "*Procedure for Starting Studies in the Later Studies at the University of Latvia*" (see *Order No. 1/128 of the UL of 8 June 2009*) also provides the right to contest the decisions made by the Dean within a specified period.

Subject to the rights of students also outside the study process, for those students who use the UL student hotels, the "*Regulations of the Internal Procedure of University of Latvia Student Hotels*" (see *LU Order No. 1/171 of 30.06.2009*) determine the rights and obligations of students, incl. the right to complain about problems in student hotels. Such issues are dealt with by the seniors of the student hotel.

Every student has the right not only to use the right provided by the Academic Code of Ethics of the UL (Decision No. 2-3 of 46 of the Senate of the UL of 26.04.2021) to apply to the Academic Ethics Commission of the UL for possible ethical violations but to submit proposals to improve the Code and its implementation to the Academic Ethics Commission of the UL.

Proposals and complaints of all processes are registered in the structural units or commissions in which they are submitted, as well as notes are made on the results of the review of the complaint and the decisions taken.

At the regulatory level of the University of Latvia, see the "*Regulations on the UL Visiting Students from Latvian Higher Education Institutions*" (see *the UL Order No. 1/17 of 25.01.2006*) has defined the principle that visiting students have the same rights and obligations during the study process at the UL as the UL students, which means that the system for submitting and examining proposals is equally applicable to these students.

It can be concluded from the above that the centralised segment of the UL complaints and proposals submission and review system covers all components of each student's study life, as it applies to both admission to the University of Latvia and studies throughout the cycle, as well as to final examinations.

Students are informed about the opportunities to discuss all issues with faculty, heads of chairs, departments, study programme directors and deans during admissions, which is often the most efficient, operative and procedurally economical way to resolve any uncertainties.

The implementation of the study field "Health Care" programmes emphasizes the small number of uncertainties or conflict situations, which confirms the suitability of the existing procedure for submission, review and decision-making of complaints and proposals.

During the reporting period, three appeals were submitted in the implementation of the study field implemented by the MF of the University of Latvia, of which two were satisfied, but one appeal was

rejected. In the case of satisfying appeals, the decisions of the State Examination Commissions were reviewed and students were again given the opportunity to take the contested part of the examination.

2.2.4. Provide information on the mechanism for collecting the statistical data, as developed by the higher education institution/ college. Specify the type of data to be collected, the regularity of collection, and the way the information is used to improve the study field. Describe the mechanism for obtaining and providing feedback, including with regard to the work with the students, graduates, and employers.

In order to control, analyze and forecast the dynamics of the number of students, LU twice a year collects data on:

- data describing the number of applicants and matriculated students and their profile, such as the institution of secondary education, the year of graduation of the institution, the assessment obtained in the secondary education examinations, age, gender, previous higher education and the assessment obtained in its examinations;
- the number of students, by faculties, study programmes, study levels, study years, study forms and types, source of study funding, study status - exmatriculated as not fulfilling academic obligations, exmatriculated as not fulfilling financial obligations, exmatriculated as obtaining a degree (graduate), study break.

In order to control the progress of students' studies and the implementation of the program, the University of Latvia collects data on:

- the intermediate and final assessment of the acquisition of the study courses of the students, broken down by types of examinations, the final results of the final examinations, the weighted average mark; data are collected once a semester;
- completion of the study program, in accordance with the conditions for the acquisition of the program, in the distribution by study semesters, parts of the programme (compulsory part, limited choice part, free choice part and others, in accordance with the structure of the program); data are collected once a semester;
- students' academic debts in credit points, broken down by study semesters, parts of the program, study courses; data are collected once a semester;
- fulfilment of the study payment schedule provided for in the student agreement, broken down by study programmes, semesters.

In order to obtain information for the planning and efficient use of study resources, the following statistical information is collected in connection with study programmes:

- financing of study places, broken down by study places financed from the state budget, financed by the University of Latvia and paid for by students;
- the number of recipients of student scholarships and the number of recipients of study credits and student loans;

During the reporting period, in 2017, four cases of plagiarism were detected in three study programmes within the study field, in three cases students were exmatriculated for a significant violation of LU internal regulations and one student was warned about exmatriculation, in 2018 six cases were detected in two study programmes. One case of plagiarism was detected in 2019, in all these cases students have been warned about exmatriculation, in 2020 and 2021 no cases of

plagiarism were detected. The warning about ex-matriculation means that students must improve their final thesis, in accordance with the requirements and for their defence can be submitted no earlier than after one year.

The cases of plagiarism revealed to show that the system by which the signs of plagiarism are determined in students' work works effectively and violations of the principles of academic integrity are not allowed.

In order to assess the satisfaction of students, graduates and employers with the quality of studies and its results, as well as to take the necessary improvement measures, the University of Latvia organizes and collects data on the following surveys:

- a survey of the first-year students on the commencement of studies, which is conducted electronically once a year. The aim of the survey is to find out the motivation for choosing the study field and programme and the sources of obtaining information, as well as to obtain an assessment of the application and registration process in order to improve the set of measures for attracting students. The data are compiled and analysed by the Academic Department of the University of Latvia, but the necessary improvement measures are proposed by the management of the University of Latvia, the management of the faculty, the programme directors, in cooperation with the administrative departments of the University of Latvia;
- a survey of the first-year students on the first study experience, which is conducted electronically once a year. The aim of the survey is to obtain an assessment of the first study experience at the University of Latvia and study support measures in order to improve the study environment and facilitate the adaptation of students. The necessary improvement measures are proposed by the management of the faculty and the Academic Department, in cooperation with other departments of the University of Latvia;
- to find out the students' opinion on the content of the study courses and to obtain the assessment of the work of the teaching staff, a survey on the study courses, including the study practice, term papers and final theses, is conducted in electronic form every semester. The data are collected by LUIS and are available to the teaching staff, programme directors and the dean of the faculty, the Academic Department. Data analysis is performed by the programme directors, the dean, the necessary improvement measures are proposed by the programme director, the dean and the study programme council. The results are used in the preparation of annual reports on study fields, as well as in the preparation of study programme development plans;
- to obtain students' assessment of the study programme for its further development, improvement of the study process, quality and study environment, a survey of the students of the last study year about the study programme as a whole is conducted. The survey is conducted in the electronic form once for each study programme. The summary of the results is made by LUIS and is available to the programme directors and the dean of the faculty. Data analysis is performed by the programme directors, the dean, the necessary improvement measures are proposed by the programme director, the dean and the council of study field. The results are used in the preparation of annual reports of study fields, self-assessment reports of study fields for accreditation and re-accreditation of the study fields, as well as in the preparation of study programme development plans;
- in order to identify the main reasons for dropping out of studies and to promote the reduction of student drop-out, a survey is conducted for students who have expressed a wish to drop out of studies or have already dropped out of studies. The survey is conducted throughout the academic year, while the results are compiled by the Academic Department once a semester;

- the aim of the graduate survey is to obtain an assessment of graduates' satisfaction with the quality of the acquired programme, the knowledge, skills and competencies acquired at the University of Latvia, the contribution of the graduated study programme to their employment, as well as the plans for continuing studies;
- the aim of the survey of employers is to find out how employers assess the compliance of the knowledge, skills and competencies acquired by the graduates of the University of Latvia with the requirements of the labour market.

The results of the survey obtained during the reporting period show that first-year students are generally satisfied with the study environment, that faculty are responsive and understanding, that the overall impression of the study content is positive, that faculties have easy access to the Internet, that LUIS understands that they are informed about where to turn if necessary, that the necessary information about the study process is easy to find, that the premises in the faculties are well equipped, that the information available in e-studies is sufficient, that the resources available in the UL libraries are sufficient, that the support provided by faculty clerks facilitates study the process that the information on the extracurricular opportunities offered by the University of Latvia is sufficient. 79% of the surveyed first-year students consider that they have chosen the right study programme. 47% of students in the first year of the study indicate that their perceptions of studying at the University of Latvia have improved compared to what they expected. This is relatively more often acknowledged by respondents studying at BF, MF, TF and VFF. 45% of respondents admit that their perceptions of studying at the University of Latvia have not changed – it is acknowledged by every second of those who study at FMOF, HZF, JF and SZF.

Graduate surveys are organized every year and starting from 2016 they are electronic surveys, for example, in 2016 the graduate survey was organized by the UL Foundation, 307 respondents participated, which MF graduates are in the TOP 3 for work in the industry (see **Figure 2.2.4.1**).

Please indicate which sector you are currently working in? If you are working in more than one sector, please specify one – main.%

Base: Graduates who are currently a employee, employer or self-employed, n = 279

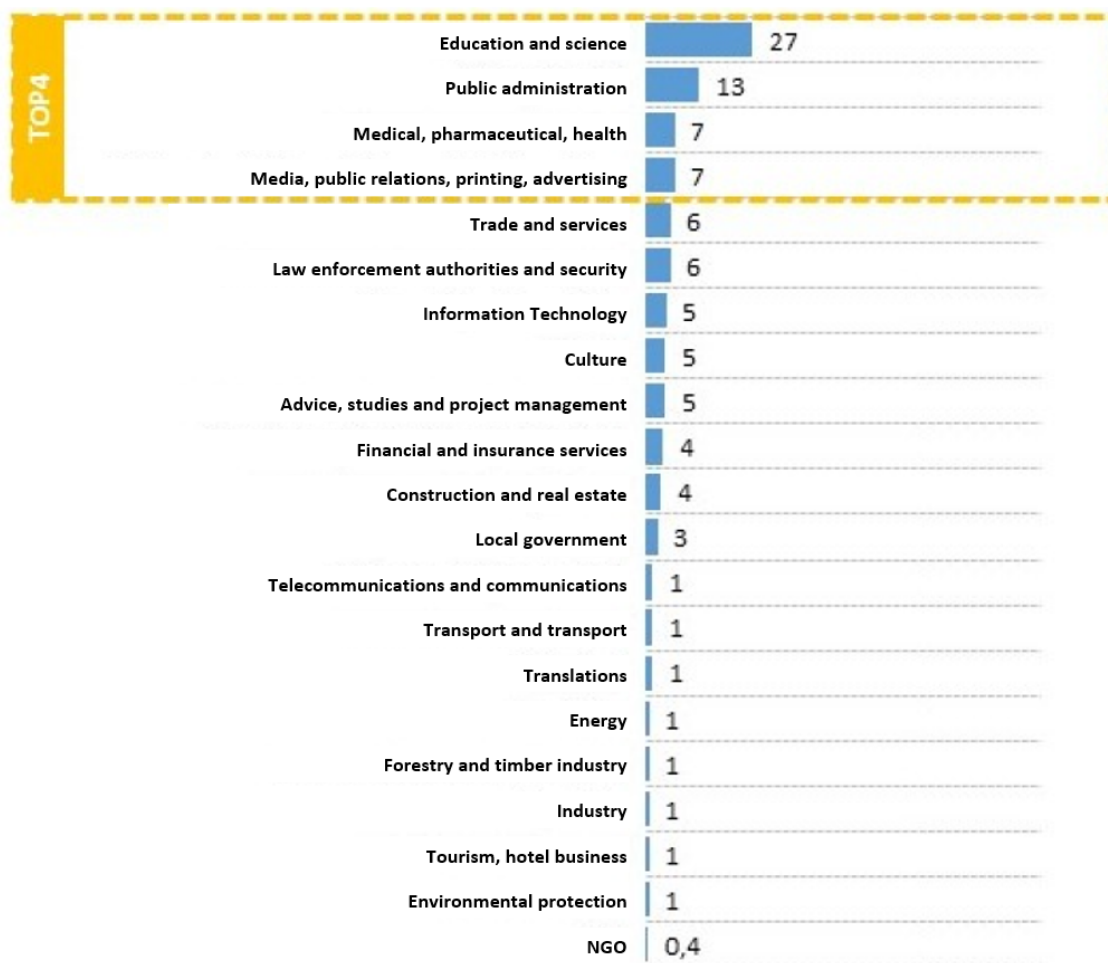


Figure 2.2.4.1 Industry in which graduates work

In the survey, graduates unequivocally indicated that they recommend studying at the University of Latvia to others, but in the question of why they recommend, the main priority is the opportunity to obtain a quality education (see **Figure 2.2.4.2**).

Please note the three main reasons why you chose to recommend

%, cross-answer, $\Sigma > 100\%$

Base: Respondents who would recommend an institution of higher education [Graduates, n = 286; Citizens, n = 977]

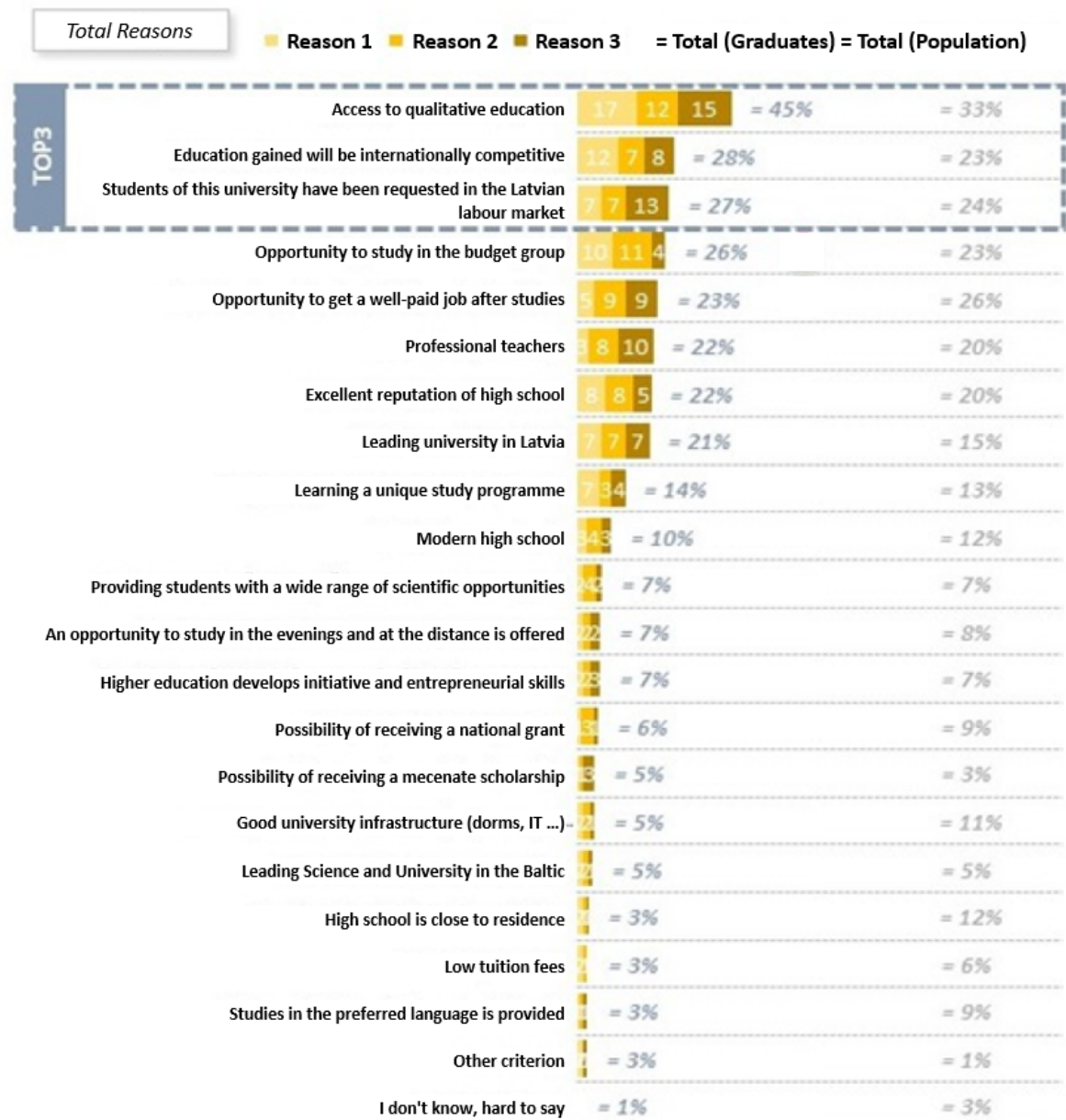


Figure 2.2.4.2 Please note the three main reasons why you chose to recommend UL.

Cooperation with employers takes place every year in the assessment of study programmes, the definition of practice tasks, in-state examination commissions, development of professional standards, both in the context of professional organizations and in the form of surveys. For example, the largest employer for graduates of MF professional programmes is REUH (Riga East University Hospital). In the question – Your comment about the theoretical and practical training of the employees of the company/institution – graduates of (UL Faculty of Medicine) – and their specific skills:

REUH comment “Theoretical and practical training after the residency is at a good level and meets the current needs of the institution for the provision of multi-profile emergency care, as well as the provision of secondary and tertiary level health care services by working in a team”

Question – How would your company/institution cooperate with the University of Latvia?

REUH's comment is:

- *"Improvement and modernisation of the learning environment and infrastructure based on mutually balanced and motivated investments.*
- *Implementation of joint research and innovation programmes at different levels.*
- *With the development of the base of regulatory enactments, the active involvement of students in the medical and patient care work of the inpatient wards of the Riga Eastern Clinical University Hospital.*
- *Cooperation in organizing scientific and educational conferences.*
- *Cooperation in the development of a register of master's theses in accordance with the capacity of the Riga East University Hospital."*

Every year, the head of the study field in cooperation with the directors of the study programmes prepares a report on the activities of the study field and the programmes included in it during the academic year. In the preparation of the report, the collection and analysis of statistical data are performed, and the obtained information is used for the development and implementation of the study field improvement plan. The report includes the following statistics, which are collected and analysed annually:

- the list and the total number of higher education institutions (HEIs) in Latvia that implement study fields;
- the number of study programmes in other study fields implemented by HEIs, broken down by study levels and indicating the total number;
- a description of the study programmes that are implemented in the study fields implemented by other HEIs;
- the number of students in the programmes, indicating the total number, the number of matriculated students in the 1st study year, the number of graduates;
- teacher mobility during the reporting period;
- involvement of employers in the programmes during the reporting period;
- the number of students in the programmes who study at foreign universities within the framework of exchange programmes;
- number of foreign students in the programmes;
- summary and analysis of the results of the student survey on the study courses of the programme;
- summary and analysis of the results of the student survey on the study programme in general.

The report on the study field and the operation of the study programmes included in it during the academic year promote the analysis of the quality and operation of the study field and study programmes, as well as seeks development and improvement opportunities, for example, the programme, both in terms of content and implementation, and points to possible weaknesses that need to be addressed or addressed immediately. Based on the students' feedback, the lecturers of specific study courses have been changed, or changes in the content of the study courses have been made, for example, the study courses are being merged because they overlap in content, or new topics are being included in the study courses.

HEIs that implement the study field and the total number of study programmes included in them by study levels allow being aware of the role and significance of the study field in Latvia. Undoubtedly, it also allows to look for opportunities and ways to create new study programmes or sub-programmes, for example, increasing the number of sub-programmes of the second level Higher Professional Education Study Programme Medicine (residency) increases competitiveness in educating residents in Latvia.

Statistics on the number of students allow analysing the quality of the study programme, student satisfaction with the programme, whether there is a huge difference between the number of enrolled and graduated students, or whether there are any problems related to student dropout, how to solve them, etc.

The involvement of employers in the study programme clearly indicates the connection of the programme with the current labour market, taking into account the recommendations of employers, students are prepared in accordance with labour market requirements, attention is paid to current events and innovations, changes in the study programme, strengthening weaknesses and emphasizing strengths.

In the 2019 OECD Education Review[1] It is indicated that on average in OECD countries 1.1% of the population in the age group 25-64 have a doctoral degree, while in Latvia this indicator is 0.4%. Compared to master's degree graduates, the employment opportunity for employees with a doctoral degree is relatively 5% higher in Latvia, 10% higher in Finland and Hungary, and even 12% higher in Italy. European Science Foundation study[2] results show that at the European level, 46% of doctoral candidates have a job directly related to the field in which they obtained their education.

In 2020, PricewaterhouseCoopers SIA (hereinafter – PwC) evaluated the content, structure and implementation of study programmes offered by the University of Latvia in the context of student-centred learning and competitiveness. PwC also conducted a graduate survey, and the recommendations from the graduate survey are: the entire study programme platform needs to be digitized, guest lecturers are needed (in the best case from abroad), there should be a possibility to watch lectures digitally from their computers, but seminars can be organized on-site to develop communication skills. This should certainly also apply for advising, if digital, it would be more accessible and teachers could develop a more individual approach to students.

[1] https://www.oecd-ilibrary.org/education/education-at-a-glance-2019_f8d7880d-en

[2]

https://www.esf.org/fileadmin/user_upload/esf/F-FINAL-Career_Tracking_Survey_2017__Project_Report.pdf

2.2.5. Specify the websites (e.g., the homepage) on which the information on the study field and the relevant study programmes is published (in all languages in which the study programmes are implemented) by indicating the persons responsible for the compliance of the information available on the website with the information published in the official registers (State Education Information System (VIIS), E-platform).

The target audience of the UL website <https://www.lu.lv/> (hereinafter – the website) is the future and current students, employees, cooperation partners, scientists and the general public of the University of Latvia.

The website is intended for the availability and storage of public information, providing an opportunity for its visitors to get acquainted with information about the activities of the University of Latvia in digital form in the Internet environment.

The site consists of the following sections:

- ROTARY NEWS – significant information of the University of Latvia using the identity of the visual image of the University of Latvia, which has certain parameters and which strengthens the image of the university and promotes its recognition in the digital environment;
- NEWS AND EVENTS – the UL news and planned events. The information is prepared by the structural units of the University of Latvia and the Communication and Innovation Department;
- DISCOVER the UL – information about studies, outside study life, science;
- STUDIES – with subsections:
 - College studies;
 - Bachelor's studies;
 - Master's studies;
 - Doctoral studies;
 - Residency.

The information is prepared and posted on the website by the Department of Communications and Innovation in cooperation with the Department of Studies and the Department of Student Services.

The STUDIES section in Latvian provides information on programme goals, tasks, study results, programme volume and duration, programme study language, information on job opportunities after graduation, as well as programme study plans. If you have any questions, please contact us for more information. This section also publishes useful information for studies under the subsection STUDY PROCESS – academic calendar, lecture timetable, consultation times, the most important documents and sample forms, information on mobility opportunities in foreign universities, recognition of experience/education, lifelong learning opportunities, as well as references to the UL e-study website and the UL information system LUIS.

The section contains information about the UL Library offer, information about the Career Centre. Student Council activities.

The two sub-sections STUDENT LIFE and MORE THAN STUDIES inform both current and potential students about accommodation facilities, catering, car and bicycle parking, mentor support, as well as information needed by people with special needs. There is a wide range of information about opportunities to enrich your extracurricular life with sports and culture.

The EDUCATION section contains information for students, those who want to study and existing students. In this section, students can get acquainted with the events and creative competitions organized by the faculty, in the participation of which it is possible to get additional points for enrolment. Information on programmes at all levels, admission requirements, information on receiving loans and scholarships, and the possibility of resuming studies is published on the website for those wishing to study. Those who want to study can get acquainted with the most frequently asked questions and answers, get information about the activities of the Career Centre, preparation courses and classes for school students.

Other sections – SCIENCE, COOPERATION, ABOUT US. They provide more information about the activities of the University of Latvia in research, about projects, conferences, cooperation partners, regulatory enactments, strategy.

The annual self-assessment reports and reports of the study field can be found on the website www.lu.lv/par-mums/dokumenti/pasnovertejuma-zinojumi/ (information only in Latvian).

The websites of the structural units (faculties) provide information on the programmes offered by the particular faculty, on the scientific activities of the faculty. The content blocks are exactly like

on the official website of the University of Latvia, only more specific information is prepared directly about the activities of the faculty. From the UL website, you can go to the faculty website via the faculty business card.

On the MF website www.mf.lu.lv, where prospective students can get all the necessary information about the offered study programmes, admission procedures, about the classes and activities offered to MF by students, for example, the *School of Young Medics*, *In the Student Shoes*, etc. Students on the same website can find information about the library, patronage scholarships, exchange programme opportunities – ERASMUS+ studies, ERASMUS+ internship opportunities. Those interested have the opportunity to find information about the history of MF, contact information for departments, centres and study programme clerks.

Information about the BSP Optometry and the PMSP Clinical Optometry can be found on the website of the Faculty of Physics, Mathematics and Optometry of the University of Latvia (hereinafter – FMOF) www.fmof.lu.lv, the information about the joint MSP Nutrition and MSP Sports Science is available on the website of the Faculty of Biology of the University of Latvia (hereinafter – BF) www.bf.lu.lv.

In order to inform the widest possible audience as soon as possible about current events at faculties, various events, seminars and conferences, achievements, discoveries, etc., social networks are widely used – Facebook, Twitter, Instagram – where MF, FMOF and BF have established their own accounts, which they actively use to publish information, so in this way, it is possible to inform those interested very quickly about current events at the faculties.

The heads of the structural units of the University of Latvia are responsible for the preparation of the information within the competence of the structural units they manage on the website, its accuracy and updating. The content administrators of the departments' websites are responsible for the maintenance of the website, the posting of the prepared information and its regular updating. At the UL MF marketing specialist Madara Marija Ose, the UL FMOF dean assistant and public relations specialist Anete Enikova, and the UL BF public relations specialist Madara Rakšte are responsible for content placement.

2.3. Resources and Provision of the Study Field

2.3.1. Provide information on the system developed by the higher education institution/college for determining and redistribution of the financial resources required for the implementation of the study field and the relevant study programmes. Provide data on the available funding for the scientific research and/or artistic creation activities, its sources and its use for the development of the study field.

The system of the University of Latvia for financing the study field and the corresponding study programmes are based on the Law on Higher Education Institutions, 12.12. 2006 Regulations No. 994 “Procedures for Financing Higher Education Institutions and Colleges from the State Budget”, Cabinet of Ministers 05.07.2016. to Regulation No. 445 “Regulations on Teachers' Remuneration” and other external and internal regulatory enactments.

The funds available for the study field “Health Care” implemented by the University of Latvia are determined by the state budget financing (grant) and income from tuition fees provided for the

specific field of study.

The amount of state budget funding for a particular academic year is determined in accordance with the agreement between the Ministry of Education and Science and the University of Latvia. The amount of funding is affected by:

- the number of study places financed from the state budget in the study programme;
- base costs of the study place in the given year;
- level of the study programme
- cost ratio for the thematic area of education.

Tuition fees for each programme at the University of Latvia are determined annually based on the planned cost of the study place (which includes all projected costs – remuneration of teaching staff, material and technical support, infrastructure maintenance and administration costs), tuition fees offered by other universities. The tuition fee for a specific student for each academic year is determined for the entire study period.

Both the state budget funding and tuition fees are summarized in the total budget of the University of Latvia for the specific financial year. The budget of the University of Latvia is formed in accordance with the general principles of budgeting and the budget procedure established for each year.

The basic structural unit implementing the study programme of study fields plans the tuition fee revenues for the specific calendar year by submitting them to the Academic Department, which compiles them and submits them to the Department of Finance and Accounting for the formation of the total budget of the University of Latvia.

In accordance with the principles of budgeting of the University of Latvia, the planned revenues of the study field are distributed as follows: 74% of indirect costs are allocated to cover direct and directly attributable costs of the study field (to cover all supporting processes – information resources, marketing, IT, financial accounting, management, provision of sports, cultural and social activities, development programmes) – 26%.

The relevant basic structural units – the faculties in cooperation with the Finance and Accounting Department – plan their direct costs for the specific financial year.

The Finance and Accounting Department prepares the general draft budget of the University of Latvia and the Chancellor of the University of Latvia forwards it to the Finance and Budget Commission of the Senate, from where it is forwarded for approval to the Senate of the University of Latvia.

After the approval of the current year's budget, the planned revenues and expenditures of the specific basic structural unit are imported into the UL IT system, which is linked to the accounting system and provides an opportunity to track the actual financial situation of the respective basic structural unit throughout the year.

The dean of the faculty and the executive director, who performs the operational financial management of the basic structural unit, are responsible for the rational use of the financial resources of the respective faculty within the budget.

The Finance and Accounting Department is responsible for monitoring the implementation of the budget and preparing appropriate reports for the management and controlling organizations of the University of Latvia.

Study costs

In order to organize the study process, the University of Latvia must provide sufficient funds for the entire study process, including the remuneration of teaching staff, maintenance of infrastructure and material and technical base, library and all other facilities. The list of costs is shown in **Table 2.3.1.1**.

Table 2.3.1.1

Study process costs

Type of costs	Explanation
Teaching staff costs	<i>The norms of teaching staff costs at the University of Latvia are determined by a separate order of the Rector for the entire university. Taking into account the specifics of studies and available resources, the management of the faculties may set different regulations in coordination with the Vice-Rector for Studies.</i>
Contact hours – for group work	<i>The workload of lecturers for lectures, seminars, practical and laboratory works</i>
Contact hours – for individual work	<i>Independent work management, consultations and exams</i>
Methodical work	<i>Preparation for the learning process, preparation of new courses</i>
Student work management	<i>Course papers, supervision of final theses, state examinations</i>
Practice	<i>Costs of relevant trainees</i>
Review and assessment	<i>Assessment of course and final works</i>
Scientific work of lecturers	<i>The amount of scientific work of the teaching staff determined by the University of Latvia, which is to be paid from the study funding</i>
Organizational work of teachers	<i>Participation in collegial councils, programme director, head of the department, organization of licensing and accreditation documentation preparation.</i>
General staff costs at the faculty	<i>Costs of organizing and providing study support staff, faculty activities.</i>
Other direct costs of specific study programmes	<i>Rental of external services, premises, additional equipment, transport rental, etc.</i>
Provision of premises	<i>Premises costs, including utilities, repairs and maintenance.</i>
Provision of study programmes	<i>Materials, technical equipment, visual aids, etc., experience exchange trips, training.</i>
Indirect costs	<i>University operational support (IT, finance, staff, marketing, etc.) and development costs. Deduction of 26% of indirect costs from income has been determined for the study process at the University of Latvia.</i>

In order to assess the number of funds required for financial provision, the University of Latvia for study programmes calculates the cost according to its own methodology, using the information on the structure and costs of the programme and teaching staff and the number of students. The cost

costs of the study field "Health Care" study programmes with the distribution of the types of costs mentioned in **Table 2.3.1.1** are shown in **Table 2.3.1.2**.

In situations where the costs of the programme are high, for example, due to the relatively small number of students, high additional costs or other reasons, the faculty seeks to streamline the study process by reviewing the programme structure, organizing joint lectures or other events, and setting appropriate tuition fees.

The provision of funds required by the UL involves 1) state budget grants in the form of subsidies from the Ministry of Education and Science and 2) tuition fees.

Table 2.3.1.2

The cost structure of study programmes[1]

Programme	Optometry	Optometry	Optometry	Clinical optometry	Clinical optometry	Clinical optometry	clinical optometry	PHarmacy	PHarmacy	Sports Science	Medicine	Medicine	Nursing	Radiography	Residency
Type	PLK	PLK	NLN	PLK	NLK	PLK	NLN	PLK	PLK	PLK	PLK	PLK	PLK	PLK	PLK
Language	LV	ENG	ENG	LV	LV	ENG	ENG	LV	LV	LV	LV	ENG	LV	LV	LV
Level	Bak	Bak	Bak	Mag	Mag	Mag	Mag	Bak	Mag	Mag	Bak	Bak	Bak	Bak	2.lim.
Teacher costs	50%	50%	50%	39%	39%	42%	44%	46%	39%	48%	46%	46%	34%	39%	0%
General staff	14%	14%	14%	11%	11%	12%	12%	15%	13%	15%	15%	15%	11%	13%	2%
Other payments	0%	0%	0%	14%	14%	10%	8%	0%	0%	0%	0%	0%	8%	0%	96% ^[2]
Infrastructure expenses	7%	7%	7%	7%	7%	7%	7%	4%	7%	10%	4%	4%	7%	7%	0%
Property and services	3%	3%	3%	3%	3%	3%	3%	9%	15%	0%	9%	9%	15%	15%	0%
Indirect costs	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	26%	1%
SELF COSTS	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source of financing - state budget grant

The state budget grant for a study place for each calendar year is determined in accordance with the annual agreement between the Ministry of Education and Science (MES) and the University of Latvia, taking into account 1) base costs for the study year, 2) study programme level and 3) cost ratio for education.

Taking into account the financial situation in the study field and the general interest in the programme, the University of Latvia may determine the budget places to be paid by the university for its study courses. **Table 2.3.1.3** shows the budget grant for the study programmes of the study field.

Table 2.3.1.3

Budget grant, EUR per year

Programme	Type	Language	Level	MES base funding	Level coefficient	Study area coefficient	Budget grant
Optometry	Full-time	LV	Bachelor	1 630	1.0	3	4 890
Optometry	Full-time	ENG	Bachelor				-
Optometry	Part-time correspondence	ENG	Bachelor				-
Clinical Optometry	Full-time	LV	Master	1 630	1.5	3	7 355
Clinical Optometry	Part-time	LV	Master				-
Clinical Optometry	Full-time	ENG	Master				-

Clinical Optometry	Part-time correspondence	ENG	Master				-
Pharmacy	Full-time	LV	Bachelor	1 630	1.0	3	4 890
Pharmacy	Full-time	LV	Master	1 630	1.5	3	7 355
Sports Sciences	Full-time	LV	Master	1 630	1.5	3	7 355
Medicine	Full-time	LV	Second-level professional	1 630	1.0	3.5	5 705
Medicine	Full-time	ENG	Second-level professional				-
Nursing	Full-time	LV	Bachelor	1 630	1.0	3	4 890
Nursing	Full-time	LV	Master	1 630	1.5	3	7 355
Radiography	Full-time	LV	Bachelor	1 630	1.0	3	4 890
Dentistry	Full-time	ENG	Second-level professional				-
Nutrition	Full-time	LV	Master	1 630	1,5	3	7 355
Epidemiology and Medical Statistics	Full-time	LV	Master				-
Epidemiology and Medical Statistics	Full-time	ENG	Master				-
Residency	Full-time	LV	Second-level professional				19 867
Medicine and Pharmacy (Medicine)	Full-time	LV	Doctoral	1 630	3.0	3	17 116
Medicine and Pharmacy (Pharmacy)	Full-time	LV	Doctoral	1 630	3.0	3	14 671

Source of financing - tuition fees

Tuition fees at the University of Latvia are determined by a separate order for each academic year, taking into account 1) the cost of the study place, including all costs of the study process (see above), 2) tuition fees for similar programmes at other universities and 3) potential students' interest in the study programme. A comparative example of tuition fees in similar programmes is shown in **Table 2.3.1.4**.

Table 2.3.1.4

Amount of tuition fees in comparative programmes, 2020/2021

No	Name	Fee
Bachelor of Optometry		
1	Northwestern Switzerland University of Applied Sciences and Arts, Switzerland	~1 851 EUR[3] (2 000 CHF)
2	University of Cardiff, United Kingdom	~10 256 EUR (£9 000)
3	University of South-East Norway	Budget places only
4	Palacki University, Czech Republic Budget only.	Budget places only

Master of Optometry		
1	City University of London, United Kingdom	PLK ~9 783 EUR (£8 585) NLN ~9 783 EUR (£8 585)
2	Aalen University, Germany	Paid and budget places For European citizens – free of charge Outside Europe – 9 995 EUR/year
3	Poznań Adam Mickiewicza U., Polija	Budget places only
Programmes in Latvia		
1	Medicine - Riga Stradins University	5 575 EUR
2	Nursing - Riga Stradins University	4 779 EUR
3	Pharmacy - Riga Stradins University	4 779 EUR
4	Residency - Riga Stradins University	5 120 EUR

In order to take into account the interests of students, tuition fees at the University of Latvia must be coordinated with the students' self-governments (within the UL budget they also provide student self-government funding in accordance with Section 53 of the Law on Higher Education Institutions and no less than one two-hundredth part of the annual budget of the higher education institution) and usually, they are determined at the end of the year for the next academic year, to provide timely availability of information. Tuition fees do not change during studies unless the fees in the programmes differ from year to year, but even then they are all determined at the beginning of studies. **Table 2.3.1.5** shows the budget grant for the study programmes of the study field.

Table 2.3.1.5

Tuition fee, EUR per year

Programme	Type	Language	Level	Tuition fee
Optometry	Full-time	LV	Bachelor	3 000
Optometry	Full-time	ENG	Bachelor	4 000
Optometry	Part-time extramural	ENG	Bachelor	4 000
Clinical Optometry	Full-time	LV	Master	3 000
Clinical Optometry	Part-time	LV	Master	3 000
Clinical Optometry	Full-time	ENG	Master	4 000
Clinical Optometry	Part-time extramural	ENG	Master	4 000
Pharmacy	Full-time	LV	Bachelor	2 400
Pharmacy	Full-time	LV	Master	2 400
Sports Sciences	Full-time	LV	Master	2 400

Medicine	Full-time	LV	Second-level professional higher	3 000
Medicine	Full-time	ENG	Second-level professional higher	9 000
Nursing	Full-time	LV	Bachelor	1 750
Nursing	Full-time	LV	Master	1 650
Radiography	Full-time	LV	Bachelor	3 000
Dentistry	Full-time	ENG	Second-level professional higher	14 000
Nutrition	Full-time	LV	Master	2 000
Epidemiology and Medical Statistics	Full-time	LV	Master	2 400
Epidemiology and Medical Statistics	Full-time	ENG	Master	6 000
Residency	Full-time	LV	Second-level professional higher	3 000
Medicine and Pharmacy	Full-time	LV	Doctor	2 400

The process of allocating and implementing funding

Based on the projected budget and the number of paid students and the expected income, the faculty, in cooperation with the Finance and Accounting Department of the University of Latvia, draws up the budget for the specific financial year. At the beginning of the year, the Chancellor of the University of Latvia submits the total budget of the University of Latvia for approval to the Finance and Budget Commission and for approval to the Senate of the University of Latvia.

After approving the budget for the current year, the faculties act within the framework of their approved budget. The dean and executive director of the faculty are responsible for the rational use of financial resources, who perform operational financial management, monitor the compliance of actual income and expenses with the planned ones and, if necessary, make adjustments in the financial activities of the faculty or department.

UL keeps records of actual profitability only at the faculty level, without separating the results of each programme or the study field separately. At the same time, the management of the faculty monitors the result of the study process, the dynamics of the number of students and its influencing factors, the balance of the specific programme with the state budget grant and tuition fees and, if necessary, makes adjustment of the number, combination of academic courses between similar programmes, etc. to ensure the long-term viability and development of the study field of the faculty.

For example, research activities at the Faculty of Medicine of the University of Latvia are financed from several sources: UL, as the basic and performance funding allocated to a scientific institution, contract research attracted by the faculty, state research program funds, as well as the faculty's

own revenues and state grants. Base and performance funding at the University of Latvia is granted in accordance with 12.11.2013. Cabinet Regulation No. 1316 "Procedures for Calculating and Granting Basic Funding to Scientific Institutions", while the internal regulatory enactments of the University of Latvia determine the amount of funding for each structural unit; order no. 1-4 / 235 "On the Use of the Funding and Performance Funding of a Scientific Institution Granted at the University of Latvia for 2021". Also, the research staff of the faculty can apply for centralized support in accordance with 20.04.2018. order no. 1/148 "On Approval of the Procedure for Supporting the Development of Scientific Activity at the University of Latvia", in accordance with this procedure, support may be received for: participation in international events, publication of scientific articles, preparation of international project applications, organization of scientific events at the University of Latvia; . In order to facilitate the preparation of international project applications, 29.11.2019. LU order no. 1/435 "On approval of the use of unit costs", which provides additional funding for the development of international project applications.

Research funding also contributes greatly to the development of the field of study, ensuring an increase in the number of both printed media and electronic books, as well as subscriptions to the most important databases (eg Clinical Key, UpToDate, etc.), whose materials are used in students' research also in the development of the most up-to-date teaching aids (case study). The financial resources required for the research work of students in doctoral study programs and participation in scientific conferences are planned and paid from the funds intended for the development of doctoral studies, while the research work of students in master's study programs is in most cases planned and paid only for those participating in research projects. When planning the financial resources of the faculty every year, funds are provided for study, work and service business trips. From these funds are paid for business trips of students and employees with participation in international conferences, acquisition of new research methods.

FM students are actively involved in research projects in which they are employed as research staff or work on the basis of voluntary agreements. The faculty implements several study and research projects, with the help of which the transfer of best practices from cooperation partners, improvement of study quality and exchange of experience is ensured. The self-government funding of students, which complies with Article 53 of the Law on Higher Education Institutions, is also important, and it is not less than one two hundredth of the annual budget of the higher education institution. Students' self-government is financed from the centralized funds of the University of Latvia in accordance with the Law on Higher Education Institutions, while the faculty provides self-government with the necessary premises (infrastructure). The adequacy of financial resources for the provision of research by the academic staff, the financial control mechanism and the financial sustainability of the University of Latvia FM have been assessed and assessed as appropriate to the situation. When planning the financial resources of the faculty every year, funds are provided for study, work and service business trips. These funds are used to pay for business trips of students and employees to participate in international conferences.

[1] PLK – full-time; NLK – part-time onsite; NLN – part-time extramural

[2] The major part of the cost of the Medical Resident Program, 96%, is made up of payments made to co-operative medical institutions for practical training.

[3] All amounts in foreign currency have been converted according to the exchange rate of the Bank of Latvia on 15.02.2020.

2.3.2. Provide information on the infrastructure and the material and technical provisions required for the implementation of the study field and the relevant study programmes.

Specify whether the required provision is available to the higher education institution/ college, available to the students, and the teaching staff.

The infrastructure and material and technical support required for the implementation of the existing study programmes in the study field "Health Care" envisages the involvement of a wide range of LU faculty premises and laboratories, using the material and technical base, sports premises, as well as the lease of premises outside the University of Latvia. The theoretical part of the study programme is implemented in the premises of the Faculty of Biology, Faculty of Biology, Mathematics and Optometry of the University of Latvia, where both wireless Internet access and the possibility to use branch bibliographic collections and faculty computer classes for data processing are provided. Practical study courses are implemented in the laboratories of the Faculty of Medicine, Faculty of Biology, Faculty of Chemistry, Faculty of Physics, Mathematics and Optometry, and in health care institutions with which cooperation agreements have been concluded. The study process in the study field "Health Care" mainly takes place in the House of Nature and the House of Science. House of Nature was put into operation in 2015. The total indoor area is 18,540 m², it has a total of 30 auditoriums, 45 student study laboratories and 69 research laboratories. All auditoriums have a projector and a laptop for presentations, whiteboards. Interactive whiteboards are also available for some audiences. Sound equipment and recording facilities are also available in the large auditoriums located on the 1st floor of the House of Nature. House of Science was put into operation in 2019. The total indoor area is 20018 m², it has a total of 15 auditoriums, 8 seminar rooms, 78 scientific and teaching laboratories. In the basement of both the House of Nature and the House of Science, there are laboratory premises for faculties and scientific institutes. Wireless network coverage is provided throughout the building. The House of Nature and Science has a café, a library of natural sciences, and individual work booths. The buildings are accessible to people with disabilities – the building has several elevators, appropriate sanitary facilities. The first two floors of the House of Nature are available to students 24 hours a day. There are five computer classes in the House of Nature (the largest capacity is 20 workstations). Both Windows and Linux operating systems are available in the computer classes. Available Microsoft Office applications, statistical programmes (R, SPSS, PC-Ord), domain-specific programmes. The UL offers students and employees a free opportunity to use Microsoft Office 365 ProPlus and SPSS software for a private computer for a period of study (or employment contract). Computer programmes for specific applications are also available for teaching and research purposes (ArcGIS, Bemese, CRYSTAL14, CrysTraMo, DFHBF, EvIEWS, FiMar, Geomatica, Idrisi, Mathematica, Matlab, Photomod, WUFI). All auditoriums for lectures and seminars are equipped with computers and projectors. Computer classrooms with the necessary infrastructure are equipped to perform practical work and research work. Laboratories are equipped with specific high-level functionality equipment. An appropriate set of programmes is available for each study course in which professional skills are acquired. Free software, academic licenses and paid software are used. A modern scientific environment is provided for scientific research: computers with software for scientific research: SPSS, MathLab, intelligent data analysis tools: MicroStrategy, QlickView, Simul8, Nvivo, statistical databases EuroStat, UNESCO, OECD, Latvian CSP databases, etc. A special auditorium has been set up for scientific work (discussions, conferences), which is equipped with a projector, computer and other necessary additional equipment. Material and technical provision is renewed every year, for example, in 2019 MF material and technical provision is supplemented with equipment, computers and microscopes, allowing to use of modern equipment in the study process, for example, 75 student microscopes, 3 lecture microscopes, 4 fluorescent microscopes have been purchased, 96 tablet computers for lecturers and students, 84 digital cameras, equipment for the preparation of extemporal ointments and extraction of essential

oils, dental lamps, equipment for the prevention of traumatic brain injury for in vitro laboratory animals, cell damage analysis equipment, various probes for mice and rats, internal and external genitalia set, upper limb – with arteries, veins and nerves, lower limb for a woman with a stand, equivalent phantom of human tissue for radiotherapy and computed tomography, ultrasonography simulator with female, male and infant mannequins, radiotherapy planning workstations and patient immobilization equipment, etc.

The development of other objects of the Academic Centre of the University of Latvia is planned in the period of 2019-2025:

1. House of Technologies. House of Technologies for medicine and life sciences is a significant project for the development of Biopharm alliance, NanoTech Energy cluster. In the House of Technologies it is planned to locate a part of the UL Institute of Physics, structural units in the field of medicine, including, personalised and regenerative medicine, gamma-ray and brachytherapy medical equipment, high-energy electron and proton radiation equipment, and business incubators.
2. Sports infrastructure. Taking into account the experience of other countries in the planning of student campus, the UL has also planned to build a sports infrastructure (for example, multifunctional sports hall, sports fields, etc.) within the territory of the Academic centre. It is planned to develop the sports infrastructure in close cooperation with the Center of Technologies, envisaging the synergy between sports and medicine.

Whereas the 2nd level professional higher education programme in residency Medicine is learned in medical institutions, using their resources in daily work. The mutual cooperation agreement with medical institutions determines the obligations of both contracting parties. Office premises with all necessary technical equipment is provided for the work of staff involved in the organisation of residency. In addition to theoretical training, the following equipment has been acquired: ORL work station; ENT unit/NET600C, Headlight with optical light cable; HAD lamp/NET-260DL, Light source; Instrument table with a light source; Patient chair/NET-1500e; Clinical audiometer/ SM960-C, Model for learning epidural puncture, Lumbar puncture model, Multifunctional cart Multistage, Laerdal central vein moulage, Laerdal cricothyrotomy model, Central vein catheterization simulator without ultrasonography control, Couch EXAMINA 195*65*65 cm SIMPE, Couch Plinth, electronic, three-section S/N.

Health care study programmes have appropriate infrastructure and technical support to ensure the quality of the study process.

2.3.3. Provide information on the system and procedures for the improvement and purchase of the methodological and informative provision. Description and assessment of the availability of the library and the databases to the students (including in digital environment) and their compliance with the needs of the study field by specifying whether the opening times of the library are appropriate for the students, as well as the number/area of the premises, their suitability for individual studies and research work, the services provided by the library, the available literature for the implementation of the study field, the databases available for the students in the respective field, the statistical data on their use, the procedures for the replenishment of the library stock, as well as the procedures and possibilities for the subscription to the databases.

Library of the UL is included in the Register of Libraries of the Ministry of Culture (BLB1000); on 22 June 2017, it has received a library accreditation certificate and was repeatedly granted the status of the State significance library for five years.

Opening hours of the library, accessibility to information resources and services

The basic principle of the library operation is the availability of its services for all users, ensuring the same range of services and quality in all structural units. The variety of services offered, the layout of the library premises and its opening hours will continue to be closely related to ensuring the information needs of its users.

The opening hours of the eight sectoral libraries of the UL Library are adjusted for the convenience of students. Opening hours for the clients of the library are from 9:00 until 21:00, in some sectoral libraries – from 9:00 until 18:00 and from 9:00 until 17:00 on Saturdays.

The Library of Natural Sciences and the Library of the House of Science is available for the UL staff - students, academic, scientific and general personnel – 7 days a week, 24 a day. In the Library of Natural Sciences, the UL staff has the opportunity to use the following services all day: open-access collection, a self-service device for receiving and handing in books or extending the use period, as well as access computers and mobile device chargers. By acquiring copying cards in the Library of Natural Sciences, the user can use the copying device at any time of the day. In the Library of the House of Science, the staff of the UL has 24-hour access: an open-access collection, two self-service devices for issuing and handing-in of books, the extension of the term of use, as well as a self-service wall for the use of laptops. The UL Library is the first in the Baltic States, which ensures such device and service. The self-service device is equipped with 36 laptops. By using the student or staff card, the personnel of the UL may at any time of the day take the laptops and use them for 6 hours not only in the library but in the whole building as well. Laptops come with licensed programs, which are required for the students of the UL Faculty of Physics, Mathematics and Optometry to perform independent work.

Four sectoral libraries are open for their clients throughout the year, also in summer.

Premises of the library of the House of Science, where the collection of the medical sector is stored, are opened for students 168 hours a week. Users have access to an open-access collection, where they can choose necessary publications. The total space of the library of the House of Science is 551 m².

There are 110 workstations available at the Library of the House of Science, including, 36 laptops, which allow choosing the workplace.

Sectoral libraries ensure all services that promote independent studies. Services are provided in accordance with the UL Library Terms of Use, approved on 1 February 2017 with the UL Rector's Order No. 1/39. According to the Terms of Use the services may be used by the UL students, teaching staff, personnel, other libraries, students of other universities, as well as any residents. The UL Library provides free basic services and paid services.

Free of charge basic services

- Electronic ordering/reservation/extension of the use of information resources from state significance union catalogue and receipt of information resources for on-site use in the library reading room or for using at home.

The service is available to users registered at the UL Library by using Union Catalogue on any mobile device from any place with internet access.

- Delivery of information resources

When ordering resources in Union Catalogue from any library, the UL academic personnel, researchers and doctoral students have the option to indicate the most convenient place to receive the reserved information resource – the sectoral library. This option is available for other users, by ordering information resources only from the Repository.

- Self-service

All sectoral libraries offer self-service scanning services, 5 sectoral libraries offer self-service devices for receiving/submitting the books or extending the period of use of books. With the help of devices, the user can independently receive and hand-in information resources or extend the period of use. The UL students, academic and general personnel can receive laptops at the Library of the House of Sciences by using the laptop usage self-service device with 36 laptops. The service is provided 24 hours a day, 7 days a week. When using the self-service device, the UL student card or UL employee card is required.

- Use of open access reading rooms, computers and internet

It is possible to use a collection of reference literature and periodicals, stationary and portable computers (both the UL Libraries and users' personal) in the reading rooms, as well as Internet connection, including WI-FI, which is operating in all UL buildings. There are 110 workstations without desktop computers available for users at the Library of the House of Science. To allow the users to choose the most convenient workplace, there is a self-service device located at the Library of the House of Sciences with 36 laptops, which is the only device of such type in Latvia. All laptops are equipped with licensed software required for students and they can operate for up to 6 hours without charging. The laptop self-service device is available for users all day. Reading rooms serve not only as a place for studies and research for the students but also as a place to meet and spend their free time.

- Night subscription, booking of information resources in advance

For the convenience of users, the “Night Subscription” service is offered, the aim of which is to provide users – students, lecturers and employees of the University of Latvia with the opportunity to borrow a certain on-site information resource from the library in the time period from the closure of the library until the opening hour or to book it in advance for a certain number of hours. The service is free of charge, but, if the information resource is not returned on time, a contractual penalty is applied for the delay of the period of the loan in accordance with the price list of paid services of the UL Library.

- Supply of information resources in the summer

This offer allows users to receive required information resources twice a week at the most convenient sectoral library (Library at Kalpaka Boulevard, Library at Raiņa Boulevard, Library of Natural Sciences, Library of the House of Science) from 4 sectoral libraries, which are closed during the summer.

- Inquiries and consultations

One of the main functions of the library is providing information to the users – consulting, providing information, user training and support in research.

The main consultant of the UL Library (the Library at Aspazijas Boulevard) provides the official and general information services of the Library. The users can also receive individual consultations and information in the library, by e-mail: info-bibl@lu.lv, by phone: 28623551, using Skype – address: *LU Bibliotēkas konsultants*. Consultations are also provided by any employee of the sectoral library staff at the library or by phone, or by using Skype.

The consultant of the Library and staff of branch libraries provide bibliographic, thematic, factual, addressive, specific and other information and consultations to the students, academic, scientific and general staff of the University of Latvia.

In case of any questions, the users may also use the options available in the UL Library portal: "Ask the librarian", "Frequently asked questions", "Submit your feedback".

- Training for users

The Library actively works with the target audience – students of all levels of studies, academic, scientific and general staff, to ensure not only information literacy but also to provide thorough knowledge and skills in working with electronic resources.

The Library makes presentations and organises training in classes and computer classes organise practical study tours in the Library so that users acquire skills to work with open access repository, self-service equipment and office equipment – self-service scanners, copiers, thus improving independent learning competencies.

Special attention is paid to foreign students. The Library has prepared and organises presentation in English "Step by step, the library of the UL – for you!", whereas skills with e-resources are taught in computer classes.

The knowledge and skills of the student to independently find, evaluate and use qualitative information resources and e-environment tools are important to increase the study level. In order to improve the skills and abilities of users, the Library has created a training system with an offer of classes for different levels of study programmes.

For the Bachelor's study programme students: presentation "Step by Step: Library for You", the lesson "Electronic Union Catalogue and Primo for Successful Studies" (90 min) and lesson "Get to Know E-resources"(90 min) "E-resources in the Sector" (90 min). In turn, for the Master's study programme students and residency students there are classes, which provide in-depth skills in work with electronic resources of the relevant sector – "E-resources in the Sector" (90 min).

For the students of Doctoral study programmes, there are the following lessons: "Introduction in Scientific Publication Process" (90 min), "Bibliography and Citation Management Tools" (90 min), "Use of Databases Web of Science and Scopus for Studies and Research" (90 min).

Whereas the following classes are addressed to the academic and research staff: "Bibliography and Citation Management Tools" (90 min), "Use of Databases Web of Science and Scopus for Studies and Research" (90 min), "Registration of Publications and Editing of Publication List in LUIS" (90 min), "Deposit of Research Results in the Repository of the UL E-resources" (90 min).

Employees of the Library also organise classes in classrooms and computer classrooms at the UL branches throughout Latvia: in Alūksne, Bauska, Cēsis, Jēkabpils, Kuldīga, Madona, Tukums and Ventspils.

Employees of the Library regularly organise classes to improve the information literacy of students and academic personnel.

Paid services

The list of the UL Library paid services and price list is approved by the UL Rector's Order of 07.03.2016 No. 1/111.

- Compilation of a list of information resources

Specialists of the UL Library compile a list of information resources on the topic required for the

user as soon as possible, for example, during the process of developing a term paper or other type of work. The user can order the list by electronically filling in the electronic application form, where the user can indicate the required chronological coverage, languages, types of information resources (books, magazine articles, electronic resources, etc.), etc.

- SBA, SSBA services

The UL Library offers its users to order information resources that are not available at the UL libraries from other libraries and document repositories in Latvia by using interlibrary lending service, and from abroad by using international interlibrary lending service, as well as receive electronic copies of scientific articles in printed form or by e-mail.

Collection of the Library, the procedure for collection replenishment

The collection of the UL Library is created in accordance with the study and research fields of the University, requirements of study programmes, thus providing information for all study levels of the University of Latvia – bachelor's, master's, doctoral, as well as scientific research areas. When replenishing the collection with information resources, the purchase of e-resources has been set as a priority.

Acquisition of new resources to the collection is carried out in accordance with the centrally allocated funding of the University of Latvia, which is approved annually by the order of the University of Latvia.

The granted funding is used to purchase necessary books, to pay for a subscription of sectoral databases and subscription of periodicals.

The UL Library ensures the acquisition of information resources, based on orders of academic personnel, proposals from the student council or employees of the Library, which are submitted to LUIS and approved by the Dean of the Faculty or the Executive Director. Anyone, who is interested, can also recommend the purchase of a specific publication by submitting a proposal to the employee of the Library verbally or in writing. If the proposal is supported by the Dean/Executive Director of the particular faculty, the Library purchases the proposed publication.

In 2020, there are 1.7 million information resources available for the users of the Library. In accordance with the UL study and research infrastructure, the collection of the UL Library is located in 8 sectoral libraries and the Repository. **Table 2.3.3.1** summarizes information on the number of printed publications available at the UL Library in the study programmes in the study field "Health Care".

Table 2.3.3.1

Literature available in the library for the implementation of the study field

The UL study field "Health Care"									
Total in the collection of the Library of the University of Latvia on 01.01.2022. existing printed publications									
Study programme	Printed editions (copies)				Language				
	Total	Books	Periodicals other types of publications	Other types of expenditure	Latvian	English	German	Russian	Other
	In stock	Total	Total	Total					
	31 046	28 942	835	1 269					

<i>Medicine</i>	2 471	2 290	13	168	1 308	1 087	19	56	1
<i>Dentistry</i>	135	116	0	19	15	119	1	0	0
<i>Radiography</i>	296	292	0	4	140	152	1	3	0
<i>Nursing</i>	147	146	1	0	94	53	0	0	0
<i>Optometry</i>	1 094	1 007	59	28	55	955	10	20	2
<i>Pharmacy</i>	1 131	1 044	35	52	576	454	22	75	4
<i>Nutrition Science</i>	174	170	0	4	137	34	1	2	0
<i>Sports Science</i>	721	709	4	8	645	67	1	7	1
<i>Epidemiology and Medical Statistics</i>	826	600	220	6	556	177	22	67	4
<i>Medicine</i>	11 460	10 762	234	464	6 741	4 267	94	346	12
<i>Medicine and Pharmacy</i>	12 591	11 806	269	516	73 17	4 721	116	421	16

Total in the study field in **the collection of the Library of the University of Latvia: 31 046** copies

Level of digitization of the collection

In cooperation with the UL Information technology department, the UL Library provides its clients with the possibility to use the UL e-resources repository.

The Library, authors of publications, the UL structural units or representatives of the UL publications regularly place electronic versions of their publications, digitized information resources with cultural and historical value, doctoral dissertations of the UL teaching staff and their summaries in the repository of the UL e-resources, to ensure an open and constant online access to the UL scientific achievements[1]. The Library offers digitized publications subject to copyright protection for use in on-site reading rooms.

Currently, in the study field "Health Care", there are more than 36 290 publications.

Databases

In accordance with the UL Strategic Plan for 2010-2020, the UL Library increases the proportion of e-resources and develops remote access options, to provide the users with the possibility to use the resources remotely.

In 2020, the University of Latvia subscribes to 34 e-resource platforms (with e-books, e-journals, information resources, tools, multimedia, statistics, as well as mixed-format databases). In these platforms, there are 17 592 full-text e-journals (including individually subscribed), 2.5 million full-text global dissertations and master's theses, 4 statistical databases, 2 research tools, 9 information databases, and 2 research platforms. There are 122 tested open access databases with

multi-format materials available at UL. Every year, the Library offers an average of 110 new electronic resources. In total as of 01.01.2020, the UL Library has purchased 1328 e-books, and there are approximately 160 000 e-books available in the subscribed ProQuest Ebook Academic Complete collection.

At the same time, the UL Library regularly offers its users trial access to various databases. Within the scope of granted co-funding, the number of databases is evaluated and the usability of subscribed databases is analysed.

The list of e-resources available in the Library section of the UL portal facilitates the browsing of databases. Additional information on e-resources is available in the section of the UL Library's website – E-resources A to Z[2].

The UL offers the possibility to use subscribed electronic information resources (databases, e-book platforms) outside the computer network of UL, by signing in with LUIS username and password.

Subscribed e-resources in individual sectors, which include materials in the study field "Health Care"

ClinicalKey – Elsevier electronic medical information resource. It covers 52 specialisations and is designed for research, clinical practice and student training. It contains a variety of information resources: more than 650 full-text journals, more than 1150 full-text books, and 1400 reports containing brief information and recommendations on diseases. It also includes 800 FirstConsult summaries, 5,000 practical guides, more than 3.4 million images, tables, charts, more than 40,000 ProceduresConsult materials, and more. The ClinicalKey usage statistics is shown in **Figure 2.3.3.1**.

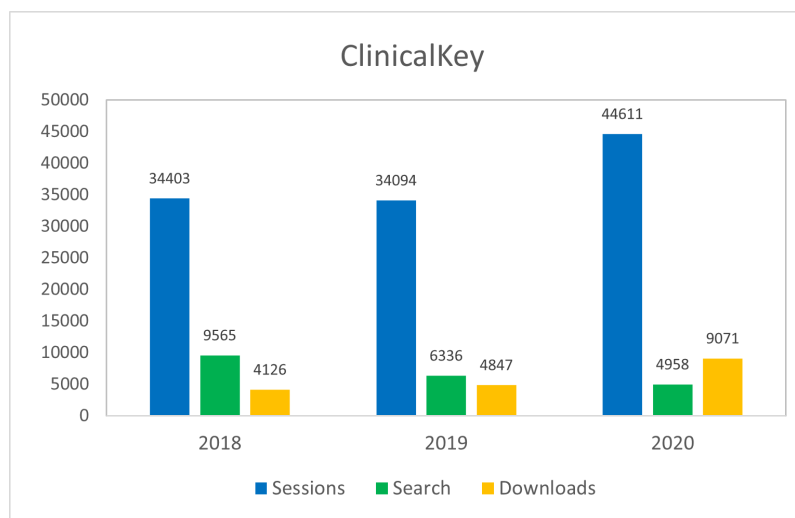


Figure 2.3.3.1 The ClinicalKey usage statistics 2018-2020.

EBSCO databases for medicine – a multidisciplinary e-book, e-journal and other e-resource database platform consisting of a number of full-text and review databases, including industries such as medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition and medicine. **AHFS Consumer Medication Information** offers useful and well-known standards on various medicine and provides the opportunity to read the information on the composition and effects of medicines. **MEDLINE** offers access to full-text journals (with the help of website links), that are included in Academic Search Complete and other databases, and compiled information from more than 5400 journals. **Health Source: Nursing/Academic Edition** offers access to approximately 550 journals in various medical fields. EBSCO medical industry database usage statistics is shown in

Figure 2.3.3.2.

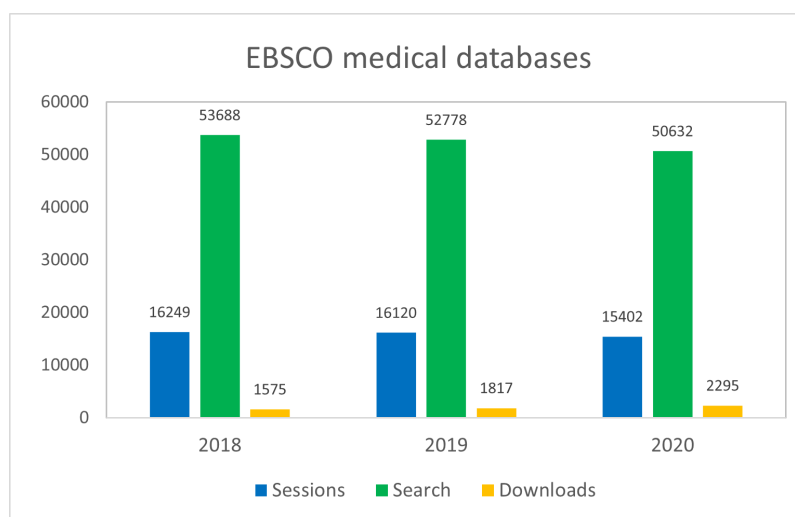


Figure 2.3.3.2 EBSCO medical industry database usage statistics 2018-2020.

UpToDate – an evidence-based electronic information resource in medicine, which helps doctors to improve the quality of patient care. The electronic resource covers encyclopaedic and information records on more than 10,500 topics in 22 medical sub-sectors, which also includes more than 28,000 charts, links to summaries of articles from the Medline database, links to full texts, information on medicinal products, etc. Usage statistics of UpToDate is shown in **Figure 2.3.3.3**.

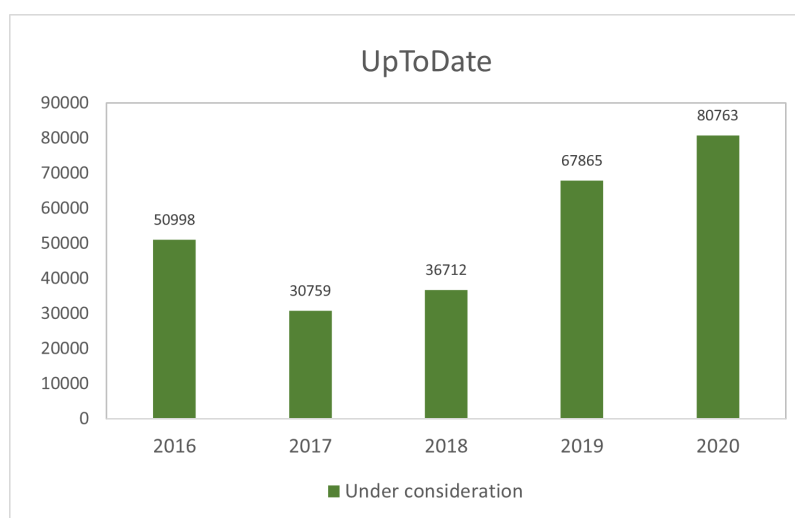


Figure 2.3.3.3 Usage statistics of UpToDate 2016-2020.

Subscribed multidisciplinary e-resources, which include materials in the study field "Health Care"

Cambridge Journals Online – database of *Cambridge University Press* full-text multidisciplinary e-journals, which provides the possibility to search for information in more than 300 scientific journals, as well as in related internet resources. The database contains full texts in such fields as physics, mathematics, computer science, medicine, chemistry, biology, ecology, geology, etc. The e-resource archive is available at the University of Latvia until 2019.

EBSCO Academic Search Complete – a multidisciplinary scientific information resource with information from more than 12,500 full-text journals, including 7,300 peer-reviewed journals. The

database contains resources in such fields as medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, medicine, etc. The usage statistics of EBSCO Academic Search Complete is shown in **Figure 2.3.3.4**.

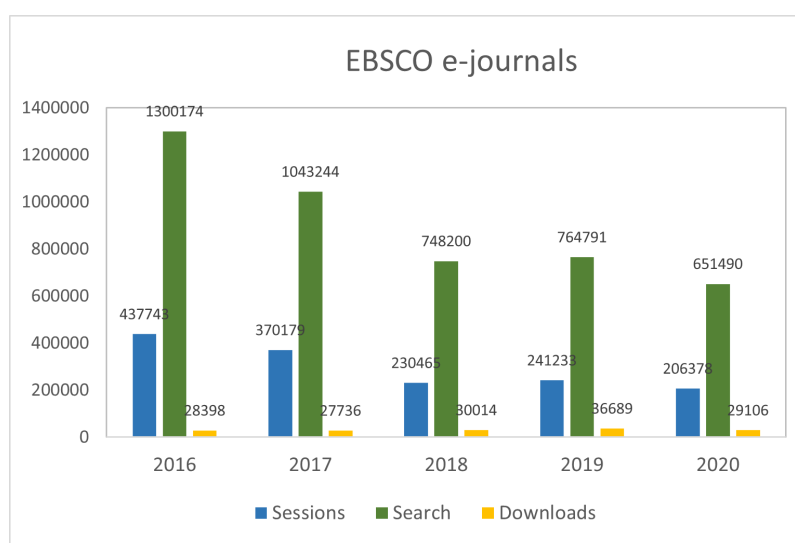


Figure 2.3.3.4 Usage statistics of e-journal multidisciplinary database 2016-2020.

Emerald eJournals Premier – multi-disciplinary full-text database, which contains information in such fields as medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, medicine, economics, business, education, etc. The University of Latvia offers the collection of eJournals Premier, which includes full-text e-journals in fields of medicine, education and others.

Oxford Journals – the collection provides access to more than 280 authoritative and leading journals published in cooperation with the most significant scientific organisations in the world. The database contains full-text journals with high citation index rates in various scientific fields – medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, medicine, life sciences, physics, etc. Usage statistics of Oxford Journals is shown in **Figure 2.3.3.5**.

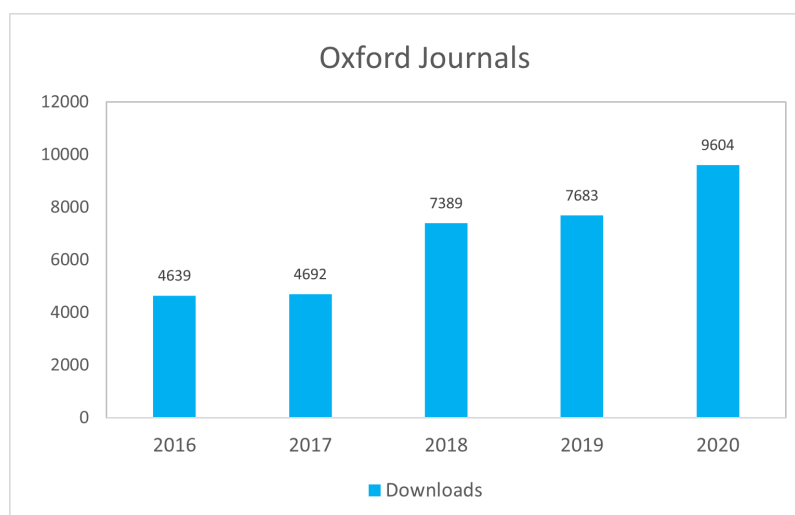


Figure 2.3.3.5 Usage statistics of Oxford Journals 2016-2020.

JSTOR – database of journals, books and primary sources with journals from leading publishers: Sage Publications, Springer, Taylor & Francis, Blackwell Publishing, Cambridge University Press, Oxford University Press, John Wiley & Sons, etc. Chronological coverage of journals goes back to the

beginning of their publication. JSTOR usage statistics is shown in **Figure 2.3.3.6**.

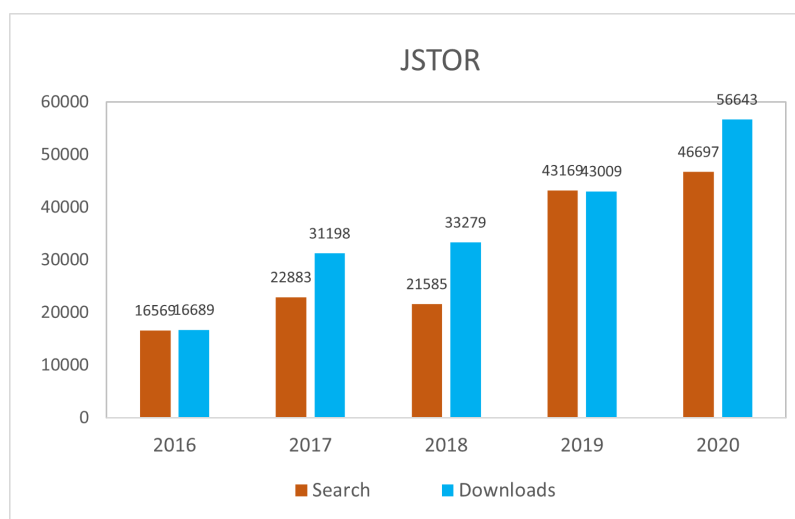


Figure 2.3.3.6 JSTOR usage statistics 2016-2020.

Letonika – information and translation system, the main aim of which is to provide systematic, encyclopaedic reference and translation information. Letonika offers to search for and work with information that can be found in 11 encyclopaedias and other information resources, 13 dictionaries (translating, interpreting, terminology), as well as collections with 10,000 pictures, audio and video materials. Letonika.lv serves as a guide in the culture, history, language, nature and literature of Latvia. Usage statistics of Letonika is shown in **Figure 2.3.3.7**.

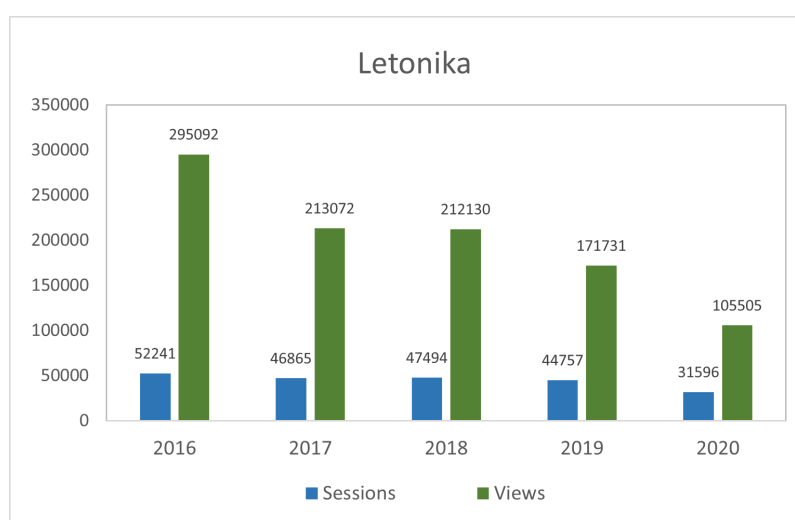


Figure 2.3.3.7 Usage statistics of Letonika 2016-2020.

LETA - news, archive and Nozare.lv – offers the possibility to quickly search for published news, photos, videos, press releases, articles from Latvian press publications, statistics and other information. Usage statistics of LETA is shown in **Figure 2.3.3.8**.

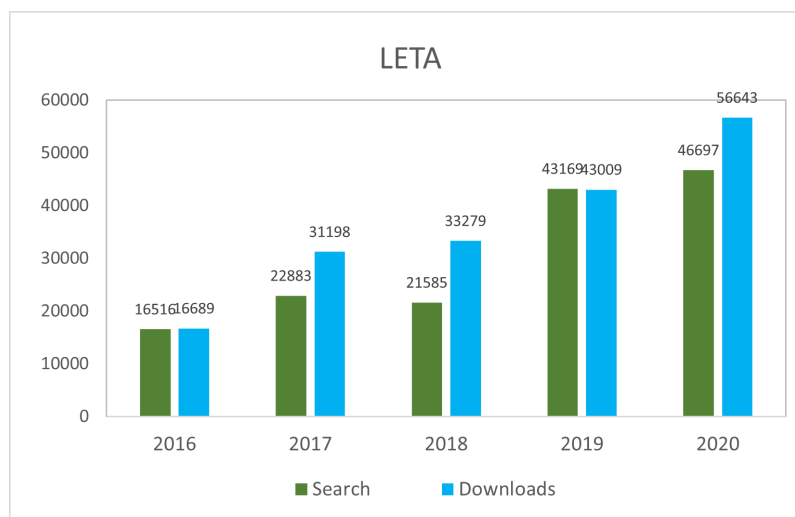


Figure 2.3.3.8 Usage statistics of LETA 2016-2020.

Latvian Standard – set of documents of the Latvian National standardisation institution. Access to the online reading room of the Latvian Standards in the UL Library to more than 44,000 full texts of Latvian Standard documents in electronic format (national, adapted European (EN) and international (ISO, IEC) standards and their historical versions without ICS group restriction). The collection of standards is updated and supplemented with pre-publications, new versions, translations, amendments and corrections of standards.

ProQuest Ebook Central Academic Complete Collection – electronic book collection of ProQuest that are available at the platform ProQuest Ebook Central. The collection contains approximately 180,000 e-books from leading publishers in all sectors, including many university publishers.

ProQuest Dissertations & Theses Global – the largest database of dissertations and master's theses and it contains more than 2.3 million works in various fields: natural and medical sciences, humanities and social sciences. The usage statistics of ProQuest Dissertations & Theses Global is shown in **Figure 2.3.3.9**.

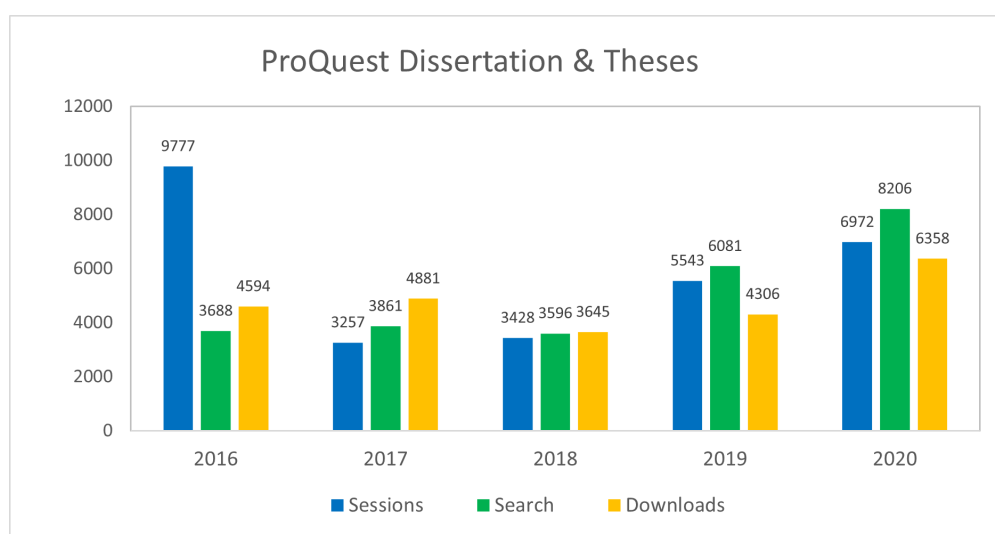


Figure 2.3.3.9 Usage statistics of ProQuest Dissertations & Theses 2016-2020.

SAGE Journals Online – database of full-text journals from SAGE, which offers articles from more

than 500 journals. The database represents various sciences – life and biomedicine, medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, medicine and other sciences. Usage statistics of SAGE Journals Online is shown in **Figure 2.3.3.10**.

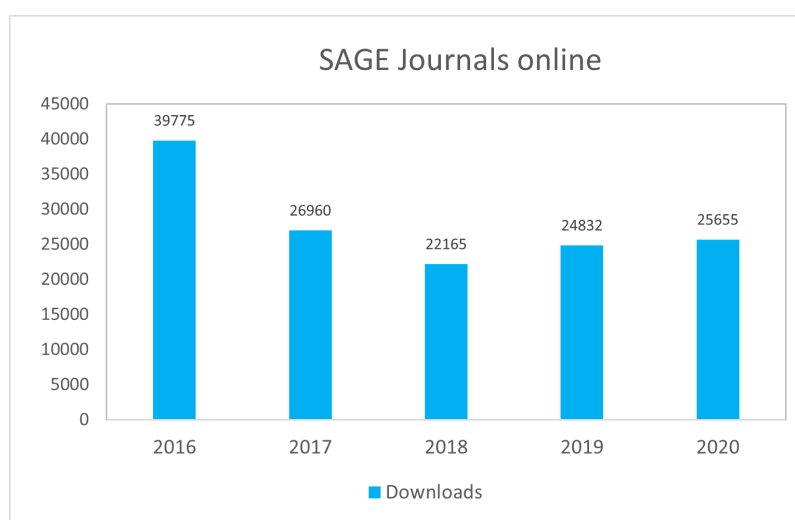


Figure 2.3.3.10 Usage statistics of SAGE Journals Online 2016-2020.

SAGE Research Methods – library of research methods with more than 1000 books, reference publications, journal articles and other resources in various fields, including medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition. SAGE Research Methods is a very important online tool for researchers. The University of Latvia has two of those – SAGE Research Methods – Books and Reference and SAGE Research Methods Cases. Usage statistics of SAGE Research Methods is shown in **Figure 2.3.3.11**.

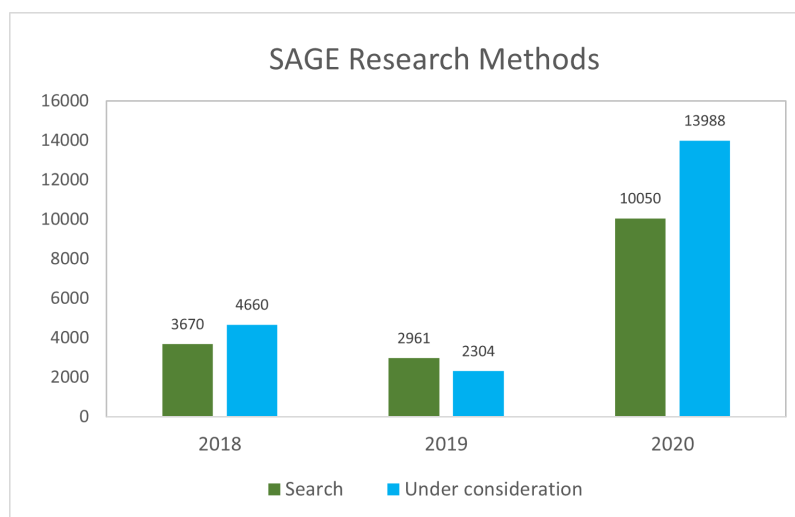


Figure 2.3.3.11 Usage statistics of SAGE Research Methods 2018-2020.

ScienceDirect – multidisciplinary database of publisher Elsevier, which includes fields of medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, the natural and technical sciences, and the humanities and social sciences. The database contains information on several thousand journals and books published by Elsevier. The University of Latvia offers access to full texts of approximately 2,650 journals. Usage statistics of ScienceDirect is shown in **Figure 2.3.3.12**.

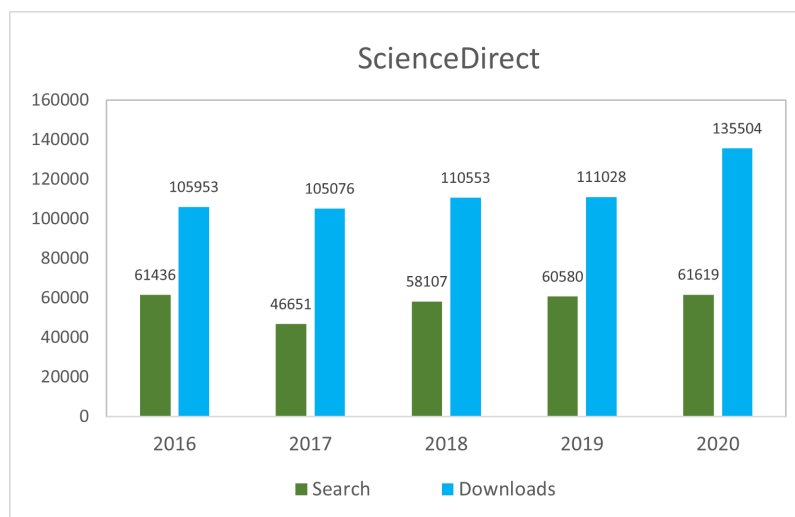


Figure 2.3.3.12 Usage statistics of ScienceDirect 2016-2020.

Scopus – database of bibliographic and citation information for *Elsevier* multidisciplinary scientific publications, which contains records on more than 21,000 journals, 86,000 e-books and 6.8 million conference materials, as well as 27 million patents. The database includes such fields as medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition, etc. Usage statistics of Scopus is shown in **Figure 2.3.3.13**.

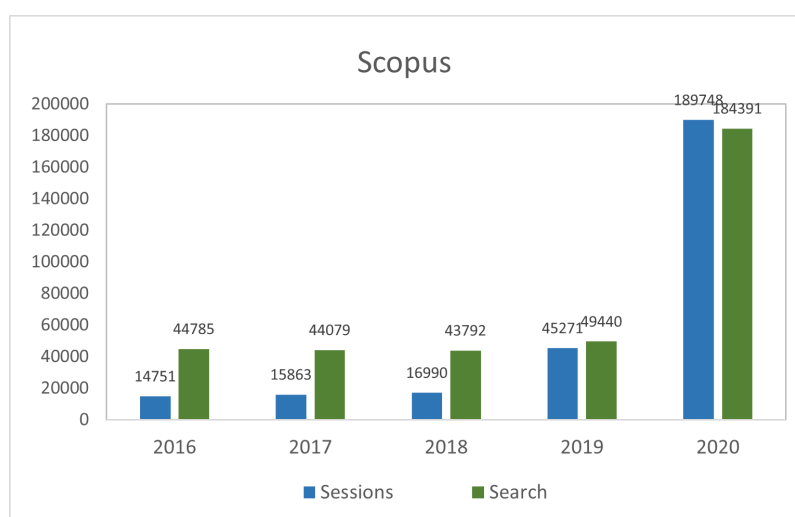


Figure 2.3.3.13 Usage statistics of Scopus 2016-2020.

SpringerLink – full-text database of company's Springer Nature journals, which provides access to more than 6 million articles from more than 3,400 journals, covering exact sciences, the humanities and social sciences. Usage statistics of SpringerLink is shown in **Figure 2.3.3.14**.

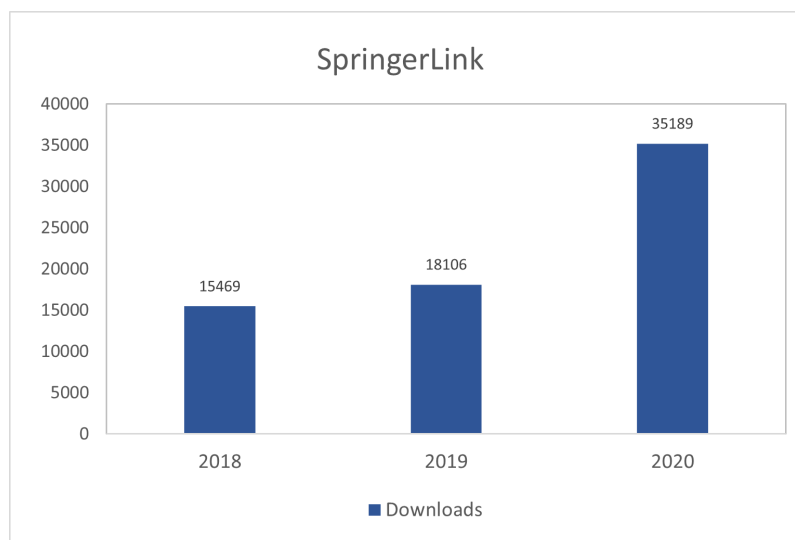


Figure 2.3.3.14 Usage statistics of SpringerLink 2018-2020.

Web of Science - database includes the most significant information on more than 12,000 journals, offering article bibliographic and citation information, summaries and other information. The database includes such fields as medicine, dentistry, radiography, nursing, optometry, pharmacy, nutrition and social sciences and the humanities. Usage statistics of Web of Science is shown in **Figure 2.3.3.15**.

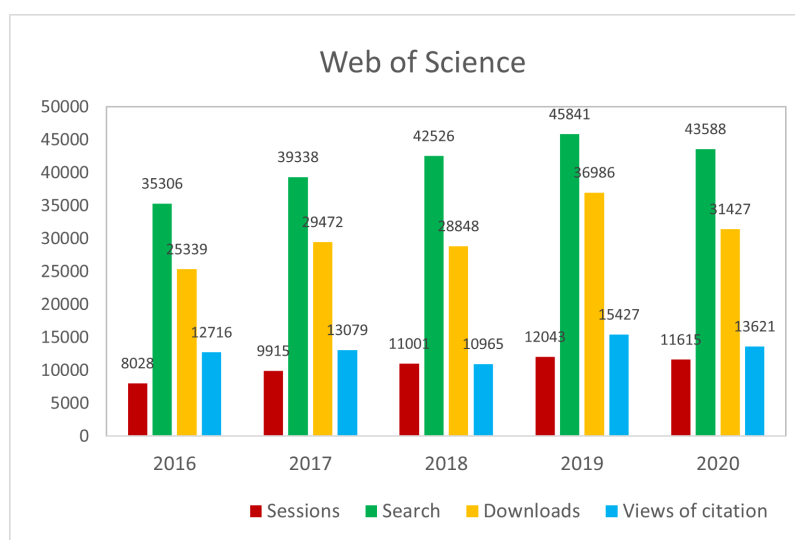


Figure 2.3.3.15 Web of Science usage statistics 2016-2020.

E-books available at the UL Library, which include materials in the study field "Health Care"

Dawsonera - the platform of e-books that includes 9 editions from e-books purchased by the UL Library, which includes materials for the study field "Health Care" study programmes from the world's leading publishers (for example, *Springer Verlag*, *Cambridge Scholars Publishing*, *Routledge*, *Sage Publications*, *Peter Lang* and others). Usage statistics of Dawsonera is shown in **Figure 2.3.3.16**.

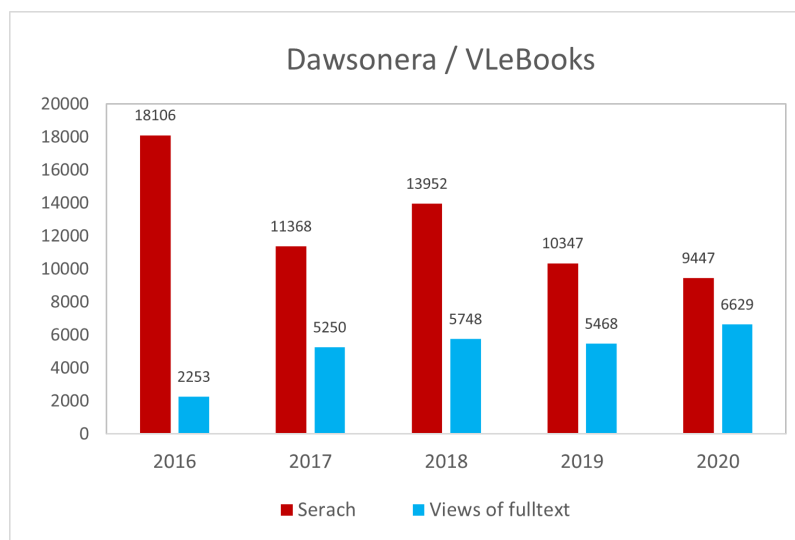


Figure 2.3.3.16 Usage statistics of Dawsonera 2016-2020.

ProQuest Ebook Academic Complete – the platform of e-books with **10,810** publications from e-books purchased or subscribed by the UL Library in accordance with the study field "Health Care" study programmes from the leading world publishers (for example, *McGraw-Hill Education*, *Bloomsbury Publishing*, *Princeton University Press*, *Emerald Publishing Limited*, *IOS Press*, *Indiana University Press* and others). The usage statistics of ProQuest Ebook Academic Complete is shown in **Figure 2.3.3.17**.

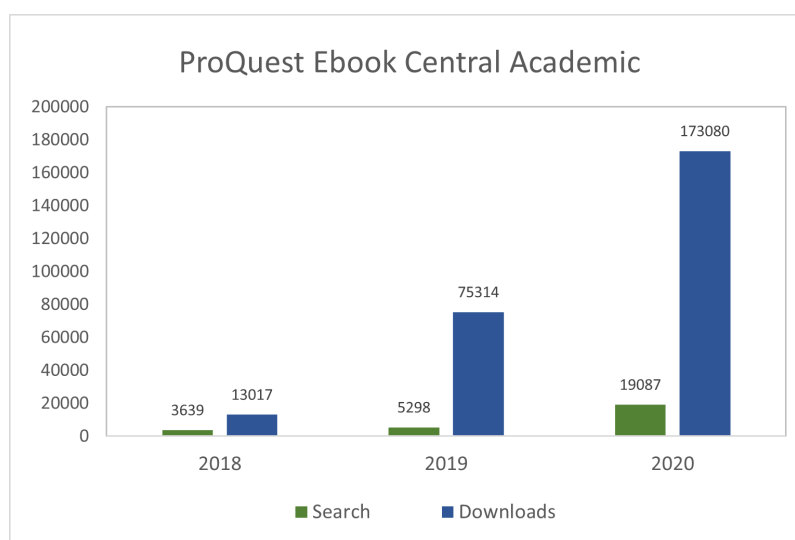


Figure 2.3.3.17 The usage statistics of ProQuest Ebook Academic Complete 2018-2020.

Open access resources, which include materials in the study field "Health Care"

ArXiv.org, BMC, Bookyards, Cogent OA, Directory of Open Access Books, Directory of Open Access Journals (DOAJ), EuDML, Eurostat Data, FreeBooks4Doctors, F1000 Research, Google Scholar, Herbert Publications, HighWire Press, IEEE Open, IPI E-Books, Journals for Free, KARGER Open Access, Library Publishing Media, MDPI, MedKnow, Online College Classes, Optipedia, Open Access Research Database (OARD), Periodika.lv, PLoS – Public Library of Science, PubMed Central, Terra Medica, The Cleveland Clinic Disease Management Project, ScienceOpen, Science Books Online, TOXicology Data NETwork (TOXNET), Wiley Open Access, WebMD symptomchecker, WorldWideScience, Zenodo.

Primo Discovery

To modernise the accessibility of electronic resources, in fall 2016, the UL Library began the implementation of the newest technology web service Primo Discovery and SFX.

Primo Discovery is a search engine that provides the opportunity to search all UL Library information resources at the same time – in the UL iCloud (in subscribed and open access online databases, digital libraries, electronic union catalogue, bibliographic databases created by the UL Library), access full texts, order and extend the use of information resources available in the collection of the UL Library. The programme arranges the list of results by relevance, allows adaptation of search results by 10 criteria, provides access to the information of user accounts and other services available to the users of the Union Catalogue.

To ensure *Primo Discovery* services, the SFX add-on is also introduced, which ensures the mutual networking of information resources (databases and content units) and a link to the *Primo* central index, where the information search takes place.

The library collection is generally suitable for the implementation of studies and for the development of scientific research because it is supplemented every year with the most up-to-date information resources in accordance with the information needs of the academic staff and students.

[1] <http://dspace.lu.lv>

[2] <https://www.biblioteka.lu.lv/en/resources/e-resources-a-to-z/>

2.3.4. Provide a description and assessment of information and communication technology solutions used in the study process (e.g., MOODLE). If the study programmes within the study field are implemented in distance learning, the tools specially adapted for this form of study must also be indicated.

Information Technology (IT) is a set of knowledge, methods, techniques and technical equipment that enables the acquisition, storage and dissemination of any information through computers and means of communication. In addition to information technology, communication technology is often mentioned by exchanging information using special communication devices. The information and communication technology solutions used in the study process promote the improvement of the digital pedagogical competence of the academic staff in the development and evaluation of the distance learning plan.

During the reporting period, the e-learning environment was improved within the study field "Health Care", all study courses are active in the Moodle environment of E-University, including lecture materials, laboratory and practical work descriptions, final evaluations of works, seminars, tests and courses, as well as various additional materials. The improvement of these courses is considered to be effective and significant for the course development in the study field. Increasingly, e-learning is used to test students' knowledge (multiple-choice tests, open-ended questions, essays, relevance questions, orientation in pictures and diagrams, etc.). In the spring semester of 2020 and 2020/2021. In the academic year, as well as in the autumn semester of the academic year 2021/2022, in the conditions of the COVID-19 pandemic, the lecturers developed remote online teaching methods on the MS Teams platform. As a result, the proportion of students' independent tasks increased. The study field "Health Care" is diverse in terms of programmes, so a more

detailed description can be found in one of the study programmes.

2.3.5. Provide information on the procedures for attracting and/or employing the teaching staff (including the call for vacancies, employment, election procedure, etc.), and the assessment of their transparency.

At the University of Latvia, there are three groups of teaching staff: teaching staff that works in elected academic positions, teaching staff that work as substitutes of elected academic positions (acting positions and guest lecturers), as well as lecturers.

In regards to elected academic positions, as well as acting positions, the selection and hiring take place in accordance with *the Regulation regarding academic and administrative positions at the University of Latvia*. In accordance with the Regulations, there are the following academic positions at the University of Latvia: professor, associate professor, assistant professor, leading researcher, lecturer, researcher, assistant, scientific assistant.

Decisions on the necessity to create a specific position are made at the faculties. Competitions for elected academic positions are announced openly. Information on competition, including work tasks of the position, is published on the website of the University of Latvia and the official publication "Latvijas Vēstnesis". Any person compliant with the requirements of the Law on Higher Education Institutions may apply for the position.

Applicants for academic positions must conduct an open lecture, which is evaluated by two reviewers and an opinion is provided. The election procedure is carried out by the decision-making institution of the relevant structural unit (in case of assistants, researchers, lecturers and assistant professors – the Faculty Council), whereas in the case of associate professors and professors – Council of Professors of the relevant field. The election shall take place no later than within three months from the day of announcing the competition. The voting for personalities is done by secret ballot. The applicant, which has received more than half of the votes from the members present and voting, shall be recognised as elected. In accordance with the Law in Higher Education Institution, assistant professors shall be elected for a period of six years. At the end of the election term, the faculty decides on the need to announce a new competition. There are no limitations for holding the office.

In accordance with the Regulation of the UL the minimum requirements for all applicants for academic positions have been set, i.e. knowledge of the state language in accordance with the requirements of the laws and regulations, knowledge of foreign languages at the level required for the performance of the duties of the academic position and continuous improvement of academic and scientific qualification. The rest of the requirements differ, depending on the specific academic position, for example, in order to apply for the position of an assistant professor, the doctoral scientific degree is required, whereas for associate professors these requirements are even higher, i.e., the applicant must have significant academic and pedagogical experience, a wide range of publications and experience in participating in research projects.

If upon the proposal from the structural unit the Senate decides not to announce a competition for the position, a guest lecturer may be hired, whereas, if a lecturer is more appropriate to the development plans and needs of the faculty, then a contract is concluded with this lecturer for a certain period (usually for the course teaching time). In these cases, decisions related to the selection, addressing and hiring of candidates, are made by the structural units, i.e., the faculties.

In these cases, only the control is centralized, which ensures that the remuneration set by the structural unit is compliant with internal and external laws and regulations.

The Rector of the University of Latvia concludes an employment contract with the person elected for the academic position for the entire term of the election.

A part of study programmes included in the study field "Health Care" meet the criteria of regulated professions, therefore the requirements for obtaining an education are also strictly defined. One of the criteria is a specific number of contact hours in the study programme, therefore there is a large number of contact hours during the study programmes, which at some level also determines the number of teaching staff involved in the implementation of study programmes. Several criteria have been set for the selection of teaching staff involved in the study field "Health Care" programmes in order to ensure that the implementation of the programme is ensured by teaching staff who are specialists in their field and are active in scientific activities. The mandatory selection criteria for teaching staff are:

- compliance of the qualification of the teaching staff with the requirements specified in the laws and regulations;
- the area of scientific research activities corresponds to the content of the study programme and/or the study course to be taught;
- the appropriate level of English language skills, if the course to be taught is also planned in English;
- scientific publications in internationally reviewed journals in the last six years.

There is an additional requirement that only teaching staff with a doctoral degree, who have been elected to the position of a professor, associate professor or leading researcher at the university, have the right to work in doctoral-level study programmes. Doctoral theses supervisors must have an LCS expert status in the relevant scientific field. One of the additional requirements of the project "Design of Internationally Competitive Study Programmes Promoting the Development of the National Economy of Latvia at the University of Latvia" is English language skills of the teaching staff at least at C1 level, which is required for teaching in an international environment, as well as the teaching staff must have at least two publications in international peer-reviewed scientific journals during the last six years. Teaching staff, whose English skills will not correspond to the C1 level at the beginning of the programme and who will not be involved in further training (language courses), will implement only the study programme courses in Latvian.

Regulatory Enactments on Academic and Administrative Positions at the University of Latvia

2.3.6. Specify whether there are common procedures for ensuring the qualification of the academic staff members and the work quality in place and provide the respective assessment thereof. Specify the options for all teaching staff members to improve their qualifications (including the information on the involvement of the teaching staff in different activities, the incentives for their involvement, etc.). Provide the respective examples and specify the way the added value of the possibilities used for the implementation of the study process and the improvement of the study quality is evaluated.

In the Development Strategy of the University of Latvia, one of the main aspects in the direction of

development “Development of Human Resources” is the advancement of the UL academic staff professional improvement system. The University of Latvia is aware of how the role of the docent changes, which is important to ensure the quality of studies in order to promote the acquisition of students' knowledge, skills and competences, therefore a unified professional development system of the UL academic staff is implemented in all UL in accordance with the UL Strategy, by amending internal regulations and offering the academic staff professional development opportunities.

Professional development of the UL academic staff is carried out in accordance with the Cabinet of Ministers of the Republic of Latvia Regulation No. 662 of 11.09.2018 *“Regulations Regarding the Education and Professional Qualifications Required for Pedagogues and the Procedure for the Improvement of the Professional Competence of Pedagogues*, in which the Paragraph 16 determines that: “Pedagogues of higher education institutions and colleges must complete professional development programmes on innovations in the higher education system, higher education didactics or educational work management in the amount of 160 academic hours (including at least 60 contact hours) by the end of the term of election). Professional development may include international mobility and participation in conferences and seminars, corresponding to the aim of professional development, which is certified by submitted documents.”, as well as the Cabinet of Ministers 25.02.2021. Regulation No. 129 *“Procedure for Evaluation of the Scientific and Pedagogical Qualification or Artistic Creativity of a Candidate for the position of Professor or Associate Professor and Professor or Associate Professor in Position”*. The qualification requirements and tasks of the academic staff of the UL are included in the [regulations on academic and administrative positions at the UL](#), in turn, the quality/ performance of the work of the academic staff of the UL is assessed in connection with the University of Latvia Academic Remuneration Regulations (Decision No. 14 of the Senate of the University of Latvia of 30.05.2016) and the Regulations on Remuneration of Research Staff of the University of Latvia (Decision No. 71 of the Senate of the University of Latvia of 27.01.2020).

University of Latvia Academic Remuneration Regulations

The Academic Department of the UL and the Adult Pedagogical Education Center (PPIC) of the Faculty of Education, Psychology and Art (PPMF) of the UL provides informative, consultative and methodological support to the docents of the UL in the field of higher education institution didactics. The UL PPMF PPIC offers the academic staff to study in the professional development programmes “Higher Education Didactics: Modern Theories and Practice”, as well as further education programme “Pedagogical Aspects of Study Programmes Development in Higher Education”, “Professional Development of Student Curator Competence”, etc. The docents of the study field use the opportunity to participate in professional development courses, for example, knowledge acquired in the programme “Higher Education Didactics: Modern Theories and Practice” is very useful in organisation of lectures, seminars or practical lessons, also the participation in the programme “Professional Development of Student Curator Competence” is useful for docents, who are the curators and support staff of first-year students - the special emphasis should be put on the role of the curator for foreign students, as they need to adapt not only to the new study process but also in the new cultural environment.

After the completion of the further education programme “Methodology for Formulation and Evaluation of Study Results”, the directors and academic staff of the study programme purposefully update their study courses and map the results of study programmes and study courses. Directors of the study field “Health Care” programmes regularly participate in information meetings and training on the methodology for formulation and evaluation of study results organised by the Department of Studies. Every year, the FM organises the course “Higher Education Didactics: Modern Theories and Practice” by involving docents from various study programmes.

The UL academic staff has the opportunity to improve their English skills in the UL Faculty of Humanities Center for Applied Linguistics further education programme “Improvement of the Scientific and Academic Capacity of English Language of Academic Staff”. Both the directors and teaching staff of the programmes in the study field “Health Care” have participated in the programme for the improvement of English language skills, thus improving their English language skills in order to increase the quality of the study process. The docents highly appreciate the opportunity to attend English language lessons, because they are useful in working with foreign students, as well as for participation in international scientific conferences and similar events.

In the study years 2018/2019 and 2019/2020, the docents had the opportunity to improve their digital skills in the programme “Development of Digital Literacy of Academic Staff”. It is unnecessary to point out that all docents were forced to improve their digital skills also in the spring of 2020, during the COVID-19 pandemic. The field docents have also participated in specialised study programmes “Commercialization Study”, “Scientific Activity and Publishing Skills”, “Public Speech, the Art of Speaking and Presentation Basics (improved skills level) for Cooperation with the Industry and Audience”, which improve the skills to communicate with students effectively and better targeted, the ability to speak more freely and convincingly, to convey the message in a clear and understandable manner, to answer the questions more convincingly, etc.

The docents also participated in the specialised study programme “Development of Academic Staff Competencies in the Field of Leadership” after which the docents acquired an understanding of modern leadership techniques and functions and roles of an efficient docent, they also improved their teaching skills, acquired an understanding on the significance of visual image and impact on the audience, learned creative thinking techniques, team building and motivation skills, and understanding of time planning.

Every spring semester, the new docents and doctoral students from various study programmes of the University of Latvia more actively use the opportunity to study in the further education programme “Introduction in the Work of a Lecturer”.

To promote the collegial studying of docents and identify the best practices in pedagogical work, a further education programme “Promotion of Academic Staff Collegial Learning Experience” has been developed and implemented, within the scope of which the academic staff performs collegial observations, thus the exchange of docent’s pedagogical experience is purposefully promoted, as well as the development of the University of Latvia as a learning organization.

Docents who work with first-year students are nominated as a special target group in the further education of docents at the University of Latvia, therefore they are also offered a further education programme “Professional Development for Work with First-Year Students”.

In further education programmes, the docents especially value the opportunity to model the study process, try new studying techniques and share with experience.

All programmes have been developed by analysing the needs of the professional development of docents in the context of higher education development trends. Within the framework of the implementation of the professional development system of the academic staff of the UL, the Department of Studies of the University of Latvia has conducted an electronic survey of the academic staff of the UL, as a result of which information on the current professional development needs of docents of all faculties has been obtained, as well as several docents have expressed readiness to participate in the development and offering of further education content to their colleagues in accordance with professional and didactic development needs.

After implementation of each programme, a survey is conducted and the results are evaluated. Participation in further education programmes is a voluntary choice of docents or with a

recommendation from the faculty management. It is also common that faculties to organise thematic seminars for their academic staff on topics relevant to the development of docents.

When preparing the Self-Evaluation Report on the Study Field, information on the growth-promoting and professional development opportunities used by the docents involved in the study field "Health Care" at the UL in the reporting period was collected, the results of which are summarized in **Table 2.3.6.1**.

Table 2.3.6.1

Evaluation of academic staff growth promotion (didactic skill improvement) and professional development

No	Criteria/academic year	2019/2020	2018/2019	2017/2018
1.	Improvement of language skills[1]	15	15	12
2.	Didactics of higher education institutions (training)[2]	10	10	10
3	Academic staff publishing skills of the scientific activity	5	4	
4	Development of digital literacy of academic staff	3	3	
5	Development of academic staff competencies in the area of leadership	3		
6	Public speaking, basics of speech art and presentation for collaboration with industry and audience	6	6	15
7	Attendance of various summer schools	12	8	4
8	The teaching of lectures and study courses in Erasmus and Erasmus++programmes	1		1
9.	Participation in Erasmus or other staff development programmes	1	1	1
10.	Attendance of international scientific conferences (listening)	145	135	125
11.	Attendance of national-level scientific conferences/seminars (listening)	265	255	245
13.	Participation in professional organisations	22	20	18
14.	Participation in various workgroups (development of regulations, etc.)	8	7	5
15.	Participation in various international scientific editorial boards	8	6	6
16.	Participation in various national scientific editorial boards	12	12	6

More detailed information is included in CVs of the teaching staff

Docents of the study field use the opportunity to improve their qualification, develop skills and competencies by acquiring foreign languages, scientific activity and publishing skills, digital skills, develop competencies in leadership, etc. They actively attend both national and international

scientific conferences by participating as participants, as well as listeners. Docents of the study field are participants of national associations and unions (of doctors, nurses, pharmacists, optometrists, radiographers, etc) that are significant to the sector. Docents also participate in the development of national professional standards for doctors, nurses, optometrists, radiographers.

Within the reporting period, 40 members of the study field's teaching staff have defended their doctoral dissertations and obtained doctoral degrees (see **Table 2.3.6.2**).

Table 2.3.6.2

Defended doctoral dissertations of the teaching staff of the study field "Health Care" in the reporting period.

No	Year	Industry	Author	Title
1	2013	Clinical Medicine /Internal Medicine	Kārlis Trušinskis	<i>The association between intravascular ultrasound tissue characterization of the infarct-related artery, atherosclerosis biomarkers and disease course in STEMI patients</i>
2	2013	Basic Medical Sciences/Medical Biochemistry/ Pathology	Līga Balode	<i>The role of leukotriene B4 and lipoxin A4 in the chronization of inflammation in lung tissue</i>
3	2013	Health and Sports Sciences/ Public Health	Elīna Dimiņa	<i>Antibacterial consumption and changes in Latvian hospitals</i>
4	2013	Health and Sports Sciences/ Public Health	Jānis Misiņš	<i>Incidence of gastric and colorectal cancer in Latvia and analysis of the reliability and quality of the cancer patient accounting system</i>
5	2013	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Aiga Švede	<i>Experimental study of vergence response and fixation disparity</i>
6	2014	Clinical Medicine/ Internal Medicine	Agnese Ruskule	<i>Biomarker method for the determination of gastric mucosal atrophy</i>
7	2014	Clinical Medicine/ Surgery	Patrīcija Ivanova	<i>Correlation of operative results and methods of carotid artery revascularization</i>
8	2014	Clinical Medicine/ Surgery	Igors Ivanovs	<i>New methods of topical and systemic therapy in bile duct surgery</i>
9	2014	Clinical Medicine/ Pediatrics	Sarmīte Kupča	<i>Childhood obesity in Latvia and its associated risk factors</i>
10	2014	Basic Medical Sciences/ Pharmacy	Zane Dzirkale	<i>Influence of natural substances on behavioural responses in mice</i>
11	2014	Basic Medical Sciences/ Medical Biochemistry	Jelizaveta Šokolovska	<i>Changes in glucose transporters and production of nitric oxide in the pathogenesis of possibilities for their pharmacological correction</i>
12	2015	Clinical Medicine/ Internal Medicine	Indulis Kumsārs	<i>Invasive treatment strategy of coronary bifurcation lesions</i>

13	2015	Clinical Medicine/ Oncology and Hematology	Andrejs Srebnis	<i>Clinical morphological characterization of breast cancer molecular surrogate subtypes in women in Latvia and their relation to choice and results of surgical treatment type</i>
14	2015	Basic Medical Sciences/ Pharmacy	Agnese Kislina	<i>Evaluation of smoking-induced early pathological changes in the lungs and their association with polymorphisms of COPD candidate genes</i>
15	2015	Basic Medical Sciences/ Pharmacy	Ulrika Beitnere	<i>Influence of drug substances on changes in brain biomarker expression in neurodegeneration and neuroregeneration processes</i>
16	2015	Basic Medical Sciences/ Medical Biochemistry	Evita Rostoka	<i>Pharmacological correction of free radical production and DNA breakage</i>
17	2015	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Ieva Timrote	<i>Peripheral visual information effect on central task performance</i>
18	2015	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Kaiva Juraševska	<i>Development of a psychophysical pseudo- isochromatic test and assessment of the colour resolution threshold</i>
19	2015	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Evita Kassaliete	<i>Visual perception characteristics in the cognitive processing of graphemes</i>
20	2016	Clinical Medicine/ Oncology and Hematology	Ilze Kikuste	<i>The endoscopic diagnosis of gastric precancerous conditions: Gastric mucosal atrophy and intestinal metaplasia</i>
21	2016	Clinical Medicine/ Oncology and Hematology	Daiga Šantare	<i>The potential for improving colorectal cancer screening efficiency in Latvia</i>
22	2016	Basic Medical Sciences/ Medical Biochemistry/ Microbiology and Virology	Iveta Līduma	<i>Staphylococcus epidermis virulence factors and epidemiological importance</i>
23	2016	Health and sports sciences/ Health care science	Rita Konstante	<i>Secondary health care infrastructure planning in Latvia</i>
24	2016	Health and sports sciences/ Health care science	Agita Melbārde Kelmere	<i>Bacteremias and their control in the intensive care of a multi-profile hospital</i>
25	2017	Clinical Medicine/ Surgery	Artjoms Špaks	<i>CXC group chemokines as biomarkers of non-small cell lung cancer</i>
26	2017	Clinical Medicine/ Radiology	Jānis Šavlovskis	<i>The morphological changes within the aortic proximal neck after abdominal aortic aneurysm endovascular treatment using balloon-expandable aneurysmal sac- anchoring endoprosthesis</i>
27	2017	Clinical Medicine/ Neurology	Ligita Smeltere	<i>Essential tremor in Latvia: Genetic and clinical study</i>

28	2017	Basic Medical Sciences/ Pharmacy	Jana Namniece	<i>Presence of lunasin in cereal genotypes and pharmacological characterization of lunasin</i>
29	2017	Basic Medical Sciences/ Pharmacy	Mārtiņš Ruciņš	<i>Design of pharmacophoric group containing 1,4-dihydropyridine derivatives and determination of spectrum of pharmacological activities</i>
30	2017	Basic Medical Sciences/ Pharmacy	Vadims Parfejevs	<i>Role of nerve-derived cells of neural crest origin in Wound healing</i>
31	2018	Clinical Medicine/ Internal Medicine	Ēriks Šmagris	<i>Identification of molecular pathophysiological mechanisms of non-alcoholic fatty liver disease (NAFLD)</i>
32	2018	Clinical Medicine/ Internal Medicine	Ainārs Rudzītis	<i>Long-term results of type II atrial septal defect and patent foramen ovale transcatheter closure</i>
33	2018	Clinical Medicine/ Oncology and Hematology	Aija Geriņa Bērziņa	<i>Determination of cisplatin toxicity and the dose prognostication depending on the patient adipose tissue mass</i>
34	2018	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Ilze Ceple	<i>Methods for grouping process studies in the central and peripheral field of vision</i>
35	2019	Clinical Medicine/ Internal medicine	Madara Tirzīte	<i>Exhaled air analysis with artificial smell sensor to diagnose lung cancer</i>
36	2019	Clinical Medicine/ Internal medicine	Kaspars Peksis	<i>Study of the correlation between the external structure of the nose and the development of the respiratory function throughout life</i>
37	2019	Clinical Medicine/ Orthopedics	Valdis Gončars	<i>Treatment of knee and hip osteoarthritis using bone marrow-derived mononuclear cells</i>
38	2019	Basic Medical Sciences/ Pharmacology	Vladimirs Piļipenko	<i>Studies of GABAergic system-targeted substances in a rat model of sporadic Alzheimer's disease</i>
39	2019	Clinical Medicine/ Surgery	Sergejs Zadorožnijs	<i>Knee arthroplasty using digital templating: a prospective randomised controlled single-blind trial</i>
40	2020	Basic Medical Sciences/ Pharmacology	Karīna Narbute	<i>New pharmacotherapeutic approaches in targeting neurodegenerative processes</i>
41	2020	Basic Medical Sciences/ Pharmaceutical Pharmacology	Līga Kunrade	<i>Development of mesenchymal stem cell in vitro models for tissue regeneration and anti-tumor drug delivery studies</i>
42	2020	Medical Sciences/ Pharmacy	Karīna Narbute	<i>New pharmacotherapeutic approaches in targeting neurodegenerative processes</i>
43	2021	Medical Sciences/ Pharmacy	Raimonds Lozda	<i>Impact of legislative changes on the availability of medicines and pharmacovigilance activities</i>

44	2021	Clinical Medicine	Kristofs Folkmanis	<i>Clinicopathological significance of exosomal proteins CD9, CD63 and DNA mismatch repair proteins in prostate adenocarcinoma and benign hyperplasia</i>
45	2021	Clinical Medicine	Aleksejs Kaminskis	<i>Preventive transarterial embolization followed after successful endoscopic hemostasis in patients with bleeding peptic ulcer</i>
46	2021	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Karola Panke	<i>The process of eye accommodation in the age of latest technologies: Methods and norms of subjective and objective evaluation</i>
47	2021	Natural Sciences/ Physics/ Medical Physics (Vision Science)	Tatjana Pladere	<i>Assessment of visual effectiveness on the volumetric multi-plane display</i>

Lecturers in further education programmes especially appreciate the opportunity to model the study process, try new teaching methods, share experiences with each other.

With the funding of the European Union in the period from 2018 to 2022, several study programmes for lecturers are being implemented:

1. Development of online learning and digitization of learning content (target group - academic staff);
2. Innovations to improve the quality of the learning process (target group - academic staff);
3. Academic honesty (target group - directors of study fields and study programmes).

The professional development activities of the academic staff of the University of Latvia were included in the [plan of measures for the development of the academic staff of the University of Latvia for 2018–2020](#) (available only in Latvian) and are included in the plan of measures for the development of the academic staff of the University of Latvia for 2021–2023.

When planning the growth and development of the academic staff, the UL pays equal attention to the identification of the most capable students in the study programmes of the UL and their motivation to get involved in academic work already during their studies (related to both teaching and research). In this context, the UL has developed requirements and selection conditions for attracting new doctoral students to the project operational programme “Growth and Employment” 8.2.2. 1st round "Renewal of Academic Staff and Improvement of Competences at the University of Latvia", 2nd round "Motivated, Modern and Competitive Academic Staff of the University of Latvia" Education, Pedagogy and Sports "and 3rd Round" Strengthening the LU Doctoral Capacity in the New Doctoral Model "(objective of specific support" To strengthen the academic staff of higher education institutions in the fields of strategic specialization"):

1. a doctoral student studying in the last year of an accredited doctoral study program, as well as a doctoral student who is a Latvian citizen studying in an accredited doctoral study programme outside Latvia, and an applicant for a scientific degree;
2. successfully mastered the required number of credit points in the first two / three study years / for a scientific degree applicant – successfully completed doctoral studies;
3. participation in an international scientific conference with a presentation/report;
4. publication of at least one scientific article in an international edition;
5. English language skills at least at C1 level;
6. successful passing of the doctoral examination in English;
7. positive feedback of the supervisor of the doctoral thesis about the doctoral student as a

potential lecturer;

8. leader characteristics and interest in LU research and course teaching.

Thinking about the growth and development of foreign academic staff, the University of Latvia has developed requirements and selection conditions for attracting foreign academic staff:

1. persons who have been employed in an academic position in one of the accredited foreign higher education institutions during the previous five years;
2. a doctoral degree in the relevant field of science or a doctoral degree equivalent thereto;
3. relevant scientific and academic work experience;
4. ability to work in the e-learning internet environment;
5. participation in at least three international conferences with a presentation/report;
6. published monographs and scientific articles, including in international publications with calculated citations (at least three);
7. participation or participation in research projects;
8. excellent knowledge of foreign languages, especially English, skills to use them in studies and methodological work.

For the successful and unified implementation of study programmes at the University of Latvia, a special study programme for directors of study fields and programmes was developed, its implementation took place on October 12, 2021-28, October 2021, the training was led by an international accreditation expert from Poland and Latvia.

[1] For example, acquisition of foreign languages in courses, training.

[2] Professional development courses, training, lectures in pedagogy, didactics of higher education institutions, work with students, etc.

2.3.7. Provide information on the number of the teaching staff members involved in the implementation of the relevant study programmes of the study field, as well as the analysis and assessment of the academic, administrative (if applicable) and research workload.

The academic personnel of the study field "Health Care" is highly qualified both in the academic and professional fields. As it is demonstrated in **Table 2.3.7.1**, the number of elected personnel in the reporting period has increased – lecturers, docents and associate professors. During the reporting period, the number of guest lecturers, guest docents and associate guest professors in the study field programmes has also increased. Participation of guest docents in the study programmes provides a wider perspective for the students and also demonstrates an active and stable international cooperation.

Active participation of the academic staff in research ensures the achievement of high indicators of the staff's scientific activity. Among the docents, there are also excellent scientists, LSA academics, associates, experts and coordinators of scientific activities who determine the high quality of academic education.

Table 2.3.7.1

Statistics on the number of elected academic staff in the study field "Health Care"

Position	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Professors	36	34	35	42	36	36	36	36
Associate professors	39	37	44	45	46	46	47	49
Assistant professors	29	30	42	54	53	53	56	55
Lecturers	22	27	48	57	62	67	68	68
TOTAL elected staff	126	128	169	198	197	202	207	208
Guest professors	1	1	4	6	4	4	8	6
Guest Associate professors				1	1	1	2	2
Guest assistant professors	1	1	1	1	1	2	2	2
TOTAL guest personnel	2	2	5	8	6	7	12	10
Leading researchers	2	3	2	3	2	2	2	2
Researchers	2	2	2	4	4	5	7	7
Scientific assistants	1			1	2	7	6	7
TOTAL academic personnel - scientists	5	5	4	8	8	14	15	16

Compared to 2013/2014 the number of docents has significantly increased, which is related to new study programmes and the increase of the number of students in existing study programmes.

In addition to study work, lecturers are also involved in research work. The job description of the academic staff states that at least once every three years they have to perform scientific activities, which is also done by the lecturers. The research areas of the lecturers mainly correspond to the field of study to be taught. By engaging in scientific research, lecturers also enrich the content of their study courses, as well as by updating and improving the content of the study course, lecturers carry out academic and research work.

In 2020/2021 the number of budget places in PBSP Nursing increased and new students were accepted in 1st year, therefore the number of docents also increased. The director of second-level professional higher education programme Medicine is the Doctor of Medical Sciences, professor of the UL and a highly qualified expert in its speciality. Sub-programmes of specialities are managed by professionals of their speciality, their length of service is not less than 5 years and they are active members of their professional associations. Out of the total of 34 programmes, 25 speciality sub-programmes are led by docents with a doctoral degree in medicine, including 8 professors, 7 associate professors, 2 docents. Since the acquisition of the residency study programme takes place in medical institutions, the mutual agreement between the UL and medical institution indicates the teaching staff involved in the teaching of residents, and it is evaluated as appropriate by the university and medical institution. At each medical institution, a doctor responsible for residents of each speciality is nominated in the specific medical institution. One teaching doctor can be assigned with 2 residents.

The docents of the study field "Health Care" use the ERASMUS+ mobility opportunities as much as

possible. There have been seven mobilities of docents and three mobilities of general staff during the reporting period. This can be explained by the amount of allocated funding – the mobility of one docent and one general staff is granted per year. The field study docents in the ERASMUS+ exchange programmes have gone to the University of Catania and the University of Florence in Italy, Heinrich Heine University in Germany, Charles University in the Czech Republic, Oulu University of Applied Sciences in Finland, Cardiff University in the United Kingdom, Madrid Complutense University in Spain, Tallinn Health Care College in Estonia.

Cooperation partner of ERASMUS+ programme admitted in the study field programmes – docents who have taught lectures and classes for the students of the study field programme (see **Annex**). [Annex_IZBRAUCOSIE_un_IEBRAUCOSIE_docetaji_no_2013.docx](#) .The docents are most often admitted in the study programmes of Optometry, Medicine, Dentistry, Pharmacy and Nursing. ERASMUS+ docents mainly come from Europe – Lithuania, Estonia, Italy, Bulgaria, Finland, Sweden, France, Poland, Spain, Italy, but there are also from Israel, South Africa and the USA. Lessons and lectures taught by these docents provide the students with a wider perspective on the trends of the sector and development in various countries of the world.

2.3.8. Assessment of the support available for the students, including the support provided during the study process, as well as career and psychological support by specifying the support to be provided to specific student groups (for instance, students from abroad, part-time students, distance-learning students, students with special needs, etc.).

The UL students have access to academic support, career development support and psychological support.

The *aim of academic support* is to provide the students with information and consultations regarding study-related questions throughout the period of studies. The academic support includes the implementation of a first-year support program, consultation on the study process (content of the study program, selection of courses, the UL documents regulating the study process), information regarding consultations of course docents, consultations and seminars about acquiring study skills (note-taking, reading scientific literature, active listening, exam anxiety, time planning and use of library and internet resources).

The academic support for students regarding academic matters is provided centrally by the UL Student service department and responsible persons at the faculties: director of the study programme, curator, mentor, study course docents, and the Student Council and student councils of faculties. Consultations regarding the use of library and internet resources are provided by the UL Library. **Table 2.3.8.1** lists examples of the main tasks of student support structural units/staff that have to be done.

Table 2.3.8.1

Examples of main tasks of student support structural units/staff that have to be done.

Structural units/staff	Main tasks
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Faculty's Student Councils	Defends and represents students' interests in matters of academic, material and cultural life at the UL and in other state institutions; represents the students of the faculty in Latvia and abroad; develops proposals for the improvement of the UL internal regulations; provides an opinion in matters concerning student rights and interests; provides consultations to students in matters related to their rights and interests; delegates representatives at the UL Student Council, Faculty Council, Study Programme Council and other MF and the UL collegial institutions, as well as coordinates and supervises the work of their representatives; addresses institutions and officials with requests, proposals and requirements on behalf of the students of the faculty.
The curator	Informs the students on news in the study process, provides individual support to those students, who have difficulties fitting in the UL academic environment and initiates adaptation and team building events.
The clerk, study advisor	Provides study consultations, helps in everyday matters related to the study process, manages study records, provide consultations about the UL information system (LUIS).
The mentor	A student of last years, who helps the first-year students to adapt to the study environment and shares with experience.
UL Student Council (SC)	The aim of the SC is to represent the students of the UL and defend their rights and interests. The SC represents students' interests in academic matters by electing student representatives in the UL decision making institutions reviewing matters related to the study process and improvement thereof.
Director of the study programme	Organises and manages the development of the study programme in accordance with requirements of the relevant science or economic sector, cooperates with employers and apprenticeship placements in the study content matters, evaluates and approves individual modules and study plans selected by the students, etc.
Department of the student service	Organises admission process, consults the faculties and students regarding mobility programmes and study, social and cultural matters, consults and organises training regarding career matters. Organises adaptation events for students provides training for curators and mentors, organises cooperation with employers, etc.

The *aim of the career development support* is to enable the individual to identify his or her interests, abilities, skills, experience at any stage of his or her life, with the support of a variety of services, in order to be able to make informed decisions regarding the choice of education and/or profession and to organise and lead their individual life path in the study, work and other fields. Career development support is provided by the Career Centre of the UL Student Service in cooperation with the faculties.

The Career Centre provides the following services to the students:

- individual consultations on the choice of further studies and profession, development of career plan, support in transition between various education levels and from education to labour market;
- seminars for the development of career planning skills ("Improvement of Career Planning and Development Skills", "My First Job Interview", "Stress Management", etc);
- Internet resource – website of the Career Centre (information is available in Latvian and English) <https://www.karjera.lu.lv/> and <https://www.karjera.lu.lv/eng/> provides up-to-date information on career planning matters, information on professions and labour market;
- Electronic resource "E-karjera" <https://ekarjera.lu.lv/lv/login> and <https://ekarjera.lu.lv/login> which provides the opportunity for students to find apprenticeship placements and work in a short time by placing their personal CV in the database, and for employers to find employees by placing information on vacancies in the company in the database.

Psychological support is provided by the Department of Student Services. Psychologist-consultant provides psychological support to students in solving any personal and study problems that arise during their studies (relationship problems, conflict resolution, emotional difficulties). The psychologist provides individual consultations and consultations by phone.

In cooperation with ESN (*ERASMUS student network*), special events are organised for foreign students to get acquainted with local students, Latvian culture and traditions.

The international marketing plan of the UL includes the following foreign student attraction instruments, based on previous experience:

- participation in education exhibitions in potential market countries: European, Caucasus and Central Asian countries, Ukraine, Egypt, India, Sri Lanka (also in accordance with the recommendations of the Ministry of Foreign Affairs of the Republic of Latvia);
- development of joint marketing activities in cooperation with other Latvian universities, AIEA and AIC;
- use of services of a wide network of agents;
- use of individual approach: meetings with pupils, students and their parents, presentations in schools and higher education institution in target countries;
- improvement of the UL portal English webpage and regular updating with the newest information, and updating of information about the UL in various educational portals;
- use of social networks and media;
- work with supporting structures – embassies, ministries, PMLP;
- distribution of information materials through cooperation partners and international cooperation networks; development of cooperation network – as a basis for future marketing (bilateral cooperation agreements, joint programmes);
- establishment of the UL scholarship offer for foreign students;
- informing of foreign alumni and involvement in the UL foreign student attraction activities;
- promotion of the UL international recognisability (participation in ratings, networks, projects).

In cooperation with the union “Apeirons,” the evaluation of infrastructure accessibility for persons with special needs has been carried out. Obtained results are taken into account in building the new infrastructure, as well as in the development of the provision of study programmes.

Within the study field, the students actively use the administrative support mainly by addressing the clerks of the study programmes, personnel of the Department of Student Services, curators, mentors. The support of curators, mentors and clerks is very significant for first-year students, as well as for foreign students who face the additional challenge of adapting to a new environment, accepting cultural and domestic habits. Shortly before the beginning of the semester, an introduction event is organised for the foreign students, during which information is provided regarding the commencement of studies, study process and the system with all regulatory documents related to the study process. During this event, information is also provided on various current issues that need to be addressed on a daily basis.

In addition to the academic, psychological and career development support, the financial support that can be obtained during studies is also very important. Students of the study field have access to various financial support, for example, from scholarships granted from state funds, scholarships of patrons or local governments (information on patron and local government scholarships, and scholarship recipients is available at www.fonds.lv/en/). The MF students have received and still receive the Rūsis Family Scholarship, Kristaps Morbergs Scholarship, the Pēteris Alunāns Family Scholarship, M.M.V.Petkevičs Memorial Scholarship, Alfreds Raisters Scholarship, Olainfarm Scholarship, Jelgava Municipality Scholarship.

Till 2020, a first-year student of PMSP Clinical Optometry has the opportunity to receive financial support with the aim to support the involvement of students in research (Regulation for the 1st Year Master's Research and Study Support of the Faculty of Physics, Mathematics and Optometry, approved at the meeting of the FMOF Council meeting, 18.06.2018., decision No. FMF-V12-2-51).

The UL provides the students with the opportunity to receive tuition fee benefits (Procedure for Application of Tuition Fee Benefits, approved on 14.04.2009 by the UL order No.1/89). Tuition fee benefits can be in the form of changes in payment schedule or reduction of tuition fee, doctoral studies tuition fee benefits of doctoral students and the UL employees. There are students that receive support from their work, which covers their tuition fee.

It must be noted that MF, BF and FMOF provides an environment accessible to people with special needs both in audiences, lifts, etc.

During the courses the students have the opportunity to use e-books purchased by the docent, which are included in the literature used in the study course; they are placed in the e-learning environment at the corresponding study course, thus students have the opportunity to use the newest literature of the sector.

As support to future students the *New Medics School* organised by the MF can also be mentioned - during the classes students acquire an insight into the anatomy and histology of a human, learn about surgical and oncological diseases, their origin and treatment. Docents of the MF introduce the young people to the causes of injuries and their treatment methods, outline the most interesting topics in obstetrics and gynaecology, as well as inform them about the latest issues in paediatrics. The course also includes classes in pharmacology, seminars on functional examination tests and the use of molecular biology methods in medicine. In addition to specialised topics in the sector, the pupils also obtain an insight into the history of medicine, medical ethics and laws. Graduates of the New medics school receive additional points in SP Medicine and BSP Pharmacy.

2.4. Scientific Research and Artistic Creation

2.4.1. Description and assessment of the fields of scientific research and/or artistic creation in the study field, their compliance with the aims of the higher education institution/ college and the study field, and the development level of scientific research and artistic creation (provide a separate description of the role of the doctoral study programmes, if applicable).

Within the study field "Health Care", the scientific research takes place in the fields and sub-sectors of basic medical sciences, including pharmaceuticals, clinical medicine, health and sports sciences, medical biotechnology. The UL research programme for 2015-2020 (the Research Programme) determined clearly defined **research goals** in the field of medicine and health sciences. They are based on the identification of existing trends in Latvian medicine and health science sectors, European Union (EU) Innovation Index 2015 insights and identification of global research trends and innovations. The research programme in the field of medicine and health sciences is subject to the UL Scientific Activity Development Strategy 2015-2020 (the Strategy), which provides the overall **strategical framework** and outlines the vision to develop the UL as a national university of sciences. In compliance with the Research programme, the UL strives for the **vision** - by establishing the model of a national university of sciences, we wish to become competitive in the

European science field with the help of research, promoting the recognition of medical and health sciences of the University of Latvia in the Baltic region and in the world and contributing to the development of Latvian society and economy. Within the scope of medicine and health sciences, the UL has defined a **mission** – we exist to research matters that are significant in the field of medicine and health sciences and for the Latvian economy, which have a high potential of knowledge transfer and citation of publications.

Within the study field "Health Care" research and everyday life, the **basic values** of the University of Latvia are honoured:

1. **excellence** (the objective of medicine and health science fields is to promote the establishment of the UL as a world level science centre while providing research-based and innovative studies.);
2. **creativity** (the fields of medicine and health sciences strive for the creation and use of new intellectual values in the development of science, public health and well-being, and also promotes the implementation of innovative ideas in research);
3. **openness** (the fields of medicine and health sciences are open in their activities and share their competences with individuals and society, as well as the state, public and private sectors, promoting the sector's contribution to economic development. Its fields facilitate the availability of scientific works highly valued in the academic society, actively participate in the projects of scientific communication and promote the achievements of science and technologies.).

The UL has clearly defined objectives, key performance indicators and values. Objectives in the study field "Health Care" are distributed in accordance with the four development directions determined by the UL:

1. scientific capacity and development of competitiveness;
2. the relevance of research to the needs of the economy and the transfer of knowledge;
3. human resource development;
4. promotion of international scientific cooperation.

As a provider of study programmes in the study field "Health Care", the UL is a strong national player and the main investor of human capital in medicine and health sciences in Latvia, with very good international recognition and strong cooperation with the main institutions abroad and partners in several significant international projects. The UL occupies a respected place in the international scientific community and is considered a respected and recognized centre of competence, with national research centres focusing on cardiology, pharmacology, innovative medical technologies, regenerative medicine and biobank centres. Considering the high number of publications (266 from SCIVAL and 314 from WoS) 55 % of which are published in 1st quartile journals, and the high number of citations/publications (13,37), the research impact of the MHSC-UL should be considered are very good. These two bibliometric data correspond to the 4th position out of 8 medical science institutions in Latvia. However, the list of publications submitted for analysis shows that most of the most popular articles are published in collaboration with major international researchers/institutions.

During the reporting year, the number of publications in SP Medicine and Pharmacy has increased by 36%, because there were 67 publications in 2013, whereas in 2020 there were 105 publications. During the reporting year, the number of projects in SP Medicine and Pharmacy has also increased (see **Table 2.4.1.1**).

Table 2.4.1.1

Doctors, who have participated in projects from 2013 until 2020.

No	Year	Author	Project title
1.	2013	Līga Balode	Provision of the UL EKMI project implementation organizational activities
2.	2013	Elīna Dimiņa	Multidisciplinary approach for monitoring, controlling and limiting COVID19 and other future epidemics in Latvia
3.	2013	Jānis Misiņš	Development of a diagnostic method for genetic and serological biomarkers for early detection of autoimmune gastrointestinal disease with increased cancer risk. ESP Establishment of a public health care quality and efficiency monitoring system
4.	2014	Agnese Ruskule	Interdisciplinary research group for early tumour diagnosis and prevention Agreement on the implementation of the research project VOLGACORE "Volatile biomarkers for the detection and characterization of gastric and colorectal neoplasia"
5.	2014	Sarmīte Kupča	Clinical, molecular biological and morphofunctional research of prognosis, diagnosis and treatment of congenital and acquired diseases of children Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases.
6.	2014	Zane Dzirkale	Development of a medical device for the promotion of chronic wound healing Processing of Vaccinium genus berries: "green" technologies and innovative, pharmacologically characterized products for bio-pharmacy Multi-scale investigation of synaptic dysfunction after stroke Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases I Microglial activation in Complement C4-stratified schizophrenic patients and in a mouse model of C4 overexpression
7.	2014	Jelizaveta Sokolovska	Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases II Determination of proteasome related genetic, epigenetic and clinical markers for multiple sclerosis Novel biomarkers of diabetic retinopathy: epigenetic modifications of genes of the ubiquitin-proteasome system, telomere length and proteasome concentration
8.	2015	Ulrika Beitnere	Research of mortality in groups of patients of different ages and research of new structures in treatment of neurodegenerative diseases. Effects of various beta-amyloid peptide sequences: focus on the use possibilities of the short peptide in the treatment of dementia Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases II
9.	2015	Evita Rostoka	Development of an early diagnostic method for autoimmune diseases Determination of proteasome related genetic, epigenetic and clinical markers for multiple sclerosis

10.	2016	Ilze Kikuste	<p>Development of a diagnostic method for genetic and serological biomarkers for early detection of autoimmune gastrointestinal disease with increased cancer risk.</p> <p>Smartphone for detection of disease from exhaled air</p> <p>Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases II</p> <p>Agreement on the implementation of the research project VOLGACORE "Volatile biomarkers for the detection and characterization of gastric and colorectal neoplasia"</p> <p>Research of gastric cancer mortality reduction options in the conditions of Latvia</p> <p>Volatile organic compounds for potential application in gastric cancer screening</p>
11.	2016	Daiga Šantare	<p>Development of a diagnostic method for genetic and serological biomarkers for early detection of autoimmune gastrointestinal disease with increased cancer risk.</p> <p>Development of anti-cancer drugs targeting cancer stem cells</p> <p>Agreement on the implementation of the research project VOLGACORE "Volatile biomarkers for the detection and characterization of gastric and colorectal neoplasia"</p> <p>Development of risk stratification method for gastric cancer and precancerous conditions using biomarkers</p> <p>Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases</p> <p>Development and standardization of new tumour mutation diagnostic technologies providing high-quality research, diagnostics, and personalized treatment of tumour biomarkers</p> <p>Ethically and socially responsible governance of research biobanks in Latvia: analysis of opinions of public, donors and researchers</p>
12.	2016	Iveta Līduma	<p>ESP Development and approbation of an innovative wound treatment herbal preparation using the medicinal oil lamellar gel phase emulsion method</p>
13.	2016	Rita Konstante	<p>Establishment of a public health care quality and efficiency monitoring system</p> <p>ESP Establishment of a public health care quality and efficiency monitoring system</p>
14.	2017	Jānis Šavlovskis	<p>Research on personalised monitoring, diagnostics and treatment of processes caused by atherosclerosis</p>
15.	2017	Jana Namniece	<p>Research of mortality in groups of patients of different age and research of new structures in the treatment of neurodegenerative diseases</p> <p>Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases</p> <p>Processing of Vaccinium genus berries: "green" technologies and innovative, pharmacologically characterized products for bio-pharmacy</p>
16.	2017	Mārtiņš Ruciņš	<p>Development of bacterial exopolysaccharide production technology to improve the functional quality of food production</p>
17.	2017	Vadims Parfejevs	<p>Renewal of academic staff and improvement of competences at the UL</p> <p>Promotion of FM scientific research collaboration and improvement of capacity</p> <p>Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases</p> <p>Novel human organoid model to study the role of the peripheral nervous system in pancreatic cancer</p>

18.	2019	Valdis Gončars	Organizational and technical provision of scientific activities of FM (Research of disabling pathologies and mortality in different age patient groups) Research of mortality in groups of patients at different ages and research of new structures in the treatment of neurodegenerative diseases Research on personalised monitoring, diagnostics and treatment of processes caused by atherosclerosis For the development of the scientific activity of the Institute of Cardiology and Regenerative Medicine of the University of Latvia
19.	2019	Vladimirs Pīlpenko	Organizational and technical provision of scientific activities of FM (Research of disabling pathologies and mortality in different age patient groups) Research of mortality in groups of patients at different ages and research of new structures in the treatment of neurodegenerative diseases Effects of various beta-amyloid peptide sequences: focus on the use possibilities of the short peptide in the treatment of dementia Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases Microglial activation in Complement C4-stratified schizophrenic patients and in a mouse model of C4 overexpression (MicroSchiz)
20.	2019	Sergejs Zadorožnijs	Organizational and technical provision of scientific activities of FM (Research of disabling pathologies and mortality in different age patient groups) Research of mortality in groups of patients at different ages and research of new structures in the treatment of neurodegenerative diseases
21.	2020	Karīna Narbute	Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases Development and standardization of new tumour mutation diagnostic technologies providing high-quality research, diagnostics, and personalized treatment of tumour biomarkers (Research No 16 Experimental development)
22.	2020	Līga Kunrade	Response of mesenchymal stem cells and tumour stem cells to nanoparticles. Agreement on implementation of the Latvian-Lithuanian-Taiwan Trilateral Scientific Cooperation support fund project "Response of Mesenchymal Stem Cells and Tumour Stem Cells to Nanoparticles" Enhancing human capital and knowledge in health science by institutional cooperation and mobility between the University of Latvia and three Norwegian universities Cancer-derived extracellular vesicles: function and clinical applications in prostate cancer Research on biomarkers and natural substances for the diagnosis and personalised treatment of acute and chronic diseases Cancer exosomes - a new source for the identification of gastrointestinal tumour biomarkers and therapeutic targets Processing of Vaccinium genus berries: "green" technologies and innovative, pharmacologically characterized products for bio-pharmacy The UL scientific excellence and commercialisation support programme Novel human organoid model to study the role of the peripheral nervous system in pancreatic cancer

Recognized as the most influential and advanced in the competition for the best young scientist publication dedicated to research in the field of stem cells and regenerative medicine, announced

by the prestigious scientific journal *Stem Cells Translational Medicine* in 2020. In 2020, the article *"Intranasal Administration of Extracellular Vesicles Derived from Human Teeth Stem Cells Improves Motor Symptoms and Normalizes Tyrosine Hydroxylase Expression in the Substantia Nigra and Striatum of the 6-Hydroxydopamine Treated Rats"*, the first author of which is the new scientist Karina Narbutė, PhD (the graduate of the Pharmacology derived of the UL FM SP Medicine and Pharmacy), has been recognised as the best work.

Within the development direction "Development of Scientific Capacity and Competitiveness", the UL has set **the objective** to:

1. Increase the competitiveness of scientific activity of the health and life sciences group in the European scientific area, which includes:

- publications (including scientific articles in periodicals and collections of articles, chapter monographs, publications in conference report collections and others) in Web of Science, SCOPUS databases;
- scientific articles with a citation index of at least 50 % of the industry average citation index (number);
- average citation level (H-factor);
- interdisciplinary research projects in collaboration with other structural units of the UL and other institutions (number);
- interdisciplinary scientific publications in collaboration with other structural units of the UL and other institutions (number).

2. Increase the scientific capacity of medicine and life sciences groups, which includes:

- the number of scientific staff (leading researchers, researchers, scientific assistants);
- employed scientists (PLE);
- the success rate of participation in competitions announced within the European Union research and innovation programs and technology initiatives (%);
- the total amount of funding attracted to science (EUR);

Within the development direction "Research to the Needs of the Economy and the Transfer of Knowledge", the UL has set **the objective** to:

1. Increase the potential of knowledge transfer, which includes:

- the number of registered industrial property rights, by means of international, European or national application procedure in the following countries – Germany, Spain, the United Kingdom, Denmark, Norway, Sweden, Finland, Estonia, Poland, the Czech Republic, Austria, Hungary, Romania, Russia, the USA, Australia, Canada, India, China, India, Japan;
- number of realised patents;
- the number of concluded intellectual property (rights) license agreements (LA);
- spin-off companies (number).

2. Increase the revenue from knowledge transfer, which includes:

- the allocated private sector funding (EUR);
- proceeds from the transfer of intellectual property rights to merchants, public institutions and other contracting entities, such as natural persons, associations, foundations (EUR);
- funding attracted as a result of contractual research carried out on behalf of merchants, public institutions, municipalities and local government companies (EUR).

3. Improve the understanding of the society on scientific achievements, which includes:

- the number of collaboration activities (joint projects) with the non-governmental sector;

- the number of reflections of the UL scientist opinions in printed media;
- participation of the UL staff in public administration and consultation institutions (number);

Within the development direction “Human Resources Development”, the UL has set *the objective* to:

1. To promote the growth of scientific staff, which includes:
 - number of persons enrolled in doctoral study programmes;
 - number of persons who have obtained a doctoral degree;
 - number of persons who have obtained the UL doctoral degree and are in an employment relationship with the UL;
 - master's students, doctoral students employed in the previous year, as well as young scientists who have obtained a doctoral degree during the last 5 years (PLE).
2. To promote the development of competencies of scientific staff that should be understood as:
 - the ratio of career development events (seminars, courses, training) number attended by scientific staff to the total number of scientific staff.

Within the framework of the development direction “Promotion of international scientific cooperation”, the University of Latvia has set *the objective*:

1. To develop a network of international scientific cooperation, which should be understood as:
 - international research projects (number);
 - number of international projects in which the University of Latvia has a coordinating role (Beneficiary status - coordinator);
 - number of co-publications with foreign co-authors;
 - the number of international scientific conferences organized by the University of Latvia.
2. Increase the mobility of research staff, which should be understood as:
 - number of foreign scientific staff who have carried out research activities at the University of Latvia for at least one month;
 - the number of the scientific staff of the University of Latvia who have carried out research activities in foreign scientific institutions for at least one month.

To achieve the objectives, the institutional development plan and a human resources development plan have been developed. Tasks, deadlines and responsibilities have been identified for each objective.

General objectives for the implementation of the research programme:

1. to develop and approve a detailed change management plan;
2. to nominate a change management team;
3. to implement a change management plan with an aim to regularly monitor the implementation progress and coordinate its implementation.

To achieve **the objective “To increase the competitiveness of the scientific activities of the science sectoral group in the European Research Area”** set within the framework of the development direction “Development of scientific capacity and competitiveness”, a number of actions shall be taken: 1) To define an evaluation approach for participation in international conferences, including as a priority criterion an increase of the potential of publication in high-level scientific journals; 2) To implement cross-sectoral co-operation planning activities at least quarterly, exchanging information on which projects or publications there is a possibility of cooperation, identifying the needs and competencies of each sub-sector that may assist other sectors; 3) To

develop an approach to a regular qualitative evaluation of research (in addition to quantitative indicators), assessing its quality at all stages of the cycle.

A number of actions shall be taken **to achieve the objective "To increase the scientific capacity of the science sectoral group"**: 1) To create a project application evaluation / improvement council to ensure the quality of international project applications (image of the University of Latvia); 2) To create a user-friendly system for scientific staff for finding, preparing applications, implementing, and concluding research projects, providing administrative support; 3) To carry out practical training and exchange of information/ experience for the preparation and implementation of scientific project applications at least once every six months; 4) To create an international fund for the support of attendance at scientific conferences, giving priority to funding participation in conferences, which would promote the increase in the number of peer-reviewed publications.

To achieve the objective "To increase the potential of knowledge transfer" set within the framework of the development direction "The relevance of research to the needs of the economy and the transfer of knowledge", a number of actions shall be taken: 1) To develop a support system for organizational/ administrative support for researchers' research (contract work) and procurement participation; 2) To create research laboratories/offices in research directions with a service-providing potential and communicate actively on research directions, achievements, and offered services (consultations, implementation of applied research); 3) To involve representatives of the private sector in the development of such new study programmes or improvement of the existing ones that would have the potential of knowledge transfer and internationally significant research.

A number of actions shall be taken **to achieve the objective "To increase revenue from knowledge transfer"**: 1) To develop a knowledge transfer strategy to systematically promote cooperation with entrepreneurs in identified sectors (e.g. private education, kindergartens, transport and education companies, tourism companies, consulting companies, social partners, IT companies, publishing houses, security system implementers, etc.); 2) To develop a catalogue of industry services, identifying services that are provided for a fee and services that can be provided free of charge, taking into account other considerations (e.g. visibility, publication, promotion of cooperation); 3) To identify the topics of each sub-branch of science and potential clients for a remunerated knowledge transfer; 4) At the level of the University of Latvia, to develop a motivating financing model to include the existing custom order-based individual scientific research into one of the structural units of the University of Latvia.

A number of actions shall be taken **to achieve the objective "To raise public awareness of scientific achievements"**: 1) To develop a process and a support mechanism of the University of Latvia for attracting contract work and disseminating research results; 2) To develop guidelines and define detailed activities for the expression of the opinion of experts of the University of Latvia in the media in order to increase the recognition of the University of Latvia as a higher education institution and the public understanding of the research activities carried out by the University of Latvia and the results of such research.

To achieve the objective "To promote the growth of scientific staff" set within the framework of the development direction "Development of human resources", a number of actions shall be taken: 1) To develop and implement a remuneration model for the academic staff of the University of Latvia and to improve the existing remuneration system; 2) To develop a system of performance evaluation and motivation of the employees of the University of Latvia; 3) Based on the results of the employee satisfaction survey and the focus group of doctoral students, to create a working group of representatives of the HR Department and structural units to decide on solutions

for strengthening the image of the University of Latvia as an attractive job; 4) To establish a working group of representatives of the HR Department and the structural unit in order to agree on the criteria for the gradual renewal of the existing academic staff; 5) To implement a system of succession for academic staff.

A number of actions shall be taken **to achieve the objective “To promote the development of competencies of scientific staff”**: 1) To determine the minimum required training and competencies for each level of positions; 2) To develop a training plan for the academic staff on the tasks to be performed to increase the scientific capacity and the involvement in the process of increasing the scientific capacity; 3) To link the system of career development and training of employees with the performance evaluation system.

To achieve the objective “To develop the network of international scientific cooperation” set within the framework of the development direction “Promotion of international scientific cooperation”, a number of actions must be taken: 1) To develop a methodology/manual for the promotion of scientific cooperation; 2) To create a database of existing and potential international scientific institutions, working groups, and individual scientists for the identification of potential cooperation and progress assessment (link the database with the methodology/ manual for the promotion of scientific cooperation); 3) To develop procedures for the creation and expansion of a network of individual and institutional cooperation and contacts. 4) To define the model and policy of support for visits of foreign scientific staff with the aim to promote the increase of joint publications in international peer-reviewed journals.

A number of actions shall be taken **to achieve the objective “To increase the mobility of research staff”**: 1) To develop a communication strategy in order to update and expand both individual staff cooperation and contact networks and institutional cooperation and contact networks (internal and external communication); 2) To promote academic positions and studies internationally, using cooperation and contact networks; 3) To organize international competitions for the academic positions; 4) To provide funding for the development of individual and institutional cooperation and contact networking to attract more foreign guest lecturers, students, and research staff.

The choice of medium-term priority research directions in the study field "Health Care" is justified by a set of criteria, including the following:

- the relevance of research directions to Smart specialization development priorities or areas of specialization;
- the expansion of the knowledge base for the development of Latvian and EU areas of economic activity and raising the standard of living of the society;
- research excellence;
- an ability to attract external (international and private) financial resources;
- the focus of the research at the national, EU, or global level, which is confirmed by the needs of the economy and society, the interest of social partners, analysis of the situation, and substantiated assessment of industry perspectives (analysis of publication variability, EU “foresight” and strategic planning activities, processes confirming the development of current trends);
- the development of problem-oriented research using interdisciplinary methodologies, combining traditionally competitive fields of science;
- a synergy of research and study process.

SP Medicine and Pharmacy in the study field "Health Care" provides doctoral training, the number of doctoral degrees awarded during this evaluation period is 36, and approximately 4-6 doctoral degrees are awarded per year, most of which were funded through European Social Fund

scholarships available until 2015. Given the increase in the number of academic staff, this number may have been higher, however, the volatile epidemiological situation in 2020 required additional reserves for academic work; it is also related to a lack of properly funded scholarships and a choice of new graduates to pursue a career in the clinical sector rather than enrolling into doctoral study programme if the level of funding for scholarships is insufficient. an appropriate requirement for employment elsewhere and the supervision of a doctoral dissertation in parallel with full-time or part-time employment. The quality and quantity of research are sufficient to support doctoral programmes in most areas, and the study field "Health Care" has both research and educational and academic infrastructure to support doctoral programmes in addition to links and collaborations with other universities. Therefore, there is a very good potential for doctoral education and research, as it is one of the main investors in human capital in medicine and health sciences in Latvia, however, the availability of sufficient funding and support for doctoral studies and attractiveness of doctoral studies as a viable career choice must be addressed jointly by the university in cooperation with the higher education sector and the Latvian government.

There is a suitable research infrastructure for the study field "Health Care", the University of Latvia is a strong national player and is able to provide a research environment that is comparable to world-renowned academic institutions in its discipline. After the previous evaluation in 2013, the scientific environment has significantly improved with the development of the University of Latvia Academic Centre and the relocation to new buildings, supported by ERDF grants, to purchase new equipment of particular importance to research teams. basic medical sciences, pharmacy and pharmacology. Modern equipment allowed improving the research infrastructure to ensure the implementation of national and international research grants, as well as cooperation with the pharmaceutical industry and to attract new students to research careers. Placing facilities in the same building as other research institutes of the University of Latvia, such as the Institute of Atomic Physics and Spectroscopy, greatly facilitates interdisciplinary research and the scientific environment, as well as more rational use of (shared) equipment and laboratory facilities.

The scientific activity of the study field "Health Care" in several ways complies with the specific goals of the State science, technology, innovation, and education policy, for example:

- Research has made a significant contribution to medicine and health by fostering the development of human capital in health care and research.
- In collaboration with international partners, focusing on innovations in diagnostic and preventive medicine and the translation of medical research results into clinical practice. These investments not only meet the State science and technology development goals but also make a valuable contribution to the society and economy.
- The presence at the university allows and supports the link between medical and health science research and medical and scientific education and greater integration at all levels, from bachelor's to master's and doctoral students.

It is clear from the above that the study field "Health Care" at the University of Latvia has long-term goals, as well as a clearly defined, precise, and completable action plan for achieving the set objectives that is being purposefully fulfilled, approaching its goals.

2.4.2. The relation between scientific research and/or artistic creation and the study process, including the description and assessment of the use of the outcomes in the study process.

Compared to the previous accreditation period, the study and research infrastructure has been improved and ensured. Thanks to the Torņakalns campus of the University of Latvia, there are vast cooperation opportunities between researchers and students of the Faculty of Medicine and other faculties of the University of Latvia. For example, the staff of the Pharmaceutical Research Group is actively involved in the higher education of pharmacy students in bachelor's and master's degree programmes in pharmacy, thus clearly promoting the scientific evidence-based process of pharmacy studies. The decisive factor in both research and the study process is qualification and compliance with professional requirements. In the practical classes of optometry study programmes, the newly developed diagnostic methods of visual functions and visual perception are applied and tested. At the Optometrist Student Outpatient Clinic, vision tests are improved every year and more and more new vision assessment methods are included; these methods are then used by graduates in their practice places. **Table 2.4.2.1** shows the scientific groups of the University of Latvia and their connection with research in the field of medicine and health sciences.

Table 2.4.2.1

The scientific groups of the University of Latvia and their connection with research in the field of medicine and health sciences

Study field "Health Care"			
No.	Faculty	Body	Research specialization
1.	Faculty of Medicine	Group of professors of pharmacy	Stem cells, exosomes, nanoparticles; cell signalling pathways, neurochemistry; research into new biologically active substances; social pharmacy; structure-activity studies.
2.	Faculty of Medicine	Department of Pharmacology	Neurosciences, models of neurodegenerative diseases, behavioural and memory processes, neuroprotection. Research on biologically active substances; immunohistochemistry, Western blotting.
3	Faculty of Medicine	Department of Medical Biochemistry	Nitric oxide pathways; gene polymorphism; DNA.
4.	Faculty of Medicine	Department of Pathology	Cell morphology; immunohistochemistry; COPD candidate genes; spirometry; exhaled air composition analysis.
5.	Faculty of Medicine	Group of lecturers of microbiology	Genetic diversity of microorganisms; biofilm production; multidrug resistance.
6.	Faculty of Medicine	Department of Internal Medicine	Specialization in personalized medicine, endocrine and metabolic diseases, cardiology, infectious diseases; management of the state research programme "Biomedicine", successful cooperation with Latvian scientific institutions, extensive international cooperation.
7.	Faculty of Medicine	Department of Oncology	Specialization in biomarker research in oncology, onco-prevention and screening research, cost-effectiveness research. Extensive international cooperation, close cooperation with Riga East University Hospital, other Latvian scientific institutions, thus providing unique clinical material. Management of Latvian and international research. Development of a biobank, thus providing biomaterial for research. Close cooperation with structural units of the University of Latvia. Coordination of cost-effectiveness studies in oncology and onco-prevention. Active involvement in State research programmes and attraction of international projects. Implementation of population research.

8	Faculty of Medicine	Department of Paediatrics	Specialization in paediatric research. Development of epidemiology, child mortality and its reduction strategy. Genetic and external risk factors of chronic diseases of children, course of rheumatic diseases of children, treatment, clinical outcomes, prognosis. Active involvement in State research programmes.
9.	Faculty of Medicine	Department of Surgery	Studies in gastric and other gastrointestinal tumours and related precancerous conditions. International cooperation, including cooperation with other structural units (including the Department of Oncology). Research in the field of surgical treatment methods and outcomes, in the field of biomarkers. The research is related to the development of minimally invasive surgery. Research on the use of multimodal anaesthesia in both open and minimally invasive surgery
10.	Faculty of Medicine	Group of lecturers of obstetrics and gynaecology	Research in the field of oncological disease screening. Important – participation in the implementation of cervical screening in the country.
11.	Faculty of Medicine	Department of Pathology	Research in the field of morphological research. Research in the field of oncology and precancerous conditions. Clinical and basic research in the development of biomarkers, exosome research. Extensive international cooperation. Close cooperation with other structural units.
12.	Faculty of Medicine	Group of lecturers of orthopaedics	Research in the field of regenerative medicine and biomechanics. Close cooperation with other structural units.
13.	Faculty of Medicine	Centre of Health Management and Informatics of the Faculty of Medicine	Research of health care organization (including hospital management and health care financing). Health policies and services. Health informatics.
14.	Faculty of Medicine	Group of lecturers of nursing study programmes	Nursing, health care policy and services.
15.	Faculty of Physics, Mathematics and Optometry	Department of Optometry and Vision Science	Development and testing of methods for visual functions (binocular vision, stereo vision, colour vision), eye structure (tear quality, retinal parameters, anterior part of the eye), and visual perception (biological movement, visual perception). Development of children's vision screening methodology, development of a prototype of vision screening and vision training device, testing of the methodology in schools, cooperation with optical companies in the development of preventive vision screening for school-age children. Functional research of visual perception and vision in connection with new imaging equipment, such as volumetric screen, augmented reality volumetric screen. Research on visual ergonomics, vision problems of computer users, and possible solutions for improving visual comfort.

For example, the Department of Pharmacology attracts and actively involves students in projects, and implements student mobility to partner institutions such as the University of Oslo. Project: EEA and Norwegian Financial Mechanism funding, “Enhancing human capital and knowledge in health science by institutional cooperation and mobility between the University of Latvia and three Norwegian universities”, EEA/NFI/S/2015/019. Participant in the “Research and Scholarships” activity “Scholarships”. Within the framework of the project, mobility was exercised by master's and doctoral students currently involved as teaching staff at the Department of Pharmacology.

For example, a group of lecturers of the Nursing study programme in cooperation with Finland, Denmark. 2013-2015 International research project "5 Stars partnership LbD", Nordplus Horizontal NPHZ-2013/10097.

In its turn, the Department of Optometry and Vision Science by the Faculty of Physics, Mathematics and Optometry is currently implementing four projects within the activity 1.2.1.2 *"Support for the Improvement of the Technology Transfer System"* of Specific support objective 1.2.1. *"Increase private sector investment in R&D"* of Operational Programme *"Growth and Employment"* of IDAL Commercialization project *"Development of vision screening and training device"* (according to Cabinet Regulation No. 692), two projects of LCS Fundamental and Applied Studies No Izp-2021/1-0219 *"Visual functions in children with reading disorders"* and No Izp-2021/1-0399 *"Development of guidelines for evaluation of visual effectiveness and ergonomics of innovative 3D displays"*, as well as Contract study on the development of the applicability methodology and of the preventive eye muscle exercising and strengthening device within the framework of the ERDF project *"Development and research of a new eye muscle preventive exercising and strengthening device EYE ROLL and its applicability methodology"*, in which young researchers - bachelor's, master's and doctoral students - are mostly involved.

The main research in the field of clinical medicine is related to issues that are topical in society and important public health care funded issues. Particular emphasis is placed on research into the prevention and early diagnosis of various diseases, including tumours. Early diagnostic research is related to both the latest trends in medical technology and the elucidation of biological markers of disease. The plan and strategy to reduce child mortality are a direct result of mortality research. Research into chronic diseases allows for early diagnosis, thus initiating early treatment and reducing late costs. A programme for the diagnosis, rehabilitation, and training of obese patients has been organized at the Children's Clinical University Hospital.

The research programme in medicine and health sciences focuses on three areas:

- **fundamental research** – research in basic medical sciences, including pharmacy;
- **research representing the public interest** – research in clinical medicine, health and sports sciences (disease control and prevention, public health, health care organization, management and policy development);
- **applied research work, helping to link applied research with innovation** – research in the field of development of new medicinal substances and forms, as well as clinical research in the development and approbation of new treatment and diagnostic methods and tools.

2.4.3. Description and assessment of the international cooperation in the field of scientific research and/or artistic creation by specifying any joint projects, researches, etc. Specify those study programmes, which benefit from this cooperation. Specify the future plans for the development of international cooperation in the field of scientific research and/or artistic creation.

In connection with the development of research, there are currently several trends in the world in the study field "Health Care", including:

- "open science" for the general public, which includes the concept of knowledge transfer, access to scientific information, and the pursuit of "open science for open innovation";
- results-oriented environment;

- interdisciplinary, inter-institutional, and international cooperation;
- open access to research infrastructures.

The most significant research projects within the study field "Health Care" in the reporting period:

- 2019-2020: Cooperation has been established with the world's leading centres in the development of technologies and methods in the field of research on volatile biomarkers and exosomes. An agreement has been concluded with the IARC - the International Agency for Research on Cancer on the international coordinating role of the University of Latvia for the population cancer prevention research GISTAR. In Latvia, most research has been carried out in the field of cost-effectiveness of cancer prevention, in cooperation with internationally leading partners in this field.
- 2019: International research project AwAKE (Aler(n)gerechten, Arbeitsklima in Krenkenhaus): Age-related working conditions in hospitals - carrying out the active phase of the research (assoc.prof. L.Civjāne)
- 2017-2018: The ERDF project "Development and Standardization of New Tumour Mutation Diagnostic Technologies Providing High-Quality Research, Diagnostics, and Personalized Treatment of Tumour Biomarkers" was implemented (experimental development, industrial research) No S207-KC14E-ZE-S-840 and No S207 -KC14R-ZR-S-840 (assoc.prof. S.Isajevs)
- In April 2017: The EEA project "Effects of Different Beta-Amyloid Peptide Sequences: Focus on the Possibilities of Using Short Peptides in the Treatment of Dementia" (prof. B.Jansone) was successfully completed in the activity "Research".
- In April 2017: The EEA project "Prostate Cancer Extracellular Vesicles: Functional Role in Intercellular Communication and Clinical Application" (prof. U.Riekstiņa) was successfully completed in the activity "Research".
- In 2017: The Baltic-German University Liaison Office project "Environmental Impact on Cognitive Decline" No FP-20389-ZR-N-840 (assoc.prof. L.Civjāne) was implemented.
- 2015-2018: Implementation of the Latvian-Ukrainian project "Optimization of the Algorithm for Determining the Biochemical Characteristics of Tumour Progression and Treatment Efficiency with Biosensors" (Science Technology Programme of the Ministry of Education and Science (MES) of Latvia and Ukraine) No FP-20322-ZF-N-840 (prof. U.Riekstiņa).
- 2015 -2018: Implemented the Horizon 2020 project "Towards the elimination of iodine deficiency and preventable thyroid-related diseases in Europe - Euthyroid" No A-20080N-ZF-N-840 and No A-20080-ZF-N-840 (prof. V.Pīrāgs).
- 2015-2017: Implemented ERA-NET project "Agreement on the implementation of the research project "Volatile biomarkers for the detection and characterization of gastric and colorectal neoplasms" No C-2914-ZR-N-840/ (prof. M.Leja).
- 2013-2015: Implemented the ESF project "Physiological studies of visual fatigue and development of its diagnostic methods" (experimental development, industrial research) No 2013/0021/1DP/1.1.1.2.0/13/APIA/VIAA/0001 (prof. G.Krūmiņa)

All 14 different level study programmes in the study field "Health Care" benefit from the research, as described in Section III of the Report for each study programme.

To increase international competitiveness and successfully take part in the EU research and innovation support programmes and technology initiatives, in accordance with the Development Strategy, the following activities **are planned** to be implemented at the University of Latvia, including in the study field "Health Care":

1. Creation of an Institutional International Research Programmes Contact Point (for example, providing information on competitions and work programmes to unit administrations and individual researchers).

2. Attracting financial resources to ensure the operation of the International Research Programmes Contact Point.
3. Expansion of international cooperation networks, including (membership in international research cooperation organizations, including European Network for Avant-Garde and Modernism Studies).
4. The motivation of staff and establishment of a support system for participation in EU research and innovation support programmes.
5. Active participation in (a) calls for proposals under EU research and innovation support programmes, including Horizon 2020 sub-programmes: "Nanotechnologies, advanced materials and production"; "Future and Emerging Technologies" thematic (FETProactive) or open (FET-Open) competitions; (b) calls for proposals from the European Research Council (ERC) and Marie Skłodowska-Curie activities; (c) European Research Area Networks (ERA-Net); (d) in the international COVID study GlobalSurg-CovidSurg Week.
6. Participation in various support events, including events organized by the National Contact Point, MES, Contact Point of the University of Latvia.
7. Creation of profiles in EU information databases on priority groups for research areas.
8. Strengthening research capacity: (a) development of research infrastructures; (b) development of human resources.

According to the 2020 Webometrics rating, the University of Latvia is the most recognizable higher education institution in Latvia, which is substantiated by publicly available scientific information arising from the academic activities of the UL (see **Table 2.4.3.1**).

Table 2.4.3.1

The status of Latvian higher education institutions in the rating

Latvian Rank	World Rank	High School	Visibility Rank	Impact Rank	Accessibility Rank	Excellence Rank
1	1016	University of Latvia	134	1364	1434	1476
2	1705	Riga Technical University	778	2365	2563	2323
5	8498	Rēzekne Academy of Technology	3481	8400	4121	5824
6	3467	Rīga Stradiņš University	3558	2862	4121	2862

Respectively, the indicators of the UL Webometrics rating are in line with the assessment of the science cluster Medicine and Health Care Science in the study field "Health Care"; the value of this assessment has increased by one point in 2020.

For the development of research capacity and competitiveness, the study field "Health Care" at the University of Latvia has set the following objectives:

- enhancing scientific excellence;
- internationalisation of studies;
- expanding the knowledge base and transferring technology, including: the development of new products and technologies with high added value to meet the needs of society and economic development, and the transfer of knowledge and technology to implement research results in production or services.

Within the framework of international cooperation in research, mobility visits of researchers to and

from foreign universities within the framework of ERASMUS, NordPlus, Horizon 2020 MSCA RISE, and other cooperation projects should be promoted. Within the framework of ERASMUS+ study and ERASMUS+ internship projects, students and lecturers use the opportunity to acquire both new knowledge and skills not only in study courses but also in research. This activity takes place in all study programmes of the study field "Health Care" throughout the existing accreditation period, and it is planned to use it more in the next accreditation period, motivating new lecturers to gain pedagogical experience abroad, as well as students to gain both study and research experience. It is also planned to expand the range of Erasmus cooperation partners in order to promote all study programmes of the study field "Health Care" at the UL.

2.4.4. Specify the way how the higher education institution/ college promotes the involvement of the teaching staff in scientific research and/or artistic creation. Provide the description and assessment of the activities carried out by the academic staff in the field of scientific research and/or artistic creation relevant to the study field by providing examples.

During the accreditation period, several strong research directions have developed in the field of medicine and health science at the University of Latvia; the lecturers involved in the study field "Health Care" work in these directions. Most of the lecturers are both professionals in their field, hence, at the same time they work in medical institutions and gain experience that is passed on to their students, as well as are actively conducting research in their field, involving also students of different levels. Below, the research areas in which the lecturers of the study field "Health Care" work, are listed.

- **In the field of public health research:**
 - large population studies (professor Andrejs Ērglis, professor Mārcis Leja, professor Valdis Pīrāgs);
 - research on measures to reduce child mortality (professor Ingrida Rumba-Rozenfelde);
 - in nutrition science on the possibilities of using food products of a local selection of cereal material in the prevention of chronic intestinal diseases and in the assessment of the impact on patients with hormonally dependent tumours (professor Ida Jākobsone);
 - on the determination of the composition and somatotype of human body tissues, on the use of metabolic intensity and energy substrate in conditions of rest and loading (associate professor Līga Ozoliņa-Molla, associate professor Līga Plakane);
 - development of vision screening for school-age children and research on children's population vision (professor Gunta Krūmiņa, associate professor Aiga Švede);
 - in the organization of health care and evaluation of the effectiveness of public health measures (associate professor Juris Bārzdīņš);
- **In the field of biomarkers and personalized medicine research:**
 - research on volatile biomarkers (professor Imanuels Taivāns, associate professor Māris Bukovskis, professor Mārcis Leja);
 - research on genetic markers (professor Gustavs Latkovskis, professor Nikolajs Sjakste);
- **In the field of oncology:**
 - research in the field of biomarker development and screening for malignancies (professor Uldis Vikmanis, associate professor Ilva Daugule, professor Sergejs Isajevs, professor Mārcis Leja)

- **In the field of infectious disease research:**

- research to determine the resistance of microflora to antibacterial therapy and multidrug-resistant tuberculosis (professor Uga Dumpis);

- **In the field of innovative translational medicine based on cellular target identification:**

- research on the targets in neurodegenerative diseases and neuroprotective drugs (professor Vija Kluša, professor Ruta Muceniece);
- stem cell research (professor Una Riekstiņa);

- **In the field of metabolism and regulatory diseases:**

- research on genetic markers and cytokines (professor Valdis Pīrāgs, professor Ingrida Rumba-Rozenfelde);

- **In the field of ergonomic research:**

- research on human visual ergonomics, vision problems and functional disorders of computer users (professor Gunta Krūmiņa).

Health science research is carried out in major public health and health care organizations. Based on the assessment developed by the UL for the Public Health Guidelines for 2014-2020, the Latvian government has adopted a relevant action plan. With the involvement of researchers of the Faculty of Medicine, the medical informatics project “Ontology-based clinical process query language” is being tested for practical use at the Children's Clinical University Hospital. In the field of disease prevention, nutritionists (master's students of the Inter-university Academic master's study programme Nutrition together with their supervisors) have been conducting research in the prevention of chronic diseases since 2008; methodologies have been developed and research has been started: on the provision of a healthy diet to the population (nutrition and eating habits have been explored, the compliance of menus with the rules of healthy nutrition in different population groups has been assessed); the proportion of body tissue mass in cases of different loads was evaluated; on nutrition - risk factors for chronic diseases; on nutritional therapy for chronic diseases; research has been launched on the development of novel and functional foods from local raw materials for certain consumer groups. Within the framework of the Student Clinic of the Department of Optometry and Vision Science, newly developed visual functions and perception assessment methods are being tested, as well as research on human vision has been carried out.

The strategy of the University of Latvia for the development of scientific staff is based on several aspects.

First of all, an important role for the development of scientific staff is given to the Development Strategy of the University of Latvia, which includes a human resources development plan and special attention is paid to the renewal and succession of academic staff. The University of Latvia takes the following measures to renew the academic staff and ensure succession: 1) development and implementation of criteria for the gradual renewal of existing academic and scientific staff; 2) development and implementation of a communication plan on the criteria for the gradual renewal of the academic staff of the University of Latvia; 3) creation of a succession system for academic and scientific staff; 4) development of criteria for the assessment of the risks of renewal and succession of academic staff; 5) identification of specific academic positions to ensure succession; 6) identification of candidates for the succession of the academic staff, taking into account the career development plans and the results of the performance evaluation. As it can be seen, the LU human resources development plan covers the period starting from 2016, however, in the context of the research staff development strategy, other documents and decisions of the University of Latvia must also be taken into account.

Secondly, the personnel management policy of the University of Latvia plays an important role in the research staff development strategy; the aim of the policy is to ensure a modern and effective

practice of solving personnel management issues in the organization in accordance with the strategy, vision, mission, and values of the University of Latvia. There is no doubt that academic staff is also targeted by personnel policy. The personnel policy is focused on the sustainable development of the University of Latvia, which means the career development of every member of the LU family so that any member of the University of Latvia staff can implement the vision of the University of Latvia – to be one of the leading universities in the Baltic region and a recognized European and global research and innovation centre.

Thirdly, the development strategy of academic and research staff is inextricably linked to a number of internal and external regulations. The University of Latvia observes and applies the laws and regulations of the Republic of Latvia and the Regulations on academic and administrative positions at the University of Latvia with regard to the determination of academic, scientific, and administrative positions, qualification requirements, tasks, election procedures and approval. It should be emphasized that the University of Latvia observes and applies the Law on Higher Education Institutions, the Law on Scientific Activity, and other external regulatory enactments.

In the study field "Health Care", 14 study programmes are implemented. Consequently, the majority of lecturers are involved in the provision of the study process - teaching, administration. Most lecturers are also involved in scientific work. In parallel with the study process, lecturers work in science and participate in achieving project results. Each lecturer then incorporates their experience, results, methods into their study courses, thus ensuring the continuous acquisition of the latest knowledge and skills for students. Students have also participated in the achievement of scientific project results in cooperation with the lecturers of the study field "Health Care". The achievements of each lecturer in the last six years - participation in projects and conferences, as well as published works - are reflected in the CVs of each lecturer, which are attached to the accreditation documents.

2.4.5. Specify how the involvement of the students in scientific research and/ or applied research and/or artistic creation activities is promoted. Provide the assessment and description of the involvement of the students of all-level study programmes in the relevant study field in scientific research and/ or applied research and/or artistic creation activities by giving examples of the opportunities offered to and used by the students.

Participation of students in scientific research and creative activity is an integral part of the study process. The following opportunities are provided for students of all study programmes. Under the guidance of lecturers in the study field "Health Care", students develop bachelor's, master's theses, diploma works or doctoral dissertations that are often part of research projects; the works are then published in journals or presented at international conferences. Both students and graduates have the opportunity to present the results of the research at the annual International Conference organized by the University of Latvia.

In order to expand knowledge and improve both research and practical skills in specific fields, students of the Faculty of Medicine of the University of Latvia lead and participate in interest groups or scientific circles. The number of scientific groups has increased during the accreditation period and in the 2020/2021 academic year the Faculty of Medicine has 23 scientific circles. Students also have the opportunity to get involved in faculty research projects as volunteers or as paid employees.

Also, interdisciplinary cooperation - within the framework of inter-faculty cooperation of the

University of Latvia with the best specialists in the respective field. The Faculty of Biology, Faculty of Chemistry, and Faculty of Physics, Mathematics and Optometry of the University of Latvia ensure the involvement of students in research work. The active involvement of the teaching staff of the Pharmacy, Medicine and Optometry study programmes in research projects of Latvian and international significance gives students (see **Table 2.4.5.1**) the opportunity to develop research papers under the guidance of high-quality scientists, ensuring the sustainability of research.

Table 2.4.5.1

Participation of students (paid and volunteers) in research projects (data on 1st April 2022).

Study Programme	Total number of students	Students involved in projects
BSP Pharmacy	74	6
BSP Optometry	84	19
PBSP Nursing	234	11
KMSP Nutrition Sciences	44	9
MSP Epidemiology and Medical Statistics	12	6
MSP Pharmacy	50	14
MSP Nurse Science	23	7
PMSP Clinical Optometry	42	8
SP Medicine	702	42
SP Dentistry	40	3
DSP Medicine and Pharmacy	35	35

For example, several areas related to vision research have developed at the Department of Optometry and Vision Science, such as the development and research of colour vision tests, binocular vision research, visual ergonomics research, etc., in which students have the opportunity to get involved and develop a bachelor's or master's thesis. In recent years, three major projects have taken place in the Department (*"Research and the development of diagnostic methods for vision and visual perception in school-aged children"* ERDF project No 2011/ 0004/ 2DP/ 2.1.1.1.0/ 10/APIA/ VIAA/027, *"Visual overload physiology research and the development of visual stress diagnostics method"* ESF project No 2013/ 0021/ 1DP/ 1.1.1.2.0/ 13/APIA/ VIAA/001, *"Development of the visual ergonomics research environment"* the University of Latvia Foundation project No. 2184); within the framework of these projects, topics of conclusion works were offered and more than 100 students were involved in the last 6 years. Students had to complete specific tasks that helped them to develop their bachelor's and master's theses. The most outstanding examples are the vision screening project, in which, 33 bachelor's and 12 master's theses have been developed, the visual overload project – here, 34 bachelor's and 17 master's theses have been developed, and the visual ergonomics project – 16 bachelor's and 10 master's theses.

Within the Effective Cooperation Project of the University of Latvia “3D volumetric screen and vision system functionality” (cooperation partner SIA “LightSpace Technologies”) and “Development of a compact, high-brightness laser image projection system for application in volumetric 3D displays” of activity 1.1.1.1 “Practical research” of Specific support objective 1.1.1. “Improve research and innovation capacity and the ability of Latvian research institutions to attract external funding, by investing in human capital and infrastructure” (according to Cabinet Regulation No. 34) of Operational Programme “Growth and Employment” Contract research “Evaluation of the impact of the 3D image of a volumetric display on the human's vision system”, a new group of scientists with the participation of young researchers too – BSP Optometry, PMSP Clinical Optometry and students of the doctoral study programme Physics, Astronomy and Mechanics – in 2019 received the annual award of the Latvian Academy of Sciences for the most significant research in applied science.

2.4.6. Provide a brief description and assessment of the forms of innovation (for instance, product, process, marketing, and organisational innovation) generally used in the higher education institution, especially in study field subject to the assessment, by giving the respective examples and assessing their impact on the study process.

Existing study programmes in the study field “Health Care” are constantly evolving and adapting to the new requirements set by the regulations of the Cabinet of Ministers and the reforms introduced by the Ministry of Education and Science – student-centred studies in colleges and higher education institutions, the introduction of scientific achievements in study courses, active involvement of students in research starting from bachelor's studies both as volunteer assistants and as a paid workforce.

Various solutions are used in the study programmes of the study field “Health Care” in order to strengthen their competitiveness and promote work efficiency. New solutions introduced during the reporting period:

- The development of e-learning and the introduction of new forms for part-time or distance studies became particularly relevant during the COVID pandemic when all study programmes had to be provided remotely and new forms had to be sought. Therefore, the University of Latvia additionally trained lecturers as well as students to be able to use e-environment (Moodle) and other remote tools, such as *Microsoft Teams*, *Microsoft Stream*, etc. During the state of emergency declared by Latvia, online lectures were provided following the lectures timetable. During the online lectures, just like during the face-to-face classes, it was possible to ask questions to the lecturer, create student workgroups, discussion classes in which students actively communicated, presented their work. The e-environment contains the study materials needed by the student, as a minimum, the presentation materials of the lessons and the assessment book. Some lecturers also use the e-environment to control students' knowledge - self-tests, tests, submission of homework and feedback, as well as placement of compulsory reading materials. Every lecturer has an obligation to create and improve an e-course and, if necessary, the lecturer can receive IT assistance in developing the course, applying new forms. Moodle is also designed as a handy tool for lecturers to communicate with students or vice versa.
- Unified database of students and lecturers LUIS and its daily application. This solution enables every employee and student of the University of Latvia to see the current information related to their field of activity; lecturers can also use this environment to apply for new books, circulate electronic documents, for example, when applying for business trips,

vacations. For study methodologists, it is an environment in which to obtain all the necessary information for preparing statements, gathering statistics for study needs, as well as to see all current information related to students' study contracts, payments, grades, ordinances. LUIS is an environment in which the directors of study programmes can obtain various statistical data on study programme students, graduates, grades, study plans, and survey results. It is the duty of each student to complete the evaluation of the study courses at the end of each semester, respectively this evaluation and comments are seen anonymously by both the director of the study programme and the lecturer of the respective course.

- The University of Latvia has introduced a 1st-year curator system, a mentor system that helps and supports junior students to settle into the study environment, as well as to find a helping hand and advice from senior students in solving problematic issues. Students have access to current information on the LU portal, which is constantly updated in accordance with changes in study programmes. Here a student can find all the necessary information about studies - study academic calendar, study plans, descriptions of study courses, lecture timetables.
- The state-of-the-art technologies, mannequins, and simulators have been purchased for the implementation of practical classes, allowing students to both polish individual actions in various clinical situations in a simulated environment and to improve teamwork skills. For example, BSP Optometry and PMSP Clinical Optometry students can practice examining the "human" retina with the simulation of indirect ophthalmoscopy, carry out eye refraction assessment on artificial eye models, or, for example, SP Medicine, PBSP Nursing, and MSP Nursing students have SimMan 3G patient simulator, created for high-quality simulation training, thus providing a possibility to master patient care and a variety of medical procedures. Responds to programmed clinical interventions, instructor control, and pre-programmed scenarios;
- A foreign student's guide Electronic guide of the Faculty of Medicine has been developed; it includes information about the study process in stages that are possible during the student's university studies. A respective internal regulatory document (if applicable), infographics, links to other information resources are available in each section;

Innovations in the study field "Health Care" are evidenced by the nine patents obtained by associated prof. Ivanovs of the Department of Surgery and his team; 3 of these patents are international.

During the reporting period, curriculum changes have been made in all study programmes of the study field "Health Care", so that the study programmes comply with the updated or new professional standards and students acquire all the necessary knowledge, skills and competencies specified in these documents. BSP Optometry and PMSP Clinical Optometry, in preparation for European accreditation, have revised the content of study courses and study plans to meet the accreditation requirements for the study programmes for the European Diploma in Optometry.

2.5. Cooperation and Internationalisation

2.5.1. Provide the assessment as to how the cooperation with different institutions from Latvia (higher education institutions/ colleges, employers, employers' organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners for the study field and the relevant

study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

Cooperation with research organizations – higher education institutions and scientific institutions includes the following aspects:

1. knowledge partnership: participation of leading researchers of scientific institutions in the supervision of qualification works and doctoral theses and promotion councils work at the University of Latvia, as well as participation in the councils of study programmes or study fields of the UL, involvement of the UL leading researchers or professors in the scientific council of scientific institutions, involvement of foreign visiting lecturers, involvement of guest lecturers and mobility of academic staff of the UL to expand the range of research;
2. partnership for a common goal, including the development of joint study programmes;
3. resource partnership: providing access to higher education and research infrastructure and human resources partnership, including attracting visiting researchers for the implementation of research and other activities to ensure the achievement of the objectives defined in the Strategy of the UL.

To strengthen the position of the field "Health Care" of the UL in the global market in the sector of higher education, research, and knowledge transfer, it is important to emphasize the importance of international cooperation in all areas of activity. At the same time, the University of Latvia is bound by EU legislation in the field of education, which confirmed the need to enhance the attractiveness and openness of EU higher education, thus promoting cooperation with non-EU countries to improve human resource development, dialogue, and understanding between nations and cultures. The international recognition and good reputation of the UL is a precondition for fulfilling the mission of the national university.

Approximately 5 doctoral dissertations per year are defended in the study field "Health Care", which is a significant contribution to human scientific capital in medical research, although the potential is much greater given a large number of full-time academic / research staff.

The institution's interaction with the public sector/society is broad and dynamic and includes open seminars, conferences, science cafés, summer schools for researchers, professional associations, health care administrators, students, patient organizations, popular science articles, interviews with leading media and specialist media experts and concrete projects that study public awareness of the importance of biomedical research.

The researchers of the study field "Health Care" are also involved as experts in various working groups at the ministerial level, in joint projects with state agencies and commissioned research that has a significant national impact, such as the cooperation project of the UL and the Centre for Disease Prevention and Control "Development of a public monitoring system for the quality and efficiency of health care" launched in 2017 within the framework of the UL Effective Cooperation Project programme. Project scientific supervisor: Juris Bārzdiņš, associated professor of the Faculty of Medicine of the University of Latvia, Head of the MF Health Management and Informatics Centre.

Project manager from the cooperation partner side: Jana Lepiksone, Director of the Research and Health Statistics Department of Centre for Disease Prevention and Control.

Selection and justification of the problem to be solved within the project:

The development of a health care quality and efficiency monitoring system is an innovative socio-

technological solution in Latvian health care and the need for it is provided for in current strategic planning documents in the health sector. At the same time, the development of such a system based on personalized health care data has the potential to become an unprecedented opportunity for research in various fields in Latvia - this project, meeting a number of preconditions, can facilitate the further access of analysts and researchers to hitherto unavailable personalized health data at the national level. Carrying out the project feasibility study and analysing the already initiated cooperation of the UL with the Ministry of Health and the Centre for Disease Prevention and Control, it can be concluded that the development of the system is a knowledge-intensive task; the project partner, with the resources at its disposal, could most effectively carry it out in collaboration with a scientific institution that can offer simultaneous expertise and innovative solutions in the fields of management, health care and public health, economics, informatics, and law. Carrying out a feasibility study of the project in the context of possible scientific innovations in all the mentioned fields of science, it can be concluded that the problems that will be solved during the implementation of this project are topical and scientifically significant, as evidenced by the respective publications in scientific journals.

The interdisciplinarity of the project

- Development of new management methods **in the field of management sciences**, taking into account the unique service provider structure of health care as a complex socio-technical system, professional autonomy of those working in the sector, and international experience in applying the principles of transparency, improving service quality and efficiency.
- Development of a system of multidimensional key performance indicators for medical and health care organizations **in the field of health care and public health sciences** using personalized data from health care (identification, validation and description of indicators).
- Using personalized health care data in the development of cost-effectiveness indicators for health care **in the field of economics (econometrics)** and in the evaluation of medical technology/service providers.
- **In the field of computer science**, implementation of innovative solutions for big data ontology, processing, security, data quality, intelligent analytics, visualization, non-standard query languages, data mining, machine learning.
- **In the field of legal sciences**, research on the application of the national and international regulatory framework, incl. the General Data Protection Regulation to the protection and use of personalized health data for research. Preparation and presentation of proposals for amendments to regulatory enactments in order to facilitate the availability of personal data for both research (including the development of personalized medical research) and public transparency, while ensuring compliance with data protection requirements. Research on the applicability of regulatory enactments on the re-use of public sector information.
- **In the field of bioethics**, ethical aspects of the processing of big data in health care, balancing the protection of individual and public interests, ethical aspects of data use in research, protection of personal data, individual's right to privacy, compliance with principles included in international ethical documents.

The above example also shows the mutual cooperation of the study field "Health Care":

- SP Medicine;
- PBSP Nursing;
- MSP Nursing;
- MSP Epidemiology and Medical Statistics;
- DSP Medicine and Pharmacy.

One of the most multifunctional partners in the study field "Health Care", focused on all 14 study

programmes of different levels, is the Ministry of Health:

- Commissioning of research;

For example, Applied research "Evaluation for the development of public health guidelines for 2014-2020", project manager J.Bārzdiņš, project working group: J.Bārzdiņš, J.Balevičs, R.Konstante, U.Mitenbergs, I.Možajeva, I.Reinholde, commissioned by: The Ministry of Health.

- Development of professional standards:

For example, In the development of the standard of the physician profession prof. G.Latkovskis, prof. A.Krams, assoc.prof. I.Ivanovs, assoc.prof. A.Jezupovs, in the development of the profession of general care nurse lect. D.Gulbe, lect. I.Mežiņa-Mamajeva, in the development of the profession of optometrist prof. G.Krūmiņa, assoc.prof. A.Švede.

- In providing key specialists in the health sector:
 - radiologist Maija Radziņa
 - family (general practice) doctor Ilze Aizsilniece
 - infectologist Uga Dumpis
 - cardiologist Andrejs Ērglis
 - oncologist, chemotherapist Jānis Eglītis
 - nurse Dita Raiska
- In drafting policy planning documents and draft legal acts:

For example, the rules for certification procedures for new specialists in radiography.

- In organizing the professional compliance test:

For example, organizing an examination for the renewal of the register of medical personnel.

- Providing further education for medical personnel:

For example, courses, seminars, press conferences on current events, conferences.

On 9 January 2020, International Opening Press Conference on the Year 2020 of Nurses and Midwives. Celebrating the 200th birthday of Florence Nottingale, the founder of the nursing profession, the World Health Organization has declared 2020 the International Year of Nurses and Midwives to celebrate the vital role of nurses and midwives in ensuring and improving overall health and well-being.

To promote international recognition and competitiveness, the study field "Health Care" implements the following tasks:

- develops an attractive and competitive study offer in undergraduate and higher-level study programmes;
- develops new study courses in English in the fields of STEM and expands the offer of study courses in the fields of humanities and social sciences;
- organizes international summer schools, intensive programmes, attracting foreign guest lecturers;
- attracts foreign academic staff to promote knowledge transfer and uses the mobility opportunities of the UL academic staff for professional development;
- develops a system for attracting foreign students, improves the study environment and services – improvement of research and education infrastructure;
- develops foreign language competencies of general staff and teachers;
- supports students' internships abroad as an element in ensuring competitiveness in career development;

- promotes student mobility;
- increases the number of applied international projects in various programmes, as well as increases the number of international projects with the coordinating role of the UL.

The study field "Health Care" has a wide range of cooperation partners, which fully ensures the achievement of the objectives and study results of the field:

1. cooperation with various Latvian and foreign colleges and higher education institutions (for example, TU);
2. cooperation with employers, employers' organizations;
3. cooperation with local governments;
4. cooperation with scientific institutes;
5. cooperation with non-governmental organizations.

More information on cooperation is mentioned in section III of the Report under the description of the respective study programme.

2.5.2. Provide the assessment as to how the cooperation with different institutions from abroad (higher education institutions/ colleges, employers, employers' organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study field contributes to the achievement of the aims and learning outcomes of the study field. Specify the criteria by which the cooperation partners suitable for the study field and the relevant study programmes are selected and how the cooperation is organised by describing the cooperation with employers. In addition, specify the mechanism for the attraction of the cooperation partners.

Cooperation with research organizations – universities and scientific institutions includes the following aspects:

1. implementation of research cooperation projects, participation in EU research and innovation support programmes;
2. partnership on resources: providing access to higher education and research infrastructure and partnership on human resources, incl. Attracting visiting researchers for the implementation of research and other activities to ensure the achievement of the goals defined in the UL Strategy.

In order to strengthen the position of the UL in the global market in the field of higher education, research and knowledge transfer, it is important to emphasize the importance of international cooperation in all activities, thus promoting cooperation with non-EU countries. The international recognition and good reputation of the UL is a precondition for fulfilling the mission of the national university.

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- develops an attractive and competitive study offer in undergraduate and higher-level study programmes;
- develop new study courses in English in the fields of STEM and expand the offer of study courses in the fields of humanities and social sciences;
- organizes international summer schools, intensive programmes, attracting foreign guest

teachers;

- attracts foreign academic staff to promote knowledge transfer and uses the opportunities for professional development of the academic staff of the University of Latvia;
- develops a system for attracting foreign students, improves the study environment and services - improvement of research and education infrastructure;
- supports students' internships abroad as an element of career development in ensuring competitiveness;
- promotes student mobility;
- increases the number of applied international projects in various programmes, as well as increases the number of international projects with the coordinating role of the UL.

On the basis of a signed agreement, the University of Latvia cooperates with several commercial agents to attract foreign students in order to popularize as much as possible the opportunity for applicants to submit documents in one of the study programs offered by the University of Latvia. The main contribution of LU MF from commercial agents:

Promotion and recognition of LU and LU MF abroad;

More applicants in each admission period;

Healthier competitiveness of applicants;

Different spectrum of represented countries among applicants.

The study field "Health Care" has a wide range of cooperation partners, which fully ensures the achievement of the goals and study results of the field.

2.5.3. Specify the system or mechanisms, which are used to attract the students and the teaching staff from abroad. Provide the assessment of the incoming and outgoing mobility of the teaching staff in the reporting period, the mobility dynamics, and the issues which the higher education institution/ college faces with regard to the mobility of the teaching staff.

Several programmes in the field of study are implemented in English, thus attracting foreign students is a very important aspect of the implementation of the programmes. In attracting foreign students, it is very important to ensure the availability of information, as well as close communication with potential students. At the University of Latvia, these issues are solved by the employees of the Student Service of the University of Latvia, the Faculty of Medicine is a senior expert in Study Development working with attraction and enrolment of foreign students, providing the interested persons with all the necessary information about the admission process, as well as current issues at the beginning of the study process. It is the active communication that allows attracting an increasing number of foreign students, which is confirmed by the admission results of previous years at SP Medicine. However, it should be mentioned that in terms of the number of foreign students, some programmes have set the maximum number of students to be admitted, as there are limited possibilities to ensure the study process. Thus, for example, SP Dentistry has determined the maximum number of students in a group, according to the number of available dental equipment.

In order to attract foreign students, cooperation with foreign student agents takes place, but most students find information on the website of the University of Latvia. The students are mostly from

the EU member states - Finland, Germany, Italy, Czech Republic, Spain, Estonia, Lithuania, Greece, there are also students from Norway, India, Brazil, Iran, USA, Romania, and other countries. During the reporting period, the largest number of foreign students is in the second level professional higher education SP Medicine and SP Dentistry, PMSP Clinical Optometry, and BSP Optometry.

Visiting lecturers are attracted to the programmes of the study field, who acquaint students with the current events in the field in the host lecturer's home country, as well as in the world overall. Most of the visiting lecturers are attracted to the SP Medicine and SP Dentistry, BSP and MSP Pharmacy, BSP Optometry, PMSP Clinical Optometry, for example, visiting professors J.Biederer, S.Ovrutskiy, K.Jendroska, O.A. Brinkmann, K.Kreegipuu, etc.

Within the framework of the study field, 28 cooperation agreements have been concluded on the implementation of ERASMUS+ exchange programmes. Agreements have been concluded with the universities of Lithuania, Estonia, Finland, Sweden, Norway, Italy, Germany, Romania, Bulgaria, Slovenia, and other countries.

Erasmus+ exchange programmes are mainly used by students of SP Medicine and students of BSP and MSP Pharmacy programmes (see **Figure 2.5.3.1** and **Figure 2.5.3.2**), who most often go to Italian universities in Bari and Naples, as well as to Sweden. The choice of students in favour of Italian and Swedish universities is mainly determined by the compatibility of the study plans, which allows the student to successfully integrate into the study process after completing the ERASMUS+ program, as well as by student feedback and sharing of positive experiences.

Students are relatively active in using the ERASMUS+ internship program, most often it is used by the students of the residency study programme Medicine, mainly going to Germany, Italy, Sweden, as there are recommendations from other residents or residency supervisors for successful internship experience in these countries.

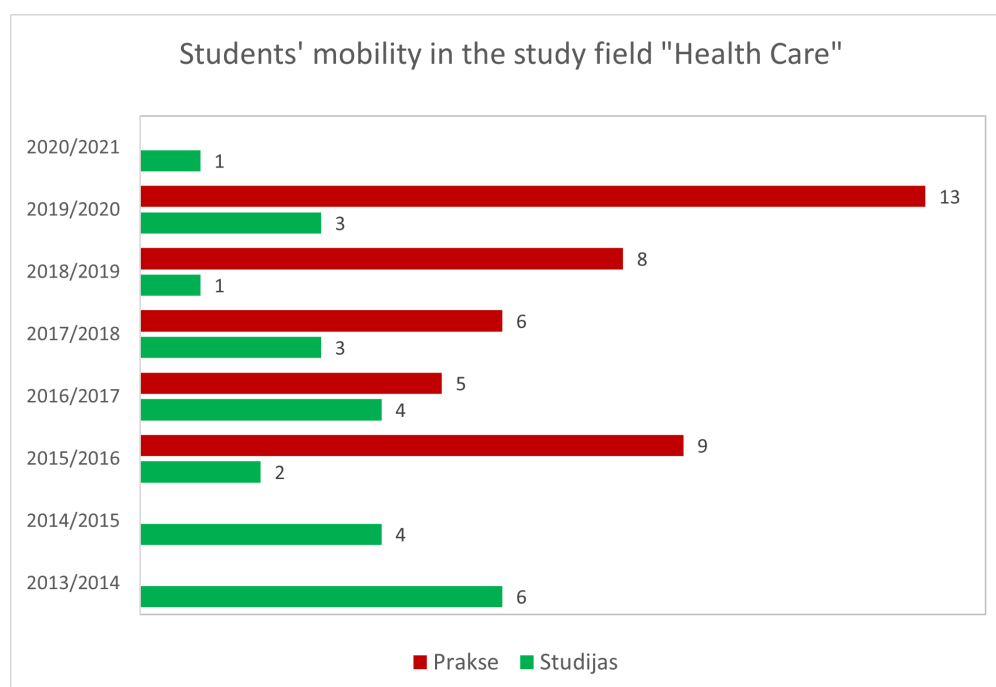


Figure 2.5.3.1 Outgoing mobility indicators of the study field "Health Care" students.

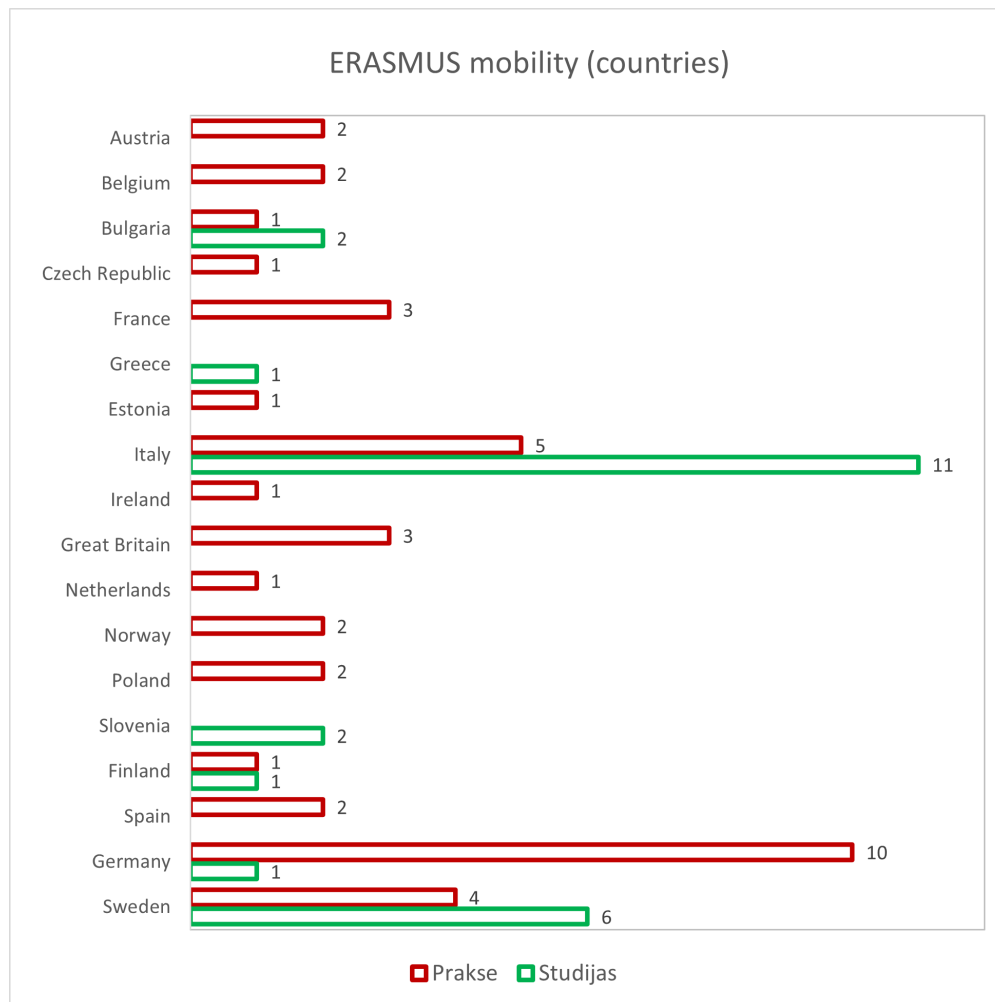


Figure 2.5.3.2 Outgoing mobility indicators of the study field "Health Care" students.

The study courses implemented in the field of study in the ERASMUS+ exchange programme are selected by students from higher education institutions of foreign cooperation partners (see **Figure 2.5.3.3**). In the reference period, an average of 10 ERASMUS+ exchange students arrive each year in the study field (see **Figure 2.5.3.4**). The largest numbers of ERASMUS students are from Italy and Germany. As mentioned above, students of Italian universities also choose exchange programmes for their studies at the University of Latvia, mainly due to the compatibility of study plans and positive experience, students from these countries also go to the University of Latvia for exchange programmes for the same reasons. Information on the mobility of students in the study field "Health Care" is attached.

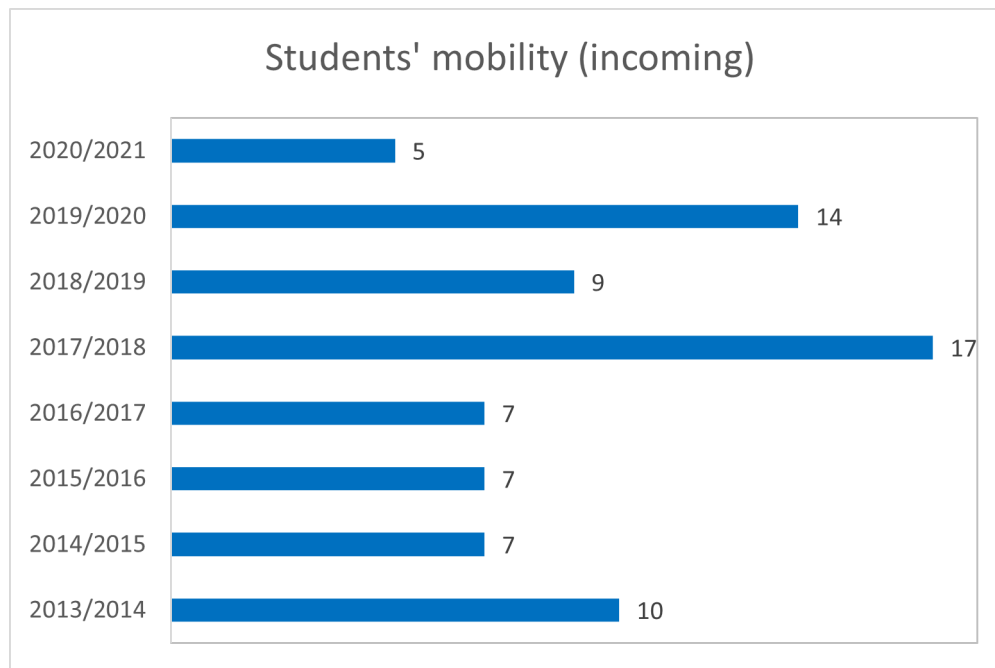


Figure 2.5.3.3 Incoming mobility indicators of the study field "Health Care" students.

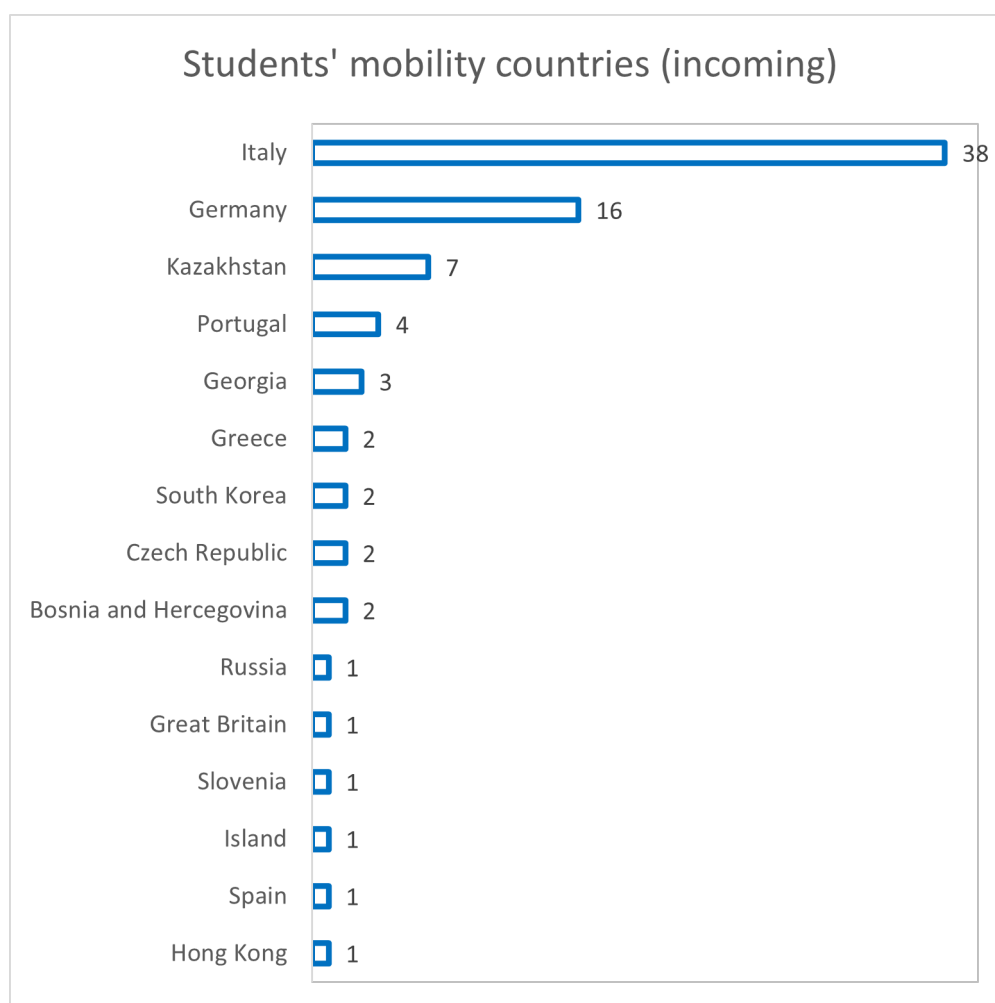


Figure 2.5.3.4 Indicators of incoming mobility of students in the study field "Health Care".

2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures

2.6.1. Assessment of the fulfilment of the plan regarding the implementation of the recommendations provided by the experts during the previous accreditation of the study field, as well as the assessment of the impact of the given recommendations on the study quality or the improvement of the study process within the study field and the relevant study programmes.

In the previous accreditation of the study field, the study programmes were evaluated in 4 categories: Quality (19 criteria), Resources (11 criteria), Sustainability (18 criteria), and Cooperation (14 criteria), each criterion was rated on a 4-point scale, with 4 being the highest score and 1 the lowest. In total, all study programmes included in the study field received the highest number of points in each category, only in about 3% of the total number of criteria 3 points were received, indicating the high quality of study programmes, availability of resources, sustainability, and cooperation.

Expert recommendations for the improvement of the study field:

1. Funding needs to be increased, including public funding for doctoral studies

The state-funded budget places for the UL, including for the study field programmes are granted by the Ministry of Education and Science of the Republic of Latvia (LR MES), the number of granted places, unfortunately, decreases every year. The number of budget places is one of the most important tools for attracting students, thus the decrease in the number of enrolled students in recent years can also be explained.

Every year, the Faculty of Medicine addresses the Ministry of Education and Science of the Republic of Latvia with a request to increase the number of budget places for the study field programmes, always receiving an explanation stating that increasing the number of budget places is not possible. A decision was made in 2019 and the number of budget places in PBSP Nursing was increased by 52 budget places in 2020 and an increase by another 155 budget places is planned in 2021.

The small number of budget places is one of the significant disadvantages of the study field in comparison with the main competitor of the study field RSU, because RSU budget places are financed by the Ministry of Health of the Republic of Latvia and this number is disproportionately larger, therefore the number of students at RSU is also higher.

The increase in the number of budget places depends on the decisions made by the Ministry of Education and Science of the Republic of Latvia on the number of budget places to be allocated to the study field "Health Care".

The recommendation has been fulfilled as far as possible.

2. Cooperation with the faculty and employers must be strengthened

Cooperation of the faculty with employers has definitely become more effective because both at the level of faculty management and separately at the level of each programme there is active cooperation with employers, as well as search for and attraction of new contacts and cooperation partners. Employers are involved in the work of state examination commissions, in the

improvement of study programmes, by making proposals for the improvement of study courses, in making proposals for the topics of conclusion works, final theses, etc. Representatives of employers also participate in the Council of Study Field.

The management of the Faculty of Medicine (dean, vice dean, study director) organized a meeting with the representatives of the Latvian Medical Association, during which the possibilities for development and improvement of both the individual study programme and the study field as a whole were discussed. The process of organizing the internship is inconceivable without cooperation with employers, therefore there is close cooperation with employers in the implementation of the study programme cooperation with employers is close. Employers are also involved in the work of the State Examination Commission.

The directors and lecturers of the study programmes of the study field are involved in various professional associations and societies, such as Latvian Medical Association, Latvian Association of Pharmacists, Latvian Association of Optometrists and Opticians, Latvian Association of Radiographers and Radiologists, and Latvian Association of Dentists to improve study programmes based on the latest current events in the field. The lecturers of the programmes participate in the working groups created by the Ministry of Health of the Republic of Latvia for the development of professional standards, for example, the representatives of the second level professional higher education study programme Medicine, as well as the professional bachelor study programme Nursing, etc.

Recommendation fulfilled.

3. The workload of academic staff needs to be reduced

The professional qualifications to be obtained in the study field "Health Care" correspond to the regulated professions defined in the country, thus the duration of the study programme and the number of contact hours are very strict: doctor – 5500 contact hours (6 years), dentist – 5000 contact hours (5 years), nurse – 4600 hours, etc. The specified minimum number of contact hours also determines the specific number of contact hours in the study courses, thus the lecturers develop heavy workloads. It should be noted that in order to reduce the workload, the number of lecturers has been increased. This has happened not only by increasing the number of lecturers, but also by strengthening the quality of studies. Namely, the range of specialization of lecturers has been increased, which undoubtedly improves the acquired knowledge and the quality of studies in general. At the same time as increasing the number of lecturers, a small number of students in groups has been maintained, which provides opportunities to increase the quality of studies.

Recommendation fulfilled.

2.6.2. Implementation of the recommendations given by the experts during the evaluation of the changes to the study programmes in the respective study field or licensed study programmes over the reporting period or recommendations received during the procedure for the inclusion of the study programme on the accreditation form of the study field (if applicable).

During the reporting period, PSP Dentistry (2014), MSP Sports Science (2019) and MSP Epidemiology and Medical Statistics (2020) were licensed.

The only recommendation to PSP Dentistry on the part of experts was for the study course Clinical Dentistry (Introduction), which is implemented only in the 6th semester, it should be implemented earlier.

The recommendation has been fulfilled by introducing a Preclinical Dentistry course starting from the 3rd semester and the course "Preventive Dentistry. Diagnosis and Treatment Planning" begins in the 5th semester.

Expert recommendations for the long-term development of the study programme MSP Sports Science:

1. When admitting applicants with bachelor's degrees in other sciences, it is recommended to inform them about the job opportunities in the field of sports after graduating from the programme.
2. In the 1st semester, it is desirable to include elective courses (in part B or C) and to provide more basic courses in the field of sports for students without prior education in sports. In turn, students with higher education in sports could be offered to choose other study courses.
3. The study programme should include various elective study courses related to sports, also with practical sports activities, including study courses in which the latest fitness equipment, technologies, software, fitness tests, etc. are acquired.
4. It is desirable to start the development of the master's thesis in the 3rd semester in order to avoid a situation in which the student does not complete the study programme during 4 semesters because they fail to complete the master's thesis.
5. If the planned number of students is not enrolled in the programme, it is desirable to review the possibilities to reduce costs and improve profitability, including the reduction of contact hours down to the requirements of the State academic education standard.

The recommendations have been fulfilled as far as possible.

Expert recommendations for the study programme MSP Epidemiology and Medical Statistics long-term improvement:

1. It is necessary to evaluate the number of graduates as close as possible to the required for the potential labour market of Latvia and, consequently, to review the number of applicants for training in the Latvian language.
2. To develop a separate course programme that is as neutral as possible regarding the prioritization of specific nosologies (association of infections with oncological diseases, *Helicobacter pylori* infection, celiac disease, autism spectrum disorders, Asperger's syndrome, Attention Deficit Hyperactivity Disorder).
3. To find an opportunity to conclude an agreement on the possibility for students to continue their studies at another higher education institution in Latvia, in case the implementation of the study programme is terminated.
4. To find an opportunity to include the study courses acquired in the mobility programmes in the overall evaluation of the study programme.
5. To find an opportunity to attract appropriate teaching staff to the study programme, taking into account the risk associated with the currently high workload of teaching staff outside the study programme.
6. To discuss study quality assessment questionnaires with students and, based on the proposals provided by students, to improve the questionnaires, as well as to review the mechanism for providing feedback to students.

The recommendations have been fulfilled as far as possible.

See Annex

[Report on the implementation of recommendations.docx](#)

Annexes

I - Information on the Higher Education Institution/ College		
Information on the implementation of the study field in the branches of the higher education institution/ college (if applicable)		
List of the governing regulatory enactments and regulations of the higher education institution/ college	List of the main internal normative acts and regulations of the university (ENG).docx	Saraksts ar galvenajiem augstskolas koledžas iekšējiem normatīvajiem aktiem un regulējumiem (LV , EN).docx
The management structure of the higher education institution/ college	Management structure of the UL.docx	LU parvaldības_struktūra.docx
II - Description of the Study Field - 2.1. Management of the Study Field		
Plan for the development of the study field (if applicable)	Development plan of the Health Care study direction for 2022-2027.docx	Studiju virziena Veselības aprūpe attīstības plāns 2022-2027.docx
The management structure of the study field	Management structure of the study field Health Care of the UL.docx	LU Studiju virziena Veselības aprūpe pārvaldības struktūra.docx
A document certifying that the higher education institution or college will provide students with opportunities to continue their education in another study programme or another higher education institution/ college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.	Agreement on the implementation of study programmes.docx	Vienošāšanās par programmu īstenošanu_LV.zip
A document certifying that the higher education institution or college guarantees compensation for losses to students if the study programme is not accredited or the study programme license is revoked due to actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.	Refund and Compensation Policy.zip	Apliecinājumi_par_zaudējumu_kompensāciju (4).zip
Standard sample of study agreement	Agreement for EU citizens_2021_.doc	Līgums_ES_pilsoniem_2021_.doc
II - Description of the Study Field - 2.2. Efficiency of the Internal Quality Assurance System		
Analysis of the results of surveys of students, graduates and employers	Survey_results_ENG (2).zip	Aptaujas_rezultāti_LV (2).zip
II - Description of the Study Field - 2.3. Resources and Provision of the Study Field		
Basic information on the teaching staff involved in the implementation of the study field	List of Teaching Staff of the Study Field_Health Care (2).xlsx	Studiju virziena_veselības aprūpe mācītspēku saraksts (2).xlsx
Biographies of the teaching staff members (Curriculum Vitae in Europass format)	CV.zip	CV_LV.zip
A statement signed by the rector, director, head of the study programme or field that the knowledge of the state language of the teaching staff involved in the implementation of the study programmes within the study field complies with the regulations on the state language knowledge and state language proficiency test for professional and official duties.	Latvian_HEAD OF STUDY FIELD DECLARATION.docx	Apliecinājumi par Valsts Valodas zināšanām.pdf
A statement of the higher education institution/ college on the respective foreign language skills of the teaching staff involved in the implementation of the study programme at least at B2 level according to the European Language Proficiency Assessment levels (level distribution is available on the website www.europass.lv, if the study programme or part thereof is implemented)	ENG_-HEAD OF STUDY FIELD DECLARATION.docx	Apliecinājumi par Angļu valodas prasēm.pdf
II - Description of the Study Field - 2.4. Scientific Research and Artistic Creation		
Summary of quantitative data on scientific and/ or applied research and / or artistic creation activities corresponding to the study field in the reporting period.	VA_zin_indicators.xlsx	VA_zin_rādītāji.xlsx
List of the publications, patents, and artistic creations of the teaching staff over the reporting period.	List of publications of teachers, patents, works of artistic creation for the.xls	Mācītspēku publikāciju, patentu, mākslinieciskās jaunrades darbu saraksts par pārskata periodu(2).xls
II - Description of the Study Field - 2.5. Cooperation and Internationalisation		
List of cooperation agreements, including the agreements for providing internship	Cooperation and practice agreements.zip	Sadarbības un prakses līgumi.zip
Statistical data on the teaching staff and the students from abroad	Statistical data on foreign students and teachers.zip	Statistikas dati par ārvalstu studējošajiem un mācītspēkiem.zip
Statistical data on the incoming and outgoing mobility of students (by specifying the study programmes)	Incoming_outgoing_Student_Mobility.xlsx	studējošo_mobilitāte_erasmus_statistika.xlsx
Statistical data on the incoming and outgoing mobility of the teaching staff	Annex_IZBRAUCOSIE_un_IEBRAUCOSIE_docetaji_no_2013.docx	Pielikums_IZBRAUCOSIE_un_IEBRAUCOSIE_docetaji_no_2013.docx
II - Description of the Study Field - 2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures		
Report on the implementation of the recommendations received both in the previous accreditation and in the licensing and/ or change assessment procedures and/ or the procedures for the inclusion of the study programme on the accreditation form of the study field.	Report on the implementation of recommendations.docx	Rekomendāciju izpildes pārskats (2).docx
An application for the evaluation of the study field signed with a secure electronic signature	AKREDITACIJAS_PIEŅĒGIJUMS_2022_VA_ENG.docx	Studiju virziena "Veselības aprūpe" novērtēšana.edoc
III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	ANNEX_136_Diploma_MSP_Sport_Science_Eng.docx	DIPLOMS_AR_PIELIKUMU_2021_P_BAKALAURS_Radiogrāfija.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		OptoB_19.pielikums_BSP_Optometrija_AIP_atzinums_2022.edoc
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	EN_47.pielikums_BSP_Optometrija_studentu_skaita_statistika.docx	Statistika_lv_1.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	Annex_OptoPM_10_PMSP_Kliniska_optometrija_Atbalstiba_valsts_izglitiba_standartam.docx	9.PIELIKUMS_PBSP Radiogrāfija atbilstība valsts izglītības standartam (2).docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		_PBSP Māšzinības_atbilstiba_profesijas_standartam.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		s_PBSP Māšzinības atbilstību atbilstošās nozares specifiskajam normatīvajam regulējumam.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme		_PBSP Māšzinības_studiju kursu kartējums.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)		
Descriptions of the study courses/ modules		
Description of the organisation of the internship of the students (if applicable)		BSP_Optometrijas_prakses_nolikums_LV.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	EN_61.pielikums_BSP_Optometrija_apliecinajums_AL_55.docx	

Other annexes

Name of document	Document
Ligums_LV_pilsoniem_un_nepils_2021_.doc	Ligums_LV_pilsoniem_un_nepils_2021_.doc
Ligums_ne_ES_pilsoniem_2021_.doc	Ligums_ne_ES_pilsoniem_2021_.doc
8_Studiju_ligums_kopigas_programmas_2021.pdf	8_Studiju_ligums_kopigas_programmas_2021.pdf
Additional information from LU_SP Nursing 42723	medfak.scaneris@lu.lv_20220711_135854.pdf

Pharmacy (45725)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Pharmacy</i>
Education classification code	<i>45725</i>
Type of the study programme	<i>Academic master study programme</i>
Name of the study programme director	<i>Una</i>
Surname of the study programme director	<i>Riekstiņa</i>
E-mail of the study programme director	<i>una.riekstina@lu.lv</i>
Title of the study programme director	<i>Dr.biol.</i>
Phone of the study programme director	<i>+371229168773</i>
Goal of the study programme	<i>To provide students with a set of theoretical and practical knowledge in the sub-branches of pharmaceutical science and related branches for independent research in the development and defence of a Master's thesis, as well as to prepare students for work in pharmaceutical companies and further education in the doctoral programme.</i>
Tasks of the study programme	<ol style="list-style-type: none"> <i>1. To provide in-depth knowledge of medicines and the substances used in the manufacture of medicines, pharmaceutical technologies, methods of quality control of medicines, pharmacoeconomics and social pharmacy;</i> <i>2. To develop students' creative and independent working skills, emphasising a science-based approach to the delivery of health and pharmaceutical care;</i> <i>3. To keep up-to-date with the latest scientific developments in pharmaceutical sub-disciplines and standards of good pharmacy practice;</i> <i>4. To expose students to modern research methods, as well as to national priorities and globally accepted guidelines for pharmaceutical education, leading to a common labour market across EU countries;</i> <i>5. To prepare students for independent scientific and research work, for the elaboration and defence of a Master's thesis, as well as for the continuation of education in doctoral study programmes;</i> <i>6. To develop students' ability to work in international and interdisciplinary teams;</i> <i>7. To encourage students' participation in ERASMUS exchange programmes;</i> <i>8. To provide adequate knowledge about the requirements of regulatory enactments related to pharmacy practice and to prepare students for the internship programme in pharmacy.</i>

Results of the study programme	<p>Knowledge</p> <ol style="list-style-type: none"> 1. Understand and assess the pharmacological activity, pharmacovigilance, pharmacokinetics and toxicology of medicinal substances, 2. Define pharmaceutical forms of medicines and compare their preparation; 3. Understand and describe the process of production and control of medicines; 4. Describe the types of drug testing in the drug testing laboratory; 5. Understand the preparation, storage and distribution of safe, effective and appropriate quality medicines in general and closed type pharmacies, pharmaceutical wholesalers and pharmaceutical companies; 6. Understand and justify the provision of advice on medicinal products and their use; 7. Explain and justify the provision of individual support to patients using self-medication. 8. Understand pharmacy management and fundamentals of entrepreneurship. <p>Skills</p> <ol style="list-style-type: none"> 9. Can prepare, test, store, distribute and dispense medicinal products in general and closed pharmacies; 10. Can provide information and advice on medicinal products, including their proper use; 11. Understand the possible adverse reactions to the use of the medicinal products and the reporting procedure of the same to the authorities supervising the circulation of medicinal products; 12. Demonstrate communication skills and can work in a team; 13. Can plan and conduct research in the field of pharmacy; 14. Can independently advance the development of competencies in the field of pharmacy. 15. Apply the regulatory enactments regulating the practice of pharmacy and veterinary pharmacy in the professional activity of a pharmacist. <p>Competencies</p> <ol style="list-style-type: none"> 16. Can perform research and professional activities in the field of pharmacy, demonstrate understanding and ethical responsibility for the scientific results and the potential impact of the profession of pharmacist on the environment and society.
Final examination upon the completion of the study programme	Master's Thesis

Study programme forms

Full time studies - 2 years - latvian

Study type and form	Full time studies
Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	80

Admission requirements (in English)	<i>Bachelor's degree in pharmacy or second-level professional higher education in pharmacy</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master's degree of Health Sciences in Pharmacy</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

During the accreditation period, the following changes in parameters have been made in the Master's study program Pharmacy (hereinafter MSP Pharmacy) - the study goal, tasks and results have been clarified, changes in admission requirements have been made, as well as several changes have been made to improve the study program. SP Pharmacy outcomes are defined as knowledge, skills and competence.

In the new accreditation period:

1. The aim of the study program

1. The aim is to provide students with a set of theoretical and practical knowledge in the sub-branches of pharmaceutical science and related branches for independent research in the development and defence of a Master's thesis, as well as to prepare students for work in pharmaceutical companies and further education in the doctoral programme

Justification: The aim of the study programme is more specific and more appropriate to the specifics of the radiography specialists to be trained in the field of health care.

2. Results of the study programme

Justification: The results of the study programme have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia.

[1] <https://eec-pet.eu/pharmacy-education/country-profiles/>,
<https://eec-pet.eu/wp-content/uploads/2016/08/PHARMINE-WP7-survey-Latvia-R.pdf>

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The aim of the MSP Pharmacy is to provide students with a set of theoretical and practical knowledge in the sub-branches of pharmaceutical science and related branches for independent research in the development and defence of a Master's thesis, as well as to prepare students for work in pharmaceutical companies and further education in the doctoral study programme.

The program complies with the Latvian Qualifications Framework (LQF), European Qualifications Framework (EQF) level 7. The programme ensures the development of the individual in a democratic society and prepares them for the challenges of scientific development, as well as provides qualitative knowledge in related fields that contributes to graduates' ability to adapt easily to the changing demands of the labour market. A Master's degree certifies the acquisition of pharmacist education.

The recognition of pharmacists' education and diplomas is regulated by Council Directives 2005/36/EC and 2013/55/EC, the Law of 20.06.2001 "On Regulated Professions and Recognition of Professional Qualifications" and Cabinet Regulation No 68 of 19.02.2002 "Minimum Requirements of Educational Programmes for the Acquisition of the Professional Qualification of Dentist, Pharmacist, Nurse and Midwife". According to the Bologna Declaration signed by EU education ministers in 1999, the pharmacy curriculum comprises two study cycles: 3 years of bachelor's studies (180 ECTS) + 2 years of studies in the Master's degree programme in pharmacy (120 ECTS). This gives students a total of 300 ECTS and fulfils the requirement to spend 5 years studying to become a pharmacist.

The degree to be obtained: Master's degree in Pharmacy

Objectives of the programme:

1. to provide in-depth knowledge of medicines and the substances used in the manufacture of medicines, pharmaceutical technologies, methods of quality control of medicines, pharmacoconomics and social pharmacy;
2. to develop students' creative and independent working skills, emphasising a science-based approach to the delivery of health and pharmaceutical care;
3. keep up-to-date with the latest scientific developments in pharmaceutical sub-disciplines and standards of good pharmacy practice;
4. to expose students to modern research methods, as well as to national priorities and globally accepted guidelines for pharmaceutical education, leading to a common labour market across EU countries;
5. to prepare students for independent scientific and research work, for the elaboration and defence of a master's thesis, as well as for the continuation of education in doctoral study programmes;
6. to develop students' ability to work in international and interdisciplinary teams;
7. to encourage students' participation in ERASMUS exchange programmes;
8. to provide adequate knowledge about the requirements of regulatory enactments related to pharmaceutical practice and to prepare students for the internship programme in pharmacy.

The learning outcomes are structured into knowledge, skills and competences in accordance with the European Association for Quality Assurance in Higher Education (ENQA) Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015) and the Law on Higher Education Institutions of the Republic of Latvia, 1995/2018.

MSP Pharmacy graduates gain:

Knowledge

1. Understand and assess the pharmacological activity, pharmacovigilance, pharmacokinetics and toxicology of medicinal substances,
2. Define pharmaceutical forms of medicines and compare their preparation;
3. Understand and describe the process of production and control of medicines;
4. Describe the types of drug testing in the drug testing laboratory;
5. Understand the preparation, storage and distribution of safe, effective and appropriate

quality medicines in general and closed type pharmacies, pharmaceutical wholesalers and pharmaceutical companies;

6. Understand and justify the provision of advice on medicinal products and their use;
7. Explain and justify the provision of individual support to patients using self-medication.
8. Understand pharmacy management and fundamentals of entrepreneurship.

Skills

9. Can prepare, test, store, distribute and dispense medicinal products in general and closed pharmacies;
10. Can provide information and advice on medicinal products, including their proper use;
11. Understand the possible adverse reactions to the use of the medicinal products and the reporting procedure of the same to the authorities supervising the circulation of medicinal products;
12. Demonstrate communication skills and can work in a team;
13. Can plan and conduct research in the field of pharmacy;
14. Can independently advance the development of competencies in the field of pharmacy.
15. Apply the regulatory enactments regulating the practice of pharmacy and veterinary pharmacy in the professional activity of a pharmacist.

Competencies

16. Can perform research and professional activities in the field of pharmacy, demonstrate understanding and ethical responsibility for the scientific results and the potential impact of the profession of pharmacist on the environment and society.

The reference point for the MSP Pharmacy learning outcomes are the relevant laws and regulations, such as the EU Council Directives 2005/36/EC and 2013/55/EC and the Law on Regulated Professions and Recognition of Professional Qualifications (20.06.2001). Specific learning outcomes are defined in the Cabinet of Ministers Regulation No.68 of 19 February 2002 "Minimum Requirements of Educational Programmes for Obtaining Professional Qualification of Dentist, Pharmacist, Nurse and Midwife", which are met by the programme and pharmacists' education provides the professional knowledge and skills that entitle the graduates of the same to practise as pharmacists. Graduates have reached the level of knowledge, skills and competences defined in the LQF Level 7 of Master's descriptors.

The general matriculation regulations are approved by the Senate of the University of Latvia and the orders of the Rector, which determine the matriculation regulations for each specific year. The MSP in Pharmacy is open to persons with a Bachelor of Health Sciences degree in Pharmacy or a second level of professional higher education in Pharmacy. The competitive assessment has a formula based on the weighted average of the previous diploma and the overall or average mark of the final examinations.

The admission requirements are in line with the aims and objectives of the study programme. Admission requirements are adequate to achieve the learning outcomes and students are admitted in accordance with approved procedures and criteria. Regulated professions do not recognise non-formal education. Credit points obtained at other higher education institutions and courses acquired in a status of an attendee are recognised. EU Directives 2005/36/EC and 2013/55/EC, the Law of the Republic of Latvia "On Regulated Professions and Recognition of Professional Qualifications" of 20.06.2001 and Cabinet of Ministers Regulation No 68 "Minimum Requirements of Educational Programmes for the Acquisition of the Professional Qualification of Dentist, Pharmacist, Nurse and Midwife" of 19.02.2002 require pharmacists to have at least five years of training, including at least: (a) four years of full-time theoretical and practical studies at a university or a higher education

institution recognised as equivalent to a university or which is under the supervision of a university (b) six months of traineeship in a publicly accessible pharmacy or in a hospital pharmacy under the supervision of a hospital pharmacy department. MSP Pharmacy ensures that these requirements are met, as the duration of the Bachelor's programme is 3 years full-time and the Master's programme is 2 years full-time, and as part of the Master's programme students undertake a 6-month internship in a pharmacy.

Students have the opportunity to have their study courses recognised if they have completed study courses at another higher education institution or study programme, the content, results and credits of which are equivalent to MSP Pharmacy.

The advantage of MSP Pharmacy is the division into bachelor's and master's levels, according to the 1991 Bologna Declaration. This 3 + 2 division allows students to plan their careers and involvement in the changing labor market more flexibly, for example, to take a break from work or family conditions after obtaining a bachelor's degree in pharmacy and to resume their master's degree in pharmacy at a desired time.

In the 26 Member States of the European Union, the education of a pharmacist is attested by an academic master's degree in pharmacy, which proves the compatibility of MSP Pharmacy with the common EU pharmaceutical education space.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

Pharmacy is one of the priority areas of Latvia's smart strategy. The MSP Pharmacy programme at the University of Latvia enables training and capacity-building of professionals the economy needs. In addition, MSP Pharmacy places great emphasis on student research. Students work on their Master's theses in the laboratories of the UL House of Science House in the field of basic medical sciences, including pharmacy.

UL MSP Pharmacy is sustainable, because according to the information available to the Pharmacists' Society of Latvia, there is currently a shortage of pharmacists in Latvia due to the increasing number of pharmacists reaching retirement age, as well as due to emigration and the negative demographic balance in the country. According to the Latvian Pharmacists Association (LFA), 42% of working pharmacists are over 50 years old, of whom 20% are over 60. The Register of Pharmacists is mandatory only for pharmacists working in pharmacies.

Thus, the Master's study programme in Pharmacy implemented by the UL Faculty of Medicine is of vital importance for the renewal of personnel in the pharmaceutical sector.

Most graduates of UL MSP Pharmacy work in open or closed pharmacies according to the specialty, or continue their doctoral studies. MSP Pharmacy graduates include pharmacy managers, employees of drug wholesalers, employees of the State Agency of Medicines, owners and employees of private health care companies, and academic staff. A small number of Master of Pharmacy students work in industry, for pharmaceutical companies on drug registration projects or for information technology companies.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

In the reporting period from 2013 to 2021, the number of students is stable and corresponds to the number of students graduating from BSP Pharmacy. MSP Pharmacy is open to the holders of a Bachelor of Health Sciences in Pharmacy or a second-level professional higher education in pharmacy. During the reporting period, on average, 95% of graduates of the bachelor's study programme continue their studies in the Master's study programme (Figure 3.1.4.1. and [4.annex_FarmM_statistics on students_Eng.docx](#)).

Master's study program "Pharmacy" Student number statistics

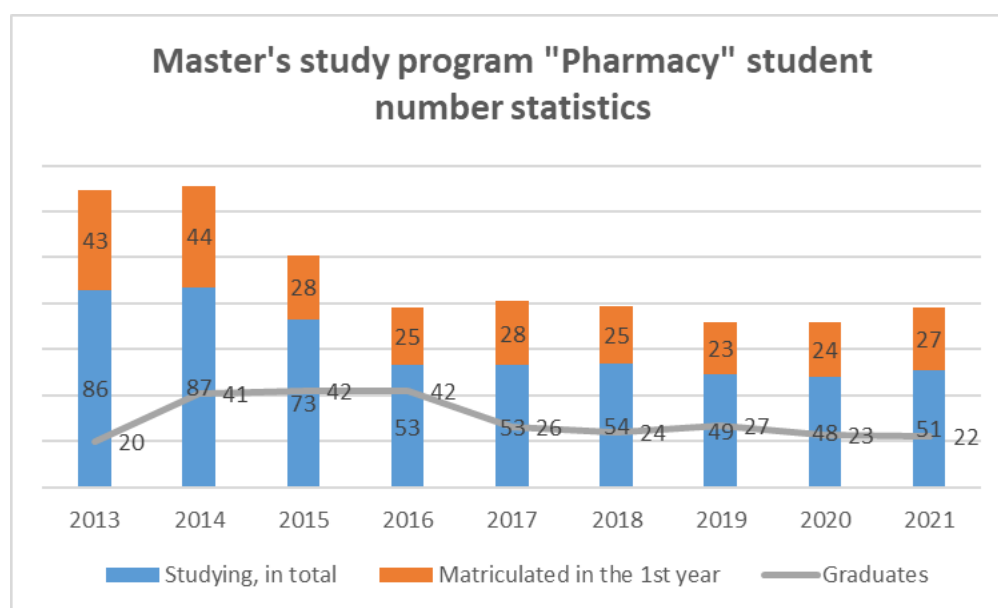


Figure 3.1.4.1. MSP Pharmacy students' dynamics

During the accreditation period from 2013 to 2021, the dropout rate varied from 2 to 9% of the total number of MSP Pharmacy students. In the last 3 years, which is the period from 2017 to 2020, the dropout rate has stabilized within 2% or 1 student per year. In 2021, 4 students were exmatriculated, three of whom had resumed their studies after a break, but then did not fulfil their study and financial obligations and were exmatriculated. The main reasons for student drop-outs are:

- failure to meet study programme requirements on time - lack of student motivation, lack of interest in the chosen study programme, insufficient knowledge leading to failure to meet academic obligations.
- personal reasons - finances, work, family, health.

Often, after a break, students return to MSP Pharmacy to complete their studies and obtain a Master's degree of Health Sciences in Pharmacy, which entitles them to work in a pharmacy as a pharmacist. For example, at least three individuals chose to pursue other vocational training or employment after completing the BSc in Pharmacy but returned after a gap of a few years and successfully completed the MSP in Pharmacy. This example reaffirms the flexibility and adaptability of the Bologna Process 3+2 education model to the priorities of students' personal lives.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The study courses are designed to fulfil the requirements for the education of pharmacists specified in the EU Directive and the requirements for the qualification of pharmacists defined in the Regulations No. 68 of the Cabinet of Ministers of the Republic of Latvia s of 19.02.2002. Directive 2005/36/EC provides that the training of a pharmacist guarantees that the person concerned has acquired the following knowledge and skills:

- adequate knowledge of medicinal products and the substances used in the manufacture of medicinal products;
- adequate knowledge of pharmaceutical technology and physical, chemical, biological and microbiological testing of medicinal products;
- adequate knowledge in metabolism, the effects of medicinal products, the effects of toxic substances and the use of medicinal products;
- adequate knowledge to evaluate scientific data on medicinal products, enabling the provision of appropriate information on the basis of that knowledge;
- adequate knowledge of the legal and other requirements associated with the practice of pharmacy.

In a balance between theoretical and practical training, MSP Pharmacy provides for a 6-month internship in community or hospital pharmacy.

In its turn, the Regulations of the Cabinet of Ministers of the Republic of Latvia of 19.02.2002 No. 68 “Minimum Requirements for the Acquisition of Professional Qualifications of Dentists, Pharmacists, Nurses and Midwives” stipulate a minimum of 15 study courses:

1. Plant and animal biology;
2. Physics;
3. General and inorganic chemistry;
4. Organic chemistry;
5. Analytical chemistry;

6. Pharmaceutical chemistry, including analysis of pharmaceutical compounding;
7. Medical biochemistry;
8. Anatomy and physiology;
9. Latin (including medical terminology);
10. Microbiology;
11. Pharmacology and pharmacotherapy;
12. Pharmaceutical Compounding;
13. Toxicology;
14. Pharmacognosy;
15. Professional Work Regulating Normative Statements. Professional Ethics.

The requirements of the regulatory enactments regulating the education of pharmacists in the EP and the Republic of Latvia have been taken into account when developing the academic bachelor's and master's Pharmacy study plans and their implementation must be considered in general in the bachelor's and c study programme. See the programme map in [8.annex_FarmM_Mappingofstudycourses_Eng.docx](#) and the study plan [1annex_FarmM_study plan_Eng.docx](#).

Following the trends in pharmaceutical care and taking into account the recommendations and feedback of employers and students, MSP Pharmacy has made the following improvements since the previous accreditation:

- Establishment of a pharmaceutical care simulation laboratory starting in the autumn semester of 2020 to provide students with customer service and communication skills,
- The updated Regulations on Pharmacy Internship placement have been approved to ensure qualitative performance of the practice and to define the tasks of the trainee and the supervisor,
- study course “Professional Work Regulating Normative Statements. Professional Ethics” is approved as a mandatory Part A course, as it is required by the laws and regulations governing pharmacist education,
- the number of credit points in the Clinical Pharmacology courses has been increased, because the graduates of the programme have indicated that the pharmacology knowledge is essential for practical work in pharmacy,
- a new study course “Biological human medicines” has been created, as targeted therapies, including biological medicinal products and biosimilar medicines, take an increasing share of the medicines market,
- due to the mobility of Erasmus + staff to the University of Latvia, the number of lecture hours in a foreign language increases during the study process,
- students enhance their knowledge of the scientific terminology in English by reviewing the scientific literature during the development of the Master's thesis,
- students participate in the annual UL International Scientific Conference on Medicine, which is held in English,
- students use information from international databases such as, ClinicalKey, Uptodate, Scopus, PubMed and European Pharmacopoeia.

According to EU regulations, the Pharmacy degree programme belongs to the education programmes of the regulated professions, therefore its content is similar in all EU countries. The Association of Faculties of Pharmacy of the EU Member States conducted an extensive study on the content and implementation of EU national pharmacy programmes PHARMINE 1 with its follow-up PHARMINE 2. All European higher education institutions providing education and training for pharmacists took part in the survey. Aggregated data for each country can be found on the PHARMINE website[1]. Pharmacy programmes in all EU countries are harmonised and data are

collected annually by the European Expertise Centre for Pharmacy Education and Training (EEC-PET). According to the Pharmine project, in 26 out of 28 EU Member States, EU pharmacy programmes lead to a Master's degree in Pharmacy, which confirms the compliance of MSP Pharmacy implemented at the University of Latvia with the general trends in EU pharmacy education,

Although the requirements for the education of a pharmacist are strictly defined in the legislation, there is an opportunity to improve the content of study courses by deepening the principles of patient-centered pharmaceutical care, improving communication skills, as today working with customers.

(1) <https://www.pharmine.eu/https:>

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

The choice of master's thesis topics is based on the scientific topics of basic medical sciences, including the pharmacy research field, linking them with the market trends in the pharmaceutical sector. For example, one of the main research topics of the group of pharmaceutical lecturers is the research of a new type of pharmacologically active substances with innovative pharmacological properties. Studies include the production and characterization of natural substances and their analogues, the characterization of biochemical properties, and the study of pharmacological properties in various in vitro human and animal cell models and in vivo animal models.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

MSP Pharmacy belongs to the study programmes of regulated professions; therefore their content is similar in all EU countries and complies with the requirements of the EU Directive 2005/36 / EC. The programme is designed for 40 hours of study per week, half of which are contact hours, and the other half are individual study hours. The programme is implemented in full-time studies (4 semesters), with Latvian as a medium of instruction. The content of the courses acquired in the Pharmacy programme is internationally regulated, envisaging the acquisition of skills and competencies required in the labour market.

The study programme consists of three parts: Part A - mandatory , Part B - limited electives and

Part C - elective courses. Part A courses comply with the relevant EU Directive 2005/36 / EC and the Latvia's Law "On Regulated Professions and Recognition of Professional Qualifications" as of 20.06.2001 and Cabinet Regulation No. 68 of 19.02.2002 "Minimum Requirements of Educational Programmes for the Acquisition of the Professional Qualification of Dentist, Pharmacist, Nurse and Midwife".

The program is continuously improved, taking into account the development trends of pharmaceutical care, the UL academic development strategy, the Research and Innovation strategy for smart specialization (NAP2027), European higher education trends, the opportunities for teaching staff and students.

The distribution of courses according to the fields of science is as follows: chemistry - 27%, pharmaceutical sciences - 35%, biology / medicine - 20%, social pharmacy and economics - 15% and pharmaceutical regulations, professional ethics - 3%. Master's thesis takes 20 CP or 30 ECTS and pharmaceutical placement - 24 CP or 36 ECTS.

At the beginning of the study course, the student receives information about the requirements for obtaining credit points, interim assessment and the schedule of classes during the semester. The workload of students for the acquisition of the study programme corresponds to 40 academic hours of work per one credit point. The completion of the study course is assessed on a 10-point scale in accordance with the Cabinet Regulation No. 240 of 13.05.2014. based on the following criteria: the volume and quality of the knowledge acquired; skills acquired; the acquired competence according to the planned learning outcomes. The lowest grade in study courses, which is still considered positive, is 4 points (almost average). The highest rating is 10 points (excellent). Teaching staff schedule tutorials to ensure that students achieve the intended learning outcomes in the time available. The interim assessments provide an overview of the achievement of the learning outcomes of the study programme. During the semester, various forms of assessment are used: written tests, multiple-choice tests in e-learning environment (Moodle), colloquia, seminars, essays and an examination. Interim assessments account for up to 50% of the overall assessment. At the end of the study course there is an examination, which gives no more than 50% of the final grade. Students can keep track of their interim grades individually in their profiles on the UL e-studies website. The Moodle environment provides lecture materials, seminar topics and presentations, lecture plans for individual student-centred organisation of study work. The tests give students an opportunity to fully demonstrate their analytical, creative and research skills, the knowledge they have acquired and their skills to apply scientific knowledge in practice. The variety of methods is based on the combination of theoretical knowledge and practical skills required of a pharmacy student, as well as the academic freedom of the lecturer allowed by law.

During the reporting period, the departments and groups of professors have repeatedly discussed the requirements for obtaining credit points in the study courses. Teaching staff upskill themselves and improve the approaches and teaching methods in continuing education courses in pedagogy, digital skills and the use of the Moodle environment. The study environment supports students' independence in achieving their study goals, while providing lecturer guidance and support. Students have access to modern study environment in Torņakalna House of Science with the opportunity to use the library's book repository and electronic resources, as well as laptop rental points in the university premises.

The final examination of the programme is the defence of the Master's thesis. The master's thesis is developed independently, receiving the supervisor's consultations and recommendations for successful work. Students have access to the UL Regulation of final papers and conventions for final thesis writing advising on the use and design of references. The choice of the topic of the Master's thesis is made independently, in consultation with the thesis supervisor and the study programme

director. The scientific qualification of supervisors of Master's theses is confirmed by a doctoral degree. The work is evaluated by the MSP Pharmacy Defence Board, which consists of a chairman, a deputy, a secretary and board members. All members of the Board have a doctoral degree. The composition of the Master's Thesis in Pharmacy Defence Board shall be approved annually by the Order of the UL Rector. The final thesis defence board, when deciding on the final thesis grade, takes into account the novelty of the research, the quality of the written work and presentation, and the reviewer's report. The supervisor's feedback and the reviewer's evaluation is a guideline for the final assessment.

The results of the final thesis confirm the achieved quality. The planning and supervision of the study (study) process, progress and quality control are carried out in accordance with the procedures approved by the management of the field of study.

The implementation of the student-centered education approach includes the following principles of student-centered learning:

- 1) Assessors are familiar with testing and examination methods and receive support to develop their skills in this area;
- 2) Evaluation criteria and methods, as well as criteria for marking, have been published in advance;
- 3) Assessment gives students the opportunity to show the extent to which they have achieved the expected learning outcomes. Students receive feedback that, if necessary, provides advice on the learning process;
- 4) Whenever possible, assessment shall be conducted by more than one examiner;
- 5) Assessment rules take into account the various facilitating circumstances of students
- 6) Assessment is consistent, fair to all students, and is conducted in accordance with approved procedures;
- 7) there is a procedure for reviewing student appeals

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

The recognition of the education and diplomas of pharmacists is regulated by the Council of Europe Directive 2005/36 / EC, the Law of the Republic of Latvia "On Regulated Professions and the Recognition of Professional Qualifications" of 10.06.2001 and Cabinet Regulation No. 68 "Minimum Requirements of Educational Programmes for the Acquisition of the Professional Qualification of Dentist, Pharmacist, Nurse and Midwife" as of 19.02.2002.

According to Directive 2005/36 / EC:

Certificates and other evidence of formal qualifications in pharmacy shall certify training of at least

five years' duration, including at least:

1. four years of full-time theoretical and practical training at a university or higher education institution recognized as equivalent to, or under the supervision of a university;
2. six months' apprenticeship in a pharmacy open to the public or in a hospital under the supervision of the pharmaceutical department of that hospital.

UL FM MSP Pharmacy includes 6 months of internship in the amount of 36 ECTS in an open type or hospital pharmacy. The internship placement strengthens students' knowledge in the implementation of high-level public health and patient safety measures. The task of pharmacy internship placement is to provide students with experience in the preparation of medicines, customer service and pharmaceutical care in pharmacies, as well as to provide an opportunity to apply in practice the knowledge gained in theoretical courses on customer psychology, ethics, pharmaceutical regulations and labour protection.

The internship can take place in open pharmacies or split time in hospital pharmacies and open-type pharmacies. The trainee has the right to choose the place of internship in coordination with the head of the pharmacy, the potential internship supervisor at the institution - a certified pharmacist and the FM internship organiser. Thanks to Erasmus + internship mobility, MSP Pharmacy students have the opportunity to apply for a 3-month pharmacy internship placement in a member state of the European Union.

The duration of the internship is 6 months and its amount is 36 ECTS. The working time is 27 hours per week, divided into 5 hours per day, with an additional 2 hours for the completion of placement records.

During the internship placement the student gets acquainted with the organization of pharmacy work, performs specific tasks of the internship supervisor according to the internship regulations and study course description, writes an internship report or diary/log, draws up an internship report at the end of the internship submitted to the UL internship supervisor.

The internship placement is divided into two stages:

- Internship placement in customer service for 3 months;
- 3 months of internship placement target the preparation of extemporaneous drugs.

During the internship, students improve their knowledge, skills and competencies in accordance with the internship regulations and the description of the study course. The internship programme highlights the pharmacist's work activities that the student/trainee is expected to learn during the internship. The intern works under the supervision of the site supervisor, learns and observes the work of certified pharmacists, pharmacy managers and learns all the criteria of professional competence of a pharmacist. During the internship, the intern takes the opportunity to learn the broadest spectrum of the work of a pharmacist, even if he/she does not participate in these activities, but observes the work of other more experienced colleagues.

The intern has the right to change the place of internship in coordination with the management of the respective pharmacy and the FM internship organiser. The intern must inform the supervisor two weeks before the change of internship and enter into a new contract. The internship defence takes the form of a debriefing, where the trainee reflects on the entire internship and the skills acquired during it. The assessment of the head of the institution's practice is a guideline for the final assessment. The final evaluation of the internship shall be posted by the internship supervisor and recorded in the examination sheet (record paper) and entered into the information system of the UL. The requirements of the internship are specified in the internship regulations.

The justification of traineeship procedure

In the order No. 1/86 of University of Latvia of 16th April 2007 on “The procedures for Organising the practice of LU students”, Directive of the Council of Europe 2013/55/EU, Law of LR “Regulated professions and recognition of professional qualifications” and Cabinet Regulation No. 68 of 19th February 2002 on “Minimum Requirements of Educational Programmes for the Acquisition of the Professional Qualification of Dentist, Pharmacist, Nurse and Midwife”, provides that the diploma of pharmacist education certifies that the owner thereof has acquired:

- at least four years of university education,
- six-month traineeship in a pharmacy which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.

2. Purpose of the practice

To prepare a highly qualified, creative and professional specialist. Enable students to learn the practical application of the theoretical knowledge.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

MSP Pharmacy introduces the most recent scientific trends in the study process. MSP Pharmacy teaching staff ensure high scientific quality of lectures and students' final theses. MSP Pharmacy students are involved in scientific projects carried out by teaching staff, for example, the Fundamental and Applied Research Project 'Short A β -related peptides in the pathogenesis of Alzheimer's disease - new avenues for treatment' (ShortA β) Latvian Council of Science grant, Project No: lzp-2018/1-0275 (2018-2021) involved Master of Pharmacy students Aleksandra Gžibovska, Helēna Vāne, Reinis Maluhins, Anastasija Kaļūznaja. Kristaps Krims-Dāvis, a student of MSP Pharmacy, participated in the UL Priority Area project “Research of Biomarkers and Natural Substances for Diagnosis and Personalised Treatment of Acute and Chronic Diseases” (2016-2022). During the reporting period, more than 200 Master's theses were developed and defended on the principles of evidence-based pharmacy.

During the reporting period, the teaching staff of Pharmacy study programmes have led and participated in international (Ukraine-Latvia bilateral cooperation project, ERANET project, Taiwan-Latvia-Lithuania project, Norway-EEZ project, Marie Curie-Skladovska Horizon 2020 projects), national funded research projects (ERDF, LCS, LAS), contract projects (SilvEXPO, RTU), UL priority area Biomedicine and Pharmacy project, a total of twelve (12) research projects. Master's students are involved in projects as laboratory assistants. Every year, MSP Pharmacy master students, together with lecturers, report at conferences and congresses at the Baltic countries' BaltPharm forum and conferences and congresses organised by the Pharmacists' Society of Latvia, as well as at the International Scientific Conference on Medicine organised by the University of Latvia.

The choice of topics for the Master's thesis is based on research themes in the basic sciences of

medicine, including the pharmacy, linking them to market trends in the pharmaceutical sector. For example, one of the main research themes of the Pharmacy Lecturer Group is the investigation of new types of pharmacological compounds with innovative pharmacological properties. Research ranges from the extraction and compositional characterisation of natural substances and their analogues, to the characterisation of biochemical properties, and the study of pharmacological properties in various *in vitro* human and animal cell models and *in vivo* animal models.

Clinical research is relevant to the pharmaceutical industry, for example, the use of antimicrobials in hospitals, polypharmacy or the concomitant use of several drugs. Many Master's theses in social pharmacy are developed in pharmacies, providing an opportunity for future pharmacists to get acquainted with the circulation of medicines in pharmacies, the procedure for reimbursement of medicines and the awareness of customers about the availability of medicines. Likewise, many papers are devoted to the development of pharmaceutical compounding - for example, the liposome forms, drug bolus, etc.

Several master's theses have been developed in cooperation with other scientific institutions in Latvia. In cooperation with the Institute of Hydroecology of the University of Latvia, the study on the determination of medicinal substances in surface waters was carried out, while in cooperation with the Faculty of Chemistry of the University of Latvia the composition of herbal medicines was analysed. Several Master's theses in Pharmacy, which analyse various aspects of *H. pylori* eradication therapy have been completed at the UL Institute of Clinical and Preventive Medicine. Several papers in the field of pharmacognosy, including on the properties of linseed oil have been developed at the UL Institute of Biology. MSP Pharmacy Master's theses on the synthesis of new medicines were developed at the Latvian Institute of Organic Synthesis.

The high quality of Master's theses is confirmed by the fact that the authors of the Master's thesis, graduates of the programme, continue their doctoral studies and continue to teach at MSP Pharmacy after obtaining a doctoral degree. During the reporting period, six MSP Pharmacy graduates have entered the doctoral programme of the University of Latvia, one graduate has entered the doctoral programme of the University of Helsinki. Two graduates have obtained a doctoral degree, one of them continues to work as a researcher at the UL Faculty of Medicine, and five graduates of the doctoral programme are currently involved in studies and research work at the UL Faculty of Medicine, thus ensuring the renewal of the academic staff.

The quality of Master's theses in MSP Pharmacy is confirmed by received "excellent" rating and a Rector's Certificate of Appreciation during the reporting period. Table 3.2.6.1. depicts the number of Rector's Certificates of Appreciation during the reporting period.

Table 3.2.6.1.

Number of Rector's Certificates of Appreciation obtained by the graduates of the Master's study programme Pharmacy in the reporting period

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number of Rector's Certificates of Appreciation	4	11	12	7	9	6	4	7	60

Examples of conference reports during the reporting period with the participation of MSP Pharmacy students:

1. Namniece, I. Popēna, K. Jēkabsons, **I. Kozlovskā, D. Butikova**, U. Riekstiņa, R. Muceniece. Effect of lunasin on secretion interleukin 10 in rat C6 glioma cells and interleukin 8 in SH-SY5Y human neuroblastoma cell line. UL 72. Scientific Conference, 14.02. 2014 17-19.
2. Popēna, V. Parfejevs, L. Saulīte, **S. Reinika, T. Klinovičs**, R. Muceniece, U. Riekstiņa. Cytokine secretion in non-induced mesenchymal stem cell cultures and LPS inflammation model. UL 72. Scientific Conference, 14.02. 2014. pp. 19.
3. **Zita Freiberga**, Baiba Jansone, Elga Poppela, Zane Dzirkale, **Ingrīda Māgure, Lote Ansonē**, Kaspars Jēkabsons, Vladimirs Pilipenko, Jana Namniece, Raimonds Skumbiņš, Ulrika Beitnere, Uģis Klētnieks, Ilona Vanaga, Ruta Muceniece, Vija Kluša. Polyprenol effects and their influence on atorvastatin in behavioural and analgesic tests in vivo. Medicine Section of the 73rd Scientific Conference of the University of Latvia, 20.02. 2015 15 pp.
4. Raimonds Skumbiņš, Baiba Jansone, Zane Dzirkale, Kaspars Jēkabsons, Vladimirs Pilipenko, **Ingrīda Māgure**, Jana Namniece, Ulrika Beitnere, Elga Poppela, Uģis Klētnieks, Ilona Vanaga, Ruta Muceniece, Vija Kluša. Polyprenols protect against atorvastatin-induced muscle loss in rats. Medicine Section of the 73rd Scientific Conference of the University of Latvia, 20.02. 2015 17pp.
5. Jānis Kurlovičs, **Karīna Ēvalde**, Ruta Muceniece. Assessment of pharmaceutical care in Latvia from the viewpoint of health care specialists. UL 74th Scientific Conference, 2016, February 19, p.109.
6. **Madara Jēkabsonē**, Mārtiņš Ruciņš, Marina Gosteva, Ruta Muceniece, Aiva Plotniece. Synthesis and property studies of amine-modified 1,4-dihydropyridine derivatives. UL 74th Scientific Conference, 2016, February 19 p.113.
7. **Zane Rumbina**, Jānis Kurlovics, Ruta Muceniece. Survey of Latvian pharmacists about implementation of additional pharmaceutical care services. UL 75th Scientific Conference, 2017, February 24 p.45.
8. **Marta Raituma**, Reinis Rembergs, Ilva Nakurte, Kaspars Jēkabsons, Jana Namniece, Ruta Muceniece. Identification and measurement of dolichol levels in rat organs. UL 75th Scientific Conference, 2017, February 24 p.93.
9. Jana Namniece, Ilva Nakurte, **Silva Priedē**, Kaspars Jēkabsons, Ruta Muceniece. Quantification of glycoalkaloid levels in extracts of peeled potato skin. UL 75th Scientific Conference, 2017, February 24 p.94.
10. Inese Jargāne "Evaluation of the Risk of Azathioprine Therapy in Patients with Inflammatory Bowel Disease Using the TPMT Enzyme Expression Detection Method". Oral report at the conference of the Pharmacists' Society of Latvia on January 9, 2018.
11. **Karīna Darbiniece** "Analysis of Peroxide Levels and Prices of Fish Oil Supplements Available in Latvian Pharmacies". Oral report at the conference of the Pharmacists' Society of Latvia on January 9, 2018.
12. **Kristaps Krims-Dāvis**, Kārlis Pleiko, Una Riekstiņa. Cell-SELEX enriched aptamer selectivity screening with flow cell cytometry. International Scientific Conference on Medicine organized within the framework of the 78th International Scientific Conference of the University of Latvia Riga, Latvia. Medicine Volume 56, Supplement 1, 2020. ISSN 1648-9233

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and

technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the information provided in Chapter of this report, Resources and Support of the Study Field, the resources of the study programme consist of financial resources (source of funding - state budget grants, tuition fees, study programme costs), infrastructure and material and technical support, as well as methodological and information provision.

Infrastructure and logistical support

MSP Pharmacy material and technical support consists of:

1. Auditoriums
2. Training laboratories
3. Research laboratories
4. Placement/internship sites

The characteristics of material and technical provision in the reporting period can be divided into several stages, but it should be clearly emphasised that it has improved and become more modern, more in line with modern development trends. The most significant changes within the material and technical provision have been brought about by the opening of the University of Latvia Academic Centre Nature House (2015) and the Science House (2018), where the implementation of SP Pharmacy is taking place. The study process takes place in modern classrooms equipped with multimedia devices, interactive whiteboards and internet access, providing high quality audio and visual presentation of lectures. The design of the auditoriums allows the tables to be freely rearranged, making them adaptable to different forms of learning - lectures, seminars, group work or circular discussions - and contributing to a democratic and open learning process. The buildings have internet access via wireless technology. The modern study environment at the Academic Centre of the University of Latvia is positively assessed by pharmacy students, noting that the new study environment has served as an additional motivating factor to study at MSP Pharmacy.

Training laboratories

The Pharmacy Study Programmes at the Houses of Science and Nature has flow laboratories for the study of biology and chemistry subjects, as well as a Pharmaceutical Compounding Laboratory (Jelgavas str. 3, room 402) for acquiring the set of theoretical knowledge and practical skills necessary for pharmacy students. The flow laboratories are designed to meet the occupational safety standards of 4 m² of laboratory space per 1 student, which can accommodate up to 30 students at a time. The Pharmaceutical Compounding Laboratory (97 sqm) is equipped with 20 individual workstations, electronic scales, table equipment for standing containers of substances, water baths, ointment mixing equipment, essential oil extraction equipment, label printer, multimedia equipment (projector, screen, computer), whiteboard, fume cupboards, fridge, freezer. For the preparation of different dosage forms, there are suppository moulds, pestles, a capsule filling equipment, measuring cups for liquids, pipettes, a special lamp for controlling mechanical impurities in the prepared drugs. The European Pharmacopoeia is available in the UL library, as well as the latest version online. This laboratory is also used in the Biochemistry and Pharmacognosy courses, where microscopes, herbariums and required samples can be added to the workstations. Staff have a special room (28 sqm) for storing and preparing materials, including a dishwasher and oven.

A Pharmaceutical Care Simulation Laboratory (Auditorium 335, 41 sqm) has been established for the acquisition of social pharmacy courses.

For pharmacy students, modern chemistry laboratories are available at the Faculty of Chemistry, located in the House of Nature and equipped with individual workplaces, modern high-quality fume hoods, and equipment for laboratory work in inorganic (room 603 with 12 places), organic chemistry, analytical in chemistry, which are essential basic courses for the acquisition of chemistry sub-fields, so that future pharmacists are well prepared for the acquisition of specialized courses on pharmaceutical technology and physical and chemical properties of medicines, as well as on methods of quality control of medicines in accordance with Latvian and EU legislative requirements. The Organic Chemistry Laboratory (Room 602) can accommodate 16 students at a time and is equipped with everything needed for the synthesis of medicinal substances (fume hoods, electric cooker-mixers, rotary evaporators, etc.). The analytical chemistry laboratories (rooms 615 and 617, with 12 places each) are equipped with the equipment necessary for the analysis of medicinal substances, including the determination of the content of pharmaceutically active substances in pharmaceutical pharmacy products (e.g. titrators, analytical balances, microwave ovens, etc.).

Other faculties and structures of the University of Latvia are also involved in the implementation of MSP Pharmacy - Faculty of Physics and Mathematics, Faculty of Chemistry, Faculty of Biology, Faculty of Business Administration and Economics, Language Centre

For the implementation of preclinical study courses in the laboratories of the Faculty of Biology the following equipment is used for practical work of students: metobometer, Finopress, plethysmograph, laser dopplerograph, pneumograph, spirometer, mechanoelectric transducer, perimeter, audiometer, bioimpedence analyser and other equipment for physiological examination and research of heart circulation, blood biochemistry, respiration, metabolism, nervous muscle and sensory system functions.

MSP Pharmacy students study plant and animal biology in modern classrooms and flow laboratories at the Faculty of Biology.

The concept of the Torņakalns Academic Campus of the University of Latvia is the integration of the study process and a multidisciplinary approach, which provides students with a broad, versatile and in-depth knowledge in pharmacy, chemistry and biology.

Research laboratories

Scientific research (creative) work is integrated into the Bachelor's and Master's study programmes in Pharmacy and students are involved in scientific research grants and research programmes. In the research laboratories, the academic and research staff of MSP Pharmacy implements research projects in the sub-sectors of Pharmaceutical Pharmacology and Pharmacology in the field of Medical Sciences, including Pharmacy. Research laboratories are located at both Jelgavas Street 3 and Jelgavas Street 1. Jelgavas Street 3 houses the Pre-Clinical Research Laboratories and the Department of Pharmacology, Jelgavas Street 1 houses the Experimental Animal Laboratory and the Department of Pharmacology and the Department of Medical Biochemistry and the Laboratory of Medical Microbiology, where MSP Pharmacy researchers work (see Table 3.3.1.1.).

Table 3.3.1.1.

Research laboratories where MSP Pharmacy students may develop their final theses

Preclinical research laboratories, Jelgavas Street 3

Room 421 (80m2)	equipped with various facilities to perform immunocyto-I and immunohistological experiments using different equipment, such as the Tecan Infinity M200 Pro multifunctional microplate reader, to prepare experimental material for other equipment for Immunohistochemistry, Western Blot imaging and mass spectrometry equipment
Rooms 423, 425, 426, 427, 428, 429 (79.64 m2)	Human and animal cell culture laboratories with aseptic cell culture equipment (incubators, laminars, water bath, light microscope, cell counting machine LUNA), autoclave, other equipment for aseptic work
Room 432 (47 sqm)	Equipped with cell analysis equipment (flow cytometers, multifunctional equipment for chemiluminescence, fluorescence and colorimetric imaging)
Rooms 433, 434, 435 (25 m2)	equipped to provide gene expression analyses (UV box, PCR equipment, sequencer)
Room 437 (7 m2)	cold room (+4) for immunohistochemical reactions and Western blotting
Room 438 (14m2)	confocal microscope Nikon C2, TILL Photonics fluorescence microscope for live tissue imaging
Room 442 (27m2)	preparation of samples and determination of nitrogen molecules in the devices of the Department of Medical Biochemistry
Room 443 (12m2)	high performance liquid chromatography and mass spectrometry equipment
Experimental Animal Laboratory Department of Pharmacology, Jelgavas Street 1	
065 room (197 m2)	Experimental Animal Laboratory - equipment for animal surgery, equipment for testing analgesia and motor coordination, equipment for video monitoring and recording of animal behaviour and modern operating theatre equipment for laboratory animal surgery
Laboratory of Medical Biochemistry , Department of Medical Biochemistry, Jelgavas Street 1	
Room 418 (42 m2)	Medical biochemistry laboratory equipped with spectrophotometer, 2 centrifuges, pH meters, electrophoresis apparatus, scales, micropipette kits

Laboratory of Medical Microbiology, Jelgavas Street 1

Room 415 (37m2) Laboratory of Medical Microbiology

Experimental Animal Laboratory is used for students' final theses. Equipment for performing animal surgeries, equipment for testing analgesia and motor coordination, equipment for video surveillance and recording of animal behaviour and modern Operating Room equipment for laboratory animal surgeries, which was purchased within the framework of the establishment of the National Research Centre.

The cell culture laboratory is equipped with a laminar, incubator, water bath, microscope, cell counting device necessary for experiments on cell cultures.

The molecular pharmacy laboratory is equipped with a flow cytometer, quantitative PCR, gel imaging equipment, and other equipment for the analysis of various analytes.

The laboratories of the Department of Medical Biochemistry have a spectrophotometer, 2 centrifuges, pH-meters, electrophoresis apparatus, scales. The laboratories are used for students' practical work, research in pharmacology and molecular genetics.

The attraction of pharmacy students to research is constantly improving, especially thanks to the base and performance funding available since 2016. In addition, the planned investment of Structural Funds in the health sciences in the 2016-2020 programming period has ensured that the UL FM MSP Pharmacy could conduct gene expression analyses, conduct research with the development and analysis of applied pharmaceutical forms, as essential oil extraction equipment, extemporal ointment mixing equipment and pharmacological substance diffusion analysis equipment have been purchased

Placement/internship sites

MSP Pharmacy students in the second year of their Master's studies undergo a six-month pharmacy internship under the supervision of a certified pharmacist. This internship envisages the acquisition of practical skills in working with pharmacy clients, as well as in preparing medicines according to a doctor's prescription.

The student gets acquainted with the application of regulatory enactments regulating pharmaceutical activity in practical work, acquires first practical skills in advising clients on the correct use of medicines. Students write an internship diary/log and a report on the experience gained during the internship.

The students choose the placement themselves in agreement with the head of the pharmacy and the pharmacist, who undertakes to supervise the internship. The agreement is signed by the student, the head of the pharmacy and the internship supervisor. This agreement is submitted to the faculty, on the basis of which a document with the dean's approval is prepared.

Methodological and informative provision

As of 01.12.2020, 1120 printed publications (see Table 3.3.1.2.) are available for Pharmacy students in the collection of the UL Library, 94% of which are books, 3% periodicals and 3% other publications (CD, DVD). 50% of the printed editions available in the collection of the library of the University of Latvia are in Latvian, 39% in English, 9% in Russian and 2% in German. In total, there are 30,101 copies of printed editions in the library of the University of Latvia for the provision of the Health Care study field.

Table 3.3.1.2.

Literature available in the library (printed editions) for the implementation of Optometry study programmes

UL study field "Health Care"

Total printed editions in the LU Library collection as of 01.12.2020

Printed Editions (Copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
Pharmacy	1120	1049	32	39	558	436	100	21	5

Total number of items in the study field in the collection of the University of Latvia Library: 30101 copies

Students have very wide access to various e-resources - both the most popular databases in EBSCO database medicine - AHFS Consumer Medication Information, EBSCO Academic Search Complete, Web of Science, Scopus, ClinicalKey, MEDLINE Health Source: Nursing/Academic Edition, European Pharmacopoeia, SpringerLink, Emerald eJournals Premier, Oxford Journals JSTOR, ProQuest Dissertations & Theses Global, SAGE Journals Online, SAGE Research Methods, ScienceDirect, Physical Review Online Archive (PROLA), UpToDate, and a very comprehensive e-book library from the e-book platform Dawsonera and ProQuest Ebook Academic Complete.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Based on the cost calculation of the Master's study programme according to our own methodology, the main cost items are the remuneration of the teaching staff - 39%, followed by property and services - 15%, general staff - 13%, infrastructure costs 7% and 26% indirect costs.

Funding comes from a state budget grant and tuition fees.

The state budget subsidy for a study place for each calendar year is determined in accordance with the annual agreement between the Ministry of Education and Science (MoES) and the UL, taking

into account the base cost of a study place in a given year, the level of the study programme and the cost coefficient for the thematic area of education. The budget allocation per study place for MSP Pharmacy is EUR 7335, consisting of a base funding of EUR 1630, a level factor of 1.5 and a field of study factor of 3.

Tuition fees at the University of Latvia are determined by a separate order for each academic year, taking into account the cost of the study place, including all costs of the study process (see above), tuition fees for similar programmes at other universities and the interest of potential fee-paying students in the study programme.

MSP Pharmacy tuition fee is 2400 EUR per year.

Taking into account the provision of financial resources, calculations are made and various solutions are implemented to optimise the cost of studies, for example, students are offered a compact set of elective courses, maximum once every two years, while maintaining the full opportunity to acquire quality pharmaceutical-specific knowledge. In order to make optimal use of the resources of highly qualified teaching staff, elective courses are implemented in synergy with other study programmes in the field of health care.

In order to ensure the profitability of MSP Pharmacy, the minimum number of students is 10

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The qualifications of teaching staff comply with the Law on Higher Education Institutions and the regulatory enactments of the University of Latvia, which determine the qualifications of teaching staff in academic master's study programmes:

1. Cabinet of Ministers Regulation No 49 of 23.01.2018 Regulations on Latvian science branches and sub-branches
2. Law on Higher Education Institutions (02.11.1995).
3. Regulations of the University of Latvia on study programmes and further education programmes (Senate decision No 102 as of 24.04.2017)

In order to ensure the implementation of a high-quality and innovative study programme, several criteria have been used for the selection of teaching staff for the Master's programme in Pharmacy. The mandatory selection criteria for lecturers are:

1. Compliance of the qualification of the teaching staff with the requirements specified in regulatory enactments;
2. Research area/interests relevant to the study programme/course, relevant publications and

work experience

3. Adequate knowledge of the official language and foreign languages.

The qualifications of the teaching staff are confirmed by their competence in scientific research and professional activity, which is also relevant to the study programme and the content of the courses taught. The application of selection criteria ensures that the implementation of the study programme involves teaching staff who have both pedagogical work experience in student training and active scientific and professional activity, which ensures the achievement of the study programme goal - to prepare new specialists in the field of pharmacy.

In-service training and upskilling of teaching staff takes place in the following ways:

1. At least once a year, the teaching staff participates in the international conference on the field of medicine organised by the UL Faculty of Medicine, which has a section on basic medical sciences, including pharmacy. Teaching staff and professors from various Latvian and foreign universities participate in the section with reports,
2. teaching staff participate in international scientific conferences, Erasmus plus mobility, local and international research projects,
3. teaching staff participate in the work of non-governmental organizations, state and European Union institutions (for example, the Pharmacists' Society of Latvia, the State Agency of Medicines, the European Medicines Agency, the European Hospital Pharmacists' Association, etc.)
4. participate in continuing education courses for additional English language training, leadership skills and digital skills within the framework of the project "Academic staff renewal and capacity building at the University of Latvia" of the specific support objective 8.2.2.

16 lecturers are involved in the implementation of MSP Pharmacy.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

During the reporting period, the composition of the teaching staff of the UL FM MSP Pharmacy is stable and student surveys show satisfaction with the quality of teaching. Several teaching staff members have progressed in their academic careers. For example, associate professor Baiba Jansone has become a professor, associate professor Una Riekstiņa has become a professor, associate professor Sandra Jēlabsone has been elected a professor, lecturer Iveta Līduma has been elected an assistant professor. Jana Namniece defended her doctoral degree in pharmacy in 2017 and in 2019 she was elected a researcher. The composition of the teaching staff of the FM MSP Pharmacy programme is provided in Tables 3.4.2.1. and 3.4.2.2.

Table 3.4.2.1.

List of MSP Pharmacy lecturers

Name, surname	Position	Scientific degree	Taught study courses
Ruta Muceniece	professor	Dr.hab.biol.	Master thesis Pharmaceutical practice

Baiba Jansone	professor	Dr.med.	Clinical Pharmacology I Clinical Pharmacology II Phytotherapy
Sandra Jēkabsone	professor	Dr.econ.	Economics on Social Issues
Andrejs Cekuls	professor	Dr.econ.	Management
Ženija Roja	associate professor	Dr.med.	Health promotion at the work of pharmacists
Kristīne Saleniece	assistant professors	Dr.pharm.	Pharmaceutical practice
Jana Namniece	researcher	Dr.pharm.	Information and Consultative Job in the Pharmacy
Jānis Ģībietis	assistant professors	Dr.chem.	Control of Drug Quality
Kristīne Vrubļevska	Researcher	Dr.pharm.	Drug interaction and adverse reactions
Māra Viduža	teacher	Veterinarian	Veterinary medicines
Artūrs Paškilēvics	teacher	Pharmacist	Professional Work Regulating Normative Statements. Professional Ethics
Zinta Rugāja	Lesson teacher Senior expert of the NSS	Mg.pharm.	Social pharmacy

3.4.2.2. table

Newly recruited teaching staff of MSP Pharmacy during the reporting period

Name, surname	Position	Scientific degree	Taught study courses
Una Riekstiņa	professor	Dr.biol.	Biological human medicines
Liāna Orola	Leading researcher	Dr.chem.	Instrumental Analysis of Pharmaceuticals

Jana Namniece	researcher	Dr.pharm.	Information and Advice in the Pharmacy
Jānis Kurlovičs	lecturer	Mg.pharm.	Design of Drug Dosage Forms

During the reporting period, the staff of MSP Pharmacy is stable, and several members of teaching staff have been promoted, for example, three assistant professors have been elected as professors. The new faculty member Jana Namniece obtained Dr.pharm. in 2017. During the reporting period, lecturer Jānis Kurlovičs did an internship at the University of Helsinki, where he completed Master's programme in Industrial Pharmacy. The faculty of MSP Pharmacy is highly experienced in both academic lecturing and research, as evidenced by publications in local and internationally cited journals, supervised doctoral theses, involvement in research projects and expertise in public administration and EU institutions, such as the State Agency of Medicines, Pharmacists' Society of Latvia, Latvian Pharmacists' Trade Union, European Medicines Agency.

The teaching staff of MSP Pharmacy represent several branches of science - doctoral degrees have been obtained in pharmacy, medicine, biology, chemistry and economics, which is a great advantage resulting from the existing multidisciplinary cooperation opportunities at the University of Latvia. For example, chemistry courses are delivered by the teaching staff of the UL Faculty of Chemistry, while economics courses are taught by professors from the UL Faculty of Business, Management and Economics.

The high qualification of the teaching staff ensures the acquisition of knowledge relevant to the current trends in the pharmaceutical industry and the regulated profession for the students of the Master's programme in Pharmacy. The quality of knowledge is confirmed by the numerous Master's theses, which were supervised by MSP Pharmacy teaching staff and received an "excellent" rating and a Rector's Certificate of Appreciation during the reporting period. The high quality is also confirmed by the entry of MSP Pharmacy graduates into doctoral studies in Latvia (4 doctoral students) and abroad (University of Helsinki, 2 doctoral students). Doctoral students have become lecturers at BSP Pharmacy with the prospect of successfully continuing their academic career at the University of Latvia after defending their doctoral degree, becoming lecturers of MSP Pharmacy and supervisors of students' final theses.

During the reporting period, the number of credit points in the courses Clinical Pharmacology I (from 3 and 4,5 ECTS) and Clinical Pharmacology II (from 3 and 4,5 ECTS) has been increased at the suggestion of students and graduates of the programme, as this knowledge is required by pharmacists working in pharmacy. A Laboratory of Pharmaceutical Care Simulation has been established so that students can acquire customer service and communication skills, as well as acquire an e-prescription system within the study course Information and Consulting in Pharmacy. The study course Biological Medicines, 3 ECTS, has been launched, as the use and supply of biological medicines and biosimilars is increasing every year.

During the reporting period, teaching staff have been trained in the Moodle programme courses, English language courses and digital skills courses. Teaching staff professional upskilling is ensured by involvement in the attraction and implementation of research projects, participation in international scientific conferences and continuing education courses organised by the Pharmacists' Society of Latvia.

MSP Pharmacy teaching staff meet every semester to review the programme's current developments and students' opinions on the quality of courses and programme content as expressed in the LUIS survey, to discuss the improvement of course content and to coordinate the distribution of Master's thesis topics.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The teaching staff of MSP Pharmacy represent several branches of science - doctoral degrees have been obtained in pharmacy, medicine, biology, chemistry and economics, which is a great advantage resulting from the existing multidisciplinary cooperation opportunities at the University of Latvia. For example, chemistry courses are delivered by the teaching staff of the UL Faculty of Chemistry, while economics courses are taught by professors from the UL Faculty of Business, Management and Economics.

The interaction and cooperation of the academic staff takes place during various events organized by the University of Latvia: staff meetings, scientific conferences, science cafes, further education courses and informative meetings on science projects.

During the reporting period, the faculties, departments and groups of professors discuss the requirements for obtaining credit points in the study courses every semester, and update course

content to align knowledge, skills and competences with the latest developments in the field. Teaching staff upskill themselves and improve the approaches and teaching methods in continuing education courses in pedagogy, digital skills and the use of the Moodle environment. Teaching staff meetings host the discussions on the updating of the library's holdings with the latest literature and useful databases.

At the end of each semester, the teaching staff of MSP Pharmacy meet to evaluate the opinion expressed by the students in the LUIS survey on the quality of the course and programme content, and to discuss the improvement of the course content and coordinate the distribution of master's thesis topics.

The planning and supervision of the study (study) process, progress and quality control are carried out in accordance with the procedures approved by the management of the field of study.

The proportion of students and teaching staff cannot be precisely calculated, because the teaching staff work part-time at MSP Pharmacy. The approximate number of students per lecturer is 12.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_FarmM_Diploma_Eng.docx	11.pielikums_FarmM_Diploma_pielikums_lv.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	13.annex_FarM_FarmB_AIP_55_2_option_Eng.docx	13.pielikums_FarmM_FarmB_AIP_atzinums_LV.pdf
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_FarmM_statistics on students_Eng.docx	4.pielikums_FarmM_studentu skaita statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	10.annex_FarmM_compliance with the state academic education standard_Eng.docx	10.pielikums_FarmM_atbilstiba valsts akadēmiskās izglītības standartam-LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	6.annex_FarmM_FarmB_Compliance with the specific regulatory framework of the relevant industry_Eng_corrected_EC delegated decision.docx	6.pielikums_FarmM_atbilstiba atbilstošās nozares specifiskajam normatīvajam regulējumam_LV_korigēts_19.04.2022_.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_FarmM_Mapping of study courses_Eng.docx	8.pielikums_FarmM_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_FarmM_study plan_Eng.docx	1.pielikums_FarmM_studiju plāns_LV.docx
Descriptions of the study courses/ modules	7.annex_FarmM_study programme course description_Eng.docx	7.pielikums_FarmM_KURSU APRAKSTI_LV.docx
Description of the organisation of the internship of the students (if applicable)	15.annex_FarmM_practice_regulation_Eng.docx	15.pielikums_FarmM_prakses_nolikums_LV.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	14.annex_FarmM_apliecinajums_AI_55_Eng.docx	14.pielikums_FarmM_apliecin_AI_55p_LV.jpg

Medicine and Pharmacy (51721)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Medicine and Pharmacy</i>
Education classification code	<i>51721</i>
Type of the study programme	<i>Doctoral study programme</i>
Name of the study programme director	<i>Imanuels</i>
Surname of the study programme director	<i>Taivans</i>
E-mail of the study programme director	<i>imanuels.taivans@lu.lv</i>
Title of the study programme director	<i>Dr.med</i>
Phone of the study programme director	<i>+37129428136</i>
Goal of the study programme	<i>To prepare highly qualified scientists and academic specialists in various fields of medicine and health sciences, so that they can obtain an internationally comparable doctoral degree and master the principles of implementation, organization and management of pedagogical and research work at the highest level.</i>
Tasks of the study programme	<ol style="list-style-type: none"> <i>1. To provide doctoral students with in-depth theoretical and methodological knowledge in the fields related to medical and health sciences;</i> <i>2. To prepare scientists who are able to perform independent, original and scientifically significant research work and are able to critically evaluate the scientific contribution of other persons;</i> <i>3. To prepare high-level specialists in medicine and health sciences who would be able to systematize and generalize their practical observations, introduce new diagnostic and treatment methods, as well as publish and promote their research at the international level;</i> <i>4. To prepare highly qualified scientists who would be able to compete in the local and international scientific labor market;</i> <i>5. To prepare specialists for academic work who would be able to provide students with the latest scientific knowledge and involve them in the creative process of science;</i> <i>6. To promote the growth of the country's intellectual potential.</i>

Results of the study programme	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <i>1. understands the latest scientific theories and knowledge in the fields related to medicine and health sciences;</i> <i>2. understands modern research methodologies and techniques;</i> <i>3. focuses on interdisciplinary opportunities.</i> <p><i>Skills</i></p> <ol style="list-style-type: none"> <i>4. is able to apply the acquired knowledge in practice;</i> <i>5. is able to independently evaluate and choose appropriate methods for scientific research;</i> <i>6. is able to carry out significant original research and summarize the results in internationally cited publications;</i> <i>7. be able to communicate both orally and in writing about his / her field of scientific activity at international level and to promote his / her research to the public;</i> <i>8. is able to independently improve his / her scientific qualification;</i> <i>9. be able to manage research and development projects in health care-related institutions and organizations</i> <p><i>competence:</i></p> <ol style="list-style-type: none"> <i>10. scientific research is carried out in accordance with ethical norms;</i> <i>11. Carry out independent, critical analysis, synthesis and evaluation that will address important research or innovation challenges in medicine and health sciences;</i> <i>12. independently puts forward the research idea, plans, structures and manages large-scale local and international research projects;</i> <i>13. implements, organizes and manages academic (pedagogical) work related to medical and health sciences at the highest level.</i>
Final examination upon the completion of the study programme	<i>Development of doctoral thesis and doctoral examinations.</i>

Study programme forms

Full time studies - 3 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>3</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>144</i>
Admission requirements (in English)	<i>Master's degree in biology, pharmacy, chemistry, nutrition, nursing, professional (second level professional higher education) doctor's degree, pharmacist's degree, dentist's degree, professional master's degree in clinical optometry or master's degree in another field, if so decided by the doctoral study council.</i>

Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Doctorate, Doctor of Science (Ph.D.) in basic medical sciences, including pharmacy, or doctoral degree, doctorate (Ph.D.) in clinical medicine, or Doctorate, Doctor of Science (Ph.D.) in Health and Sport Sciences, or Doctor of Science, Doctor of Science (Ph.D.) in medical biotechnology, or Doctor of Science, Doctor of Science (Ph.D.) in other medical and health sciences, including forensic medicine</i>
Qualification to be obtained (in english)	–

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 3 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	3
Duration in month	0
Language	<i>english</i>
Amount (CP)	144
Admission requirements (in English)	<i>Master's degree in biology, pharmacy, chemistry, nutrition, nursing, professional (second level professional higher education) doctor's degree, pharmacist's degree, dentist's degree, professional master's degree in clinical optometry or master's degree in another field, if so decided by the doctoral study council. Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Doctorate, Doctor of Science (Ph.D.) in basic medical sciences, including pharmacy, or doctoral degree, doctorate (Ph.D.) in clinical medicine, or Doctorate, Doctor of Science (Ph.D.) in Health and Sport Sciences, or Doctor of Science, Doctor of Science (Ph.D.) in medical biotechnology, or Doctor of Science, Doctor of Science (Ph.D.) in other medical and health sciences, including forensic medicine</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Doctoral study program Medicine and Pharmacy (hereinafter SP Medicine and Pharmacy) is constantly improving the program. Compared to the previous reporting period, in accordance with the regulations of the Cabinet of Ministers on Latvian science branches and sub-branches (<https://likumi.lv/ta/id/296661-noteikumi-par-latvijas-zinatnes-nozare-un-apaksnozarem>) link available only in Latvian, changes have been introduced in the study program classification of sectors in which dissertations can be developed.

In the new accreditation period:

1. The aim of the study program

To prepare highly qualified scientists and academic specialists in various fields of medicine and health sciences, so that they can obtain an internationally comparable doctoral degree and master the principles of implementation, organization and management of pedagogical and research work at the highest level.

Justification: The aim of the study program is specified.

2. Results of the study program

Knowledge

1. understands the latest scientific theories and knowledge in the fields related to medicine and health sciences;
2. understands modern research methodologies and techniques;
3. focuses on interdisciplinary opportunities.

Skills

4. is able to apply the acquired knowledge in practice;
5. is able to independently evaluate and choose appropriate methods for scientific research;
6. is able to carry out significant original research and summarize the results in internationally cited publications;
7. be able to communicate both orally and in writing about his / her field of scientific activity at international level and to promote his / her research to the public;
8. is able to independently improve his / her scientific qualification;
9. be able to manage research and development projects in health care-related institutions and organizations

competence:

10. scientific research is carried out in accordance with ethical norms;
11. Carry out independent, critical analysis, synthesis and evaluation that will address important research or innovation challenges in medicine and health sciences;

12. independently puts forward the research idea, plans, structures and manages large-scale local and international research projects;
13. implements, organizes and manages academic (pedagogical) work related to medical and health sciences at the highest level.

Justification: The results of the study program have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3. Changes in the requirements set at the beginning of the study program -

Master's degree in biology, pharmacy, chemistry, nutrition, nursing, professional (second level professional higher education) doctor's degree, pharmacist's degree, dentist's degree, professional master's degree in clinical optometry or other master's degree degree, if so decided by the Doctoral Studies Council. Justification: The admission requirements for doctoral studies have been extended, which will allow admission of doctoral students with a wider range of previous education certificates.

4. Language of implementation - Latvian and English

Justification: Taking into account the interest shown in the studies at DSP Medicine and Pharmacy, as well as being aware of the possibilities, DSP Medicine and Pharmacy is also planned in the English version. To improve the recognition of the study program, as well as to differentiate between the study programs offered by other (foreign) higher education institutions. 5. Degree to be obtained Doctorate, Doctor of Science (Ph.D.) in basic medical sciences, including pharmacy, or Doctor of Science, Doctor of Science (Ph.D.) in Clinical Medicine, or Doctor of Science, Doctor of Science (Ph.D.) in Health and Sport Sciences, or Doctor of Science, Doctor of Science (Ph.D.) in Medical Biotechnology, or Doctor of Science, Doctor of Science (Ph.D.) .) in other medical and health sciences, including forensic exp /

Justification:

Justification: The results of the study program have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3. Changes in the requirements set at the beginning of the study program -

Master's degree in biology, pharmacy, chemistry, nutrition, nursing, professional (second level professional higher education) doctor's degree, pharmacist's degree, dentist's degree, professional master's degree in clinical optometry or other master's degree degree, if so decided by the Doctoral Studies Council. Justification: The admission requirements for doctoral studies have been extended, which will allow admission of doctoral students with a wider range of previous education certificates.

4. Language of implementation - Latvian and English

Justification: Taking into account the interest shown in the studies at DSP Medicine and Pharmacy, as well as being aware of the possibilities, DSP Medicine and Pharmacy is also planned in the English version. To improve the recognition of the study program, as well as to differentiate between the study programs offered by other (foreign) higher education institutions.

5. Degree to be obtained Doctorate, Doctor of Science (Ph.D.) in basic medical sciences, including pharmacy, or Doctor of Science, Doctor of Science (Ph.D.) in Clinical Medicine, or Doctor of Science, Doctor of Science (Ph.D.) in Health and Sport Sciences, or Doctor of Science, Doctor of Science (Ph.D.) in Medical Biotechnology, or Doctor of Science, Doctor of Science (Ph.D.) .) in other medical

and health sciences, including forensic exp /

Justification:

According to the Law on Scientific Activity

<https://likumi.lv/ta/en/en/id/107337>, after successful defense of the dissertation, young scientists will receive a Ph.D degree, which will replace the current doctoral degree. After the accreditation of the study program, it is planned to conduct doctoral studies in English as well.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The Law on Scientific Activity (Section 10) stipulates that a scientific qualification is confirmed by a scientific doctoral degree. The scientific doctoral degree is awarded to a person after successful defense of the doctoral thesis in the Doctoral Council. At the beginning of the doctoral degree, the applicant for a doctoral degree submits to the Doctoral Council a statement on the completion of the doctoral study program as well as the passing of examinations in the chosen field, sub-branch and foreign language. The doctoral study program prepares for the dissertation, in our case - DSP Medicine and Pharmacy, which also organizes doctoral examinations. Admission to the DSP Medicine and Pharmacy is already aimed at the successful development of a doctoral thesis, which is initially provided by the selection of students in the admission process. Admission of doctoral students takes into account the applicant's research work, such as existing publications, participation in conferences on the topic of the doctoral research, participation in projects and other activities. Entrance interviews are also organized, in which the doctoral candidate (PowerPoint) demonstrates his / her planned research, which allows to assess his / her ability to present and substantiate the essence and topicality of the research. The requirements for admission to the DSP are available on the LU website [1] and include not only the selection criteria, but also information on the required previous education, documents to be submitted, place and time of entrance examinations, study normative documents and other information.

For the admitted doctoral students, studies at DSP Medicine and Pharmacy are organized to achieve the goal of the study program - to prepare highly qualified scientists and academic specialists in various medical and health sciences so that they can obtain an internationally comparable doctoral degree and acquire pedagogical and research work, organization and management. principles at the highest level. The multidisciplinary opportunities available at the University of Latvia are currently very important for achieving this goal. The study plan includes study courses for the acquisition and improvement of comprehensive knowledge, for example, Modern Biomedical Technologies, University Didactics and University Pedagogical Practice in Health Care, Medical Statistics for Doctoral Students, Project Planning and Management for Doctoral Students, Doctoral School (lectures are given by leading specialists) courses Writing scientific publications in medicine in epidemiology and sociology and acquisition of presentation skills, Professional and personal development, which allows to achieve both study goals by realizing the planned **tasks**:

1. To provide doctoral students with in-depth theoretical and methodological knowledge in the fields related to medicine and health sciences;
2. To prepare scientists who are able to perform independent, original and scientifically significant research work and are able to critically evaluate the scientific contribution of others.
3. To prepare high-level specialists in medicine and health sciences who would be able to systematize and generalize their practical observations, introduce new diagnostic and treatment methods, as well as publish and promote their research at the international level;
4. To prepare highly qualified scientists who would be able to compete in the local and international scientific labor market;
5. To prepare specialists for academic work who would be able to provide students with the latest scientific knowledge and involve them in the creative process of science;
6. To promote the growth of the country's intellectual potential.

The connection of the DSP Medicine and Pharmacy study courses with the tasks to be implemented in the program is shown in Table 3.1.3.1

Table 3.1.3.1 Linking DSP Medicine and Pharmacy courses with the tasks of the study program

Course title	Tasks of the study program					
	1	2	3	4	5	6
Submission of Doctoral Thesis I	+	+	+	+		
Submission of Doctoral Thesis II	+	+	+	+		
Submission of Doctoral Thesis III	+	+	+	+		
Submission of Doctoral Thesis IV	+	+	+	+		
Submission of Doctoral Thesis V	+	+	+	+		+
Submission of Doctoral Thesis VI	+	+	+	+		+
General skills module						
Modern biomedical technologies	+	+		+	+	+
Tertiary didactics and tertiary pedagogical practice in health care	+				+	+
Medical statistics for doctoral students	+	+	+	+	+	+
Healthcare Research Ethics	+	+		+	+	+
Project planing and management in medicine	+		+	+	+	+
Teaching practice for doctoral students					+	

Doctoral school, or equivalent experience at foreign universities or research institutes	+	+		+	+	+
Independently prepared peer-reviewed article on the topic of the dissertation	+	+	+	+		+
Independently prepared report on the promotion work subject in an international scientific conference	+	+	+	+		+
Doctoral examinations						
Final Exam of Doctoral Studies Program in Medicine and sub-sector of Medicine	+			+	+	+
Final Exam of Doctoral Studies Program in Pharmacy and Sub-sector of Pharmacy	+			+	+	+
Final Exam of Doctoral Study Programme in Medical English	+			+		+
Final Exam of Doctoral Studies Program in Pharmaceutical English	+			+		+
Limited choice study courses (choice in the amount of 4 CP)						
Writing of academic articles in medicine, epidemiology and sociology, and presentation skills	+	+	+	+	+	+
Personal and professional development	+		+	+		+
Modern epidemiology		+	+	+	+	+
Independently prepared peer-reviewed article	+	+	+	+		+
Independently prepared report in an international scientific conference	+	+	+	+		+

At the same time, the main emphasis in doctoral studies is on conducting scientific research and developing a doctoral thesis, for which the largest number of credit points is provided (150 ECTS). The development of the doctoral thesis for each doctoral student is carried out according to an individual plan in close cooperation with the supervisor (s). At the end of the studies, doctoral examinations in the branch and sub-branch, as well as in English must be passed. Such training and involvement of students in science allows to achieve the planned study results - a doctoral student who has successfully completed the doctoral study program is able to conduct independent original scientifically significant research, at all stages - starting with hypothesis and goal formulation, literature research, planning, most effective working methods selection, implementation of

research, processing and presentation of the obtained data, both in the form of congresses and conferences of various levels, as well as in the form of internationally recognized publications. An important study result is the ability to apply or implement the results of the obtained research in practice. The young scientist must be able to cooperate with colleagues, both in Latvia and abroad, creating and participating in joint projects. The jobs of young researchers will be both the faculties and scientific institutes of the University of Latvia, as well as academic and scientific institutions and institutions related to health care that are not related to the University of Latvia.

A doctoral student who has successfully completed the doctoral study program is able to conduct independent original scientifically significant research at all stages - starting with the formulation of the hypothesis and goal, literature research, planning, selection of the most effective working methods, research implementation, data processing and presentation. in congresses and conferences at various levels, as well as in the form of internationally recognized publications. An important study result is the ability to apply or implement the results of the obtained research in practice. Young scientists are able to cooperate with colleagues, both in Latvia and abroad, creating and participating in joint projects. The jobs of young researchers are both the faculties and scientific institutes of the University of Latvia, as well as academic and scientific institutions not related to the University of Latvia and institutions related to health care.

Upon completion of their studies, students are able to demonstrate knowledge, skills and competences that comply with Level 8 of the European Qualifications Framework (EQF):

Knowledge:

1. understands the latest scientific theories and findings in the fields related to medicine and health sciences;
2. understands modern research methodologies and techniques;
3. focuses on interdisciplinary opportunities;

Skills:

4. is able to apply the acquired knowledge in practice;
5. is able to independently evaluate and choose appropriate methods for scientific research;
6. is able to carry out significant original research and summarize the results in internationally cited publications;
7. is able to communicate both orally and in writing about his / her field of scientific activity at the international level and to promote his / her research in the society;
8. is able to independently improve his / her scientific qualification;
9. is able to manage research and development projects in institutions and organizations related to health care;

Competence:

10. scientific research is carried out in accordance with ethical standards
11. old independent, critical analysis, synthesis and evaluation, which will allow solving important research or innovative tasks in medicine and health sciences;
12. independently puts forward the research idea, plans, structures and manages large-scale local and international scientific projects;
13. implements, organizes and manages academic (pedagogical) work related to medical and

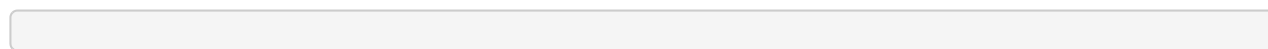
health sciences at the highest level.

The quality of DSP Medicine and Pharmacy is confirmed by the competitiveness of young doctors of science in the labor market of the EU countries, the conclusion of studies with publications included in the world's leading databases of scientific literature, and the recognition given to graduates of study programs. The uniqueness of the programs is also determined by the need to train specialists of different levels who are competitive in both the Latvian and EU labor markets (research and economy), in fields that correspond to the RIS3 smart specialization directions, are able to conduct both basic research and develop innovative solutions. Doctoral studies ensure excellence in research, in the direction of the doctoral thesis, acquisition of the latest research methods and their successful application, skills in the organization of research work. As a result of doctoral studies, the acquisition of a wide range of competencies is ensured, which guarantees employment after graduation, the ability to participate in the management of research, society, national economy, the rapidly changing labor market, taking into account its diversification. The MSF Medicine and Pharmacy at EU level is set out in the EU Sustainable Development Strategy Papers (Europe 2020, European Sustainable Development Strategy, Smart Specialization Strategy).

DSP Medicine and pharmacy corresponds to the goal of the study field Health Care to prepare competent health care specialists for the Latvian economy.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

SP Medicine and Pharmacy prepares the highest level specialists in health care, for which the demand exceeds the supply. New doctors of science are also needed to work in research institutes and educational institutions. Doctors of science who have graduated from SP Medicine and Pharmacy are lecturers at MF and other universities, work in medicine-related institutions, research institutes and projects. From the point of view of the interests of the University of Latvia, it is important to increase the number of specialists with the highest level of qualification, which is possible only by promoting the development of doctoral study programs. By applying the acquired knowledge and skills, young researchers will contribute to all stages of health care, science and education.

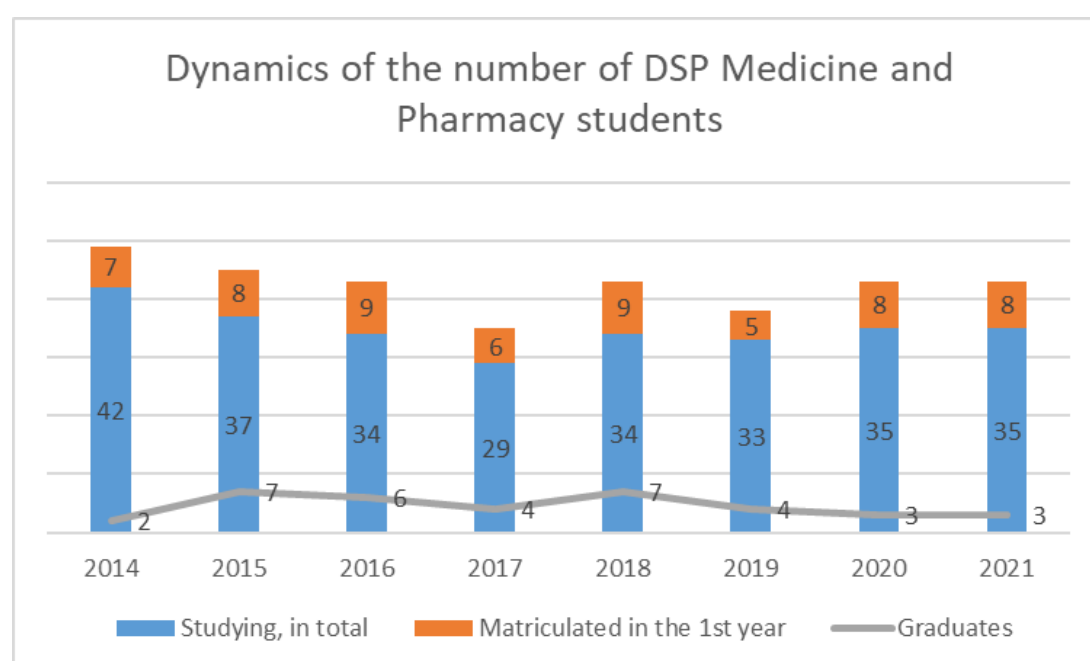


3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The Ministry of Education of Latvia has allocated 17 budget places to the study program, which have been fully filled throughout the year and provide a competition for 1.3 - 2 doctoral students for one study place paid for by the budget. The mentioned competition allows to select doctoral students taking into account the criteria developed by the University of Latvia, which can be found on the website [1]. These criteria are available to applicants for doctoral studies and allow them to

evaluate their own prospects in the competition. The number of students at personal or organizational expense is small, there are approximately 2-4 doctoral students per year. During the reporting period, an agreement was also concluded with hospitals, such as RAKUS, which paid for doctoral studies for the specialists of their organization. If one of the doctoral students is on a study break, the doctoral student who pays for his / her studies is credited in his / her place in rotation for this period. The total number of doctoral students is increased by the applicants for the doctoral degree, they are former doctoral students who have successfully completed their studies and submitted a completed dissertation for promotion. The doctoral process takes about half a year and even longer, which increases the number of students. Every year in October, an average of 7-8 doctoral students are matriculated, but the number of defended dissertations per year is on average 4-5, which is proportionally in line with the global average. The doctoral study program is interested in increasing the number of budget places, which is still a topical and open issue. The dynamics of the number of students in the reporting period is shown in Figure 3.1.4.1

Fig. 3.1.4.1 Dynamics of the number of DSP Medicine and Pharmacy students



The drop-out rate of doctoral students in the study program is very small - there are 9 doctoral students in the reporting period, the reasons for deduction are due to timely non-completion of the study program and or deduction of one's own choice. Deduction for non-completion of the study program is rare, because the doctoral student has the opportunity to take a study break, during which it is possible to settle study debts. More often doctoral students are expelled at will, in which case the opportunity to resume studies is maintained. At their own discretion, doctoral students terminate their studies due to a change of residence (themselves or their family moves to another country), but there are also cases when this is related to the overload and burnout of doctoral students. Most doctoral students who are not involved in projects work in parallel with their studies in fields related to medical care, which creates an overload and the student decides to give up studies, maintaining the possibility of renewal.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

DSP Medicine and Pharmacy offers scientific research in a number of sub-sectors, which are mainly divided into basic medical sciences (including pharmacy) and clinical sciences. Basic sciences include research in medical biochemistry, medical genetics, pathology, pharmacology, pharmacy, etc. Clinical research is mainly carried out in cardiology, pulmonology, gastroenterology, clinical oncology, surgery, etc.

Fundamental research in medical biochemistry and genetics is performed at the Department of Biochemistry. The main research topics are protein degradation in proteasomes, predisposition to autoimmune diseases due to gene polymorphism, and the study of DNA damage and repair mechanisms. Lecturers of the Department of Pharmacology involve doctoral students in research related to neuroscience, neuropharmacology and neurodegenerative diseases, as well as other CNS pathologies. Studies are being conducted that focus on the effects of newly developed potential drugs on the behavior of animal models. Both synthetic and natural substances are used in the research. Cooperation in research is taking place both in Latvia and internationally with researchers from Lithuania, Germany, France, Spain, the USA and Canada. The lecturers of the department cooperate with the Latvian Institute of Organic Synthesis (LOSI), which provides the department with new candidate medicines, the effectiveness of which is further tested experimentally.

Research on the proteome and properties of vesicular vesicles (exosomes) isolated from cancer cells is carried out in vitro in collaboration with the Latvian Biomedical Research and Study Center, dihydropyridine synthesis and research Researchers of SilvExpo Ltd. and Biolat Ltd. of the Faculty of Geography and Earth Sciences of the University of Latvia and the pharmaceutical industry are being searched for and their molecular mechanisms of action have been elucidated. A topical research area is the study of mesenchymal stromal cells and their interaction with nanoparticles. This study is conducted in collaboration with the Riga Technical University and the Institute of Atomic Spectrometry (ASI). Doctoral students are involved in all projects in the field of pharmacy and write their own projects, for example, the company SIA Mikrotīkls has provided support for doctoral students' projects. 2017-2019 **Doctoral students Karīna Narbute and Kārlis Pleiko received a scholarship "Mikrotīkls" in the field of exact, life and medical sciences for the development of a higher - quality doctoral dissertation.** Part of the research is carried out in cooperation with other faculties of the University of Latvia, BMC and LOSI.

Clinical research in cardiology, in which doctoral students are involved, is carried out at the

Department of Internal Medicine in cooperation with the Institute of Cardiology and Regenerative Medicine of the University of Latvia. The most relevant research areas are: epidemiology and prevention of cardiovascular diseases, invasive cardiology, coronary and peripheral atherosclerosis, gene polymorphisms for coronary heart disease, secondary cardiovascular risk factors for diabetes, development of human cell and tissue and other endocrine diseases, the study of the mechanisms of cellular allergic reactions, the study of the morphological mechanisms of cell malignancy and the development of resistance in cancer cells. The Department of Internal Medicine also conducts doctoral research on endocrine pathologies and individualized patient care. The research is carried out in cooperation with PSKUS and the Biomedical Research and Study Center.

Doctoral students in the Department of Pathology are involved in research on the pathogenesis of chronic lung diseases and lung cancer. The research takes place in the laboratory of chromatography and morphology of the department, which is located in the House of Science and Nature of the University of Latvia. The main research topics are the evaluation of immune and genetic markers of chronic obstructive pulmonary disease (COPD) and the study of the pathogenesis and early diagnosis of lung tumors.

During the reporting period, the Institute of Clinical and Preventive Medicine of the University of Latvia was established with the aim of developing research in the fields of oncology and oncoprophylaxis, as well as tuberculosis and sepsis; to carry out organized pilot studies on the optimization of cancer screening, as well as to implement a unique European population-based study for the prevention of gastrointestinal cancer (GISTAR). On the basis of the institute, jobs are created for doctoral students, post-doctoral students, etc. c. young scientists. The Institute closely cooperates with Latvian research and medical institutions, the private sector, as well as with leading research institutions in the Baltic region, Europe, the United States and Asia. The activities of the institute are interdisciplinary. The Institute conducts research in the following areas: public health and disease prevention; population research, screening and intervention research, as well as in the fields of clinical medicine, incl. research in oncology, microbioma and infection (sepsis, tuberculosis, etc.), in the field of internal medicine and surgical pathology, laboratory medicine and visual diagnostics. In general, it can be said that doctoral students are involved in research in very different and different fields of medicine and health sciences, which has the dual benefit of both contributing to science and teaching doctoral students to carry out independent, original and scientifically significant research. Doctoral studies also contribute to the development of research by preparing high-level specialists in medicine and health sciences who are able to systematize and generalize their practical observations, are able to introduce new diagnostic and treatment methods, as well as publish and promote their research internationally. Already during doctoral studies, doctoral students must complete the study course "University Didactics and University Pedagogical Practice in Health Care", perform compulsory pedagogical work and / or supervise the final research work of the Health Care students, so doctoral studies also prepare specialists for academic work. necessary for the implementation of other levels of education. **The study plan of DSP Medicine and Pharmacy is indicated in 1.annex_DSP_studiju_plāns_Eng.docx**

Study courses are constantly being improved, student surveys and the strategy of the University of Latvia are important for their improvement. The development strategy of the University of Latvia is focused on the involvement of young doctors of science in the academic work provided by the doctoral study program. Consequently, the compulsory study course Higher Education Didactics and Higher Education Pedagogical Practice in Health Care has been introduced. Doctoral students still have a compulsory pedagogical practice (course - Pedagogical practice for doctoral students), which is implemented in the amount of at least 3 ECTS. Currently, MF employs 35 specialists who have completed the SP Medicine and Pharmacy and obtained a doctoral degree. Other faculties of the University of Latvia are also interested in the development of the program. The study program

is cooperating with UL BF, UL FC and UL FPMO. Several BF graduates are studying or have completed SP Medicine and Pharmacy, 8 of which have defended their dissertations. All doctoral students carry out scientific research. Research is different, but all focus on the development of science and the practical application of research to improve well-being. In order to successfully complete the doctoral study program, it is mandatory to have published or approved publication in at least one publication in an international peer-reviewed and cited publication (Study course - Independently prepared peer-reviewed publication on the topic of the dissertation - 6 ECTS). This ensures that the award of doctoral degrees is based on the achievements of the relevant field of science and the latest findings. In order to start a doctoral dissertation, a doctoral candidate must have at least two publications in internationally reviewed publications and one in locally reviewed publication. In order to facilitate the preparation of publications in the doctoral study program, the study course Medical Statistics for Doctoral Students has been improved and the optional course Writing Scientific Publications in Medicine, Epidemiology and Sociology and Acquisition of Presentation Skills has been redesigned for which excellent feedback from doctoral students has been received (the aim of the course is to prepare a publication for a peer-reviewed publication).

In order for doctoral students to be oriented towards scientific achievements, the compulsory study course - Modern Biomedical Technologies (4.5 ECTS) is still being implemented. A number of leading Latvian specialists are involved in running this course. Specialists from Latvian scientific institutes participate in the course, both giving lectures and demonstrating available technologies. Classes take place in various research institutes, which allows expanding the horizons of doctoral students about research opportunities. All doctoral students are involved in doctoral schools. There are two doctoral schools within the SP Medicine and Pharmacy: the Doctoral School of Biomedical Research and New Technologies and the Doctoral School in Translational Research in Medicine. The aim of the Doctoral School of Biomedical Research and New Technologies is to broaden the horizons of doctoral students and promote their contacts with scientists from other fields. The school offers educational seminars and lectures in specific fields of science. The activities of the Doctoral School of Translational Research in Medicine are based on a multidisciplinary approach to the training of doctoral students for scientific work, promoting the capacity building of future researchers in the transfer of knowledge from basic science to the usability of practical results. The school's research topics focus on areas related to oncology, oncoprophylaxis and precancerous conditions. The school involves universities, research institutes and clinical medicine institutions working in this field. Participation in the doctoral school is evaluated and documented. Doctoral students must participate in annual certifications for their scientific work. Thus, the doctoral study program receives documented information from doctoral students about:

- * acquisition and application in practice of the latest research methods of the science sub-branch;
- * acquisition of the latest information technologies, research planning, data processing, presentation techniques;
- * in-depth acquisition of theoretical disciplines of the science sub-branch;
- * acquisition of the basics of work experience of a lecturer, project manager, participating in the implementation of professional, bachelor's, master's study programs and research projects;
- * participation with reports in local and international scientific conferences, seminars, schools;
- * independent realization of scientific research, analysis of the obtained results and creation of publications for publication in scientific periodicals;
- * the process of preparation of the doctoral thesis, which reflects the results of the original research, which can be published in scientific publications.

SP Medicine and Pharmacy prepares the highest level specialists in health care, for which the demand exceeds the supply. New doctors of science are also needed to work in research institutes and educational institutions. Doctors of science who have graduated from SP Medicine and Pharmacy are lecturers at MF and other universities, work in medicine-related institutions, research institutes and projects. From the point of view of the interests of the University of Latvia, it is important to increase the number of specialists with the highest level of qualification, which is possible only by promoting the development of doctoral study programs. By applying the acquired knowledge and skills, young researchers will contribute to all stages of health care, science and education.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

The teaching staff of the University of Latvia MF, who supervise doctoral theses and study courses, are all involved in research both nationally and internationally. The involvement of the academic staff in scientific research and innovation is evidenced by the participation in both local and international projects mentioned in the previous section. The main areas of research are basic medical sciences, including pharmacy, clinical medicine and health and sports sciences. Research on biomarkers and personalized medicine is being actively pursued in the **basic medical sciences**. Research on volatile biomarkers in the exhaled air for diagnostic purposes is being performed. These studies are performed by two groups of researchers, one represented by Marcis Leja in collaboration with Israeli researchers (research related to the assessment of changes in the gastrointestinal tract) and the other by Maris Bukovskis, Gunta Strazda and Immanuel Taiwan (research related to lung diseases). Gustavs Latkovskis conducts research on genetic markers in connection with hypercholesterolemia and Nikolajs Sjakste in connection with multiple sclerosis. Research on the targets of neurodegenerative diseases and neuroprotective drugs is being conducted under the guidance of Vija Kluša and Baiba Jansone. Una Riekstiņa conducts research on mesenchymal stem cells in cooperation with Lithuanian researchers, while Ruta Muceniece conducts research on the pharmacological action of natural substances in cooperation with other faculties of the University of Latvia and the pharmaceutical industry. In clinical medicine in the field of oncology, research of tumor biomarkers and extensive screening of malignant diseases are performed, in which Ilva Daugule, Sergejs Isajevs, Mārcis Leja are involved. Andrejs Ērglis studies visual diagnostic strategies in patients with stable angina and moderate risk of coronary heart disease (with the support of the EU 7th Framework Program). Health and sports sciences include current sub-sectors such as public health, health care, and infectious diseases. Juris Bārzdiņš specializes in the organization of health care and evaluation of the effectiveness of public health measures. Andrejs Ērglis organizes cross-sectional studies of risk factors for cardiovascular and other non-infectious diseases in the Latvian population. Ingrida Rumba-Rozenfelde conducts research into measures to reduce child mortality, as well as research into genetic markers and cytokines in the field of metabolism and rheumatic diseases. Uga Dumpis conducts research on infectious diseases together with colleagues. His research is related to the detection of microflora resistance to antibacterial therapy and survivors of community-acquired sepsis in Latvia. **Uga Dumpis is currently leading the National Research Program (NRP) project - Multidisciplinary Approach to Monitoring, Control and Control of COVID19 and Other Future**

Epidemics in Latvia. Within the framework of the mentioned program, Mārcis Leja leads the project - clinical, biochemical, immunogenetic paradigms of Covid-19 infection, and their correlation with socio-demographic, etiological, pathogenetic, diagnostic, therapeutically and prognostically important factors to be included in the guidelines, but Valdis Pīrāgs project - for targeted patient monitoring, testing and therapy. Among the most significant achievements in science in 2020, the LAS Presidium has included a study conducted by the MF of the University of Latvia on the potential of extracellular vesicles to stop experimental Parkinson's disease. The study has been awarded the status of the best achievement in science of the year. Its authors are researchers of the Department of Pharmacology of the University of Latvia (Prof. Vija Zaiga Kluša) and lecturers who have completed the doctoral study program and defended their dissertations - Vladimirs Pilipenko, Karīna Narbute and Jolanta Pupure. The creativity of the academic staff is also confirmed by the membership in the editorial boards of international journals. Supervisors of doctoral theses are also leaders and members of various associations, societies or other organizations, which allows to generalize and solve global problems. For example, **A. Ērglis** is the President of the Latvian Society of Cardiology and the President of the Baltic Society of Invasive Cardiology, **B. Jansone** is the nominated representative of the State Agency of Medicines in the Committee for Herbal Medicines, COST) in activities BM1402 (MouseAge) and until 2020 was the President of the Latvian Society of Pharmacologists; **S. Isajevs** is the head of the Baltic Society of Pathologists, a member of the American and Canadian Academy of Pathology; **G. Latkovskis** is the President of Baltic Atherosclerosis, a member of the American Heart Association. Ms. Leja serves on the board of the European Cancer Mission in the new Horizon Europe.

Professors R. Muceniece and V. Kluša are members of the L'OREAL, UNESCO Latvian Commission and the Jury of the Latvian Academy of Sciences Award "Women in Science" and members of the Board of the Latvian Society of Pharmacologists.

The research activities of the lecturers of the study program, as well as other activities are often the basis for the choice of doctoral thesis topics.

The competition or the best young scientist publication in the field of stem cells and regenerative medicine, announced in the prestigious scientific journal Stem Cells Translational Medicine 2020, has been recognized as the most influential and advanced in the field. The article "Intranasal Administration of Extracellular Vesicles Derived from Human Teeth Stem Cells Improves Motor Symptoms and Normalizes Tyrosine Hydroxylase Expression in the Substantia Nigra and Striatum of the 6-Hydroxydopamine Treated Rats" by LU MF SP Medicine and Pharmacy absolvente, young scientist of the Department of Pharmacology Karīna Narbute, PhD.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The doctoral study program is based on the concept of student-centred education, which allows looking at the study process through the eyes of the student and includes such factors as the

involvement of students in the development of study programs and their improvement. The annual self-evaluation reports of the study program summarize the results of doctoral students' surveys both on the study program as a whole and on the completed study courses, thus students are regularly involved in the evaluation of the quality of study programs. Based on surveys and discussions with doctoral students, new study courses have been introduced, such as "Research Ethics in Health Care", as all research related to health care requires the permission of the ethics commission and an understanding of ethical norms, or "Writing Scientific Publications in Medicine, Epidemiology and Sociology, and the Acquisition of Speaking Skills", as well as other courses. In this way, doctoral students have the opportunity to influence and provide feedback on the study process. When organizing doctoral studies, it is taken into account that doctoral students have different learning styles, requirements, interests and different experiences, as well as previous knowledge. Doctoral students can be admitted immediately after receiving the appropriate diploma, as well as leading specialists in the chosen field of research. Thus, optional study courses are offered, which the doctoral student may not attend, but obtain the missing credit points by independently preparing a peer-reviewed publication or report at an international scientific conference. Different ways of its implementation are used in the implementation of the program, but also classically designed study courses, for example, "Medical Statistics for Doctoral Students" are individualized, allowing to process data obtained during the dissertation during the course. Course materials are increasingly being placed in the e-learning environment, which expands the possibilities for remote learning. Surveys on specific study courses regularly assess and improve teaching methods and methods, respecting the diversity of students and their needs. The organization of doctoral studies is mostly based on the independence of doctoral students, as the largest amount of credit points (150 ECTS) is obtained by conducting independent scientific research on the topic of the dissertation, while providing guidance and support to the supervisor. The cooperation of doctoral students with the supervisor of the dissertation is also very different, it is influenced by the choice of the dissertation, the doctoral student's previous experience in scientific research and the supervisor's interest in the development of the dissertation. The newly introduced elective study course "Professional and Personal Development" helps doctoral students to resolve conflicts, as doctoral students often have problems during doctoral and post-doctoral studies, which are mostly individual and their solution is not clear. For example, situations of conflict with the manager or his unavailability, inability to plan time, it is not clear how to write a correct CV or how to behave during the presentation. The aim of this course is to combine individual consultations, lectures and seminars that solve students' problems. The course includes personalized mentoring, which is an individual (one-on-one) work with an individual doctoral student. This type of program has already been introduced in universities in other countries, such as the Mentoring Program für Frauen in Germany, but a similar program in Israel is called 'Doctorate Without Tears'. Excellent feedback has been received on this elective course, but in the event of more serious conflicts, the doctoral program council and its director are involved in resolving issues. Successful completion of studies must have passed the examinations in the compulsory study courses. The courses included in the doctoral studies are led only by specialists with a doctoral degree, who excel in their taught topics, as well as know the examination and examination methods. The evaluation criteria and methods of study courses, as well as the criteria for posting evaluations, have been previously published in the descriptions of study courses, thus the evaluation is consistent and fairly suitable for all doctoral students. Doctoral students receive feedback, which, if necessary, provides advice related to the learning process. At the end of the doctoral program, doctoral examinations must also be passed - in a foreign language and in the sub-branch of science. Knowledge of a foreign language is a prerequisite for successful publication and presentation of research, as well as international cooperation, in accordance with the aim and tasks of the study program. As the aim of the doctoral study program is to prepare highly qualified scientists, expanded knowledge in the sub-branch of science is an important precondition for its

implementation. The examination commission consists of at least three leading specialists of the field, with the participation of the supervisor. Doctoral students' knowledge in the exams is assessed using a 10-point scale, where 10 (excellent) is the highest grade and 4 (almost average) is the lowest successful grade. At the end of the exam, doctoral students receive an explanation of the assessment. To date, no appeal has been received regarding exam marks.

DSP Medicine and Pharmacy is planned to be identical in Latvian and English.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

In order to start a doctoral dissertation, a doctoral candidate must have at least two publications in internationally reviewed publications and one in locally reviewed publication. In order to facilitate the preparation of publications in the doctoral study program, the study course Medical Statistics for Doctoral Students has been improved and the optional course Writing Scientific Publications in Medicine, Epidemiology and Sociology and Acquisition of Presentation Skills has been redesigned.

In order for doctoral students to be oriented towards scientific achievements, the compulsory study course - Modern Biomedical Technologies (4.5 ECTS) is still being implemented. A number of leading Latvian specialists are involved in running this course. Specialists from Latvian scientific institutes participate in the course, both giving lectures and demonstrating available technologies. Classes take place in various research institutes, which allows expanding the horizons of doctoral students about research opportunities.

All doctoral students are involved in doctoral schools. There are two doctoral schools within the DSP Medicine and Pharmacy: the Doctoral School of Biomedical Research and New Technologies and the Doctoral School in Translational Research in Medicine. The aim of the Doctoral School of Biomedical Research and New Technologies is to broaden the horizons of doctoral students and promote their contacts with scientists from other fields. The school offers educational seminars and lectures in specific fields of science. The activities of the Doctoral School of Translational Research in Medicine are based on a multidisciplinary approach to the training of doctoral students for scientific work, promoting the capacity building of future researchers in the transfer of knowledge from basic science to the usability of practical results. The school's research topics focus on areas related to oncology, oncoprophylaxis and precancerous conditions. The school involves universities, research institutes and clinical medicine institutions working in this field. Participation in the doctoral school is evaluated and documented.

Doctoral students must participate in annual certifications for their scientific work. Thus, the doctoral study program receives documented information from doctoral students about:

- *acquisition and application in practice of the latest research methods of the science sub-branch;

- *acquisition of the latest information technologies, research planning, data processing, presentation techniques;

- *in-depth acquisition of theoretical disciplines of the science sub-branch;

- *acquisition of the basics of work experience of a lecturer, project manager, participating in the implementation of professional, bachelor's, master's study programs and research projects;

- *participation with reports in local and international scientific conferences, seminars, schools; independent realization of scientific research, analysis of the obtained results and creation of publications for publication in scientific periodicals;

- *the process of preparation of the doctoral thesis, which reflects the results of the original research, which can be published in scientific publications.

SP Medicine and Pharmacy prepares the highest level specialists in health care, for which the demand exceeds the supply. New doctors of science are also needed to work in research institutes and educational institutions. Doctors of science who have graduated from DSP Medicine and Pharmacy are lecturers at MF and other universities, work in medicine-related institutions, research institutes and projects. From the point of view of the interests of the University of Latvia, it is important to increase the number of specialists with the highest level of qualification, which is possible only by promoting the development of doctoral study programs. By applying the acquired knowledge and skills, young researchers will contribute to all stages of health care, science and education.

Since 2009, the doctoral study program of the University of Latvia has been training doctoral students within the framework of two doctoral schools - the "Doctoral School of Biomedical Research and New Technologies" and the "Doctoral School in Broadcasting Medicine". Lectures and seminars organized within the doctoral school are an additional source of information for expanding the doctoral students' knowledge. The topics of doctoral dissertations of higher education institutions, which are related to different directions of scientific research in higher education institutions, differ significantly.

DSP Medicine and Pharmacy is affiliated with the LU MF Promotion Council "LU Promotion Council in the fields of medicine and health sciences". The term of office of the Council is confirmed until 27.12.2024. The promotion in the fields of medicine and health sciences at the University of Latvia takes place in accordance with the Law on Higher Education Institutions, the Law on Scientific Activity, the Cabinet of Ministers 27.12.2005. Regulations No. 1000 and 27.12.2005. Regulations No. 101 norms, observing the Constitution of the University of Latvia and the Regulations "Regulations on Promotion Councils and Promotion at the University of Latvia" approved by the Order No. 1/95 of the University of Latvia of April 12, 2006 (see also <https://www.lu.lv/gribustudet/normative-documents/>). All applicants for a doctoral degree who have successfully completed the doctoral study program Medicine and Pharmacy and in accordance with the requirements of the University of Latvia (<https://www.lu.lv/gribustudet/studiju-programmas/doktorantura/promocija/>) have the opportunity to defend the doctoral dissertation in the academic department doctoral thesis in the said promotion council. The promotion process is organized in accordance with the regulations of the Promotion Council, which have been approved at the meeting of the Council of the Faculty of Medicine (No. MF - 19-4 / 65). Upon the proposal of the Chairman of the Council, a

specialized composition of the Council shall be established for each specific promotion in the number of not less than five persons whose qualifications meet the requirements of the LZP expert in the field of science, two of them in the science sub-sector. Foreign scientists may be included in the specialized composition of the Council if the consent of the State Scientific Qualification Commission has been received. The Doctoral Council evaluates the received doctoral thesis and its compliance with the Cabinet of Ministers Regulations No. 1001, according to which it is an original study and plays a key role in one of the sub-sectors of the Medical and Health Sciences. If the doctoral thesis meets the set requirements, then the doctoral council: selects three reviewers; sets an indicative date for the defense; inform the applicant in writing regarding the composition of the council, reviewers and the date of defense; send the applicant's documents and doctoral thesis to the Scientific Qualification Commission; two weeks before the defense of the doctoral thesis, it shall be announced in the official publication "Latvijas Vēstis" and "Zinātnes Vēstnesis"; submits the doctoral thesis and its summary in Latvian and English, as well as the electronic version of the thesis to the LU library. The meeting of the Council at which the dissertation is defended is open. All interested parties may participate in it, ask questions to the applicant, reviewers, as well as comment on the dissertation. The meeting may take place via an online video conference (real-time video and audio transmission) if the candidate, council member or reviewer is in another place and cannot attend the place of the doctoral meeting. A meeting of the Council shall have a quorum if the Chairman or his deputy participates in it, not less than half of the number of experts entitled to vote in the Council and not less than two reviewers. The reviewers of the work participate with the voting rights of the decision-maker. The decision to award or refuse a degree shall be taken by the Council, acting by a simple majority, by open voting.

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

On average, five dissertations are defended in the doctoral study program. Every year, an average of eight doctoral students are admitted to doctoral studies on budget financing, which shows that the number of defended dissertations is relatively high. Most doctoral theses are defended within two years after the successful completion of the doctoral study program. Six doctoral theses were defended in 2014, when ESF funding was awarded to doctoral students and post-doctoral students, as well as in 2017. According to the Latvian Classification of Sciences and Sub-branches (issued in accordance with Article 13 of the Law on Scientific Activities [1], approved on 23 January 2018), 18 doctoral theses have been defended in the field of clinical medicine, 11 works in basic medical sciences, which also includes pharmacy and 4 works in the field of health and sports science. Works in the field of clinical medicine dominate - seven works are written in the sub-branch of internal medicine, four works in oncology and hematology, three works in the sub-branch of surgery and one each in the sub-branch of pediatrics, radiology, neurology and orthopedics. Of the medical-based sciences, most have doctoral dissertations in pharmacy - six, followed by two dissertations in the medical biochemistry sub-sector and one each in the pharmacology, microbiology and virology, as well as pathology sub-sectors. In the field of health and sports science, two works are written in the sub-sector of public health and two works in the field of health care science. The topics of doctoral theses by years are presented in annex.

Most of the works are developed on the basis of the largest Latvian hospitals - P. Stradiņa KUS (11) and RAKUS (8). There are also works that have been performed only within the MF or in cooperation

with other faculties of the University of Latvia (4). The work is also being developed in other hospitals, such as the Children's Clinical University Hospital, or in collaboration with institutes such as the Latvian Institute of Organic Synthesis (OSI) and the Biomedical Research and Study Center. All research conducted in the dissertation is published in at least three peer-reviewed publications, of which at least one is an internationally peer-reviewed publication, which confirms the topicality and quality of the dissertation. The topicality of the research topics and the modern solution of the problems are also confirmed by the evaluations of the international reviewers. All dissertations are reviewed by two Latvian experts and one expert from other countries. During the reporting period, international dissertation reviewers have been from Lithuania, Estonia, Poland, Portugal, Germany, Finland, Great Britain, Italy, Sweden, China (Hong Kong), Denmark, Israel and the USA. The choice of the topic of the dissertation is closely related to the specialty of doctoral students. Most doctoral students, especially those who choose to study in the field of clinical medicine, have completed a residency and specialize in one of the sub-sectors of medicine. Some doctoral students are already working doctors who carry out research in their current workplace and choose a topic based on the range of problems to be solved in the work environment. In such cases, the leading specialist in the mentioned sub-sector is invited to supervise the work and already together with the doctoral candidate prepares an application for doctoral studies. Similarly, the choice of topics takes place in the public health sub-sector and in health care science. The principle of choosing topics in the basic medical sciences may differ. The topic of the dissertation work can be offered by the supervisor of the doctoral thesis, based on the implementations, materials - technical support, cooperation opportunities, planned or future projects and research programs. The choice of the topic of the dissertation is closely related to the specialty of doctoral students. Most doctoral students, especially those who choose to study in the field of clinical medicine, have completed a residency and specialize in one of the sub-sectors of medicine. Some doctoral students are already working doctors who carry out research in their current workplace and choose a topic based on the range of problems to be solved in the work environment. In such cases, the leading specialist in the mentioned sub-sector is invited to supervise the work and already together with the doctoral candidate prepares an application for doctoral studies. Similarly, the choice of topics takes place in the public health sub-sector and in health care science. The principle of choosing topics in the basic medical sciences may differ. The topic of the dissertation work can be offered by the supervisor of the doctoral thesis, based on the implementations, materials - technical support, cooperation opportunities, planned or future projects and research programs. The most outstanding dissertations written in the basic medical sciences are Vadim Parfejev's dissertation "The role of nerve ridge cells in the wound healing process" (Role of nerve-derived cells of neural crest origin in Wound healing). One article on the topic of the dissertation "Injury-activated glial cells promote wound healing of adult skin" has been published in the journal *Nature Communications* with an impact factor of 11,878. The second article, co-authored by Vadim Parfejev, entitled "Embryonic stem cell marker expression pattern in human mesenchymal stem cells derived from bone marrow, adipose tissue, heart and dermis" was recognized as the most cited article in the period 2010-2015. The study was conducted in the framework of an international collaboration with the Institute of Anatomy of the University of Zurich. Among the doctoral students who have defended their dissertation in clinical medicine, mention should be made of Ilze Ķikuste, who is currently the author and co-author of 22 articles in the SCOPUS database. The topic of her dissertation was "The Endoscopic Diagnosis of Gastric Precancerous Conditions: Gastric Mucosal Atrophy and Intestinal Metaplasia".

The performance of doctoral student Karīna Narbute is also outstanding. She has received the LU Young Researcher Excellence Award for her publication (published in 2019) "Intranasal Administration of Extracellular Vesicles Derived from Human Teeth Stem Cells Improves Motor Symptoms and Normalizes Tyrosine Hydroxylase

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the resources and provision of the study field, the resources of the study program consist of the provision of financial resources (source of financing - state budget grants, tuition fees, study program costs), infrastructure and material and technical provision, as well as methodological and informative provision.

Methodological support

The library premises of the Science House, which houses the collection of the medical field, are open to students at a convenient time 168 hours a week. Branch libraries provide all services that promote independent study. Students are provided with classes in the doctoral study programs: "Introduction to the scientific publication process" (90 min.), "Bibliography and citation management tools" (90 min.), "Using the Web of Science and Scopus databases in studies and research work" (90 min.). A huge range of printed publications is available to students of the doctoral program in the libraries of the University of Latvia, the available range of printed publications is indicated in Table 3.3.1.1.

Table 3.3.1.1.

Literature available in the library for the implementation of the doctoral study program

UL study field "Health Care"									
Total printed editions in the LU Library collection as of 01.12.2020									
Printed Editions (Copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
Medicine and Pharmacy	12466	11768	332	366	7334	4484	513	119	16
Total number of items in the study field in the collection of the UL Library: 30101 copies									

Literature available in the library for the implementation of the doctoral study program [1] The LU Library increases the share of e-resources and develops remote access to e-resources to provide users with the ability to use resources remotely. LU subscribes to 34 e-resource platforms (which

includes e-books, e-journals, reference resources, tools, multimedia, statistics, and mixed-format databases). They contain 17,592 full-text e-journals (including individual subscriptions), 2.5 million full-text world dissertations and master's theses, 4 statistical databases, 2 research tools, 9 reference databases, and 2 research platforms. LU has 122 tested open access databases with multi-format materials. Every year, the Library offers users an average of 110 new electronic resources. In total as of 01.01.2020. 1328 e-books have been purchased in the LU Library, ~ 160,000 e-books are available in the subscribed ProQuest Ebook Academic Complete collection. The following e-resources subscribed to by the library in the medical and health care sciences are available to PhD students: ClinicalKey, EBSCO Databases in Medicine, AHFS Consumer Medication Information, MEDLINE, Health Source: Nursing / Academic Edition, UpToDate, EBSCO Academic Search Complete, Emerald eJournals Premier, Oxford Journals , SAGE Journals Online, SAGE Research Methods, ScienceDirect, Scopus, Web of Science.

Infrastructure and material and technical support The study courses of the doctoral study program and a part of the doctoral students' research work are implemented in the premises of the University of Latvia MF, as well as in the premises of the Faculty of Medicine. The science house, where the LU MF is located, was put into operation relatively recently - in 2019. The laboratory premises of the faculties and scientific institutes are located in the basement of both the Nature House, where the BF is located, and the Science House. All rooms have wireless internet access and computer classes. Both Windows and Linux operating systems are available in the computer classes. Available Microsoft Office office applications, statistical programs (R, SPSS, PC-Ord, GraphPrism), domain-specific programs. LU offers doctoral students and employees a free opportunity to use Microsoft Office 365 ProPlus and SPSS software for a private computer for a period of study (or employment contract). Computer programs for specific applications (ArcGIS, Bemese, CRYSTAL14, CrysTraMo, DFHBF, EvIEWS, FiMar, Geomatica, Idrisi, Mathematica, Matlab, Photomod, WUFI) are also available for teaching and research purposes. A projector and laptop for presentations are available in all auditoriums. The development of doctoral theses takes place in the laboratories of Medicine, Biology and other faculties, as well as in the scientific institutes of the University of Latvia - the Institute of Clinical and Preventive Medicine of the University of Latvia, the Institute of Cardiology and Regenerative Medicine of the University of Latvia. MF dissertations are developed in the structural units of the University of Latvia, for example, the Department of Pathology, the Department of Pharmacology, the group of lecturers of Biochemistry, the Department of Surgery, the Department of Internal Medicine, groups of professors of Pharmacy, etc. For example, the Department of Pathology has a separate laboratory room for immunohistochemical and immunocytochemical staining of tissues and cells, ELISA method, Western Blot method, microscopes are available. The Department of Pharmacology has a cell room for working with cell cultures, there is also a facility for in vivo studies of animal behavior with video recording and computer program processing, and the Department of Biochemistry has PCR. The infrastructure of the groups of pharmaceutical professors allows to carry out methodologically versatile and multidisciplinary (analytical chemistry, biochemistry, immunohistochemistry, molecular pharmacology and cell biology) projects. There are three sterile cell culture rooms with CO₂ incubators, laminars, water baths, microscopes, etc. equipment. For further in vitro studies, laboratories are equipped with equipment for metabolism and cell secretion studies, absorbance, luminescence and fluorescence measurements include Tecan Infinite m200 and ELISA apparatus, flow cytometer, real-time PCR and PCR, blot and gel systems, confocal and fluorescence microscopes, DNA sequencing equipment Illumina MiSeq, centrifuges, analytical balances, shakers, thermostat, freezers with -80°C and etc. Equipment. There is a separate laboratory for the analysis of compounds by liquid chromatography and mass spectrometry, for the analysis of volatile substances in a Soxhlet apparatus and a Franz cell. The equipment used for the dissertation is very different, and if it is not available in the laboratories of the University of Latvia, then in the framework of cooperation they are searched in other Latvian or foreign scientific institutions. In practice, the elaboration of a doctoral thesis always goes beyond

the borders of one institution. For instance: The promotion work of Līga Balode was done at the Department of Pathology of MF. The aim of the study was to investigate the role of arachidonic acid derivatives - leukotriene B4 (LtB4) and lipoxin A4 (LXA4) - in the pathogenesis of chronic obstructive pulmonary disease and pneumonia. The involvement of patients in the study took place in cooperation with Pauls Stradins Clinical University Hospital, but the research and analysis of the obtained material took place in the laboratories of the Department of Pathology. Exhaled air condensate was collected using EcoScreen2 Jaeger (Germany) equipment, external respiratory function tests were performed using a MasterScreen spiograph Jaeger MS Pneumo (Germany), and sputum induction was performed according to the guidelines developed by the European Respiratory Society (Pin et al., 1992; Paggiaro et al., 2002; Pizzichini MMM et al., 2002). Immunocytochemical identification of the lipoxin A4 receptor in sputum cells was performed in the laboratory of the department. LtB4-induced sputum and exhaled air condensate samples were determined using commercially available ELISA (enzyme-linked immunosorbent assay) kits purchased from Cayman Chemical Company (USA). This work was developed with the support of the European Social Fund in the project "Support for doctoral studies at the University of Latvia". The aim of Jolanta Pupure's dissertation was to investigate the cytoprotective activity of small molecules of different structures - mildronate, cerebrocrast, glutapirone and taupirone - in isolated mitochondria (rat mildronate) in rat liver and mitochondrial toxicity in mouse anti-HIV agents (azidothymidine, stavudine, lamivudine, indinavir and efavirenz). The financial support of the research was the Latvian Science Council grant No.05-1418, ESF grant ESS2004 / 3, Contract work project A / s Grindeks "- LU: Nr. 2362, and the L'ORÉAL Latvian Scholarship for Women in Science with the support of the Latvian National Commission for UNESCO and the Latvian Academy of Sciences, as well as the ESF grant 1DP / 1.1.1.2.0 / 09 / APIA / VIAA / 031. The protective drugs required for the study came from the Infectious Diseases Center (anti-HIV substances) and the Latvian Institute of Organic Synthesis. The study was performed in the laboratories of the Department of Pharmacology and Pathology, where morphological, immunocytochemical, mitochondrial processes were studied in vitro (the study method was studied at the Department of Zoology, University of Coimbra (Portugal)) and studies were performed using the Western blot method. Evita Rostoka's dissertation was developed at the Department of Medical Biochemistry of the MF and the Faculty of Biology of the University of Latvia, the study substances were taken from the Biochemistry Group of the Latvian Institute of Organic Synthesis, and The aim of the dissertation was to experimentally test the ability of natural substances and 1,4-DHP derivatives synthesized by LOSI to neutralize free radicals, correct nitric oxide synthesis pathways and protect the integrity of the DNA molecule under oxidative and nitrosative stress. The work was carried out with ESF project no. 1DP / 1.1.1.2.0 / 13 / APIA / VIAA / 002 and "LatDiane: Diabetic Nephropathy Study" project. The analysis of the samples took place at the Department of Medical Biochemistry and the Faculty of Biology of the University of Latvia. The following equipment was used: BioSpectrumAC Imaging System (UVP, Canada), Sigma 3-16K centrifuge (Sigma Laborzentrifugen GmbH, Ostrode am Harz, Germany), Leica DM4000 B fluorescent microscope (Leica Microsystems, Germany), spectrophotometer (Perkin- Elmer, LABMDA 25 UV / VIS spectrometer, USA), wide plate reader (Infinite M200PRO, TECAN, Switzerland). Quantitative polymerase chain reactions were performed with the StepOne™ Real-Time PCRSytem (Applied Biosystems, USA). Free radical levels were determined with an EPR spectrometer Radiopan SE / X2544 (Poland) and a quartz dewar Bruker ER 167 FDS-Q (Germany). Glucose was measured with a MediSense OptiumXceed glucometer (Abbott Diagnostics Ltd, Maidenhead, UK). Single cell electrophoresis and DNA integrity studies were performed using a dry thermoblock (Bio TDB - 100, SIA BIOSAN, Latvia), DC sensor (PowerPac Basic, Bio-Rad), single cell electrophoresis apparatus (COMET-20, SCIE-PLAS) , horizontal electrophoresis chamber (MSCHOISE, Cleaver Scientific Ltd.). The digital microscope Motic and the program Motic Image (Motic Deutschland GmbH, Wetzlar, Germany) were used for the analysis of immunohistochemistry preparations. The aim of Jana Namniece's doctoral dissertation was to

experimentally investigate the distribution of lunasin in cereal and potato varieties and lines and to describe the relationship between its production and the breeding line and agricultural system (biological and conventional), as well as to study the pharmacological action of lunasin. The work was performed in MF MSP Pharmacy research laboratories. In order to achieve the goal, the study optimized the tandem method of liquid chromatography mass spectrometry for the measurement of lunasin concentration, introducing significant improvements in the qualitative and quantitative analysis of lunasin. Waters 2690 Alliance with column and sample thermostat, continuous mobile phase degassing device, automatic sample injection device, Waters Quattro Micro™ API with electrospray ionization, microplate reader (elx 808, Biotek Instruments, Inc.) with Gen5 software were used for the work. , inverted light phase contrast microscope (Leica, Solms, Germany). Financial support for the study came from ESF project no. No. 426 2009/0218 / 1DP / 1.1.1.2.0 / 09 / APIA / VIAA / 099, as well as the doctoral project D-715005d-ST-N-840. During the doctoral studies, the doctoral student received a scholarship for the ESF project "Support for Doctoral Studies at the University of Latvia" No. 2009/0138 / 1DP / 1.1.2.1.2 / 09 / IPIA / VIAA / 004. The aim of Iveta Līduma's dissertation was to identify and characterize phenotypic and genotypic factors that differentiate clinical strains of *S. epidermidis* from control group staphylococcal strains isolated from a healthy human body. The experimental part of the dissertation was developed within the framework of the project 009/0224 / 1DP / 1.1.1.2.0 / 09 / APIA / VIAA / 055 of the Laboratory of Bioanalytical and Biodosimetric Methods of the Faculty of Medicine of the University of Latvia. But staphylococcal strains were obtained in collaboration with microbiological laboratories from: PSKUS, RAKUS hospital Gaiļezers TOS, Ventspils hospital Daugavpils hospital. The BBL™ Crystal™ identification system (Beckton, Dickinson and Company, USA) was used to identify staphylococci. Similarly, any of the doctoral theses can be mentioned. The above also shows that the funding of doctoral theses is related to the attraction of research projects, for which the supervisor is mostly responsible.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

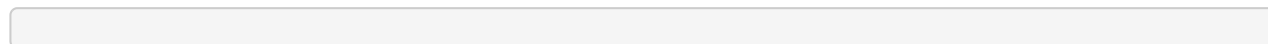
The development of doctoral theses takes place not only within the faculties of the University of Latvia, but also in hospitals and other institutions related to health care, as well as in scientific institutes, mostly in the current or future workplaces of doctoral students. Within the framework of DSP Medicine and Pharmacy, the closest cooperation contacts have been established with PSKUS, RAKUS and LOC, BKUS, Maritime Medicine Center, TOS, LU Institute of Clinical and Preventive Medicine, LU Institute of Cardiology and Regenerative Medicine, LU Institute of Biology, Latvian Biomedical Research and Study Center and Latvian Institute of Organic Synthesis. In all the mentioned hospitals and institutes it is possible to collect material for dissertation work and / or use laboratories and technologies. The research carried out in the laboratories of the University of Latvia takes place mainly in the basic sciences of medicine, but clinical research is not conceivable without the participation of hospitals.

For instance:

The aim of dissertation was to develop a method for the correction of knee joint frontal deformity during endoprosthesis (EP) using digital planning, thus improving the clinical outcome in the postoperative period. EP (endoprosthesis) took place at the TOS Spine and Joint Surgery Center - a specialized endoprosthesis center. Agfa Impax software was used to measure the angle of

deformity of the knee joint in the radiograph of the leg AP and knee AP before randomization and in the radiograph of the knee AP after surgery. Hectec mediCAD® software - for digital planning of the knee joint before surgery and for radiological assessment before and after surgery. Scales - VAS / NRS of pain, CHD and KOOS - for clinical evaluation. The research was supported by VSIA "TOS" with its infrastructure. also did part of dissertation research at TOS. The aim of his study was to find a new option for the treatment of grade II-III osteoarthritis of the hip and knee joint using the mononuclear cell fraction of the bone marrow, due to the pronounced regenerative properties of mesenchymal stem cells. The study was conducted in collaboration with the Cell Transplant Center of Pauls Stradins Clinical University Hospital. The research was financially supported by: JSC "System Innovation" research grant and the Latvian National Research Program "Biomedicine for Public Health". The application of electronic nose for early diagnosis of lung cancer was studied in detail in doctoral thesis. The application of the 32-sensor artificial olfactory device CyranoSE 320 (Smith's Detection Ltd, Pasadena, USA) was evaluated, including the most optimal data processing methods for the early differentiation of patients with lung cancer. Exhaled air from patients with lung cancer was collected by P. Stradiņš KUS, but further data processing took place in MF in cooperation with data processing specialists. The work was supported by the ERDF2 project "Support to Science and Research" entitled "Development of a Lung Cancer Diagnostic Method and Computer Program Using Exhaled Air Analysis and Artificial Smell Sensors". In dissertation, researched the mechanisms of heredity of essential tremor. The work was carried out in cooperation with the APP Latvian Biomedical Research and Study Center (BMC). 240 patients with essential tremor were included in the prospective study, which was also included in the National Genome Database (VIGDB). Genotyping was performed for ET patient and control groups (KG) at the ETM1 and ETM2 loci, for the ET candidate genes HS1-BP3; HCLS1, DRD3, LINGO1, MAO A and B using genetic microsatellite markers (STRs) and SNPs reported in several literature sources. Patients were included in the study from P. Stradiņš KUS and "Health Center 4". The research was carried out with the support of the following projects - 1) "Late neurodegenerative diseases, their epidemiology, clinical and molecular genetic characteristics" (LZP project); 2) "Collection of phenotypic and tissue samples for the establishment of the National Genome Database" (SCHIA contract 0356 / -LIGDB); 3) ERDF funded project "Development and approbation of new technologies for introduction of genetic diagnostic tests in Latvian medicine" (contract No. VPD1 / ERAF / CFLA / 05 / APK / 2.5.1. / 000015 / P) 4) ESF supported project "Pathogenesis of Diseases research into genetic and molecular mechanisms and the development of new therapeutic and diagnostic tools "(2009/0204 / 1DP / 1.1.1.2.0 / 09 / APIA / VIAA / 150); 5) "Genetic research of disease etiology, pathogenesis and human aging in the Latvian population. Subproject: Investigation of hereditary mechanisms of essential tremor. "The research topic "Design of Pharmacophore-Containing 1,4-Dihydropyridine Derivatives and Determination of Their Pharmacological Spectrum". The doctoral student had two supervisors - Dr. habil. biol. Professor R. Muceniece (MF Pharmacy study program) and Dr. chem. A. Plotniece (Latvian Institute of Organic Synthesis - LOSI). The study (LOSI) synthesized new, purpose-designed, pharmacophore-containing 1,4-dihydropyridine derivatives by systematically altering the pharmacophore groups (pyridinium and / or propargyl) and their location in the molecule. The author of the work himself participated in the synthesis of compounds. In the next stage of the research, the spectrum of pharmacological activity of the synthesized compounds (activity on calcium channels, antiradical activity and reducing capacity) was evaluated, a model of structure-activity regularities was developed in search of new pharmacologically active compounds. As a result of the work, five collaborative publications were written in internationally recognized and cited journals. Proved in doctoral dissertation that peripheral nerve glial cells play an important role in the healing process of the skin. The study used a mouse wound healing model in which glial cells were genetically tagged so that they could be traced during skin regeneration. As a result, skin damage was found to activate peripheral glial, leading to the return of Schwann cells to an undifferentiated state

(dedifferentiation) and migration from nerve fibers to injured tissue. The work was carried out thanks to the European Cooperation Project No 12.269 of the scientific exchange program between the new member states of the EU and Switzerland (SCIEX-NMSch) and was mainly carried out at the UZH Institute of Anatomy in Switzerland. - Prof. Una Riekstins from MF, and Prof. Dr. Lukas Sommers from Switzerland. scholarship within the framework of the ESF project "Support for doctoral studies at the University of Latvia" No. 2009/0138 / 1DP / 1.1.2.1.2 / 09 / IPIA / VIAA / 004. In Latvia, the demand for highly qualified specialists with a doctoral degree exceeds the supply, therefore there are no significant obstacles to using the laboratories, equipment, materials of clinics and research institutes or to involve hospital patients in research. Cooperation is mutually beneficial, as scientific research raises the prestige of clinics or organizations, contributes to the growth of scientific research and publications in institutions.



3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Provision of financial resources

Every year, the University of Latvia allocates funds for the scientific work of the doctoral study program and the purchase of equipment. The director responsible for the distribution of financial resources in the doctoral study program is its director. The program director plans the financial use for each year. Further, the plan is approved by the dean of the faculty and it is submitted to the Academic Department of the University of Latvia. The use of funds is controlled by the Executive Director of the Faculty and the Planning and Finance Department of the University of Latvia. In 2020, the Ministry of Education and Science has allocated EUR 151258 from the budget, of which EUR 32878 is intended for development, for example, for the purchase of equipment. If the doctoral student starts studies for personal funding, the tuition fee is 2400 EUR per year.

In order to ensure the profitability of DSP Medicine and Pharmacy, the minimum number of students is 10.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the

learning outcomes.

DSP Medicine and Pharmacy meets the criteria formulated by the Higher Education Council in accordance with Article 55 (2) of the Law on Higher Education Institutions, which means that more than 5 professors or associate professors in the main part of the program participate in the program. implementation. 18 professors, eight associate professors, five docents and three doctors of science participate in the study council of the program, as well as in the implementation of the compulsory and limited elective part - leading researchers from scientific institutes and research centers, 20 of whom are existing LZP experts, but 20 renew their expert rights. The supervisors of the doctoral thesis are active researchers with appropriate scientific competence. The mentioned qualification of the teaching staff involved in the implementation of the study program fully complies with the conditions for the implementation of the study program. All lecturers involved in the doctoral study program are doctors of sciences, as well as members of various promotion councils and managers of various scientific projects. Several supervisors of doctoral study sub-branches and doctoral students are academicians of the Latvian Academy of Sciences: prof. V.Kluša, prof. R.Muceniece, prof. N. Sjakste, prof. M. Leja, prof. Pie and prof. A. Eagle and correspondent members: prof. I. Rumba - Rozenfelde, prof.G. Latkovskis, prof. U. Riekstina, prof. D. Krieviņš. The academic staff of the program is also a member of the editorial boards of local and international journals, whose articles are available on the Web of Science and / or SCOPUS. For example, prof. Ingrida Rumba - Rozenfelde is a member of the Editorial Board of the Proceedings of the Latvian Academy of Sciences and Medicine, prof. V.Pīrāgs is in the editorial boards of the journals Endocrine Connections, Thyroid Research and Ancient Science of Life, prof. A. Ērglis is a member of the editorial boards of Seminars in cardiovascular medicine and the International Journal of Interventional Cardioangiography, prof. M. Leja is an associate editor for the European Journal of Cancer Prevention and the editorial boards of Digestive Diseases and Sciences and Helicobacter, assoc. prof. L. Civjāne works in the editorial board of the magazine Asthma, etc. The above contributes to the achievement of the result of the study program, because such qualified supervisors and lecturers of the program are able to provide doctoral students with knowledge on how to conduct independent original scientifically significant research at all stages, which results in an internationally recognized publication. At the end of the doctoral studies, it is obligatory to have a published scientific research, which is ensured by cooperation with the academic staff involved in the implementation of the doctoral study program. The quality of the articles is enhanced by the staff's work in the field of publishing, as all are the authors of the publications. The teaching staff of the program is also involved in the implementation of research projects, which also helps to ensure the implementation of a high-quality doctoral study program. The list of lecturers involved in the implementation of the study program is indicated in annex.

3.4.1.1. table

LZP experts

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3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

DSP Medicine and Pharmacy aims to train highly qualified scientists and teachers. In order to achieve the goal, it is necessary to ensure the high quality of the study program, for which the doctoral study council, the heads of the branches and sub-branches, all the supervisors of the doctoral thesis and the authors of the study courses are responsible. The Regulations “On Promotion Councils and Promotion at the University of Latvia” (amendments to Order No. 1/112 of the University of Latvia of 29.03.2018) stipulate that the supervisors of the doctoral thesis may be professors, associate professors, leading researchers who meet the LZP expert qualification requirements. By the decision of the branch doctoral council, in coordination with the Vice-Rector for Science of the University of Latvia, a scientist who holds the academic position of an assistant professor and who meets the qualification requirements of an LZP expert may be approved as the supervisor of the doctoral thesis. These rules are followed, which also ensures the quality of studies. In the implementation of the study process, the biggest changes in the composition of the teaching staff are in terms of the supervisors of the doctoral thesis, who ends up supervising the doctoral student, but someone else starts. There are supervisors of the doctoral thesis who supervise several doctoral students, but there are those who start supervising the work of the next doctoral student when the previous doctoral student has defended the doctoral thesis. Currently, 22 specialists are leading the development of doctoral students' research work, two of whom are leading four doctoral students, but there are doctoral students whose research work is being led by two supervisors. For quality assurance purposes, one specialist may supervise a maximum of five doctoral students. Changes in the composition of supervisors do not have a negative impact on the study process, as all supervisors of doctoral students are LZP experts, which means that in the last two years they have had at least three publications in internationally reviewed and cited publications, which also ensures the quality of research. New study courses have been added to the doctoral study program, such as “Research Ethics in Health Care”, “University Didactics and University Pedagogical Practice in Health Care”, “Project Planning and Management in Medicine”, which are led by lecturers with a degree in social sciences, pedagogy and economy. This only broadens the horizons of doctoral students and provides doctoral students with in-depth theoretical and methodological knowledge in areas related to health care.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

The number of scientific publications of the academic staff involved in the implementation of DSP Medicine and Pharmacy in the reporting period is indicated in table 3.4.3.1

Table 3.4.3.1

Number of scientific publications of the academic staff involved in the implementation of DSP Medicine and Pharmacy during the reporting period

	2013	2014	2015	2016	2017	2018	2019
Articles (full text publications) in peer reviewed scientific edited journals in SCOPUS databases	67	87	81	91	78	111	105

Examples of scientific publications of the academic staff involved in the implementation of DSP Medicine and Pharmacy:

1. Parfejevs, J. Debbache, O. Shakhova, M. Glausch, M. Wegner, U. Suter, U. Riekstina, S. Werner, L. Sommer. Injury-activated glial cells promote wound healing of the adult skin. *Nat Commun.* 2018 Jan 16; 9 (1): 236. IF 11.2, Q1 (The publication was an outcome of the joint PhD studies of V.Parfejevs and collaboration within Sciex-NMS project, IF 11.

2.Horneff G, Rumba-Rozenfelde et.al. Pediatric Rheumatology International Trials Organization (PRINTO). Efficacy and safety of open-label etanercept in extended oligoarticular juvenile idiopathic arthritis, enthesitis-related arthritis and psoriatic arthritis: part 1 (week 12) of the CLIPPER study. *Ann Rheum Dis.* 2014 Jun; 73 (6): 1114-22. doi: 10.1136 / annrheumdis-2012-203046. Epub 2013 May 21. IF- 10.377 (International consortium research results, IF 10.37)

3.Zhou K, Pirags V, et al. Variation in the glucose transporter gene SLC2A2 is associated with a glycemic response to metformin. *Nat Genet.* 2016 Sep; 48 (9): 1055-1059. (The findings bring a precision medicine approach to prescribing and dosing metformin in T2DM one step closer, IF 27.37)

4.Ruta Muceniece, Jana Namniece, Ilva Nakurte, Kaspars Jekabsons, Una Riekstina, Baiba Jansone Pharmacological research on natural substances in Latvia: Focus on lunasin, betulin, poly-prenol and phlorizin (Review). *Pharmacological Research*, Available online 21 April 2016, Volume: 113 (Part: B) 760-770. doi: 10.1016 / j.phrs.2016.03.040 (ScienceDirect) (IF: 4.89; Q1 - (indicating the importance of herbal medicine research globally)

5.Steigen T, Holm N, Kumsars I, Niemela M, James S, Erglis A, et al. TCT-318 Ten-year All-cause Mortality after Simple versus Complex Stenting of Coronary Artery Bifurcation Lesions in the Randomized Nordic Bifurcation Study. *J Am Coll Cardiol.* 2016 Nov 1; 68 (18S): B131-B132. (Publication in the journal with high IF (19.8) about the first long-term follow-up in the treatment of coronary bifurcation lesions - 10-year all-cause mortality in the randomized Nordic Bifurcation study)

6. Amal H, Leja M, Funka K, et al. Detection of precancerous gastric lesions and gastric cancer through exhaled breath. *Gut* 2016; 65 (3): 400-7. (Principal study on VOCs for gastric cancer detection allowing to attract current research funding, IF 17.94)

7.Baiba Jansone, Inga Kadish, Thomas van Groen, Ulrika Beitnere, Aiva Plotniece, Karlis Pajuste, Vija Klusa. (2016) Memory-enhancing and brain protein expression-stimulating effects of novel calcium antagonist in Alzheimer's disease transgenic female mice. *Pharmacological Research.* 113 (Part B): 781-787. <http://www.sciencedirect.com/science/journal/10436618/113/part/PB> (Emphasized research direction in pharmacology at MHSC-UL covering Alzheimer's disease research area, IF 4.89; Q1.)

8.Tirzīte M, Bukovskis M, Strazda G, Jurka N, Taiwan I. Detection of lung cancer in exhaled breath

with an electronic nose using support vector machine analysis. *J Breath Res.* 2017 Aug 21; 11 (3): 036009. (This is one of the most relevant papers on lung cancer diagnosis based on a new technical approach)

9. Leja M, Park JY, Murillo R, et al. Multicentric randomized study of *Helicobacter pylori* eradication and pepsinogen testing for the prevention of gastric cancer mortality: the GISTAR study. *BMJ Open* 2017; 7 (8): e016999. (design of the study making our institution well-known globally)

10. Erglis A, Narbutė I, Poupineau M, Hovasse T, Kamzola G, Star L, Erglis M, Erglis K, Greene S, Rogers JH. Treatment of Secondary Mitral Regurgitation in Chronic Heart Failure. *J Am Coll Cardiol.* 2017 Dec 5; 70 (22): 2834-2835. (Publication in the journal with high IF (19.8) about first-in-human study of novel transcatheter device (ARTO), that can be used safely with meaningful efficacy in the treatment of Functional Mitral Regurgitation, IF 19.8)

11 Nakhleh MK, Amal H, Jeries R, Leja M, et al. Diagnosis and Classification of 17 Diseases from 1404 Subjects via Pattern Analysis of Exhaled Molecules. *ACS Nano* 2017; 11 (1): 112-25. (One of the most cited publications in a globally leading nanotechnology journal; involves several cohorts of patients from Latvia and many authors of the research group)

12. Saulite L, Vavers E, Fisherman L, Dambrova M, Riekstina U. The Differentiation of Skin Mesenchymal Stem Cells Towards a Schwann Cell Phenotype: Impact of Sigma-1 Receptor Activation. *Mol Neurobiol.* 2017 Apr 28. IF 5,076, Q1 (In collaboration with the Latvian Institute of Organic Synthesis a new functional role for Sigma receptor 1 was described)

13, Meister I, Werner S, Zayakin P, Siliņa K, Rulle U, Pismennaja A, Šantare D, Kikuste I, Isajevs S, Leja M, Kupčinskis L, Kupčinskis J, Jonaitis L, Wu CY, Brenner H, Liné A, Kalniņa Z The Prevalence of Cancer-Associated Autoantibodies in Patients with Gastric Cancer and Progressive Grades of Premalignant Lesions. *Cancer Epidemiol Biomarkers Prev* 2017; 26 (10): 1564-1574. (Based on the results obtained, cancer-associated autoantibodies might make a valuable contribution to the stratification of high-risk patients with premalignant lesions in the stomach through enhancing the positive predictive power of existing risk models)

14. Rumba-Rozenfelde I, Saulite I, Rubene A, Razuka-Ebela D, Maija Butnere M, Consolaro A, Bovis F, Ruperto N; Pediatric Rheumatology International Trials Organization (PRINTO). The Latvian version of the Juvenile Arthritis Multidimensional Assessment Report (JAMAR). *Rheumatology International*, Vol: 38, Supp: 1, pp: 259-265, 2018. IF - 1,952 (development of internationally recognized study tools for Latvia in collaboration with international partners)

15. Tirzīte M, Bukovskis M, Strazda G, Jurka N, Taiwan I. Detection of lung cancer in exhaled breath with electronic nose and logistic regression analysis. *J Breath Res.* Published 20 November 2018 Open access, <https://doi.org/10.1088/1752-7163/aae1b8>.

16. Kotseva K, Dzerve V, Erglis A, et.al. ; EUROASPIRE Investigators. Life-style and impact on cardiovascular risk factor control in coronary patients across 27 countries: Results from the European Society of Cardiology ESC-EORP EUROASPIRE V registry. *Eur J Prev Cardiol.* 2019 Feb 10: 2047487318825350 (Our institution involved in the first long-term European study of secondary cardiovascular prevention).

3.4.3.2. table

LZP experts

No	Name, Surname	Degree	Position / LZP expert / deadline	Taught courses
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1.	Immanuels Taivans (main work)	Medical habil. Doctor	Professor, LZP medical, the rights of an expert have not been renewed	Elaboration of the Doctoral Thesis; Doctoral examination in the field of medicine and sub-branch; Pedagogical practice for doctoral students; Doctoral school
2.	Gunta Strazda (main work)	Doctor of Biology	assoc. Professor, the right to an expert has not been restored	Elaboration of the Doctoral Thesis; Doctoral examination in the field of medicine and sub-branch; Pedagogical practice for doctoral students; Doctoral school
3.	Ingrīda Rumba-Rozenfelde (main work)	Medical habil. Doctor	Professor, Medical and Health Sciences- Clinical Medicine 03.11.2024; Medical and health sciences-Health and sports sciences 01.12.2024	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch;
4.	Mārcis Leja (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 05.05.2024	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch;
5.	Ruta Muceniece (main work)	Doctor habil of Biology	Professor, Medical and Health Sciences-Basic medical sciences, including pharmacy 10/16/2022	Development of doctoral thesis; Doctoral examination in the pharmaceutical industry and sub-industry; Doctoral school
6.	Nikolajs Sjakste (main work)	Doctor habil of Biology	Professor, Medical and Health Sciences - Basic medical sciences including pharmacy 12/02/2023	Development of doctoral thesis; Doctoral examination in the pharmaceutical industry and sub-industry; Modern biomedical technologies

7.	Jelīzaveta Sokolovska	Doctor of Medicine degree	Leading researcher, Medical and Health Sciences- Clinical Medicine 25.05.2023	Development of doctoral thesis
8.	Valdis Folkmanis (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 25.05.2023	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
9	Inese Folkmane (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 06.10.2024	Development of doctoral thesis
10.	Valdis Pīrāgs (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 06.04.2025 Medical and Health Sciences - Basic medical sciences including pharmacy 04/06/2025	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
11.	Una Riekstiņa ((main work)	Doctor of Biology (PhD) degree	Medical and Health Sciences - Basic medical sciences including pharmacy 17.06.2023	Development of doctoral thesis; Doctoral examination in the pharmaceutical industry and sub-industry
12.	Baiba Jansone (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences - Basic medical sciences including pharmacy 04/06/2025	Development of doctoral thesis; Doctoral examination in the pharmaceutical industry and sub-industry; Doctoral school

13.	Sergajs Isajevs (main work)	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 02.03.2025	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
14.	Tatjana Tračevska (main work)	Doctor of Medicine degree	assoc. Professor, the rights of the expert have not been restored	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
15.	Aldis Puķītis (main work)	Doctor of Medicine degree	Professor, the rights of the expert have not been restored	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
16.	Liliāna Civjāne (main work)	Doctor of Philosophy (PhD)	assoc. Professor, Medical and health sciences-Health and sports sciences 18.11.2022 ,	Development of doctoral thesis; Writing of scientific publications in medicine, epidemiology and sociology, and acquiring presentation skills; Modern epidemiology; Professional and personal development; Doctoral school
17.	Signe Mežinska (main work)	Doctor of Social Sciences	assoc. Professor, Medical and Health Sciences-Health and Sports Sciences 10/7/2023	Research ethics in healthcare
18.	Silvestrs Rubins (main work)	Doctor of Medicine degree	assoc. Professor, the rights of the expert have not been restored	Development of doctoral thesis
19.	Andrejs Ērglis	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 05.01.2025	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch

20.	Gustavs Latkovskis	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 11/03/2024	Development of doctoral thesis;
21.	Jānis Eglītis	Doctor of Medicine degree	Professor, the rights of the expert have not been restored	Doctoral examination in the field of medicine and sub-branch
22.	Juris Bārzdiņš	Doctor of Medicine degree	Asoc. Professor, the rights of the expert have not been restored	Development of doctoral thesis
23.	Uga Dumpis	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 06.04.2025	Development of doctoral thesis; Doctoral examination in the field of medicine and sub-branch
24.	Māris Bukovskis	Doctor of Medicine degree	Asoc. Professor, the rights of the expert have not been restored	Development of doctoral thesis
25.	Egīls Vjaters	Doctor of Medicine degree	Asoc. Professor, Medical and Health Sciences- Clinical Medicine 01.09.2024	Development of doctoral thesis;
26.	Konstantīns Kalnbērzs	Doctor of Medicine degree	Professor, the rights of the expert have not been restored	Doctoral examination in the field of medicine and sub-branch
27.	Dainis Krieviņš	Doctor of Medicine degree	Professor, Medical and Health Sciences- Clinical Medicine 06.04.2025	Development of doctoral thesis;
28.	Renārs Erts	Doctor of Physics	Assistant Professor	Medical Statistics for Doctoral Students

29.	Aiga Stāka	Doctor of Medicine degree	Assistant Professor	Development of doctoral thesis;
30.	Patrīcija Ivanova	Doctor of Medicine degree	Assistant Professor	Doctoral examination in the field of medicine and sub-branch
31.	Margarita Puķīte	Scientific degree of Doctor of Pedagogy	Assistant Professor	Development of doctoral thesis
32.	Justs Dimants	Doctor of Economics	Researcher,Scientific Institute of Economics and Management	Project Planning and Management in Medicine
33.	Aiva Plotniece	Doctor of Chemistry	Leading Researcher, Medical and Health Sciences - Basic Medical Sciences including Pharmacy25.05.2023 25.05.2023	Development of doctoral thesis
34.	Sanita Baranova	Scientific degree of Doctor of Pedagogy	Assistant Professor Sociālās zinātnes – Izglītības zinātnes 02.02.2025	University didactics and university pedagogical practice in health care
35.	Dace Pjanova	Doctor of Medicine degree	Teacher,Medical and Health Sciences - Basic medical sciences including pharmacy02.03.2025	Development of doctoral thesis
36.	Gunita Deksnē	Doctor of Biology degree	Assistant Professor Natural Sciences - Biology03.09.2023 Development of doctoral thesis	Development of doctoral thesis
37.	Indulis Kumsārs	Doctor of Medicine degree	assoc. Professor,Medical and Health Sciences-Clinical Medicine11/03/2024	Development of doctoral thesis

38.	Alvils Krams	Doctor of Medicine degree	Professor, Medical and Health Sciences-Clinical Medicine 01.12.2024	Development of doctoral thesis
39.	Mārtiņš Kalējs	Doctor of Medicine degree	Medical and Health Sciences-Clinical Medicine 23.04.2023	Development of doctoral thesis
40.	Uldis Kesteris	Doctor of Medicine degree	Medical and Health Sciences-Clinical Medicine 29.07.2022	Development of doctoral thesis

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

All teaching staff involved in the implementation of the DSP Medicine and Pharmacy are also project managers or executors. The projects are different and with different funding, but mostly they provide a material or financial basis for the development of a doctoral thesis. For example, the ERDF2 project "Support to Science and Research" entitled "Development of a Lung Cancer Diagnostic Method and Computer Program Using Exhaled Air Analysis and Artificial Smell Sensor" led by Assoc. prof. **Māris Bukovskis** and participated in the implementation (as a leading researcher) assoc. prof. **Gunta Strazda**, was the basis for **Madara Tirzīte's** doctoral thesis "Exhaled air analysis with an artificial olfactory device for the diagnosis of lung cancer", which was defended in 2019. Both of these assoc. professors were also supervisors of the dissertation.

The author of the H2020 project on the analysis of exhaled air ("Detection of Diseases Using Exhaled Air" 2015-2019) is Professor **Mārcis Leja**. Mārcis Leja is the supervisor of **Evita Gashenko**, a doctoral candidate, whose research topic is "Investigation of the Possibilities of Stomach Cancer Prevention and Diagnosis of Volatile Markers". Prof. **Mārcis Leja** is also the author of the project VOLGACORE (Volatile biomarkers for the detection and characterization of gastric and colorectal neoplasia 2014-2017). **Roberts Škapars**, a doctoral candidate, was involved in the implementation of the project. The topic of his research is "The role of exhaled volatile biomarkers in the diagnosis of gastric cancer and in the evaluation of the effectiveness of therapy".

In 2019, **Vladimirs Pilipenko**, led by Professor **Vija Kluša**, defended his doctoral dissertation "Studies of GABA Ergene Targeted Substances in a Rat Model of Sporadic Alzheimer's Disease".

Both prof. Vija Kluša and Vladimir Pilipenko are currently leading researchers of **ERA-NET NEURON** "Expression of microglial activation in complement C4-stratified schizophrenia patients and mouse C4 hyperexpression model". In 2018, **Jolanta Upīte** completed her doctoral studies. The topic of her research is "The use of short-sequence peptides as new therapeutic options in the treatment of neurodegenerative diseases". At present Jolanta Upīte and her supervisor prof. **Baiba Jansone** is involved in the project "Potential of short analogues of beta-amyloid peptide in the treatment of Alzheimer's disease" funded by the Latvian Council of Science (LZP) (IZM SZA). Prof. Baiba Jansone is the project manager. Under the supervision of Professor **Ruta Muceniece**, Reinis Rembergs is currently developing a doctoral dissertation "Studies of the Mechanisms of Pharmacological Action of Natural Substances". The elaboration of the dissertation coincided with the implementation time of the ERDF project "Processing of Vaccinium berries: green technologies and innovative, pharmacologically characterized products for biopharmaceuticals" (01/02 / 2017-31 / 12/2019). Prof. Muceniece was the lead researcher in the study, and the doctoral student was a researcher. Before starting his doctoral studies, Reinis Rembergs together with prof. Ruta Muceniece was involved in the LZP cooperation project "Cancer Exosomes - a New Source for the Identification of Biomarkers and Therapeutic Targets of Gastrointestinal Tumors", the leading partner of which was BMC. Also in the mentioned project prof. Ruta Muceniece was the leading researcher, while Reinis Rembergs was the researcher.

Prof. **Gustavs Latkovskis** has been a leading researcher in the State Research Program BIOMEDICINE (2014-2017) in which he led the subproject "Family Hypercholesterolemia Registry in Latvia". He is also the supervisor of Vita Sharipo's doctoral thesis "Identification of patients with familial hypercholesterolemia and determination of the most common causal mutations in the Latvian population". Prof. **Una Riekstiņa** was the manager of the Latvian-Lithuanian-Taiwan Scientific Cooperation Support Fund project No. LV-LT-TW / 2015/7 "Reaction of mesenchymal stem cells and tumor stem cells to nanoparticles" (2014-2016). The basis of the project was important in the development of **Līga Kundare's** dissertation "Development of an in vitro model system for mesenchymal stem cells for tissue regeneration and anticancer drug supply research", which was defended in autumn 2020.

Lecturers of DSP Medicine and Pharmacy courses are involved in research related to their subject. For example, assoc. prof. Signe Mežinska, who teaches doctoral students research ethics in health care, is currently the leader of the LZP-funded project (Izp-2018 / 2-0171) "Ethically and Socially Responsible Management of Research Biobanks in Latvia: Analysis of Public, Donor and Scientists' Opinions". She is also a leading researcher (LU representative in the project consortium) H2020 project VIRT2UE (Virtue based ethics and Integrity of Research), Project ID 787580.

Assoc. prof. Liliāna Civjāne, who teaches doctoral students the writing of scientific publications in medicine, epidemiology and sociology, has been a leading researcher in the LZP (IZM SZA) funded project (15/12 / 2018-31 / 07/2019) "Ethically and Socially Responsible Management of Research Biobanks in Latvia: analysis of the views of donors and scientists ". Prof. Nikolajs Sjakste teaches the study course Modern Biomedical Technologies to doctoral students and is the scientific supervisor of the scientific project "Determination of Genetic, Epigenetic and Clinical Markers of Protractor-Related Multiple Sclerosis" (No. 1.1.1.1/16/A/016 (2017-2020)).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the

number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The cooperation of the teaching staff takes place both in the implementation and development of study courses and at the level of scientific research. For example, the study course "Research Ethics in Health Care" has been developed by assoc. prof. Signe Mežinska. At the same time, other teachers have been involved in the implementation of this course. Within the course prof. Dainis Krieviņš explains the topic to doctoral students - about good clinical practice, but prof. Baiba Jansone on ethical issues related to the use of laboratory animals (she is a certified specialist). There are courses in which doctoral students are taught topics that are closely related to each other, such as doc. Renārs Erts teaches the study course "Medical Statistics for Doctoral Students", but assoc. prof. Liliāna Civjāne "Writing scientific publications in medicine, epidemiology and sociology, and acquiring presentation skills". It is understood that writing scientific publications is not possible without statistical data processing and adherence to ethical norms.

Knowledge of statistics and ethics is also required for the development of a doctoral thesis, which is also included in the study courses. The course, the implementation of which is not possible without the cooperation of lecturers and leading Latvian researchers, is "Modern Biomedical Technologies". Prof. Nikolajs Sjakste, but both lecturers of the University of Latvia and representatives of scientific institutions and hospitals are involved in its implementation, who provide doctoral students with information about the most up-to-date technologies available. For example, Jānis Kloviņš, Vice-President of the Latvian Biomedical Research and Study Center (BMC), has introduced doctoral students with news in the field of genetic research and diagnostics, Dāvids Frīdmanis, lead researcher with genome research methods, and Kaspars Tārs, lead researcher with and drug development. Kārlis Švirksts, a researcher at the Institute of Microbiology and Biotechnology of the University of Latvia, has led classes on the applicability of Fourier transform infrared spectroscopy in biomedical research, Ilmārs Stonāns, a leading researcher at the Institute of Clinical and Preventive Medicine, Jānis Spīgulis on optical methods for in-vivo diagnosis and monitoring of skin diseases. Lecturers of other departments of the University of Latvia also participate in the study course. Jānis Ancāns, the leading researcher of the Department of Microbiology and Biotechnology at BF, has introduced doctoral students to current events in regenerative medicine, while the assoc. prof. Tūrs Selga with types of microscopy and development trends in modern biomedicine.

Specialists from hospitals are also involved in the implementation of the course, for example, Ēriks Jakobsons, who is the head of the Cell Transplantation Department of Pauls Stradiņš Clinical University Hospital, Scientific Institute, has taught ethnogenomics to doctoral students, and Jānis Šavlovskis has introduced digital technologies in diagnostic radiology. Lecturers of the faculty who are actively engaged in science, for example, professors: Una Riekstiņa, Sergejs Isajevs, Baiba Jansone, Ruta Muceniece and others are also involved in the implementation of the course. A similar type of cooperation also takes place in the development of the study course "Doctoral School, or similar experience in foreign universities or research institutes", only in this case the emphasis is on the successful preparation of the doctoral thesis, therefore the library is also involved members of the dissertation, doctoral and doctoral study council. Doctoral study courses are also designed in such a way that the acquisition of one study course facilitates the implementation of another study course. For example, the acquisition of the study course "University Didactics and University Pedagogical Practice in Health Care" facilitates the implementation of the study course "Pedagogical Practice for Doctoral Students". In essence, the doctoral study program is designed in such a way that its successful implementation is not possible without the cooperation of lecturers and the involvement of leading specialists.

The ratio of students to lecturers is 1: 1

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_DSP_DIPLOMS_2022_DOKTORS_ENG.docx	11.pielikums_DSP_DIPLOMS_2022_DOKTORA_LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	13_annex_DSP_AIP_55_2_option_Eng.docx	13.pielikums_DSP_AIP_atzinums_LV.pdf
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_DSP_Statistical data on students_Eng.docx	4.pielikums_DSP_Studējoso skaita statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard		
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_DSP_Mapping study courses_Eng.docx	8.pielikums_DSP_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_DSP_studiju_plāns_Eng.docx	1.pielikums_DSP_studiju_plāns_LV.docx
Descriptions of the study courses/ modules	7.annex_DSP_kursu_apraksti_Eng.docx	7. pielikums_DS_kursu_apraksti_LV.docx
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)	15.annex_DSP_LZP_apliecinājums_Eng.docx	15.pielikums_DSP_apliecinajums par LZP_LV.jpg
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	14_annex_DSP_atbilstiba_AL_55_Eng.docx	14.pielikums_DSP_atbilstiba AL 55.pantam_LV.jpg

Pharmacy (43725)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Pharmacy</i>
Education classification code	<i>43725</i>
Type of the study programme	<i>Academic bachelor study programme</i>
Name of the study programme director	<i>Una</i>
Surname of the study programme director	<i>Riekstiņa</i>
E-mail of the study programme director	<i>una.riekstina@lu.lv</i>
Title of the study programme director	<i>Dr.biol.</i>
Phone of the study programme director	<i>+37129168773</i>
Goal of the study programme	<i>The aim of the program is to provide students with the necessary set of knowledge and practical skills to continue their education in the master's study program in pharmacy.</i>
Tasks of the study programme	<ol style="list-style-type: none"> <i>1. To provide sufficient knowledge of medicines and therapeutic substances used in the pharmaceutical industry, good manufacturing practices, as well as the properties of synthetic and natural substances;</i> <i>2. To provide appropriate knowledge about the physical, chemical, biological and microbiological properties of pharmaceutical technology and medicinal products, as well as about the methods of quality control of medicinal products;</i> <i>3. To develop students' independent research skills, emphasizing a science-based approach to the health care system, principles and provision of pharmaceutical care, as well as to provide knowledge about the proper storage of medicines;</i> <i>4. To provide adequate knowledge of drug metabolism, pharmacological activity, pharmacovigilance, pharmacokinetics, pharmacogenetics and toxicology;</i> <i>5. To provide sufficient knowledge of the basic disciplines of pharmacy: pharmaceutical technology, pharmaceutical chemistry, pharmacognosy, pharmacology and good pharmacy practice, developing knowledge based on scientific achievements;</i> <i>6. To acquaint students with the latest research methods, as well as with national programs in pharmacy, integration within the EU and generally accepted guidelines for pharmaceutical education, the task of which is to create a common labor market in the EU countries;</i> <i>7. To train students for independent scientific research and to encourage them to continue their education in master's study programs;</i> <i>8. To ensure sufficient knowledge of the requirements of the legislation related to the practice of pharmacy and veterinary pharmacy.</i>

Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Describes the medicinal products and medicinal substances used in the pharmaceutical industry, defines good manufacturing practice and names the properties of synthetic and natural substances. 2. Lists the pharmaceutical technologies and summarizes the physical, chemical, biological and microbiological properties of the medicinal product, names the quality control methods for medicinal substances. 3. Defines and characterizes drug metabolism, pharmacological activity, pharmacovigilance, pharmacokinetics, pharmacogenetics and toxicology. 4. Defines the basic principles of pharmaceutical care. 5. Finds and lists regulatory enactments related to pharmaceutical and veterinary pharmacy practices. <p>Skills:</p> <ol style="list-style-type: none"> 6. Is able to apply the acquired knowledge of analytical chemistry in the quality control of medicinal products. 7. Is able to apply the acquired knowledge in the technology of pharmacy dosage forms. 8. Is able to explain the pharmacological mechanisms of action of medicinal substances. 9. Understands pharmacokinetic parameters. 10. Understands the basic principles of pharmaceutical care. 11. Orients in pharmaceutical legislation. 12. Is able to independently carry out research activities, formulate and analytically describe information, solutions to problems in the pharmaceutical area. <p>Competence:</p> <ol style="list-style-type: none"> 13. Is able to independently apply those based on the achievements of pharmaceutical science; knowledge for information gathering, analysis to solve issues related to the pharmaceutical area. 14. Is competent to participate in the development of the field of pharmacy by continuing further education in the master's study program in pharmacy. 15. Manages good communication and teamwork skills. 16. Is competent in matters of professional ethics in the pharmaceutical sector.
Final examination upon the completion of the study programme	Bachelor's thesis

Study programme forms

Full time studies - 3 years - latvian

Study type and form	Full time studies
Duration in full years	3

Duration in month	0
Language	<i>latvian</i>
Amount (CP)	120
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's degree of Health Sciences in Pharmacy</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

During the accreditation period, the following changes in parameters have been made in the bachelor's study program Pharmacy (hereinafter SP Pharmacy) - the aim, tasks and results of the studies have been clarified. SP Pharmacy outcomes are defined as knowledge, skills and competence.

In the new accreditation period:

1. Aim of the study programme

The aim is to provide students with the necessary set of knowledge and practical skills to continue their education in the master's study program in pharmacy.

Justification:

Justification: The aim of the study program is more specific and more appropriate to the specifics of the specialists to be trained in the field of health care.

2. Results of the study programme

Justification: The results of the study programme have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The aim of the program is to provide students with the necessary set of knowledge and practical skills to continue their education in the Master's program in pharmacy and to achieve the level of education specified in Directive 2005/36 / EC for the education of a pharmacist. The content of the program envisages the acquisition of skills necessary for the labor market in pharmacy and information technologies, knowledge of medicines and substances used in the manufacture of medicines, as well as the latest scientific achievements in the basic disciplines of pharmacy. The content of the study envisages the acquisition of good pharmaceutical practice competencies and

emphasizes the importance of a scientifically based approach in the health care system. The basic principles and methods of implementation of pharmaceutical care are observed in the program, but the students' independent work skills are developed during the development of the bachelor's thesis.

UL is the only one in Latvia to implement the academic bachelor's study program Pharmacy (hereinafter - BSP Pharmacy), based on the Bologna principle in 3 + 2 higher education. The advantage of UL Pharmacy studies is the division of programs into bachelor's and master's levels, according to the Bologna Declaration. This distribution allows students to plan their careers and involvement in the changing labor market more flexibly.

According to the 1999 According to the Bologna Declaration signed by the Ministers of Education of the EU countries, the academic pharmacy study program includes two study cycles: 3 years of bachelor's studies (120 CP or 180 ECTS) and 2 years of master's studies in pharmacy, including 6 months of practice in pharmacy.

Thus, after obtaining a bachelor's and master's degree in health sciences, students have acquired 300 ECTS, fulfilling the requirement of Directive 2005/36 / EC for a 5-year university education, including a 6-month internship in a pharmacy certifying the qualification of a pharmacist.

SP Pharmacy ensures the development of an individual in a democratic society, provides a scientific basis for the development of pharmacy and qualitative knowledge that promotes the ability of graduates to easily adapt to the changing requirements of the labor market.

Degree to be obtained: Bachelor's degree of Health Sciences in Pharmacy

Tasks of the program:

1. To provide sufficient knowledge of medicines and therapeutic substances used in the pharmaceutical industry, good manufacturing practices, as well as the properties of synthetic and natural substances;
2. To provide adequate knowledge of pharmaceutical technology and physical, chemical, biological and microbiological properties of medicinal products, as well as methods of quality control of medicinal products;
3. To develop students' independent research skills, emphasizing a science-based approach to the health care system, principles and provision of pharmaceutical care, as well as to provide knowledge about the proper storage of medicines;
4. To provide adequate knowledge of drug metabolism, pharmacological activity, pharmacovigilance, pharmacokinetics, pharmacogenetics and toxicology;
5. To provide sufficient knowledge of the basic disciplines of pharmacy: pharmaceutical technology, pharmaceutical chemistry, pharmacognosy, pharmacology and good pharmacy practice, developing knowledge based on scientific achievements;
6. To acquaint students with the latest research methods, as well as with national programs in pharmacy, integration within the EU and generally accepted guidelines for pharmaceutical education, the task of which is to create a common labor market in the EU countries;
7. To train students for independent scientific research and to encourage them to continue their education in master's study programs;
8. Provide adequate knowledge of the legal requirements related to pharmaceutical and veterinary practice.

Learning outcomes are structured in terms of knowledge, skills and competences, in accordance with the document “Standards and Guidelines for Quality Assurance in Higher Education (ENQA)” and Standards and Guidelines for Quality Assurance in the European Higher Education Area. (2015)) and the Law on Higher Education Institutions of the Republic of Latvia [4], 1995/2018.

The study results obtained after successfully mastering the bachelor's study program in pharmacy are:

Knowledge:

1. Describes the medicinal products and medicinal substances used in the pharmaceutical industry, defines good manufacturing practice and names the properties of synthetic and natural substances.
2. Lists the pharmaceutical technologies and summarizes the physical, chemical, biological and microbiological properties of the medicinal product, names the quality control methods for medicinal substances.
3. Defines and characterizes drug metabolism, pharmacological activity, pharmacovigilance. pharmacokinetics, pharmacogenetics and toxicology.
4. Defines the basic principles of pharmaceutical care.
5. Finds and lists regulatory enactments related to pharmaceutical and veterinary pharmacy practices.

Skills:

6. Is able to apply the acquired knowledge of analytical chemistry in the quality control of medicinal products.
7. Is able to apply the acquired knowledge in the technology of pharmacy dosage forms.
8. Is able to explain the pharmacological mechanisms of action of medicinal substances.
9. Understands pharmacokinetic parameters.
10. Understands the basic principles of pharmaceutical care.
11. Orients in pharmaceutical legislation.
12. Is able to independently carry out research activities, formulate and analytically describe information, solutions to problems in the pharmaceutical area.

Competence:

13. Is able to independently apply those based on the achievements of pharmaceutical science; knowledge for information gathering, analysis to solve issues related to the pharmaceutical area.
14. Is competent to participate in the development of the field of pharmacy by continuing further education in the master's study program in pharmacy.
15. Manages good communication and teamwork skills.
16. Is competent in matters of professional ethics in the pharmaceutical sector.

The general matriculation regulations are approved by the Senate of the University of Latvia and the rector's orders, which determine the matriculation regulations for each specific study year. Persons who have completed secondary education after 2004 are matriculated using rating calculation formulas:

CE in English or CE in French or CE in German

CE in Latvian

CE in mathematics

LU has developed assessment calculation formulas according to the CE or secondary education

document annual mark assessments in certain subjects.

Special conditions: secondary education documents must have a successful (not less than 4 points) grade in chemistry or at least a mediocre (not less than 5) grade in science;

Additional points: Graduates of the School of Young Medicine of the University of Latvia receive an additional 10 or 5 points, depending on the year of graduation of the School of Young Medicine.

Advantages: Latvian national or international chemistry Olympiad 1st - 3rd grade winners in the previous two years.

Admission conditions correspond to the aims and tasks of the study program. Admission requirements are adequate to achieve the learning outcomes and students are admitted in accordance with approved procedures and criteria. Non-formal education is not recognized in regulated professions. Credit points obtained at other higher education institutions and courses acquired as a listener are recognized. Students have the opportunity to recognize the study courses acquired in previous education, if their content, results and scope correspond to the BSP Pharmacy courses.

The parameters of SP Pharmacy code 43725 are linked in accordance with Cabinet Regulation No. 322 "Regulations on the Classification of Education in Latvia", where the first part of the code 43 indicates that the type of SP Pharmacy education program is academic education (bachelor's degree). . The duration of studies in full-time studies is three to four years, but the second part of the code 725 indicates that SP Pharmacy, the thematic area of education - Health care, but the group of educational programs - Pharmacy. BSP Pharmacy corresponds to the goal of the study field Health Care to prepare competent health care specialists for the Latvian economy.

[1] <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0036&from=LV>

[2] <https://likumi.lv/ta/en/en/id/26021>

[3] <https://likumi.lv/ta/en/en/id/59364>

[4] <https://likumi.lv/ta/en/en/id/37967>

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

After obtaining a bachelor's degree in pharmacy in health sciences, almost 100% of bachelor's degree holders in pharmacy continue their studies in the Master's degree program in Pharmacy in order to fulfill the condition of EU and Latvian legislation for 5 years of university studies. According to the LUIS survey, many students in the bachelor's study program Pharmacy start working in pharmacies as assistants and apprentices (see Table 3.1.3.1.). Therefore, the feedback from employers confirms the opinion about the graduates of both the Bachelor of Pharmacy and the Master of Pharmacy study program.

3.1.3.1. table

Employment status of BSP Pharmacy students in 2019/2020 academic year.

Employment status in the last study year (information on 2019/2020)	Only I study	Working
	23.08%	76,92%

The link between BSP Pharmacy and the latest labor market and scientific trends is ensured by the fact that professionals in the field of pharmacy and medicine teach lecture courses at BSP Pharmacy, such as Dosage Technology, Clinical Pharmacy, History of Pharmacy, Genetics, Pharmacology and Pharmacotherapy, Pharmaceutical Microbiology, Introduction to Epidemiological Research in design, Practical Pharmacy and Nutritional Supplements are taught by pharmacists, the pharmaceutical industry, a clinical microbiologist and a hospital pharmacist.

BSP Pharmacy lecturers cooperate with health care institutions, such as the State Agency of Medicines and the Ministry of Health. BSP Pharmacy lecturers are involved in the work of scientific institutions, for example, among the lecturers there are two LAS academicians and a corresponding member, the President of the Pharmacology Society, a member of the Board and members of the Pharmacology Society.

Lecturers of BSP Pharmacy are members of the Latvian Association of Pharmacists, as well as participate in the management of further education courses for pharmacists and are members (experts) of the LFB Pharmacists' Professional Qualification Certification Commission. In 2015, Assistant Professor Līga Krīgere was the President of the Latvian Pharmacists' Association. Researcher Jana Namniece served on the Board of the Latvian Pharmacists' Trade Union and has been the Chairperson of the Latvian Pharmacists' Trade Union since 2020. BSP Pharmacy lecturers work in international institutions, such as the European Medicines Agency in the Committee for Herbal Medicinal Products and the Committee for Advanced Therapies, and in the Scientific Committee of the European Association of Hospital Pharmacists.

BSP Pharmacy and MSP Pharmacy are sustainable, because according to the information in the register of pharmacists available to the Latvian Pharmacists' Association, there is currently a shortage of pharmacists in Latvia due to the increasing number of pharmacists reaching retirement age and emigration and negative demographic balance in the country. According to the Latvian Pharmacists' Association (LFB), 42% of working pharmacists are over 50 years old, of whom 20% are over 60 years old. Thus, the Pharmacy study programs implemented at the Faculty of Medicine of the University of Latvia are essential for the generation of staff in the field of pharmacy

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

During the reporting period, the total number of students in the bachelor's study program changed from 131 students in 2013 to 78 students in 2021 (see Figure 3.1.4.1. and [4.annex_FarmB_student_statistics_ENG.docx](#)). The gradual decrease in the number of students, starting from 2014, can be explained by the general demographic situation in Latvia, as the restoration of the independent Republic of Latvia in 1991 was followed by a sharp decline in the birth rate of 18-year-olds entering higher education institutions. The number of students stabilized in 2015, when the total number of students at BSP Pharmacy was 99, and thus the demand among students can be described as stable, as in the period until 2020 there are 90-100 students in the study program every year. The

number of enrolled students in the 1st year has been relatively stable in recent years, i.e. 30-39 students start their bachelor's studies in pharmacy every year. However, it should be noted that during the accreditation period the number of budget places in the study program has decreased from 30 state-funded study places in 2013 and 2014 to 26 places in 2020, which is a very important aspect when choosing a study program in socio-economic conditions. The dynamics of the number of students in the reporting period is shown in Figure 3.1.4.1., the distribution of the number of students by years, the types of financing is shown in Annex 5. Nor can it be ruled out that the common educational space of the European Union opens up wide opportunities to study in the European Union, which young people in Latvia like to use. Thus, the offer of higher education in Latvia competes with the offer of EU and world universities. Employers in the pharmaceutical sector emphasize that there is a shortage of workers in the pharmaceutical sector and that, due to the high proportion of pre-retirement age workers in pharmacies, there is a great need for new specialists in pharmacy.

The number of graduates makes up on average 85% of the number of enrolled students, which indicates a stable and normal study process and quality, as various conditions often arise during studies that facilitate temporary or permanent termination of studies.

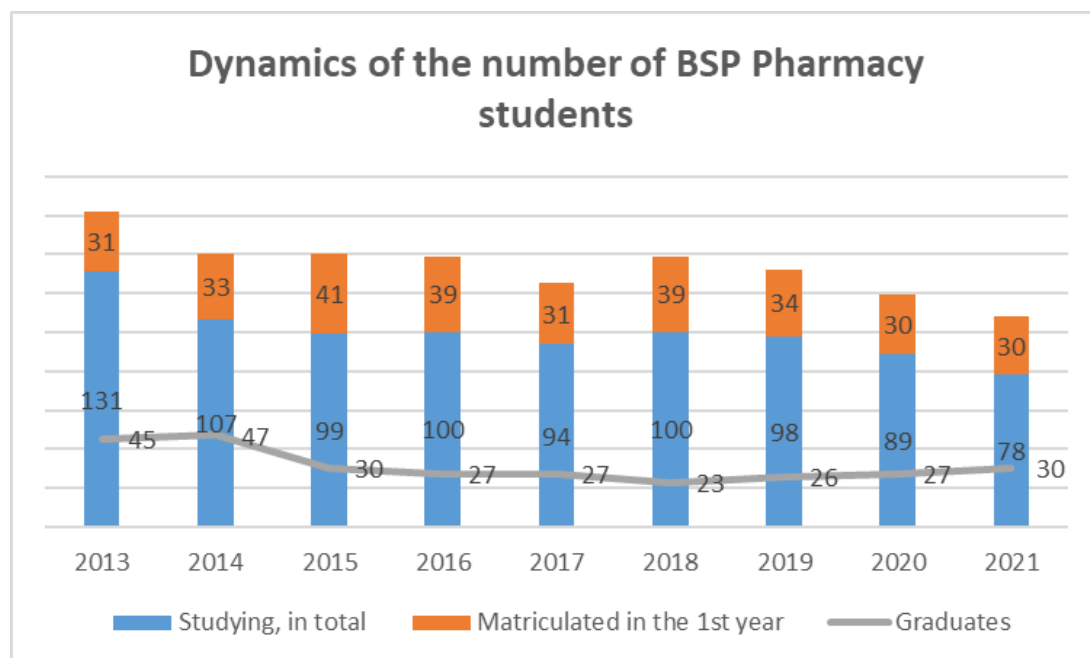


Fig. 3.1.4.1. Dynamics of the number of BSP Pharmacy students

In the reporting period from 2013 to 2021, the proportion of students dropped out ranged from 10 to 22% of the total number of BSP Pharmacy students. In the last three years, from 2018 to 2021, the number of students dropped out has stabilized between 10 and 12%. The following factors can be listed as the main reasons for students dropping out:

1. non-timely fulfillment of the requirements of the study program - lack of motivation of students, lack of interest in the chosen study program, planned to start studies in another program, insufficient knowledge due to which it is not possible to settle academic obligations;
2. personal reasons - finances, work, family, health.

There is often a situation when a student, entering the 1st year, does not yet have a clear goal of study and the student changes the study program during the first semester, most often within the University of Latvia. LU has developed a support program to help students find a study program that meets their interests and thus they will continue their studies at the university. There are also often situations when a student renews his / her student status at BSP Pharmacy after a break and

successfully completes it.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

In the compulsory part of BSP Pharmacy it is planned to take courses of 138 ECTS, in the limited part it is planned to take courses in the amount of 30 ECTS. In the optional part, it is planned to take courses in the amount of 12 ECTS. With a bachelor's degree, you can continue your studies in a master's degree, because in order to obtain the right to work as a pharmacist, a master's degree in pharmacy is required. Bachelors of Pharmacy may work in pharmaceutical companies, agencies and scientific institutes. BSP Pharmacy is the only study program in Latvia that offers a bachelor's degree in pharmacy.

EU Directive 2005/36 / EC requires pharmacists to have completed at least five years of training, including at least: (a) four years of full-time theoretical and practical study at a university or higher education institution recognized as equivalent to, or under the supervision of, a university;) a six-month traineeship in a pharmacy open to the public or in a hospital pharmacy under the supervision of the hospital's pharmaceutical department. Regulation No. 68 of the Cabinet of Ministers of the Republic of Latvia (February 19, 2002) sets out the minimum requirements for the acquisition of professional qualifications of dentists, pharmacists, nurses and midwives in education programs. The training of pharmacists includes the following courses:

- Plant and animal biology
- Physics
- General and inorganic chemistry
- Organic chemistry
- Analytical chemistry
- Pharmaceutical chemistry, including analysis of medicinal products
- General and applied biochemistry (medical)
- Anatomy and physiology; medical terminology

- Microbiology
- Pharmacology and pharmacotherapy
- Pharmaceutical technology
- Toxicology
- Pharmacognosy
- Legislation and, if necessary, professional ethics

This is fulfilled in the Compulsory part of BSP Pharmacy (see the study program plan in [1.annex_FarmB_study_plan_Eng.docx](#)). The distribution of courses according to disciplines is: chemistry - 26%, pharmaceutical sciences - 33.2%, biology / medical courses - 32.8%, physics, information technology and databases - 8%, and pharmaceutical regulations, professional ethics - 2, 6%. 15 ECTS are provided for the bachelor's thesis.

During the reporting period, the content of the program was changed to exclude courses that were not actively taught for several years due to a lack of demand, such as the compulsory elective study course International Workplace Certification Standards, 3 ECTS.

In turn, students in the annual surveys LUIS have expressed the opinion that in-depth knowledge of Pharmacology and Pharmacotherapy is required at work, therefore the volume of the course in this study course was increased from 3 ECTS to 4.5 ECTS. Students need in-depth practical and experimental knowledge in pre-clinical research methods, so the course in Pharmaceutical Cell Biology was increased from 3 ECTS to 4.5 ECTS to prepare future researchers for in vitro drug research in a cell culture laboratory.

Employers have indicated in surveys that the future pharmacist needs psychological knowledge to work with the client, as well as to master the methods of psychological persistence. Taking into account the recommendations of employers, **BSP Pharmacy** has been supplemented with the course Psychology, in the amount of 3 ECTS. As the hospital pharmaceutical industry develops, there is a need for specialists - hospital pharmacists who are familiar with the design of epidemiological research. Therefore, BSP Pharmacy, starting from 2019/2020. ak.g. the course Introduction to the Design of Epidemiological Studies, 3 ECTS, was included, and starting from 2020/2021. year, a lecture course Introduction to Hospital Pharmacy will be taught.

The proportion of optional or Part C courses in the program has been reduced from 18 ECTS to 12 ECTS, thus increasing the proportion of specialized A and B courses to improve the preparation of future pharmacists for the requirements of the labor market.

Following the development trends of the industry, feedback from employers and students, the following changes have been made in the reporting period of BSP Pharmacy:

- Establishment of a pharmaceutical care simulation laboratory to facilitate the preparation of students for work in a pharmacy,
- Within the framework of the SAM infrastructure development project, due to relocation to the Science House of the University of Latvia Natural Sciences Center, the Pharmaceutical Formulation Technology Laboratory was modernized by purchasing ointment preparation equipment and essential oil distribution equipment ,
- Increased proportion of laboratory work in pharmaceutical cell biology, molecular pharmacy, drug substances and pharmacokinetic courses to enhance students' research skills and prepare them for undergraduate work,
- increased amount of credit points in the lecture course Pharmacology and Pharmacotherapy,
- introduced the lecture course Psychology to improve communication skills,

- new courses Introduction to the design of epidemiological studies and Introduction to hospital pharmacy have been introduced to raise awareness of the profession of hospital pharmacist,
- with the aim to improve the mobility of students and teachers, 2018/2019 academic year. the NordPlus network of Scandinavian universities was signed,
- In order to join the European Network of Faculties of Pharmacy, in 2020 **BSP Pharmacy** and MSP Pharmacy renewed their membership in the European Association of Faculties of Pharmacy (EAPH).

The link between BSP Pharmacy and the latest labor market and scientific trends is ensured by the fact that professionals in the field of pharmacy and medicine teach lecture courses at BSP Pharmacy, such as Dosage Technology, Clinical Pharmacy, History of Pharmacy, Genetics, Pharmacology and Pharmacotherapy, Pharmaceutical Microbiology, Introduction to Epidemiological Research in design, Practical Pharmacy and Nutritional Supplements are taught by pharmacists, the pharmaceutical industry, a clinical microbiologist and a hospital pharmacist.

BSP Pharmacy lecturers cooperate with health care institutions, such as the State Agency of Medicines and the Ministry of Health. BSP Pharmacy lecturers are involved in the work of scientific institutions, for example, among the lecturers there are two LAS academicians and a corresponding member, the President of the Pharmacology Society, a member of the Board and members of the Pharmacology Society.

The requirements of the regulatory enactments of the Council of Europe and the Republic of Latvia regulating the education of pharmacists have been taken into account when developing bachelor's and MSP Pharmacy plans and their implementation should be considered in general in the bachelor's and master's study program (see Table 3.2.1.1.).

Table 3.2.1.1.

Knowledge and skills referred to in Article 44 of Directive 2005/36 / EC and corresponding courses BSP Pharmacy

Knowledge and skills referred to in Article 44 of Directive 2005/36 / EC	Relevant courses SP Pharmacy
Adequate knowledge of medicines and substances used in the manufacture of medicines	<p>Knowledge of medicines and medicinal substances is acquired in the field of chemistry and technology of pharmaceutical forms, a total of 500 training contact hours, 9 study courses, 30 CP (45 ECTS) of the study volume.</p> <p>Lecture courses that include knowledge of medicines and substances used in the manufacture of medicines:</p> <p>Analytical Chemistry I Pharmacognosy Pharmaceutical Chemistry Inorganic chemistry Organic chemistry General chemistry Biosynthesis of medicinal substances in plants Physics Latin</p>

<p>Adequate knowledge of pharmaceutical technology and medicines physical, chemical, biological and microbiological testing;</p>	<p>Knowledge of pharmaceutical technology and physical, chemical, biological and microbiological testing of drugs in chemistry and biology courses, a total of 420 training contact hours, 8 study courses, 21 CP (28 ECTS) of the study volume. Pharmaceutical Formulation Technology Biochemistry I Pharmaceutical cell biology Physics Biochemistry II Pharmaceutical microbiology Molecular Pharmacy Genetics</p>
<p>Adequate knowledge of metabolism, drug effects, toxic exposure to substances and use of medicinal products;</p>	<p>Knowledge of metabolism, effect of drugs, exposure to toxic substances and use of drugs is acquired in 8 lecture courses, 480 contact hours, 24 CP (36 ECTS). from the amount of studies. Pharmacology and Pharmacotherapy I Pharmacology and Pharmacotherapy II Metabolism of medicinal substances Environmental biochemistry and toxicology Pathophysiology. Mechanisms of disease origin Medical Microbiology and Immunology Forensic chemistry Medicinal substances</p>
<p>Adequate knowledge to evaluate scientific data on medicinal products which, on the basis of that knowledge, allow appropriate information;</p>	<p>Knowledge to evaluate the scientific data on medicinal products which, on the basis of this knowledge, allow an appropriate information is acquired in 5 courses, 820 contact hours, 15 CP (22.5 ECTS) from the study volume. Pharmacokinetics Clinical Pharmacy Anatomy and Physiology Food supplements Informatics. Databases</p>
<p>Adequate knowledge of legal and other requirements related to pharmaceutical activities.</p>	<p>Knowledge of legal and other requirements related to pharmaceutical activities is acquired in 2 lecture courses, a total of 60 contact hours, 3 CP (4.5 ECTS) from the study volume. Practical pharmacy Civil protection</p>

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

BSP Pharmacy and MSP Pharmacy belong to the study programs of regulated professions, therefore their content is similar in all EU countries and complies with the requirements of the EU Directive 2005/36 / EC. The program is designed for 40 hours of study per week, half or 20 hours of which are contact hours and the other half or 20 hours are individual study hours. The program is implemented in full-time full-time studies (6 semesters), in Latvian. The content of compulsory courses in pharmacy programs is internationally regulated, providing for the acquisition of skills and competencies necessary for the labor market.

The study program consists of three parts: Part A - compulsory, Part B - compulsory elective and Part C or free elective. Part A courses comply with the relevant EU Directive 2005/36 / EC and the Latvian Law "On Regulated Professions and Recognition of Professional Qualifications" and Cabinet Regulation No. 68 (19.02.2002) "Minimum Requirements for the Qualification of Dentists, Pharmacists, Nurses and Midwives".

The distribution of courses according to disciplines is the following: chemistry - 26%, pharmaceutical sciences - 33.2%, biology / medical courses - 32.8%, physics, information technology and databases - 8%, and pharmaceutical regulatory enactments, professional ethics - 2,6%. The bachelor's thesis takes 10 CP or 15 ECTS.

SP Pharmacy practice is included in the content of some study courses as practical work, for example, Introduction to hospital pharmacy practical classes take place in a hospital pharmacy. Practical work in practical pharmacy takes place in the Pharmaceutical Care Simulation Laboratory.

At the beginning of each study course, the student receives information about the requirements for obtaining credit points, intermediate examinations and the schedule of classes during the semester. The workload of students for the acquisition of the study program corresponds to 40 academic hours of work for one credit point. Study achievements are evaluated on a 10-point scale in accordance with the Cabinet of Ministers 13.05.2014. to Regulation No. 240, based on the following criteria: the amount and quality of knowledge acquired; acquired skills; the acquired competence in accordance with the planned study results. The lowest grade in study courses, which is considered positive, is 4 points (almost average). The highest rating is 10 points (excellent). In order for students to achieve the planned study results in the planned time, lecturers are provided with consultation times. The examination of intermediate results in the course of studies provides an overview of the achievement of the study results of the study program. During the semester, various forms of examinations are used: written tests, tests of multiple-choice questions in the e-learning environment (Moodle), colloquia, tests, seminars, essays and an exam. The proportion of intermediate examinations in the total assessment is up to 50%. At the end of the study course

there is an exam, which gives no more than 50% of the final grade. Students can follow the course mid-term examinations individually in their LU student e-learning website profiles. In the Moodle environment you can find lecture materials, seminar topics and presentations, a lecture plan for individual student-centered study work organization. In the tests, students are given the opportunity to fully prove their analytical, creative and research abilities, acquired knowledge and skills in the use of scientific knowledge. The diversity of the choice of methods is justified by the complex of theoretical knowledge and practical skills required for a pharmacy student, as well as the academic freedom of the lecturer permitted by law. During the reporting period, the departments and groups of professors have repeatedly discussed the requirements for The results of the final work confirm the achieved quality. The planning and supervision of the study process, the course and quality control of the study program take place in accordance with the procedures approved by the management of the study field.

The implementation of the student-centered education approach includes the following principles of student-centered learning:

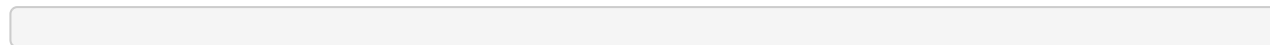
- 1) Assessors are familiar with testing and examination methods and receive support to develop their skills in this area;
- 2) Evaluation criteria and methods, as well as criteria for marking, have been published in advance;
- 3) Assessment gives students the opportunity to show the extent to which they have achieved the expected learning outcomes. Students receive feedback that, if necessary, provides advice on the learning process;
- 4) Whenever possible, assessment shall be conducted by more than one examiner;
- 5) Assessment rules take into account the various facilitating circumstances of students
- 6) Assessment is consistent, fair to all students, and is conducted in accordance with approved procedures;
- 7) there is a procedure for reviewing student appeals "

Faculty members improve teaching methods and methods in continuing education courses in pedagogy, digital skills and the use of the Moodle environment. The study environment supports students' independence in achieving their study goals, while providing lecturer guidance and support. Students have access to a modern study environment in the Torņakalna Science House with the possibility to use the library's book storage and electronic resources, as well as laptop rental points in the university premises.

The final test of the program is the defense of the bachelor's thesis. The bachelor's thesis is performed independently, receiving the supervisor's consultations and recommendations for successful work. The regulations of the final theses of the University of Latvia and recommendations for the use and design of references are available to students in e-studies. The choice of the topic of the bachelor's thesis takes place independently, in coordination with the supervisor and the director of the study program. The scientific qualification of bachelor's thesis supervisors is confirmed by the 2nd level higher professional education, master's or doctoral degree. The work is evaluated by the BSP Pharmacy Final Examination Defense Commission, which consists of a chairman, a deputy, a secretary and members of the commission. All members of the commission have a doctoral degree. The composition of the commission for the defense of bachelor's theses in pharmacy is re-approved every year by the order of the Rector of the University of Latvia. The commission for the defense of the final work, when deciding on the evaluation of the final work, takes into account the novelty of the research, the quality of the written work and presentation, and the reviewer's report. The supervisor's feedback and the

reviewer's evaluation is recommended.

The results of the final work confirm the achieved quality. The planning and supervision of the study process, the course and quality control of the study program take place in accordance with the procedures approved by the management of the study field.



3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

BSP Pharmacy introduces the latest scientific tendencies in the study process. BSP Pharmacy lecturers ensure high scientific quality of lectures and students' final theses. During the reporting period, more than 200 bachelor's theses have been developed and defended on the principles of evidence-based pharmacy (the list of defended bachelor's theses is shown in [13. pielikumsannex. FarmB_noslēguma darbu tēmu apkopojums_thesis topics_LV_ENG.docx](#)).

In the period from 2013 to 2020, BSP Pharmacy lecturers are the authors and co-authors of 43 internationally cited publications, including publications in quadrant high-impact (IF) journals, such as Nature Communications (IF 11), Molecular Neurobiology (IF 5), Cell Communication and Signaling (IF 5), Phytomedicine (IF 5), Scientific Reports (IF 4).

During the reporting period, lecturers of Pharmacy study programs have led and participated in both international (Ukraine-Latvia bilateral cooperation project, ERANET project, Taiwan-Latvia-Lithuania project, Norway-EEA project, Marie Curie-Skladovsk activities Horizon 2020 projects) and national funding research projects. (ERDF, LZP, LAS), contract work projects (SilvEXPO, RTU), LU priority areas Biomedicine and Pharmacy project, a total of 12 research projects. Developers

Students have the opportunity to conduct research work on the topics of lecturers' projects and develop a bachelor's thesis. The choice of bachelor's thesis topics is based on the scientific topics of basic medical sciences, including the pharmacy, linking them with the market trends in the pharmaceutical sector. For example, one of the main research topics of the group of pharmaceutical lecturers is the research of a new type of pharmacologically active substances with innovative pharmacological properties. Studies include the production and characterization of natural substances and their analogues, the characterization of biochemical properties, and the study of pharmacological properties in various in vitro human and animal cell models and in vivo animal models.

Clinical pharmaceutical research is relevant to the pharmaceutical industry - for example, the use of antimicrobials in hospitals, polypharmacy or the use of several drugs at the same time. Many bachelor's thesis researches in social pharmacy are carried out in pharmacies, giving prospective pharmacists the opportunity to get acquainted with the circulation of medicines in pharmacies, the procedure for reimbursement of medicines and the awareness of customers about the availability of medicines. Research in in vivo models of neurodegenerative diseases has been performed under the guidance of lecturers of the Department of Pharmacology. The search for new tumor biomarkers is taking place in a group of pharmaceutical researchers using tumor cell cultures.

Several bachelor's theses have been developed in cooperation with other Latvian scientific institutions, for example, in cooperation with the Faculty of Chemistry of the University of Latvia, the composition of herbal drugs is analyzed, and the composition of the active substance in various dosage forms is quantified. Several works in the field of pharmacognosy have been developed at the Institute of Biology of the University of Latvia. Research on the synthesis of new drugs has been carried out at the Latvian Institute of Organic Synthesis. Many works have focused on medical microbiology research on antimicrobial resistance. These works have been developed under the guidance of the teaching staff of the Department of Medical Microbiology. The high quality of bachelor's theses is confirmed by the fact that many authors with excellent bachelor's theses receive a grade of "excellent" for their master's thesis and continue their doctoral studies. For example, lecturer Karīna Narbute received an excellent grade for a bachelor's thesis in 2014, an excellent master's thesis in 2016, becomes a doctoral student (a doctoral dissertation was defended in 2020) and the bachelor's thesis supervised by the lecturer receives an excellent grade in 2019.

The quality of the bachelor's theses of the pharmacy program is confirmed by the obtained "excellent" evaluations, which are also evaluated by the issuance of the Rector's letters of commendation. Table 3.2.6.1. shows the number of letters of commendation obtained by the Rector during the reporting period.

Table 3.2.6.1.

Number of rector recognitions obtained by SP Pharmacy graduates in the reporting period

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number of rector's recognitions	8	5	3	6	4	5	4	7	42

Table 3.2.6.2.

Number of rector recognitions obtained by SP Pharmacy graduates in the reporting period (%)

Year	2013	2014	2015	2016	2017	2018	2019	2020	Kopā
Number of graduates	45	47	30	27	27	23	26	27	252
Number of rector's recognitions	8	5	3	6	4	5	4	7	42
Rector's recognition% of the number of graduates	18,00	10,00	10,00	22,00	15,00	22,00	15,00	26,00	17,00

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The resources of the SP Pharmacy consist of the provision of financial resources (source of financing - state budget grants, study program costs), infrastructure and material and technical provision, as well as methodological and informative provision.

Infrastructure and material and technical support

The material and technical provision of SP Pharmacy consists of:

1. Audiences
2. Training laboratories
3. Research laboratories

The characteristics of material and technical provision in the reporting period can be divided into several stages, but it should be clearly emphasized that it has improved and become more modern, more in line with modern development trends. The most significant changes within the material and technical provision have been the opening of the Nature House (2015) and the Science House (2019) of the Academic Center of the University of Latvia, where the implementation of BSP Pharmacy is taking place. The study process takes place in modern classrooms, which are equipped with multimedia devices, an interactive whiteboard and Internet access, ensuring the design of high-quality audio and visual lectures. The design of the auditoriums allows you to freely rearrange the layout of the tables, which ensures their applicability to various forms of training - lectures, seminars, group work or circle discussions, which also promotes a democratic and open study

process. The buildings have internet access via wireless technology. The modern study environment at the Academic Center of the University of Latvia is positively assessed by pharmacy students, noting that the new study environment has served as an additional motivating factor to study at the University of Latvia MF BSP Pharmacy.

Training laboratories

At the House of Nature and Science of the University of Latvia, the Pharmacy study programs have flow laboratories for the acquisition of biology and chemistry subjects, as well as the Pharmaceutical Compounding Laboratory (Jelgavas Street 3, Room 402) for the acquisition of theoretical knowledge and practical skills. The flow laboratories have been established in accordance with the work safety norms of 4 m² of laboratory space per 1 student, where up to 30 students can perform laboratory work at the same time. The Pharmaceutical Compounding Laboratory (97 m²) is equipped with 20 individual workstations, electronic scales, table baskets for storing substances, water baths, lubrication equipment, essential oil extraction equipment, printers for label printing, multimedia equipment (projector, screen, computer), whiteboard, fume hoods, refrigerator, freezer. For the preparation of various dosage forms there are suppository molds, pestles, capsule filling equipment, measuring cups for liquids, pipettes, a special lamp for the control of mechanical impurities of the prepared medicine. The European Pharmacopoeia and the latest online version are available in the library of the University of Latvia. This laboratory is also used in biochemistry and pharmacognosy courses, where workplaces can be supplemented with microscopes, herbariums and drug samples. Staff have a special room (28 m²) for storing and preparing materials, including a dishwasher and oven.

A Pharmaceutical Care Simulation Laboratory (Auditorium 335, 41 m²) has been established for the acquisition of social pharmacy courses.

For pharmacy students, modern chemistry laboratories are available at the Faculty of Chemistry, located in the House of Nature and equipped with individual workplaces, modern high-quality fume hoods, and equipment for laboratory work in inorganic (room 603 with 12 places), organic chemistry, analytical chemistry, which are essential basic courses for the acquisition of chemistry sub-fields, so that future pharmacists are well prepared for the acquisition of specialized courses on pharmaceutical technology and physical and chemical properties of medicines, as well as on drug quality control methods in accordance with Latvian and EU legislation. The laboratory of organic chemistry (room 602) can be used by 16 students at a time, it is equipped with all the necessary drugs for the synthesis of substances (fume hoods, electric hobs-stirrers, rotary evaporators, etc.). Analytical chemistry laboratories (rooms 615 and 617 with 12 places each) are equipped with the equipment needed for the analysis of medicinal substances, including the determination of the content of pharmaceutically active substances in pharmaceutical pharmacy products (eg titrators, analytical balances, microwave ovens, etc.).

Other faculties and structures of the University of Latvia are also involved in the implementation of SP Pharmacy - Faculty of Physics and Mathematics, Faculty of Chemistry, Faculty of Biology, Faculty of Business Administration and Economics, Language Center. Physiological examination and research equipment of cardiovascular, blood biochemistry, respiratory, metabolic, nervous muscle and sensory system functions is used in the laboratories of the Faculty of Biology for the implementation of pre-clinical study courses - metobometer, "Finopress", plethysmograph, laser doppler, mechanoelectric converter, perimeter, audiometer, bioimpedance analyzer, etc Equipment.

The concept of the Torņakalns Academic Campus of the University of Latvia is the integration of the study process and a multidisciplinary approach, which provides students with a broad, versatile and in-depth acquisition of knowledge in pharmacy, chemistry and biology.

Research laboratories

As far as possible, the link between the study program and scientific (creative) work is ensured in the Bachelor's and Master's degree program in Pharmacy of the University of Latvia, and students are involved in scientific research grants and research programs. In the research laboratories, the academic and research staff of BSP Pharmacy implements research projects in the fields of Pharmaceutical Pharmacology and Pharmacology. The research laboratories are located at both Jelgavas Street 3 and Jelgavas Street 1. The Preclinical Research Laboratories and Department of Pharmacology are located at Jelgavas Street 3, the Animal Experimental Laboratory and the Department of Medical Biochemistry and Medical Microbiology Laboratory are located at Jelgavas Street 1. Table 3.3.1.1.).

Table 3.3.1.1.

SP Pharmacy of the research laboratory for the development of students' final theses

Preclinical research laboratories, Jelgavas Street 3

Room 421 (80 m ²)	equipped with various facilities to perform immunocyto-I and immunohistological experiments using different equipment, such as the Tecan Infinity M200 Pro multifunctional microplate reader, to prepare experimental material for other equipment for Immunohistochemistry, Western Blot imaging and mass spectrometry equipment
Rooms 423, 425, 426, 427, 428, 429 (79.64m ²)	Human and animal cell culture laboratories with aseptic cell culture equipment (incubators, laminars, water bath, light microscope, cell counting machine LUNA), autoclave, other equipment for aseptic work
Room 432 (47 m ²)	Equipped with cell analysis equipment (flow cytometers, multifunctional equipment for chemiluminescence, fluorescence and colorimetric imaging)

Rooms 433, 434, 435 (25m ²)	equipped to provide gene expression analyses (UV box, PCR equipment, sequencer)
Room 437 (7m ²)	cold room (+4) for immunohistochemical reactions and Western blotting
Room 438 (14m ²)	confocal microscope Nikon C2, TILL Photonics fluorescence microscope for live tissue imaging
Room 442 (27 m ²)	preparation of samples and determination of nitrogen molecules in the devices of the Department of Medical Biochemistry
Room 443 (12 m ²)	high performance liquid chromatography and mass spectrometry equipment

Experimental Animal Laboratory Department of Pharmacology, Jelgavas Street 1

065 room (197 m ²)	Experimental Animal Laboratory - equipment for animal surgery, equipment for testing analgesia and motor coordination, equipment for video monitoring and recording of animal behaviour and modern operating theatre equipment for laboratory animal surgery
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Laboratory of Medical Biochemistry, Department of Medical Biochemistry, Jelgavas Street 1

Room 418 (42 m ²)	Medical biochemistry laboratory equipped with spectrophotometer, 2 centrifuges, pH meters, electrophoresis apparatus, scales, micropipette kits
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Laboratory of Medical Microbiology, Jelgavas Street 1

Room 415 (37m ²)	Laboratory of Medical Microbiology
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The Animal Experimental Laboratory is used to develop students' dissertations. Equipment for performing animal surgeries, equipment for testing analgesia and motor coordination, equipment for video surveillance and recording of animal behavior and modern Operating Room equipment for laboratory animal surgeries, which was purchased within the framework of the National Research Center. The cell culture laboratory is equipped with a laminar, incubator, water bath, microscope, cell counting device, which is necessary for experiments on cell cultures. The molecular pharmacy laboratory is equipped with a flow cytometer, quantitative PCR, gel imaging equipment, etc. apparatus for the analysis of various analytes. The laboratories of the Department of Medical Biochemistry have a spectrophotometer, 2 centrifuges, pH-meters, electrophoresis apparatus, scales. Laboratories are used for students' practical work, research in pharmacology and molecular genetics. The attraction of pharmacy students to research is constantly improving, especially thanks to the basic and performance funding available since 2016. In addition, the planned investment of the Structural Funds in 2016-2020. During the 2007-2013 planning period in the field of health sciences, UL FM SP Pharmacy was able to perform gene expression analyzes, perform research with the development and analysis of applied dosage forms, as both essential oil extraction equipment and extemporal ointment mixing equipment and diffusion analysis equipment for pharmacological substances were purchased.

Methodological and informative provision

Study program Pharmacy for students in the collection of the Library of the University of Latvia on 01.12.2020. 1120 printed publications are available (see Table 3.3.1.2.), of which 94% are books, 3% periodicals and 3% other publications (CD, DVD). For students of pharmacy programs, 50% of the printed publications available in the collection of the LU library are in Latvian, 39% in English, 9% in Russian and 2% in German. In total, there are 30,101 copies of printed publications in the library of the University of Latvia for the provision of the study field Health Care.

Table 3.3.1.2. Literature available in the library for the implementation of Pharmacy study programs

UL study field "Health Care"

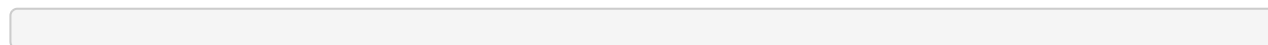
Total printed editions in the LU Library collection as of 01.12.2020

Printed Editions (Copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other

Pharmacy	1120	1049	32	39	558	436	100	21	5
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Total number of items in the study field in the collection of the UL Library: 30101 copies

Students have very wide access to a variety of e-resources - both the most popular databases in EBSCO database medicine - AHFS Consumer Medication Information, EBSCO Academic Search Complete, Web of Science, Scopus, ClinicalKey, MEDLINE Health Source: Nursing / Academic Edition, European Pharmacopoeia, SpringerLink, Emerald eJournals Premier, Oxford Journals JSTOR, ProQuest Dissertations & Theses Global, SAGE Journals Online, SAGE Research Methods, ScienceDirect, Physical Review Online Archive (PROLA), UpToDate, and a very extensive e-book library from the e-book platform Dawsoner and ProQuest Ebook Academic Complete.



3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Based on the cost calculation of the bachelor's study program according to the developed methodology, the main cost items are teachers' remuneration - 46%, followed by general staff - 15%, property and services - 9%, infrastructure expenses 4% and 26% indirect costs.

The sources of financing are the state budget grant and tuition fees.

The state budget grant for a study place for each calendar year is determined in accordance with the annual agreement between the Ministry of Education and Science (MES) and the University of Latvia, taking into account the base costs of the study place in a given year, the level of the study program and the cost ratio. The budget grant for one study place at BSP Pharmacy is 4 890 EUR, which consists of the basic funding of 1630 EUR, the level coefficient 1 and the study field coefficient 3.

Tuition fees at the University of Latvia are determined by a separate order for each academic year, taking into account the cost of the study place, including all costs of the study process (see above), tuition fees for similar programs at other universities and potential students' interest in the study program.

SP Pharmacy tuition fee is 2400 EUR per year.

Taking into account the provision of financial resources, calculations are made and various solutions are implemented to optimize the cost of studies, for example, students are offered a compact set of elective courses, maximum once every two years, but still retaining full access to high-quality pharmaceutical knowledge.

The funding available for BSP Pharmacy is both a state grant and tuition fee revenue. In 2021, the state budget grant funding was 127,140 EUR, while tuition fee revenue was 85,200 EUR. The total funding is 212,340 EUR, of which 157,132 EUR remains at the disposal of the faculty. The cost per 1 student is 2627 EUR.

In order to ensure the profitability of BSP Pharmacy the minimum number of students is 25

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The qualification of lecturers complies with the Law on Higher Education Institutions and the regulatory enactments of the University of Latvia, which determine the qualification of lecturers in academic bachelor study programs:

* MK 23.01.2018. Regulations No. 49 Regulations on Latvian Science Sectors and Sub-Sectors [1].

* 11/1995 Law on Higher Education Institutions [2].

* Regulations of the Study Programs and Continuing Education Programs of the University of Latvia [3] (Senate Decision No. 102 (24.04.2017))

In order to ensure the implementation of a high-quality and innovative study program, several criteria have been used for the selection of lecturers to be involved in the Bachelor's program in Pharmacy:

1. Compliance of the qualification of the teaching staff with the requirements specified in regulatory enactments;
2. The direction / interests of scientific research correspond to the content of the study program / course, relevant publications and work experience;
3. Appropriate knowledge of the state language and foreign languages.

The qualification of the lecturers is confirmed by their competence in the field of scientific research and professional activity, which is also in accordance with the study program and the content of the taught courses. The application of selection criteria ensures that the implementation of the study program involves teachers who not only have pedagogical work experience in student training, but also who carry out active scientific and professional activities to achieve the goal of the study

program to prepare new specialists in the pharmaceutical sector.

In-service training of teaching staff takes place in the following ways:

- * At least once a year, the teaching staff participates in the international scientific conference of medicine organized by the University of Latvia FM, which has a section on basic medical sciences, including pharmacy.

- * Lecturers and professors from various Latvian and foreign universities participate in the section with reports. Lecturers participate in international scientific conferences, Erasmus + mobility, NordPlus mobility, local and international research projects.

- * Lecturers participate in the work of non-governmental organizations, state and European Union institutions (for example, the Latvian Pharmacists' Association, the Latvian Pharmacological Society, the State Agency of Medicines, the European Medicines Agency, the European Hospital Pharmacists' Association, etc.)

- * Lecturers participate in further education courses in addition to English language training, leadership skills and digital skills courses, which take place at LU 8.2.2. within the framework of the specific support objective project "Academic staff renewal and improvement of competencies at the University of Latvia".

SP Pharmacy 2019/2020. akad. Visiting professor Vadims Parfejevs, Dr.pharm, with five years of internship experience in Switzerland at the Institute of Anatomy in Zurich, taught a lecture course on Pharmaceutical Cell Biology with the task of creating laboratory works for acquiring research skills. During the reporting period, several foreign guest lecturers have lectured on pharmacology, pharmacognosy and formulation technology at SP Pharmacy, for example, a very good cooperation has been established with the Medical University of Plovdiv (Bulgaria), from which several lecturers have visited the University of Latvia and lectured, led classes for SP Pharmacy students.

List of BSP Pharmacy Lecturers

3.4.1. table

UL FM			
Name, surname	Position	Scientific degree	Study courses
Ruta Muceniece	professors	Dr.hab.biol.	Pharmaceuticals Pharmacokinetics, Bachelor Thesis
Nikolajs Sjakste	professors	Dr.med.	Biochemistry I, Biochemistry II
Imanuels Taivans	professors	Dr.med.	Pathphysiology, Mechanisms of Diseases
Gunta Strazda	associate professors	Dr.med.	Pathphysiology, Mechanisms of Diseases

Kristīne Saleniece	assistant professors	Dr.pharm.	Pharmaceutical Compounding Pharmacognosy, Biosynthesis of Active Substances in Herbs, Bachelor Thesis
Jana Namniece	assistant professors	Dr.pharm.	Practical Pharmacy
Una Riekstiņa	professors	Dr.biol.	Medical microbiology. Immunology, Current research methods in pharmacy. Drug Metabolism , Bachelor Thesis
Iveta Līduma	assistant professors	Dr.med.	Pharmaceutical microbiology, Bachelor Thesis
Zane Dzirkale	assistant professors	Dr.pharm.	Pharmacology and Pharmacotherapy I, Pharmacology and Pharmacotherapy II, Bachelor Thesis
Evita Rostoka	assistant professors	Dr.med.	Biochemistry I, Biochemistry II, Bachelor Thesis
Kaspars Jēkabsons	researcher	Mg.pharm.	Current research methods in pharmacy, Bachelor Thesis
Aleksejs Miščuks	associate professors	Dr.med.	First Aid
Iveta Golubovska	assistant professors	Dr.med.	First Aid
Inta Čerņavska	lecturers		First Aid
Jolanta Bērzmārtiņa	teacher		Latin
UL FC			
Liene Feldmane	teacher	Mg.chem.	Forensic Chemistry
Anda Prikšāne	associate professors	Dr.chem.	Organic Chemistry, Environmental chemistry and toxicology

Jāzepe Logins	assistant professors	Dr.chem.	Organic Chemistry
Iveta Ancāne	assistant professors	Dr.chem.	Inorganic Chemistry, General Chemistry
Jānis Ģībietis	assistant professors	Dr.chem.	Pharmaceutical Chemistry
Ruta Gigele	lecturers	Mg.chem.	Clinical pharmacy, Analytical Chemistry I Bachelor Thesis
Kristīne Parasiga-Parasiņa		Dr.chem.	Civil protection, Bachelor Thesis
UL FB			
Karīna Kaziniece	assistant professors	Dr.biol.	Anatomy and Physiology
Egita Zviedre	assistant professors	Dr.biol.	Botany
Līga Ozoliņa-Molla	associate professors	Dr.biol.	Plant and Animal Biology
UL FFMO			
Virgīnija Vītola	researcher	Dr.phys.	Physics
UL FGES			
Oskars Purmalis	assistant professors	Dr.	Environment protection
UL FH			
Ilze Ruža	lecturers		English for Pharmacy I, English for Pharmacy II
UL FEPA			
Zane Rosta	teacher	Mg.psych.	Psychology

[1] <https://likumi.lv/ta/id/296661-noteikumi-par-latvijas-zinatnes-nozare-un-apakšnozare>
available only in Latvian

[2] <https://likumi.lv/ta/en/en/id/37967/>

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

During the reporting period, the basic staff of the SP Pharmacy is stable and, in accordance with the inclusion of new courses in the study program, new lecturers have been added (see Tables 3.4.2.1.) Student surveys show high satisfaction with the quality of teaching. Academic career development has taken place for several lecturers, for example, docent Gunta Strazda has become an associate professor, associate professor Una Riekstiņa has become a professor, lecturer Iveta Līduma has been elected an assistant professor. Zane Dzirkale defended her doctoral degree in pharmacy in 2014 and was elected an assistant professor. Jana Namniece defended her doctoral degree in pharmacy in 2017 and in 2019 she was elected a researcher at MF. After defending his doctoral degree in 2017 and a 5-year internship at the Institute of Anatomy in Zurich, Switzerland, in 2018 Vadims Parfejevs was attracted to SP Pharmacy as a guest lecturer. In 2020, Elīna Leonova was elected an assistant professor at the Department of Medical Biochemistry. Research Assistant Līga Kunrade was elected a researcher in 2019 and in 2020 Līga Kunrade received a doctorate in basic medical sciences, including pharmacy. Courses in Chemistry, Biology, Physics and Foreign Languages are taught by lecturers from the faculties of Chemistry, Biology, Physics, Mathematics and Optometry, and the Humanities, who provide qualified teachers with specialized courses and a multidisciplinary approach.

Table 3.4.2.1.

During the reporting period, SP Pharmacy recruited teaching staff

Name, surname	Position	Scientific degree	Study courses
Inese Sviestiņa	assistant professors	Dr.pharm.	Clinical pharmacy, History of Pharmacy, An introduction to epidemiological study designs, Bachelor Thesis
Jānis Kurlovičs	lecturer	Mg.pharm.	Genetics, Bachelor Thesis
Līga Kunrade	researcher	Dr.pharm.	Molecular pharmacy, Bachelor Thesis
Vadims Parfejevs	guest assistant professors	Dr.pharm.	Pharmaceutical cell biology, Bachelor Thesis

Ilona Vanaga	researcher	Mg.chem.	Food Additives, Bachelor Thesis
Elīna Leonova	researcher	Dr.biol.	Biochemistry I, Bachelor Thesis
Jana Namniece	researcher	Dr.pharm.	Pharmaceutical Compounding, Bachelor Thesis, Practical Pharmacy

The lecturers of BSP Pharmacy have extensive experience in both academic lectures and research, which is confirmed by publications in local and internationally cited journals, doctoral theses, involvement in research projects and expertise in public administration and EU institutions, such as the State Agency of Medicines, Latvian Pharmacists Association, The European Medicines Agency.

Lecturers of SP Pharmacy represent several branches of science, which ensure interdisciplinary cooperation and involvement of experts in the respective fields in the educational process of pharmacists, which is a significant advantage of the University of Latvia as a classical type university. For example, chemistry courses are taught by lecturers of the Faculty of Chemistry of the University of Latvia, while courses in biology, physics, psychology and foreign languages are taught by lecturers of the respective faculties of the University of Latvia.

During the reporting period, the number of credit points in the courses Pharmaceutical Cell Biology (from 3 to 4.5 ECTS) and Pharmacology and Pharmacotherapy II (from 3 to 4.5 ECTS) has been increased at the suggestion of students and graduates of the program, as this knowledge is required for pharmacists working in pharmacies. A Pharmaceutical Care Simulation Laboratory has been set up to enable students to acquire customer service and communication skills. In the 6th semester, a new Part A course Psychology was developed to gain knowledge of communication and conflict resolution strategies that will be useful in working with clients. The program includes the course Farm3013 Introduction to Epidemiological Research Design, 3 ECTS, which provides an overview of the basic principles of clinical and epidemiological research, and Farm2009 Introduction to Hospital Pharmacy, 3 ECTS to provide insight into the operation of closed pharmacies and introduce the profession of hospital pharmacist.

Regulations of the Cabinet of Ministers No. adopted by the Republic of Latvia 716 "Minimum requirements for the content of the compulsory civil protection course and the content of civil protection training for employees", adopted in 2017, stipulates that the compulsory course Civil Protection and Environmental Protection must be included in the study program. Since 2018, it has been included in the SP Pharmacy study course plan.

The high qualification of the lecturers ensures the acquisition of knowledge corresponding to the current events of the pharmaceutical industry and the regulated profession for the students of the Bachelor of Pharmacy program. The quality of knowledge is confirmed by many bachelor's theses supervised by SP Pharmacy lecturers, who have received an evaluation of "excellent" and a letter of commendation from the Rector during the reporting period. The high quality is also confirmed by the almost 100% enrollment of SP Pharmacy graduates of the University of Latvia at the University of Latvia and the advancement of further academic careers in doctoral studies at the University of Latvia and foreign universities.

During the reporting period, lecturers have completed internships at the LU study environment Moodle program courses, English language courses and digital skills courses. Professional internship of lecturers is ensured by involvement in the attraction and implementation of research projects, participation in international scientific conferences and further education courses organized by the Latvian Pharmacists' Association.

SP Pharmacy lecturers meet every semester to evaluate the topicality of the program and the opinion expressed by students in the LUIS survey on the quality of the course and program content, discuss the improvement of the course content and coordinate the distribution of bachelor's thesis topics and reviews.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

SP Pharmacy lecturers represent several branches of science - doctoral degrees have been obtained in pharmacy, medicine, biology, chemistry and economics, which is a great advantage that arises from the existing interdisciplinary cooperation at the University of Latvia. For example, chemistry courses are taught by lecturers of the Faculty of Chemistry of the University of Latvia, biology courses - professors of the Faculty of Biology, physics courses - lecturers of the Faculty of Physics, Mathematics and Optometry, foreign languages - lecturers of the Faculty of Humanities.

The course of pathophysiology is taught by the Department of Anatomy, while pharmacology is taught by the Department of Pharmacology. Department of Medical Microbiology teaches medical microbiology and biochemistry is taught by the Department of Medical Biochemistry. Thus, students receive lectures from the best specialists in the field, which are provided by the University of Latvia as a classical type university. Interaction and co-operation between academic lecturers takes place within the collegial institutions of the FM, while inter-faculty co-operation takes place during various events organized by the University of Latvia: staff meetings, scientific conferences, science cafes, further education courses and information meetings on science projects. During the reporting period, the faculties, departments and groups of professors discuss the requirements for obtaining credit points in the study course every semester, as well as update the course content in order to harmonize knowledge, skills and competencies with the latest development trends in the field. Lecturers improve the ways and methods of teaching in continuing education courses in pedagogy, digital skills and the use of the Moodle environment. Lecturers' meetings discuss the addition of the latest industry literature and useful databases to the library's collections.

At the end of each semester, SP Pharmacy lecturers meet to evaluate the students' views on the quality of the course and program content expressed in the LUIS survey, and, based on the students' proposals, discuss the improvement of course content and coordinate the distribution of bachelor's theses.

SP Pharmacy study process planning and supervision, program acquisition process and quality control takes place in accordance with the procedures approved by the management of the study field.

Thus, the proportion of the number of the students and the teaching staff within the study programme was approximately 1: 3. If calculated against the number of KP to be realised, the ratio of readers against KP is 1:8, which shows that one reader leads a 8 KP course on average in the academic year.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_FarmB_Diploma_Eng.docx	11.pielikums_FarmB_Diplomas_pielikums_LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	9.annex_FarM_FarmB_AIP_55_2_option_Eng.docx	9.pielikums_FarmB_AIP_atzinums_LV.pdf
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_FarmB_student_statistics_ENG.docx	4.pielikums_FarmB_studentu_skaita_statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	5.annex_FarmB_Compliance with the state education standard_Eng.docx	5.pielikumsFarmB_atbilstiba_valsts_izglitiba_standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	6. annex_FarmM_FarmB_Compliance with the specific regulatory framework of the relevant industry_Eng.docx	6.pielikums_FarmM_FarmB_atbilstiba_atbilstošās_nozares_specifiskajam_normatīvajam_regulējumam_LV.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_FarmB_Mapping of study courses_Eng.docx	8.pielikums_FarmB_studiju_kursu_kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_FarmB_study_plan_Eng.docx	1.pielikums_FarmB_studiju_plāns_LV.docx
Descriptions of the study courses/ modules	7.annex_FarmB_course_descriptions_ENG.docx	7.pielikums_FarmB_kursu_apraksti_LV.docx
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	10.annex_FarmB_Declaration_Eng.docx	10.pielikums_FarmB_apliecin_AL_55_pLV.jpg

Radiography (42722)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Radiography</i>
Education classification code	<i>42722</i>
Type of the study programme	<i>Professional bachelor study programme</i>
Name of the study programme director	<i>Ainārs</i>
Surname of the study programme director	<i>Bajinskis</i>
E-mail of the study programme director	<i>ainars.bajinskis@lu.lv</i>
Title of the study programme director	<i>Dr. Biol.</i>
Phone of the study programme director	<i>+37126528621</i>
Goal of the study programme	<i>The aim is to prepare competent, modern-day, multi-professional specialists in radiography for working with modern digital technologies and with skills in patient care radiology and radiotherapy, working in different medical institutions in Latvia. The training of specialists is carried out in accordance with the standard of the radiography profession, ensuring the development of the personality of students and the possibility of obtaining second-level professional higher education.</i>
Tasks of the study programme	<p><i>Objectives:</i></p> <ol style="list-style-type: none"> <i>1. to ensure the acquisition of the skills necessary for radiography work in accordance with standards of the profession of radiologist's assistant and radiographic;</i> <i>2. developing practical skills for the practical use of radiographic techniques;</i> <i>3. developing practical skills in image acquisition, digital processing, archiving and maintenance, quality assurance of the study;</i> <i>4. to ensure the use of professional skills and academic knowledge in internship during studies;</i> <i>5. to develop organisational, administrative and pedagogical work skills, as well as analytical capacity and precision in the application of regulatory enactments;</i> <i>6. to develop high professional medical ethics in students and to offer basic social skills in communication, independent and team work;</i> <i>7. to create the necessary conditions for the training of competitive, highly qualified radiographic specialists in the Latvian labour market;</i> <i>8. Ensure flexible access to the content of the study process as regards the changing economic situation</i>

Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. describe the principles for the application and operation of radiographic techniques; 2. define a system of quality assurance and maintenance in radiography; 3. summarises dose optimisation. <p>Skills:</p> <ol style="list-style-type: none"> 4. can apply modern radiographic techniques (x-ray, mammography, CT, magnetic resonance, radionuclide diagnosis, hybrid nuclear medical examinations), selecting appropriate protocols according to the clinical situation and ensuring the maximum quality of the study result with a minimal dose for the patient; 5. use radiotherapy procedures (radiotherapy, radionuclide therapy) according to the treatment plan and existing protocols; 6. participate in ultrasonography examinations; 7. interpret and analyse the digitally obtained image by post-processing, creation and maintenance of a digital archive, in accordance with the procedures for the circulation of the images; 8. apply the principles, emergency measures and patient education in radiology to patient care, in compliance with the legislation on patient protection and rights, as well as radiation safety and protection; 9. organise and manage the work of the multidisciplinary radiology team; 10. analyse and interpret the information referred to in professional literature; 11. use information search techniques, taking into account different techniques for the protection of digital devices and content, personal data and privacy in the digital environment; 12. find innovative solutions to day-to-day challenges; 13. developing communicable skills when operating in a team; 14. apply research results to their professional activities. <p>Competences:</p> <ol style="list-style-type: none"> 15. able to analyze and synthesize, organize and communicate; 16. able to work in a team, criticize and self-criticize, integrate multidisciplinary teams, understand diversity and intercultural issues; 17. able to use theoretical knowledge in practice, learn, adapt to new situations, generate new ideas, apply leadership and autonomy.
Final examination upon the completion of the study programme	Bachelor's Thesis

Study programme forms

Full time studies - 4 years - latvian

Study type and form	Full time studies
Duration in full years	4

Duration in month	0
Language	<i>latvian</i>
Amount (CP)	160
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional Bachelor's degree in radiography</i>
Qualification to be obtained (in english)	<i>Radiographer</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Some changes have been made in the parameters of professional bachelor study programme Radiography (further PBSP Radiography) to improve the content of the study programme.

1. The aim of the study programme

- **Previous accreditation period:** The aim of the PBSP Radiography is to prepare competent, modern, multi-professional specialists in radiology, to work with modern digital technologies, with skills in patient care in diagnostic radiology, radiotherapy, working in various medical care institutions in Latvia, according to the state standard for second level professional education, the professional standard of a radiologist's assistant and the professional standard of a radiographer, ensuring the development of students' personalities and the opportunity to obtain a second-level professional higher education, and, if necessary, continuing their studies in professional master's study programmes.
- **In the new accreditation period:** The aim is to prepare competent, modern, multi-professional specialists in radiography to work with modern digital technologies and with skills in patient care in radiology and radiotherapy, working in various medical care institutions in Latvia. The training of specialists takes place in accordance with the standard of the radiographer's profession, ensuring the development of students' personalities and the opportunity to obtain a second-level professional higher education.

Justification: The aim of the PBSP Radiography is more specific and more appropriate to the specifics of the radiography specialists to be trained in the field of health care.

2. Results of the study programme

Justification: The results of the PBSP Radiography have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia, as well as are binding with the requirements of the radiograph standard.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

PBSP Radiography corresponds to the study field Health Care, because, in accordance with the

regulations of the Cabinet of Ministers No. 322 "Regulations on the Classification of Education in Latvia", the code for the study programme is 42722, which means the second level professional higher education (fifth level professional qualification and professional bachelor's degree) with the four years duration of full-time studies, as well as Health care Medical services.

The PBSP Radiography fully complies with the goal of the study direction Health Care to prepare competent health care specialists for the needs of the Latvian economy.

The purpose of the implementation of PBSP Radiography is to prepare competent, modern-day, multi-professional specialists in radiography for working with advanced digital technologies and with skills in patient care in radiology and radiotherapy, working in different medical institutions in Latvia. The training of specialists is carried out in accordance with the standard of the radiographer profession, ensuring the development of the personality of students and the possibility of obtaining second-level higher education in accordance with the sixth level of the Latvian Qualifications Framework, as well as a professional bachelor's degree in radiography.

Students in a PBSP Radiography acquire basic knowledge required for professional activity in radiography, as well as knowledge and skills in computerized tomography, magnetic resonance, ultrasonography, nuclear medicine and radiotherapy, thereby meeting the demand for high-profile specialists in the current labour market. So-prepared specialists are able to provide the so-called rotation principle in radiology departments of medical establishments, where one specialist is able to work with several facilities and with different methods, thereby promoting the continuous professional development of staff.

The results expected in studies are reflected in the study course descriptions available on the UL home page, in e-studies. At the first meeting, the lecturer informs students about the results and evaluation criteria to be achieved in the course. Upon successful completion of the PBSP Radiography, the student has been prepared as a radio-imaging specialist, a radiographer.

Admission conditions are in accordance with the admission conditions in the study field. The PBSP Radiography is also implemented as a continuation of studies at the later stages of the study of graduates of the "Radiologist's Assistant" of the P. Stradiņš Medical College, through the alignment of the study program with PBSP Radiography and the recognition of the relevant courses. Accordingly, admission takes place in the fourth year of study and it may be necessary for students to take part in one of the courses not included in the college programme, in addition to the courses of the fourth year, according to the recognition of study courses.

During the reporting period, PBSP Radiography was carried out in full, i.e. 4 years, by announcing admissions during the first year of study, but the teaching staff had increased loads for internship and the internship in medical establishments was very problematic, and therefore, in agreement with the college and professional associations, it was decided to take several years to admit students at later stages of studies.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

In Latvia, PBSP Radiography is a unique study programme, as no other higher education institution implements an equivalent study programme. The economic and social justification is based on the fact that with the continuous development of the field of radiology/ radiography, Latvia also needs trained specialists whose knowledge complies with the guidelines developed by the European

Federation of Radiographer Societies. The study programme is based on the guidelines developed by the European Federation of Radiographer Societies for Level 6 of the European Qualifications Framework for radiographers regarding the content of the programme.

In the current situation, there is a constant demand for radiographers, because in the past, the change in the education system of these professionals has historically led to a large number of professionals who are now of pre-retirement and even retirement age. The demand for radiographs remains high in many medical institutions, as radiographers are specialists who are able to rotate within radiology departments, i.e. to work with different radiological technologies.

PBSP Radiography was established and started enrolling students in later study stages (4th year) in 2011. Since then, PBSP Radiography has been implemented once, in 2013, from the 1st year, announcing admission. 30 students started their studies, but there was a significant drop-out rate, as many of them realized that it was not their chosen profession. In addition, there were big problems with the workload of lecturers, practical classes and clinical placements in university hospitals, as there were in parallel students of PBSP Radiography and students of the college study program Radiologist Assistant. Therefore, after consultations with the professional association and employers, it was agreed that in the current situation, students should continue to be admitted to studies at later stages of studies, after graduating from the radiology assistant program at the college. This gives graduates the opportunity to choose whether to continue their studies to obtain a radiographer's qualification to work with more complex radiology technologies, or to work mainly with X-ray equipment.

The demand for radiography specialists is continuous, employers also promote studies at PBSP Radiography by covering tuition fees. All graduates work in the profession, almost all in Latvia. There is information on 3 graduates working in the UK, Denmark and Sweden.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

In the year 2020/2021, the number of students in the PBSP Radiography was 22 students (the statistical data will be shown in Fig. 3.1.4.1. and Annex 8). The number of students tends to stay above 14 in the fourth year of enrollment, even at the relatively low number of college graduates who have expressed a desire to pursue studies in UL. This is due to the fact that individuals who have already acquired first-level higher education with the qualification of radiologist's assistant in 2011-2015, decide whether or not the employer recommends continuing their studies in the PBSP Radiography from the 7th semester. In addition, there are a number of employers (MFD Health Group, Vidzeme Hospital) who pay tuition fees to those choosing to study. The large changes in the number of students in 2013/2014 (14) relate to the admission of 30 students in the 1st semester and 11 of these students decided to discontinue their studies, expressing initial willingness to study at FM of UL, but after first contact with the radiography profession in the medical establishments, they have understood that this is not an area of choice. In addition, one of the students in the 7th semester decided to terminate studies because were unable to combine studies with their work and, for the first time, 2 students did not pass the final test, i.e. the bachelor's work. In 2014/2015, the number of students reflects only the number of students in semester 3, since the 7th semester group was not fully set up.

The reflection of the 7th semester of student graduation is not accurate, since students (usually 1 or 2) who are unable to combine studies with work later are better able to combine studies with work, they resume and complete studies in the next year of study. Also, 2 out of 3 Bachelor Thesis failures were able to complete the thesis next year.

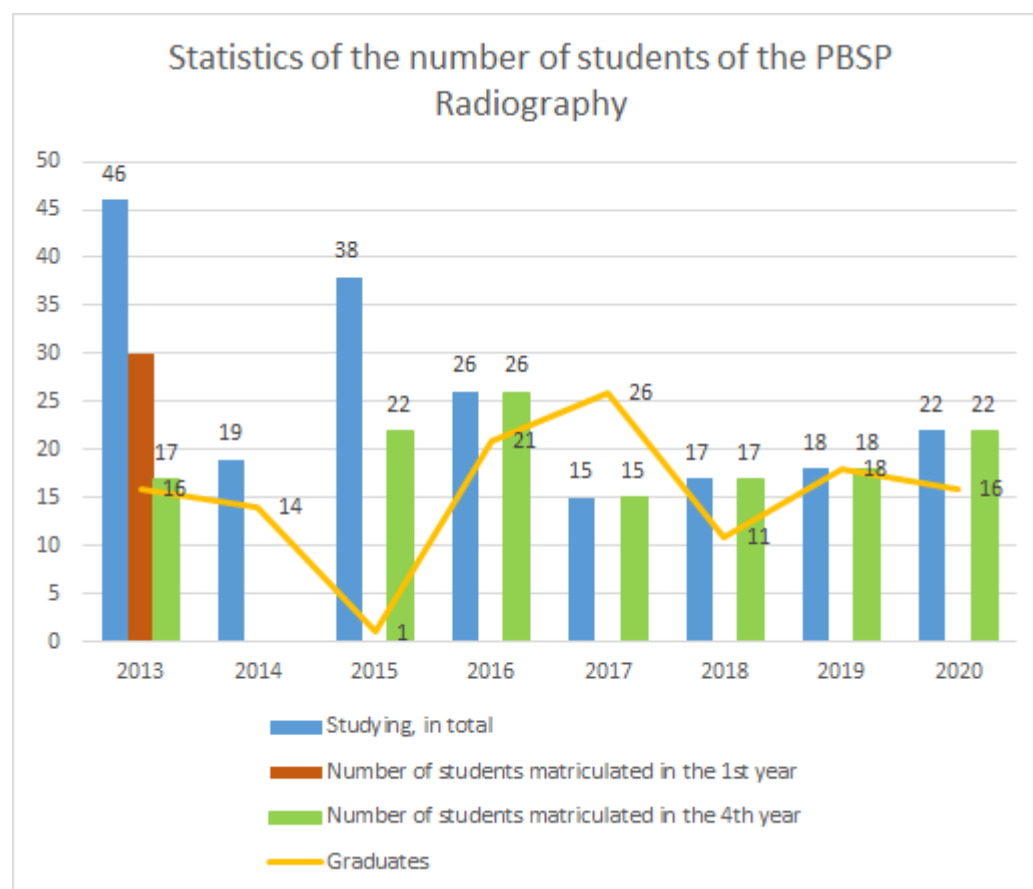


Figure 3.1.4.1. Dynamics in PBSP Radiography number of students'

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

PBSP Radiography was developed on the basis of the Cabinet Regulation No 481 of 20 November 2001 on the “Regulations regarding the State Standard for the Second Level Higher Professional Education”, which governed the minimum content of the bachelor's study program. The PBSP Radiography has been adapted and complies with the Cabinet Regulation No 512 of 26 August 2014 on the ‘Regulations regarding the State Standard for the Second Level Higher Professional Education’[113], [link is available in Latvian](#). In addition, the content of the study programme has been adapted to the guidelines developed by the European Federation of Radiographer Societies for Level 6 of the European Qualifications Framework for radiographers regarding the content of the programme <https://api.efrs.eu/api/assets/posts/205>.

The results of study courses are consistent with the results to be achieved in the study program, using the mapping of study results, see Annex 11.

Study courses are interrelated and consecutive, initially providing basic knowledge and then continuing with in-depth knowledge and skills to achieve specific results: *Anatomy and physiology I, Anatomy and physiology II, Radiological Anatomy I, Radiological Anatomy II, General Medicine I, General Medicine II, General Physiology II, General Pathophysiology and Pharmacology, Immunopathology and Radiological Pharmacology, Procedures Engineering Standards I, Procedures Engineering Standards II, Patient Care in Radiology I, Patient Care in Radiology II, Radiographic Science, Imaging Diagnostics I, Radiographic Science, Imaging Diagnostic II, Skeletal Radiography, Projection Training I, Skeletal Radiography, Projection Training II, Radiotherapy and Oncology I, Radiotherapy and Oncology II*; and other study courses to achieve the overall objectives and results of the study program, e.g. *Radiology Methods I, Radiology Methods II, Radiology Methods III*.

PBSP Radiography study courses linking to study programme objectives is listed in Table 3.2.1.1. Objectives of the study programme:

1. to ensure the acquisition of the skills necessary for radiography work in accordance with standards of the profession of radiologist's assistant and radiographic;
2. developing practical skills for the practical use of radiographic techniques;
3. developing practical skills in image acquisition, digital processing, archiving and maintenance, quality assurance of the study;
4. to ensure the use of professional skills and academic knowledge in internship during studies;
5. to develop organisational, administrative and pedagogical work skills, as well as analytical capacity and precision in the application of regulatory enactments;
6. to develop high professional medical ethics in students and to offer basic social skills in communication, independent and team work;
7. to create the necessary conditions for the training of competitive, highly qualified radiographic specialists in the Latvian labour market;
8. Ensure flexible access to the content of the study process as regards the changing economic situation.

Table 3.2.1.1.

PBSP Radiography study courses linking to study programme objectives

Study course	Objectives of the study programme							
	1	2	3	4	5	6	7	8

Part A					
General education study courses					
Record keeping and Correspondence	x			x	
Entrepreneurship	x			x	
Basics of Psychology and Pedagogy	x			x	x
Computer Science	x			x	
Medical Latin	x			x	x
English Terminology for Radiographers	x			x	x
Research	x				
Civil protection	x			x	
Environment protection	x			x	
Injury Biomechanics	x				x
Theoretical basic courses in the field					
Cell biology	x				
Radiation Physics	x				
Medical Equipment in Radiology, Radiation Protection and Dosimetry	x		x	x	
Quality Assurance and Quality Control in Radiology	x		x		
Anatomy and Physiology I	x				
Anatomy and Physiology II	x				
Radiological Anatomy I	x				
Radiological Anatomy II	x				
Basic pathophysiology and pharmacology	x				

Immunopathology and Radiological Pharmacology	x				
General Medicine I	x				
General Medicine II	x				
Radiography and Ethics	x			x	
Emergency and Disaster Medicine	x	x			
Professional specialization courses in the field					
Standards of Procedures' Technique I	x	x			
Standards of Procedures' Technique II	x	x			
Patient Care in Radiology I	x				
Patient Care in Radiology II	x				
Radiographic Science, Imaging I	x		x		
Radiographic Science, Imaging II	x		x		
Musculoskeletal Radiography, Projection Lesson I	x	x	x		
Musculoskeletal Radiography, Projection Lesson II	x	x	x		
Course work in quality assurance and quality control in radiography	x				x
Course work in patient care in radiology	x				x
Course work in radiography	x				x
State examinations and practice					
Clinical Placement I	x	x		x	x
Clinical Placement II	x	x		x	x
Clinical Placement III	x	x		x	x
Bachelor thesis	x				x

Part B

Radiology technology study courses

Radiotherapy and Oncology I	x						
Radiotherapy and Oncology II	x	x	x			x	x
Diagnostic nuclear medicine	x		x			x	x
Interventional radiology	x		x			x	x
Radiology Techniques I	x	x	x			x	x
Radiology Techniques II	x	x	x			x	x
Radiology Techniques III	x	x	x			x	x
Radiography of Systems I	x		x				x
Pediatric Radiography	x		x				x

In order to assess the study process more effectively, students are surveyed after the graduation of each study course to find out their views on both the relevance and extent of the specific study course within the programme and the effectiveness of teaching. This feedback allows the Director of the Programme to identify in good time the level of cooperation between teaching staff and students, as well as to assess the quality of teaching and, if necessary, to decide on the necessary improvements or changes. The survey of students is conducted electronically. The study course rating is on a scale of 0-7, where 7 corresponds to the highest score and the 0-lowest. The professors get to know the results of the surveys during the annual negotiations.

Overall, in the 2019/2020 survey of students on study courses, the lowest score was 5,80 out of a maximum of 7; the average score was 6.45. Students most welcomed the relevance of the content of study courses to the description of the course, the ability of the staff to explain themes and the teaching methods applied by the staff, which have contributed to the learning. By comparison, in 2016/2017, the average score for study courses was 6.3, where students were most critical of the teaching methods and availability of individual staff members for tutorials. The annual discussions examined these problems and found solutions: 1 lecturer has been replaced and it is recommended that staff and students agree electronically on specific consultation times. The results of student surveys on study courses are presented in Table 3.2.1.2.

Table 3.2.1.2.

Results of the survey of the PBSP Radiography students about the study courses

Study course	Academic year					Mean (max score 7 points)
	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020*	

Radiology Techniques I	5,89	6,22	5,72	6,85	6,23	6,18
Radiology Techniques II	6,05	6,16	5,68	6,79	6,29	6,19
Radiology Techniques III	6,60	6,35	5,11	6,37*	6,31	6,15
Radiotherapy and Oncology II	5,87	6,39	6,16	6,71	6,71	6,37
Injury Biomechanics	6,66	6,38	6,46	6,66	6,69	6,57
Mean (max score 7 points)	6,21	6,30	5,83	6,68	6,45	6,29

* - was replaced by Diagnostic nuclear medicine with an average rating of 6.37

At the end of each academic year, student surveys on the study process are carried out, the results of which are discussed during the annual discussions of the teaching staff of the study programme.

In 2019/2020, in graduate polls, the average study environment score was 6.4, with a lower estimate of 5.9 for support from the student council and self-government. As a result, we are thinking of how to attract students' self-government representatives to better familiarise themselves with the work of self-government. It should be noted that, in recent years, the survey had the lowest score (5.8) for resources offered by the UL Library. Following this evaluation, the cooperation between the teaching staff of the study programme and the Library of Sciences was improved by creating a separate literature shelf in the radiology sector, with students engaging in practical input in the search for and use of the digital resources of the library.

The study process was assessed at an average of 6.2, with the lowest score of 5.9 receiving opportunities for international experience in studies offered by UL. In 2019/2020, for the first time, two students applied for Erasmus+ mobility to Oulu, Finland, but only one of the students went to mobility, because the other had problems with maintaining the workplace and securing residence payments during mobility. Students pointed out that the “working does not interfere with studies” was the lowest assessment (4.6). After graduating from college, there is a desire to work full-time, so it is difficult for students to combine their studies with work. In the theoretical part, doctors offer a variety of opportunities for independent work for those students who have difficulties in attending onsite classes, explaining these opportunities at the beginning of the course. The biggest problem with combining studies with work is the practice. At the moment, we are looking for ways and opportunities to organize practice in such a way that practice managers allow students to agree with each other on how to attend the practice. This problem has been addressed for practice in the simulation environment, but in medical treatment facilities such flexibility is burdensome for internship managers, so we intend to establish an electronic recording system for practice classes.

The students had appreciated welcoming clerks (score 6.9), an appropriate degree of difficulty in the study program (score 6.8) and work according to the acquired education (corresponding to duties, applied skills) (score 6.7) (see Table 3.2.1.3.).

Table 3.2.1.3.

Results of the survey of the graduates of the PBSP Radiography about the study programme in the spring of 2020

16 out of 16 students answered (100%)

Scale: **0**- Don't know, I can't say **1**-Completely disagree, **2**-Strongly disagree, **3**-Rather disagree, **4**-Neutral, **5**-Rather agree, **6**-Strongly agree, **7**-Completely agree

						Mean	St dev
Study environment	1	Material and technical provision suitable for studies (availability of premises, computers and Internet)				6.4	0.3
	2	A knowledgeable and supportive lecturer				6.5	0.3
	3	Responsive clerks				6.9	0.1
	4	The resources offered by the UL library are useful				6.5	0.3
	5	Satisfies the extracurricular activities offered by the UL				6.2	1.0
	6	Support from the student council and self-government				5.9	1.1
Study process	7	Satisfied with the offer and content of study courses				6.3	0.3
	8	Satisfied with the offered e-courses				6.3	0.3
	9	Good organization of the study process				6.4	0.3
	10	The necessary information about the study process is available				6.1	0.7
	11	Satisfied with the opportunities offered by LUIS				6.1	0.3
	12	The opportunities for international experience in studies offered by the UL were sufficient				5.9	1.0
	13	Opportunity to participate in the improvement of the quality of the study programme				6.4	0.2
14	Average class attendance	less than 25%	25-50%	51-75%	76-100%		
		6.25%	6.25%	25.00%	62.50%		
15	Independent work per week outside studies	more than 30 h	21-30h	15-20h	10-14h	5-9h	2-4h
		0.00%	6.25%	25.00%	18.75%	37.50%	12.50%
						Mean	St dev
Results of studies	16	During studies gained good theoretical and practical knowledge				6.4	0.2
	17	In studies improved ability to make complex decisions by critically evaluating information				6.1	0.3
	18	Improved my communication skills in studies (writing, presentation, discussion, group work)				6	0.4
	19	In studies improved general skills (foreign language, branch computer software, ability to organize own work)				6.3	0.2
	20	In general, satisfied that I have chosen this study programme				6.6	0.3
	21	The degree of difficulty of the study programme was suitable for me				6.8	0.2
	22	The study programme prepared for the labor market				6.4	0.4
	23	The overall impression of the quality of the study programme is good				6.6	0.3
24	A view of studies at the UL	Improved	Has not changed	Has deteriorated			
		56.25%	43.75%	0.00%			

25	It is planned to continue studies this year	at UL in own field	at UL in another field	In another HEI	will not study	do not know
		18.75%	0.00%	6.25%	12.50%	62.50%
26	Employment status in the last study year	just studying	Works full time	Works part time	looking for a job	On parental leave
		0.00%	81.25%	18.75%	0.00%	0.00%
					Mean	St dev
27	I work according to the acquired education (corresponds to responsibilities, I use skills)				6.7	0.4
28	Work does not interfere (does not take time) with studies				4.6	0.8
29	In the future, I plan to work according to my education				5.9	0.8
30	During my studies I started planning my professional growth and career				6.5	0.8

[113]

<https://likumi.lv/ta/id/268761-noteikumi-par-otra-limena-profesionalas-augstakas-izglitiba-valsts-standartu>

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

PBSP Radiography is implemented in full-time studies. The study process is organised mainly in Latvian, part of the internship sessions on CT, magnetic resonance, ultrasonography and radiotherapy planning simulation programs takes place in the working language of these programs, i.e. in English.

The learning of the PBSP Radiography is carried out in lectures, seminars, internship sessions, clinical placements, independent work, consultation with scientific advisers. Teachers also take advantage of Moodle e-study environment when advising students and accepting the tasks. Progress is being made towards the implementation of the theoretical part of study courses in the

e-study environment. In addition to traditional forms of study, interactive learning techniques are used: small group work, problem analysis and solutions, role games. In internship sessions, doctors increasingly use simulators and real visual tools available for the different purposes of the study programme, which better prepare students for clinical placements or, in some cases, even replace clinical placements, taking into account the limited access to patients.

When starting a study course, the results of the studies to be achieved and the evaluation criteria are explained so that students have an understanding of the tasks and requirements. The description of the programme of each study course indicates the results of the studies.

The implementation of the study process takes into account the principles of student-centred teaching and learning through self-reflection and the involvement of students in the learning process. Students are involved in evaluating the quality of the study program. At the end of each study course, students complete questionnaires on the study course as a whole, as well as by assessing each of the teaching staff. Students also have the opportunity to comment – recommendations on the course in question. The study process respects the diversity of learners and their needs through the development of appropriate learning pathways, e.g. through the use of a simulation environment in internship. Teaching in the simulation environment is organised in small groups or individually, so that teachers are able to adapt the teaching type to the learning capacity of the students concerned. The study process is designed so as to enable work/family life to be combined with studies. The Library of the UL Sciences building is available to students for 24 hours and also on holidays, and there are various isolated workspaces available for independent studies in the Sciences Building. According to the options, different ways of implementing the study program are used, and different pedagogical methods are used according to the circumstances. During the training process, the student's propensity for self-sufficiency is promoted, while at the same time ensuring the management and support of the teaching staff with counselling. Students have the possibility to apply for tutorials at a specified time, co-ordinating it in advance. Mutual respect is promoted between teaching staff and students.

The evaluation system is based on the following principles:

1. the minimum level of assessment: the need to obtain a positive assessment for each course of study;
2. accumulation - the knowledge acquired by the student is evaluated by summing up all the positive assessments during studies;
3. disclosure and clarity of requirements — when commencing studies, the student are informed of the content, requirements and evaluation of the study course.

A large part of the study courses provides for mid-term tests that promote students' preparedness for learning the results of their studies and form part of the overall assessment, according to the description of each study course. End-of-course examinations ensure the assessment of students' knowledge and the degree of acquisition of the course.

A complex method is applied to the evaluation of courses in the PBSP Radiography. The final assessment of student knowledge is carried out at the end of the semester following the results of all phases: practical work, seminars, independent work, mid-terms, tests and examination. The teacher of each course has developed an evaluation methodology that is discussed and adjusted accordingly. The evaluation methodology indicates how many% of the total assessment is drawn up by each assessment criterion and presented to students at the beginning of the study course.

The evaluation of Bachelor's Thesis is characterised based on the stages of its development. At the initial stage of the preparation of the work, the supervisor is appointed by the director of the programme. They consult the student on the goal of the thesis, the objectives and the structure

thereof, consider of the student's abilities and skills in the organisation of scientific work. In the course of the draft assessment, on the application of analytical methods and the resolution of problems. The defence of the submitted thesis is heard by the thesis supervisor and by the director of the study program or by another teacher of the relevant object. The student receives an assessment in the 10-point system on the basis of an assessment of the scientific quality of the work defended, compliance with the requirements for the design of theses and the assessment of the supervisor regarding the progress of the work.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

Internships (clinical placements) are organised in Latvian health care institutions. Internships I, II and III are based in two university hospitals: RAKUS and PSKUS, as these health institutions have a carefully developed methodology for strengthening the skills included in the study programme. In Practice I, skills and abilities are strengthened in such study courses as *Radiographic Science, Imaging I, Skeletal Radiography, Projection I, Radiography, Imaging II, Skeletal Radiography, Projection II*. Practice II strengthens skills and abilities in such study courses as *Medical Technology in Radiology, Radiation Safety and Dosimetry, Radiography Science, Imaging I, Skeletal Radiography, Projection Training I, Radiography Science, Image Diagnostics II, Skeletal Radiography, Projection Training II*, Introduction to Radiology. *Internship III* reinforces skills in study courses such as *Radiology Methods I, Radiology Methods II, Radiology Methods III, Radiotherapy and Oncology II*. At the internship, the student is scheduled to have mentor who is aligned with the health care institution. The mentor co-operates with the internship organizer appointed by MF UL, who supports students in dealing with their issues and problems. If necessary, the student may consult any of the teaching staff involved in the implementation of the program on the tasks to be performed during the course of internship.

During internship, the student strengthens the skills included in the internship program. In internship, the student are guided by the rules of internship and by the current guidelines to realise the objectives and goals set for internship. For students, the internship is organised within the time limits and procedures specified in the study program. At the end of the internship, students must submit a journal of internship and an assessment of the mentor of internship, which consists of evaluations of direct internship supervisors. Defending the internship takes place at the commission. The internship assessment is carried out in accordance with the established rules of internship. The defence of student internship reports is accepted and the assessment of practices is performed by a commission approved by the Director of the study program, which is established from the teachers of the study program. The meeting of the Commission calls for the participation of all student internship mentors from the institutions. During defence (up to 10 mins), the student informs the commission of the main results of the internship, illustrating them with various visuals. When assessing the internship report with a mark (on a scale of 10 points), the commission takes into account the content of the report, the characterisation of the institution and oral or written

comments, the assessment of the internship report, the presentation of the student and the ability of the student to answer questions from the commission.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Each year, theses themes are confirmed in the light of the topicality, the problems in the sector or the issues in the topic. The topics of the closing works relate to the development and quality control of image quality criteria, the development or furthering of radiological exam methods protocols, or analysis of factors affecting radiological accuracy. For example, an list of bachelor's theses themes for the academic year 2019/2020 follows (Annex 19 shows a list of topics for the bachelor's theses defended):

1. Assessment of image quality for mammographic studies with tomosynthetic in women with inserted implants;
2. Factors affecting image quality in the pelvic CT studies in patients with hip replacement;
3. Assessment of image quality criteria in CT diagnosis of renal cysts;
4. Assessment of the quality criteria for CT images in sinus diagnosis;
5. Assessment of the quality criteria for CT images in liver haemangioma diagnosis;
6. Development of CT protocol for brain death confirmation;
7. Preparation of gynaecological patients in the treatment of teletherapy;
8. Acute side effects of the digestive system in oncological patients with neoadjuvant targeted therapy;
9. Use of magnetic resonance for first-time diagnosis of wrist rheumatoid arthritis;
10. Use of magnetic resonance in case of damage to the shoulder joint rotator mange;
11. Magnetic resonance protocol at spondylodiscite;
12. Artificial intelligence contour marking performed in prostate patients;
13. Improving image quality of a multiparametric prostate MR study with a reduced field of view;
14. Computer tomographic imaging of renal tumours and differential diagnosis algorithm;
15. An assessment of the extent of the lung tumour based on 3DCT and 4DCT scans;
16. Adjustment of protocols in CT thoracic examinations at pulmonary artery thromboembolism.

The State Inspection Commission has recognised that the topics of bachelor's theses chosen by students are modern, up-to-date in the labour market and are in line with the objectives of the study programme. The bachelor's thesis in 2019/2020 was defended by 16 students, with an average bachelor's thesis rating of 7.4 (range 5 to 10). The average assessment of bachelor's theses for the reference period is 7.5 and can be seen in Table 3.2.6.1. by year.

Table 3.2.6.1.

PBSP Radiography Average Bachelor Theses Assessment

Year	2013	2014	2015	2016	2017	2018	2019	2020
Average assessment of Bachelor's theses	7.0	7.4	7.0	8.0	8.2	7.3	7.7	7.4

The evaluation of bachelor's works takes a complex approach. In order to ensure more quality preparation of the work of the bachelor, the implementation of the program requires that the student has completed the theoretical course only when an endorsement has been received from the supervisor of the bachelor's thesis regarding the first outline of the thesis. The evaluation of the thesis takes place at a closed examination commission meeting after the hearing of all theses intended for the meeting. The assessment is communicated to students, individually, after the end of the session. The evaluation of bachelor's thesis takes into account the following criteria: (1) the quality of the content of the development of a bachelor's thesis and compliance with the guidelines for the writing of final paper; (2) the content of the presentation and the answers to the questions of the members of the commission and the reviewer; (3) the assessment and notes expressed in the review. The overall evaluation of the work of the bachelor thesis takes into account each member of the commission by negotiating the final assessment and voting on it. The President of the Commission has a determining vote in the event of disputes.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The study process of the PBSP Radiography is organised at the UL Sciences Building, where classrooms are provided with the latest technological capabilities and large, touch-sensitive, high-resolution screens. High-resolution screens improve the study process, as many study courses analyze images from different radiological examinations and the capabilities provided by screens support the learning. Part of the theoretical studies take place in the training rooms of the radiology departments of medical treatment institutions where professional radiology specialists conduct the training process. Practice sessions are carried out in the radiology departments of the same medical treatment institution, so students have the possibility to apply theoretical knowledge in practice immediately.

As direct access to patients is becoming more expensive and less accessible in recent years, students have agreed to complement the material base of the study process with a variety of real viewing materials and simulation equipment. For the course *Radiation Therapy and Oncology II* and also for the promotion of research projects for students, simulation equipment and software licenses have been purchased through the International Atomic Energy Agency and the UL Cooperation Project. For example, immobilization equipment for radiotherapy patients has been purchased to enable students to practice with this equipment, which is also available in medical

institutions, and to experience and then successfully explain the feelings of cancer patients during immobilisation. The 5 working stations for radiotherapy planning help students to learn planning methods to understand the need for each type of radiotherapy. Study course *Radiology Methods I* and *Radiology Methods II*: for the first practice sessions in CT and magnetic resonance simulation programs simulate the actual consoles of the equipment, so students have the option to choose the technical parameters and then assess the quality of the images obtained. With UL Purchase No. 2019/45_ERAf, a simulator for ultrasonography training was purchased for the practice of students in courses *Radiology Methods III* and *Practice III*, which makes it possible to perform an ultrasonographic simulation of an adult patient, a pregnant patient, and an infant. With the virtual module of this simulator, students can learn the anatomy of ultrasonography and then perform appropriate ultrasonographic examinations for setting up a diagnosis, evaluating abnormalities.

In the study process and in the development of bachelor's theses, students use the resources of UL libraries on site, as well as many library resource databases, such as the Clinical Key, Dawsonera (e-books), ProQuest (e-books). Statistics on the number of printed expenditure available in the UL Library for the Radiography Programme are given in Table 3.3.1.1.

Table 3.3.1.1.

Availability of printed publications for PBSP Radiography in the Library of the UL

UL study direction Health Care									
Total in the collection of the UL Library as of 01.12.2020. existing printed publications									
Printed Editions (Copies)					Language				
Study programme	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
	In stock:	Total	Total	Total					
Radiography	229	229	0	0	79	147	2	1	0
Total for the study direction in the collection of the Library of the UL: 30101 copies									

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The financial basis of PBSP Radiography consists of the obtained funds from paid students, thus ensuring the basic functions of the study program - payment for premises, payment for lecturers, payment for practical classes and clinical placements in medical institutions. The additional funds obtained in various projects provide the purchase of simulation softwares and equipment, and small inventory, as well as new books for the organization of the study process.

PBSP Radiography cost calculation is performed taking into account the study program cost calculation methodology developed by the Department of Studies of the University of Latvia. The cost of one student per year is 2936 EUR. Calculations have been made for 18 paid students and the organization of optimal practice in the amount of 8 academic hours in university hospitals. In a pandemic situation, the internship is often only possible for 4 academic hours, but this means that you have to pay for 2 student days, which adds to the cost. There are no state budget places in the study programme, but once there were "budget" places from internal financing of the Faculty of Medicine, which are indicated as budget places in the appendix "Statistics on students in the reporting period".

The minimum number of students in the programme to maintain the profitability is 12 students..

In addition to the teaching staff costs, the cost calculation also includes general staff costs in the amount of 31.3% of the academic staff (301 EUR per student per year), infrastructure costs (225 EUR per student per year), renovation of material and technical base, services (435 EUR per student per year), totaling 2936 EUR per year per student.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Both the lecturers elected by the Faculty of Medicine and the lecturers teaching the corresponding study courses in the study programme "Radiologist Assistant" of P. Stradins Medical College have been involved in the implementation of PBSP Radiography. All teachers have appropriate qualifications. Some professionals in radiography, who do not have equivalent professionals, are involved in the implementation of practical classes in medical institutions.

In the course of the 4th year of study, the PBSP Radiography involved 9 teaching staff in the year 2019/2020, of which 3 (33.3%) are academic staff of UL and 6 (66.7%) are guest lecturers. Of the academic staff of UL enrolled in the curriculum, 2 (66.7%) have PhD and 1 (33.3%) has a master's degree. Of the guest professors in the year 2019/2020, one teacher has a doctor's degree and a master's degree in pedagogy, 1 teacher with a Master's degree in Health Sciences, 3 teachers with a doctor's degree, 1 teacher with a PhD in Medicine and master's degree in radiation biology.

UL supports academic staff (including, as far as possible, guest lecturers) to visit knowledge development courses appropriate to their competencies. One associate professor has attended courses “Development of Academic Personnel Competencies in the field of Leadership”, “Applied Latvian for the Development of Vocational Capability”, “English for academic and administrative staff”. The Medical Faculty has supported the participation of 1 associate professor in the “PET/MR oncology - Current Role and Future Prospects”. One associate professor, under the project of the International Atomic Energy Agency and LU, has observership for 2 weeks at Christi Clinic, Manchester, United Kingdom for Radiotherapy and radiographer Education.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

As of 2013/2014, both FM and the teaching staff at UL P. Stradiņš Medical College were attracted to the 4-year study process. It created a double load for those college teachers who have a lot of practice hours on the course. The implementation of the parallel study process did not create problems with the realisation of some theoretical courses, since the lectures took place in a joint group. Teaching staff who are professionals in their field were invited for some of the courses because some college teachers were already heavily employed. This full 4-year study process showed that this is possible, but the high number of students places a heavy burden on the medical institutions for carrying out practice and clinical placements.

In the 7th and 8th semester of study, the composition of teaching staff is regularly adapted to the needs of the labour market, while maintaining, as far as possible, stable teaching staff who are also employers for graduates of the study program. You can see the list of teaching staff in Table 3.4.2.1.

During the reference period, 5 teaching staff have remained unchanged for the 7th and 8th semester of the studies: 2 associate professors, 1 lecturer, 3 teaching staff. As of 2017/2018, 2 physicians were replaced by 2 other radiology professionals, both based on the results of student surveys and the high workload of professionals. The ratio between the number of students and the number of teaching staff in semester 7 and 8 of 2019./202020s is 22/9, i.e. there are 1 teaching staff for 2.4 students.

Table 3.4.2.1.

List of the teaching staff in the PBSP Radiology

Name, surname	Position	Scientific degree	Taught study courses
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Ainārs Bajinskis	associate professor	Dr.biol., MSc in Radiation Biology, MEng in Medical Physics	Radiology Methods I (practical work), Radiology Methods II (practical work), Radiology Methods III (practical work), Radiotherapy and Oncology II, Injury Biomechanics, Record Keeping and Correspondence, Computer Science, English Terminology for Radiographers, Cell Biology, Radiation Physics, Medical Equipment in Radiology, Radiation Safety and Dosimetry, Quality Assurance and Quality Control in Radiography, Immunopathology and Radiological Pharmacology, Procedure Techniques I, Procedure Techniques II, Patient Care in Radiology I, Patient Care in Radiology II, Course work quality assurance and quality control in radiography, Course work in patient care in radiology, Course work in radiography, Practice I, Practice II, Practice III, Bachelor's thesis, Diagnostic nuclear medicine, Radiography in pediatrics
Maija Radziņa	associate professor	Dr.med.	Radiology Methods III, Radiological Anatomy I, Radiological Anatomy II, Radiographic Science, Imaging I, Radiography, Imaging II, Systems Radiography I
Ilze Apine	lecturer	Dr.med., MSc in Radiation Biology	Radiology methods I, Radiology methods II
Evita Bladiko	lecturer	MSc in Health Sciences	Radiotherapy and Oncology I, Radiotherapy and Oncology II
Sarmīte Dzelzīte	lecturer	Degree of physician	Radiology methods II
Māra Epermane	lector	Degree of physician	Radiology Methods I, Radiology Methods II, Radiography Specialty and Basic Ethical Principles, Skeletal Radiography, Projection Study I, Skeletal Radiography, Projection Study II

Līga Jaunozoliņa	lecturer	Degree of physician	Radioloģijas metodes I, Radioloģijas metodes II, Vispārīgā medicīna I, Vispārīgā medicīna II
Elizabete Kadakovska	lecturer	Degree of physician, Mg. paed.	Radiology Methods I, Radiology Methods II, Basics of Psychology and Pedagogy, Research
Aelita Žvīgure	lecturer	Degree of physician	Radiology Methods I, Radiology Methods II
Ilona Gorņeva	assistant professor	Dr.philol.	Medical Latin
Kristīne Juhņeviča	lector	Mg.chem.	Civil protection
Oskars Purmalis	assistant professor	Dr.geogr.	Environment protection
Gundega Knipše	professor	Dr.med.	Anatomy and physiology I, Anatomy and physiology II
Līga Plakane	associate professor	Dr.biol.	Anatomy and physiology I, Anatomy and physiology II
Gunta Strazda	associate professor	Dr.biol.	General pathophysiology and pharmacology, Immunopathology and radiological pharmacology
Baiba Jansone	professor	Dr.med.	General pathophysiology and pharmacology
Aleksejs Miščuks	associate professor	Dr.med.	Emergency and Disaster Medicine
Patrīcija Ivanova	assistant professor	Dr.med.	Interventional radiology

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The improvement of the study programme takes place in cooperation with the students' proposals - by reviewing the evaluations of the study courses. PBSP Radiography teaching staff meet at an annual meeting at the end of the academic year to hear a report from the director of the study programme on student surveys. At the meeting, the teaching staff agree on the organisation of the study process for the following academic year, e.g. in 2019/2020, the 7th semester was launched by a course in *Radiology Methods I*, in order to have sufficient time to receive materials purchased under the project for the study course *Radiotherapy and Oncology II*. During the reporting period, the study module "Radiology Technology Studies Courses" was created, in which study courses in *Radiology Methods I*, *Radiology Methods II*, *Radiotherapy and Oncology II* take place sequentially, with students successfully passing each of the courses, including an exam, and only then continuing with the next course of study. Such a module was created because students had problems learning large-scale (6-8 CP) study courses directly from the perspective of image quality and diagnostic capabilities – the capabilities of CT and magnetic resonance techniques are so developed that often the image quality of both methods has become very similar and became a burden for students to understand the specificity of each method. Following such an organisation of the above-mentioned study courses, the teaching staff received a lot of positive feedback from the students and therefore continues to do so.

At the end of each internship, there is a student internship report, during which students have the opportunity to express their thoughts on the sufficiency of theoretical knowledge for participation in the internship. The teaching staff is informed about these students' opinions and after each internship, together with the internship supervisors, the amount of knowledge and skills in the relevant study courses is discussed and, if necessary, changes are made in the content of the study courses.

If the above measures do not bring positive changes within two years and the problems persist, a new lecturer is sought.

The average ratio of student and teaching staff over the reporting period: 2-2,44 students have 1 teaching staff, with a ratio of 2,44 in 2019/2020.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	ENG_Radiogrāfija.docx	DIPLOMS_AR_PIELIKUMU_2021_P_BAKALAURS_Radiogrāfija.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Annex 8_Statistics_PBSP Radiography_V1.docx	8. PIELIKUMS_Statistikas dati par studējošajiem PBSP Radiogrāfija_v1.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	ANNEX9_Compliance of PBSP Radiography with national education standard(2)(1).docx	9.PIELIKUMS_PBSP Radiogrāfija atbilstība valsts izglītības standartam .docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	10.Pielikums_Atbalstība profesijas standartam_Radiogrāfija_ENG.docx	10.Pielikums_Atbalstība profesijas standartam_Radiogrāfija.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	ANNEX_AA_PBSP Radiography compliance with the sector-specific regulatory framework .docx	AA.PIELIKUMS_Atbalstība nozares specifiskajam normatīvajam regulējumam_PBSP Radiogrāfija .docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	ANNEX_11_PBSP Radiography_mapping of study courses.docx	11.PIELIKUMS_PBSP Radiogrāfija studiju kursu kartējums (2).docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	ANNEX_12_SP plāns_Radiogrāfija_ENG(1).docx	12.PIELIKUMS_SP plāns_Radiogrāfija(2)(1).docx
Descriptions of the study courses/ modules	CC.PIELIKUMS_Studiju kursu apraksti_Radiogrāfija_ENG_izdr.docx	CC.PIELIKUMS_Studiju kursu apraksti_Radiogrāfija_izdr.docx
Description of the organisation of the internship of the students (if applicable)	ANNEX_BB_Prakses nolikums_Radiogrāfija_ENG.docx	BB.PIELIKUMS_Prakses nolikums_Radiogrāfija.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Clinical Optometry (47722)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Clinical Optometry</i>
Education classification code	<i>47722</i>
Type of the study programme	<i>Professional master study programme</i>
Name of the study programme director	<i>Aiga</i>
Surname of the study programme director	<i>Švede</i>
E-mail of the study programme director	<i>Aiga.Svede@lu.lv</i>
Title of the study programme director	<i>Doktora grāds medicīniskajā fizikā</i>
Phone of the study programme director	<i>+37129181176</i>
Goal of the study programme	<i>To train qualified and competitive primary vision care professionals who are able to perform primary vision care, evaluate patient's visual functions and structures of visual organs, diagnose refractive and functional abnormalities of vision, prescribe, manufacture and adjust vision correction tools (glasses, contact lenses or special devices), to implement vision therapy in order to restore the balanced functioning of the visual system, to consult on preventive health care and ergonomics, and to carry out scientific research activities. The study programme is based on more than 25 years of experience in the training of optometrists at the University of Latvia, the legislation of the Republic of Latvia, which stipulates that an optometrist is a medical practitioner – functional specialist – from January 1, 2020, as well as the latest trends and requirements for the optometrist education system in the European Union regulated by the ECOO (European Council of Optometry and Optics).</i>

Tasks of the study programme	<p><i>In order for the student to acquire the knowledge, skills and competences required for the optometrist and to prepare the student for further doctoral studies, the study programme has the following objectives:</i></p> <ol style="list-style-type: none"> <i>1. to develop skills in assessing the visual system and diagnosing refractive and functional anomalies of vision;</i> <i>2. to provide knowledge about the diseases of the eye and its accessory organs, their diagnostic and treatment capabilities, and to develop skills in assessing the health of the eye structures;</i> <i>3. to develop skills for the use of standard and specialised techniques and equipment in optometry;</i> <i>4. to develop skills in prescribing and selecting an appropriate type of vision correction based on the results of assessment and diagnosis of refractive and functional anomalies of vision, as well as taking into account the individual needs, goals and values of the client;</i> <i>5. to provide knowledge and develop skills on preventive measures of vision loss and vision rehabilitation;</i> <i>6. to develop skills in applying the latest scientific findings in optometry and related fields;</i> <i>7. to develop skills in professional ethics and communication, as well as in the application of regulatory enactments;</i> <i>8. to provide knowledge about health protection requirements and emergency and disaster management;</i> <i>9. to develop skills to use theoretical knowledge and skills working with scientific periodicals in order to form an understanding of research possibilities for a specific problem of visual science in a new environment and in a multi-disciplinary context;</i> <i>10. to develop skills to clearly and unambiguously document, explain, present and justifiably defend the conclusions of their clinical or scientific studies in both specialist and non-expert auditoriums, providing logical arguments based on experiments or modelling;</i> <i>11. to develop basic skills for scientific research and the preparation of publications, as well as to create an interest in continuing education and the systematic improvement of professional qualification.</i>
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Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. is familiar with the structure and physiology of the visual system, refractive, functional and perceptual abnormalities of vision, their formation mechanisms, symptoms, clinical signs, diagnostic, and correction possibilities; 2. is familiar with the diseases of the eye and its accessory organs, their diagnostic and treatment options; 3. understands the labour, environmental and health protection requirements and principles of action in standard, emergency and disaster situations; 4. is familiar with the latest scientific knowledge in optometry and related fields. <p>Skills:</p> <ol style="list-style-type: none"> 5. performs an evaluation of the visual system and documentation of the results obtained, diagnosis refractive and functional anomalies of vision, as well as assessment of the health of the eye structures selecting the optimal examination plan, methods, and tools; 6. prescribes an appropriate type of vision correction (spectacles, contact lenses, low vision aids, prisms, etc.), as well as implements vision prevention and rehabilitation measures in accordance to the evaluation of refractive and functional anomalies and diagnostic results; 7. critically evaluates published scientific studies in vision science and clinical optometry and applies the latest scientific knowledge in clinical practice, as well as in planning and conducting scientific research in vision science and clinical optometry; 8. presents and argues, in accordance with the principles of research-based medicine, the conclusions of the clinical or scientific research providing logical arguments based on experiments or modelling. <p>Competence:</p> <ol style="list-style-type: none"> 9. provides primary vision care in compliance with the regulatory enactments governing professional ethics and the activities of an optometrist, taking into account the client's vision requirements, individual needs and goals and applying appropriate communication skills.
Final examination upon the completion of the study programme	Qualification Exam in Optometry and Master's Thesis

Study programme forms

Full time studies - 2 years - latvian

Study type and form	Full time studies
Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	80
Admission requirements (in English)	Bachelor's degree in Optometry
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	Professional master's degree in clinical optometry
Qualification to be obtained (in english)	Optometrist

Places of implementation

Place name	City	Address
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University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050
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Full time studies - 2 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	2
Duration in month	0
Language	<i>english</i>
Amount (CP)	80
Admission requirements (in English)	<i>Bachelor's degree in Optometry. Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at the B2 level).</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time studies - 2 years, 6 months - latvian

Study type and form	<i>Part time studies</i>
Duration in full years	2
Duration in month	6
Language	<i>latvian</i>
Amount (CP)	80
Admission requirements (in English)	<i>Bachelor's degree in Optometry</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time extramural studies - 2 years, 6 months - english

Study type and form	<i>Part time extramural studies</i>
Duration in full years	2
Duration in month	6
Language	<i>english</i>
Amount (CP)	80
Admission requirements (in English)	<i>Bachelor's degree in Optometry Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 3 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	3
Duration in month	0
Language	<i>latvian</i>
Amount (CP)	120
Admission requirements (in English)	<i>Bachelor's degree or a second-level professional higher education (or equivalent higher education). Prior knowledge in optometry is not mandatory, it will be acquired in the preliminary year.</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 3 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	3
Duration in month	0
Language	<i>english</i>
Amount (CP)	120
Admission requirements (in English)	<i>Bachelor's degree or a second-level professional higher education (or equivalent higher education). Prior knowledge in optometry is not mandatory, it will be acquired in the preliminary year. Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at the B2 level).</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time extramural studies - 4 years - english

Study type and form	<i>Part time extramural studies</i>
Duration in full years	4
Duration in month	0
Language	<i>english</i>
Amount (CP)	120

Admission requirements (in English)	<i>Bachelor's degree or a second-level professional higher education (or equivalent higher education). Prior knowledge in optometry is not mandatory, it will be acquired in the preliminary year. Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at the B2 level).</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Professional master's degree in clinical optometry</i>
Qualification to be obtained (in english)	<i>Optometrist</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Several changes have been made to the parameters of the Professional Master's study programme "Optometry" (in the new accreditation period "Clinical Optometry"- hereinafter PMSP Clinical Optometry), which are intended to improve the recognizability of the study programme not only in Latvia but also abroad.

1. Title of the study programme

- **In the previous accreditation period:** Professional Master's study programme "Optometry"
- **In the new accreditation period:** Professional Master's study programme "Clinical Optometry"

Justification: Improving the recognizability of the study programme, as well as differentiating between the study programmes offered by other (foreign) universities.

2. Scope of the study programme and admission requirements

- **In the previous accreditation period:** For individuals who do not hold a Bachelor's degree in Optometry but have obtained a bachelor's degree or a second-level professional higher education (or equivalent higher education) in other related scientific fields, prior to joining, specific courses of the optometry bachelor's study programme (33 ECTS) were provided as the continuing learning courses at the University of Latvia.
- **In the new accreditation period:** the study programme (hereinafter – module) with the preliminary year (the total scope of the study programme – 180 ECTS, the scope of preliminary year – 60 ECTS) for persons who do not hold a Bachelor's degree in Optometry but have obtained a bachelor's degree or a second-level professional higher education (or equivalent higher education) in other related scientific fields. Consequently, the duration of studies is 3 years (full-time) and 4 years (part-time). The content of the preliminary year is composed based on the requirements of the "European Diploma in Optometry" in accordance with the knowledge, skills and competences that must be acquired, which comply with the requirements of the European Diploma in Optometry laid down by ECOO in Parts A, B, C and D, as well as with the requirements of the Optometrist profession standard.

Justification: To simplify admission requirements and provide the necessary knowledge for the acquisition of specific courses related to the Optometrist qualification.

3. The aim of the study programme

- **In the previous accreditation period:** The general aim of the PMSP Optometry was to provide professional master's studies in optometry in accordance with economic development and social needs of the country, promoting the competitiveness of high-skilled optometrists in changing socio-economic conditions both in Latvia and in Europe, as well as

providing in-depth theoretical knowledge, developing research skills and skills in the student's choice of the sub-sector of medical physics.

- **In the new accreditation period:** To train qualified and competitive primary vision care professionals who are able to perform primary vision care, evaluate patient's visual functions and structures of visual organs, diagnose refractive and functional abnormalities of vision, prescribe, manufacture and adjust vision correction tools (glasses, contact lenses or special devices), to implement vision therapy in order to restore the balanced functioning of the visual system, to consult on preventive health care and ergonomics, and to carry out scientific research activities.

Justification: The aim of the study programme is more specific and in line with the requirements of the Optometrist profession standard.

4. Objectives of the study programme

Justification: The objectives of the study programme have been reformulated in the light of the latest requirements for the formulation of parameters of the study programme, as well as the requirements of the Optometrist profession standard.

5. Results of the study programme

Justification: The results of the study programme have been reformulated in the light of the latest requirements for the formulation of parameters of the study programme, as well as the requirements of the Optometrist profession standard. The results of the PMSP Clinical Optometry, together with the results of the Bachelor's study programme (hereinafter – BSP) Optometry, have been developed and aligned with the requirements of the “European Diploma in Optometry” regarding the acquired knowledge, skills and competences that meet the requirements of the European Diploma in Parts A, B, C and D set out by ECOO[1].

[1] <http://www.ecoo.info/european-diploma/> [available in English]

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The title of the PMSP Clinical Optometry indicates that the knowledge and degree to be acquired – the Professional Master's degree in Clinical Optometry and the Qualification in Optometry – prepare graduates for independent work in primary vision care and also provide knowledge about research opportunities. The title “Optometry” was used in the accreditation in 2013 but it is currently necessary to change the title that does not alter the type and quality of studies offered by the programme itself. Such a change of the title emphasises the specific nature of the knowledge provided by the programme and harmonises the title of the programme with the title of the degree awarded. In addition, this increases the recognizability of the study programme among other optometry programmes. Master's degree programmes of a similar title are available in the United

Kingdom (City University of London, University College London, Cardiff University). In recent years, we have been working to attract foreign students to the professional master's study programme as an opportunity to supplement their knowledge in Clinical Optometry. Until now, on the specific nature of education provided by the study programme, information has only been made available through a more extensive examination of the content of the study programme, but we also want the title of the study programme to draw attention from stakeholders and to increase the competitiveness of the curriculum proposed by UL in the European education market.

The PMSP Clinical Optometry **aims** to train qualified and competitive primary vision care professionals who are able to perform primary vision care, evaluate patient's visual functions and structures of visual organs, diagnose refractive and functional abnormalities of vision, prescribe, manufacture and adjust vision correction tools (glasses, contact lenses or special devices), to implement vision therapy in order to restore the balanced functioning of the visual system, to consult on preventive health care and ergonomics, and to carry out scientific research activities. The study programme is based on more than 25 years of experience in the training of optometrists at the University of Latvia, the legislation of the Republic of Latvia, which stipulates that an optometrist is a medical practitioner – functional specialist – from January 1, 2020, as well as the latest trends and requirements for the optometrist education system in the European Union regulated by the European Council of Optometry and Optics (hereinafter – ECOO). Over the years, there have been major changes in the content and realization of the study programme, as well as optometry, optics business, the field of vision health care has changed and developed thanks to the development and entry of new technologies in practices of vision specialists. The range of spectacle lenses and contact lenses (types, shapes, application) has grown multiple times and each year lens manufacturers are trying to introduce increasingly individualized lenses that require specific knowledge and skills to prescribe, recommend, place the lens in the spectacle frame, and adapt them to the anthropological specifications of the human face, and to the specifics of the persons work and hobbies. The number of diagnostic devices and techniques in vision care has also increased over the last 10 years and is developing more toward automatic functioning, so the study programme should be able to prepare specialists who are able not only to focus on the range of spectacle frames, spectacle lenses, contact lenses and their care products, to use them in places of practice, but also are able to create an environment in which to work and provide highly qualified primary vision care services and high-quality vision correction tools, or to employ others by creating the own business.

The basis for studies in the PMSP Clinical Optometry is the BSP Optometry, which is the basic study of the dispensing optician. Consequently, in order to become an optometrist, a highly qualified primary vision care professional, it is necessary to study at least 5 years (3 years in bachelor's studies and 2 years in professional master's studies). BSP Optometry is the multidisciplinary study where the knowledge, skills, and competences to be acquired are not only in the optometry sector (specifically for learning about optics and dispensing) but also in different science sectors: the physics sector and in the biology sector, in the medical sector, in the chemical sector and in the psychology sector. After getting a bachelor's degree, the graduate has a chance to work as a dispensing optician, as well as in medical clinics and centres. This makes it possible to realise the extent of the responsibility of the vision specialist and, if the graduate is prepared to take on it, he can continue the studies at the professional master level and obtain both a professional master's degree and a qualification in optometry that allows working independently, make decisions and take responsibility.

The study program is implemented in several versions: full-time, part-time onsite and part-time extramural, as well as the language of implementation is Latvian and English. This diversity of implementation has been chosen taking into account the interests of potential students as well as

employers. In the standard version, full-time studies are offered in the Latvian groups. This form is chosen by the majority of applicants, because only full-time studies have state funded places. Taking into account the changes that affected the profession of optometrist in 2020, when the optometrist became a medical practitioner, the form of part-time onsite studies is maintained. Until 2020, the profession of an optometrist was not strictly regulated and a person who has obtained a bachelor's degree in optometry could also work as an optometrist. Legislative changes in 2020 require that only a person who has obtained a qualification in optometry and passed certification be able to work independently as an optometrist. Thus, those, who worked as optometrists until 2020 and are currently employed as optometrists, has an offer to choose a part-time onsite study form (2.5 years), which allows them to combine a larger workload and studies. The minimum number of students for such a group is eight. If the number of applicants is less than minimum required, full-time studies are offered. Two types of studies are offered to foreign students: full-time (for non-EU/EEA residents) and part-time extramural (for EU/EEA residents). In most countries, the qualification of an optometrist is obtained after graduation at the bachelor's studies (or equivalent to the bachelor's level). Therefore, most of the students involved in PMSP are already optometrists practicing in their country of residence. They further interest is to acquire new knowledge and improve their qualifications. Higher education in optometry in English is available in a limited number of countries (UK, Germany, Norway), but each of these countries has its own limiting factors (frequency of classes, tuition costs, etc.). Therefore, taking into account the wide interest in higher-level studies and professional development among foreign optometrists, as well as being aware of the possibilities and knowledge of Latvian optometrists, PMSP Clinical Optometry is implemented in the English version.

In recent years, there has been an increasing interest in studies in the PMSP Clinical Optometry not only among graduates with a bachelor's degree in Optometry but also among graduates of other programmes (e.g., physics, medicine, especially nurses and ophthalmologists, and optic company owners) not only in Latvia, but in other countries not only within the European Union and within the European Economic Area, but also outside the borders of the European Union, particularly from countries where optometry is only beginning to develop. Foreigners want to improve their knowledge in Clinical Optometry by supplementing knowledge as too low vision correction, in diagnostic and treatment of binocular vision disorders, paediatric optometry etc. In order to allow for graduates of other bachelor's studies or comparable study programmes to continue studies at the PMSP Clinical Optometry, a study programme with a preliminary year is proposed, during which students acquire additional knowledge defined in the requirements of the European Diploma in Optometry and for successful further studies at the professional master's programme. The introduction of such a study programme would relieve the interested person from the need to study repeatedly at bachelor's level (3-year studies) and would allow faster (in full-time studies – 1 year, but in part-time extra-mural studies – within 1.5 years) obtain the missing basic knowledge about optics, anatomy, physiology, neurology, biology, vision development and dispensing. Similar practices have been applied in the United Kingdom, the University of Cardiff at the level of the Bachelor's Studies Programme (Cardiff University, Optometry with a Preliminary Year (BSc)[1]). Prior to the matriculation in the Bachelor's studies in the field of optometry, the knowledge in physics, chemistry, etc. are improved up to the level required for admission. Until now, two different models were tested in the admission requirements of the PMSP Clinical Optometry. Each model has advantages and disadvantages:

- The additional courses (36 ECTS): advantage – in-depth learning of specific courses defined in the pre-admission requirements; disadvantages – the availability of courses is spread through more than one semester; the availability of courses is difficult for foreigners who need a residence permit to attend courses on-site and take exams.
- The additional continuing education course “Basic Optometry” (30 ECTS) (introduced in 2017,

with an average of 2-3 students in each semester): advantage – a review of a number of basic knowledge topics in a short-term (during one semester); remote studies option; no specific learning schedule; disadvantages – superficial knowledge on a number of topics that are important during professional master's studies; on-site final examination that is the same as for the BSP Optometry. The analysis of the final exam results shows that the marks are low, more often 4-5 (in the 10-point grading scale), indicating a low level of knowledge that is insufficient for the successful start of further studies.

As a result, in the new study programme with a preliminary year, students (including foreigners) will be able to start studies with additional courses based on a suitable schedule, learning the topics required for further studies. The content of the preliminary year is composed based on the requirements of the European Diploma in Optometry.

The objectives of the study programme ensure the attainment of the aim of the study programme, as well as the growth of the new vision care specialist as a specialist in their field by acquiring knowledge, skills and competences which comply not only with the Optometrist profession standard in Latvia, the requirements of employers and the specific requirements of the labour market, but also with the requirements defined by the European Council of Optometry and Optics[2], requirements for the Category 3 of a Global Competency-Based Model of Scope of Practice in Optometry which is developed by the World Optometrist Council[3] and describes that optometrist not only offers optical technology services (management and dispensing of ophthalmic lenses, ophthalmic frames and other ophthalmic devices that correct defects of the visual system), but also visual function (assessment of vision and visual functions) and ocular diagnostic services, including evaluation of the health status of the eye structures and associated systemic diseases, differentiation of problem situations and proposition of solution (including referral to other specialists for further diagnosis and treatment). In addition, the student also learns academic knowledge, skills and competences that enable future independent research into their optometrist practices or further doctoral studies, as well as study courses that are mandatory as required by the regulatory enactments for higher education in Latvia. Taking into account all these requirements, the minimum duration of studies has been chosen to be 5 years (3 years in the bachelor's study program and 2 years in the professional master's study program) in order to ensure high-quality and knowledgeable optometrist training. This length of study is not directly comparable to the length of training for optometrists in other countries due to a number of factors: different national requirements for the level of education of optometrists; different application requirements; different spheres of activity of optometrists (allowed professional activities within the scope of optometric competence); different national requirements for the content of higher education in general. A more detailed comparison of study programs is given in the appendix.

PMSP Clinical Optometry is one of the study programmes in the study field "Health Care". The inclusion of the study program in the study field "Health Care" is justified by the Medical Treatment Law[4], article 3, which defines that "health care is a set of measures implemented by health care providers, including telemedicine and activities with medicines and medical devices to provide, maintain, and restore the patient's health." An optometrist is a primary vision care professional whose activity is directly related to the provision, maintenance and restoration of a patient's visual health within the limits of their competence. The extent of the implemented measures is strictly defined by the professional standard. As the study program is designed taking into account both the Medical Treatment Law and the professional standard of optometrists, the study program fully complies with the study field "Health Care".

The code of the study program (47722) is formed in accordance with the Cabinet Regulation No. 322 (approved on 13.06.2017)[5]:

1. level of education: 4 – level of higher education;
2. type of educational program: **47** – second-level professional higher education (professional master's degree or fifth level professional qualification), to be implemented after obtaining a bachelor's, professional bachelor's degree or fifth level professional qualification. Duration of full-time studies – at least one year. The total duration of full-time studies is five years;
3. thematic group of education: 7 – health care and social welfare;
4. thematic area of education: **72** – health care;
5. educational program group: **722** – medical services.

According to the study program code, in case of graduation from the study program, a professional master's degree and a qualification in optometry are awarded, which corresponds to the fifth level professional qualification.

[1] <https://www.cardiff.ac.uk/study/undergraduate/courses/2020/optometry-with-a-preliminary-year-bsc> [available in English]

[2] *European Council of Optometry and Optics*, <http://www.ecoo.info/european-diploma/> [available in English]

[3] https://worldcouncilofoptometry.info/wp-content/uploads/2017/03/wco_global_competency_model_2015.pdf [available in English]

[4] <https://likumi.lv/ta/id/44108-arstniecibas-likums> [available in Latvian and English]

[5] <https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitibas-klasifikaciju> [available only in Latvian]

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

The study programme of the University of Latvia is the only study programme of this type in Latvia, upon graduation of which a professional master's degree in clinical optometry and qualification in optometry are obtained, thus it is not possible to compare the programmes in Latvia. Also in the Baltics, Latvia is the only one that offers master's level studies in optometry. In Estonia, optometrists are trained at the college level, obtaining only a diploma equivalent to a bachelor's degree (duration of studies – 3.5 years). In Lithuania, Vilnius University is planning to open a new bachelor's programme in optometry in the near future that has been transferred and improved from Siauliai University. Therefore, at present, the PMSP Clinical Optometry can be compared only with more distant countries in terms of qualifications and degrees (see **ANNEX OptoPM 1**).

In the reporting period, the PMSP Clinical Optometry (former title – Optometry) was redesigned and adapted to modern labour market trends, needs, requirements and industry specifics. Not only readers but also employers, leading specialists who are interested in the training of the new specialists participated in the improvement of the study programme – in the development of study courses and course content. The economic and social substantiation of the study programme, as well as graduates' employment, are evaluated by looking at the results of a survey of graduates and employers.

Analysis of evaluations of the study programme

Graduate surveys take place immediately after the graduation of the study programme. The number of graduates who decide to complete the programme evaluation questionnaire is increasing with each academic year (see **Table 3.1.3.1.** and **ANNEX OptoPM 2**). This could be explained by students' greater understanding of electronic questionnaires, their anonymity. In addition to the programme, a lot of work has been done talking with students, making them aware that their opinion is important in helping to improve the study programme and its content. In January 2017, the first English group of part-time extramural studies graduated, which allowed a full evaluation of the implementation of the programme not only in Latvian but also in English.

Table 3.1.3.1.

The assessment provided by graduates on the study programme during the reporting period

	Academic year								Average
	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021	
Latvian groups									
Completed questionnaires from the total number of graduates	44%	28%	81%	100%	100%	100%	97%	100%	69%
Average score (maximal – 7)	5.6	5.7	5.6	5.5	5.8	6.0	5.8	6.1	5.8
English groups									
Completed questionnaires from the total number of graduates				100%			100%	100%	100%
Average score (maximal – 7)				6.5			6.5	6.8	6.6

Overall, the evaluation of the programme has not changed significantly, but there is a tendency that the study programme has been assessed higher by graduates from English groups, which shows that the process and supply are competitive not only at the Latvian level but also at the international level. From responses, it can be noted that students consider the courses offered in the programme to be very versatile providing both professional and academic knowledge. Most of them note that they plan their professional development during their studies and plan to work in line with the obtained education. The vast majority of graduates (97%) note that they already work full or part-time during the second study year although one of the comments is that work interferes with studies, and it is difficult to work full-time during the studies. The number of full-time employees is also increased by those students who are in part-time onsite and part-time extramural study groups that are specially designed to allow the pooling of studies and work.

An additional survey of 28 students was conducted to understand in what area are they employed. Mainly, during the studies, students continue to work as dispensing opticians and optometrists' assistants in optic stores (50% of respondents) while around 30% of students are already starting to work as optometrists (under the supervision of professional optometrists). A survey of additional graduates was conducted to collect employment data over a longer period. The results are compiled in **Table 3.1.3.2.** The survey shows that 85% of graduates work as optometrists in vision care or health care fields in optic stores, medical centres, or clinics. Still, the low salary was mentioned as one reason not to pursue a career in the obtained profession. Consequently,

cooperation with employers is continued explaining the specific characteristics, opportunities, and benefits of the training and employment of optometrists. The positive prestige of the profession is also boosted by changes in legislation when an optometrist became a medical practitioner on 1st January 2020.

Table 3.1.3.2.

Graduate survey data on post-graduate employment in optometry, vision care, other health care or other fields

Graduation year	Completed questionnaires	Areas of activity				Health Care
		Optometrist	Optical assistant	Other specialist in optics or healthcare	Other	
2013	21	17	1	0	3	85.7%
2014	19	15	0	0	4	78.9%
2015	22	19	0	1	2	90.9%
2016	22	18	0	0	4	81.8%
2017	13	11	0	1	1	92.3%
2018	17	16	0	0	1	94.1%
2019	8	8	0	0	0	100.0%
Average						89.1%

As expected for master study programmes, most graduates (85%) do not plan or are not certain to continue their studies. After obtaining the professional master's degree in Clinical Optometry, studies can be continued either at a doctoral level or in another study programme. There has been an increase in the number of students who decide to continue in their doctoral studies. During the reporting period, 7 (5%) graduates continued their studies in the doctoral programme.

In general, graduates note that studies have good theoretical and practical knowledge, they have improved their communication skills and the ability to make difficult decisions by critically evaluating information. In general, graduates are satisfied that they chose this study programme because it prepared them for the labour market. Students are satisfied with the environment, technical equipment, and the resources of the UL Library because they can study at one place without moving between different buildings and places of the university, auditoriums and laboratories are very well equipped at the new place, House of Nature, on Jelgava Street 1. From year to year, the assessment results for readers change. As far as possible, we had discussed required changes with each reader, as well as more radical steps like replacing some readers were made if the course was not improved in terms of content and development within three years. There are also young readers who improve the quality of the course with enthusiasm and new ideas. We work with young readers to improve their didactic skills. Staff have always been receptive and have helped the student solve their problems with documents as well as vague issues. In general, students are satisfied with the study process, courses, and e-environment.

During the accreditation period, the graduates' evaluation varies from year to year. It is affected by claims against readers, against the environment or against the content or external factors of the study programme. The table summarizing evaluation for 2014-2019 (see **ANNEX OptoPM 2**) shows that there are areas that should be more focused on in the future and good solutions must be found. A more detailed summary of the study programme can be found separately for each year in **ANNEX OptoPM 2**. Attention should be paid not only to the average value but also to the standard deviation that describes how much these data diverse among students. For example, this is strongly observed in the evaluation of extracurricular activities offered by the University of

Latvia, support from the student council and self-government. To address this issue, students are more motivated to participate in the student council and self-government, as well as the student council and the self-government, are invited to inform students about the ongoing and potential student support at the University of Latvia. Unfortunately, this issue cannot be easily addressed because students are in the professional programme where great emphasis is placed on practice. Students already work to build their careers and have less time to do non-study activities. Till spring 2019, classes for optometry students were separated from other faculty programmes, making it more difficult for students to communicate with each other and being more estranged. Starting from spring 2019, the Faculty of Physics, Mathematics and Optometry and other study programmes moved to Jelgavas Street 3 (The House of Science). Still separated but at least much closer than it was before. Students' self-government also includes representatives from study programmes in optometry, and there is also an initiative of optometry students in a variety of joint events.

The high standard deviation is observed also for international experience opportunities in studies. As most students already work, fewer and fewer students choose to take advantage of ERASMUS exchange and practice (to not create high student debts or to not lose their jobs etc.). In order to improve this indicator, (1) students participate in the Doctoral School of Vision Science, where not only local, but also foreign lecturers are invited; (2) students have the possibility (including with the support of UL) to participate in various international conferences (DOC, VisPEP), both by presenting the results of their studies and as participants; (3) classes for Latvian and English groups (e.g., "Eye Diseases and Pharmacotherapy", Clinical Practice in Optometry II-III) are joint together to facilitate the exchange and communication of mutual experience.

If you look at the data in which students are required to indicate the time spent for independent work outside studies, it should be added that the questionnaire is filled by students who already graduated. More accurate data are obtained at the end of each semester for each course and the time spent for independent work outside studies. There's a completely different scene. The students point out that the time spent for independent work outside studies is about the same as time spent on site. The onsite classes are highly evaluated by the students.

An analogous trend was observed in both assessments of individual study courses and the study programme that the students do not give a maximum value. The rate most often between rather agree and mainly agree, which indicates that the overall evaluation of the study programme, which does not exceed 6.0 points, is still considered to be a high evaluation of the study programme.

Analysis of employers' survey

By improving the economic situation of the country and optics services – choosing optometrists for vision assessment, buying new and beautiful glasses or appropriate contact lenses and their cleaning kits – the need for optometrists has increased as companies expand, and new optics are opened. The employment records of the Association of Optometrists and Opticians of Latvia show that about 3/4 optometrists continue their labour relations in this speciality either as practising optometrists or as representatives of various companies specialising in vision care – wholesale and retail trade of various items (spectacle frames, spectacle lenses, contact lenses) and optometric or ophthalmological equipment. Several graduates choose to work outside of Latvia. The acquired professional master's degree allows graduates to continue their studies in doctoral programmes in Latvia and abroad. During the accreditation period, 7 graduates of the professional master's degree programme used this opportunity.

For the employers' survey, we used the one developed by the University of Latvia. This questionnaire does not fully demonstrate an assessment of the performance of dispensing opticians and optometrists, but more summarises the total skills of graduates to enter the labour market immediately or with little training if the company has its own narrow specificities, which are

not provided by the studies. A sample of the questionnaire can be found in **ANNEX OptoPM 3**. The questionnaire was filled only by the large optic companies Fielmann, OC Vision, Vision Express, Optic Guru and one small company Grund optics. In Latvia, these companies are the main ones employing more than 90% of vision care professionals – dispensing opticians, opticians, and optometrists.

The data show that companies mostly have employees that hold bachelor's, master's, or professional master's degrees. In the selection of employees, the previous experience has a less important role because the companies enable graduates to acquire experience within their business. All companies have experienced difficulties in finding an employee, mainly optometrists because their lack remains high in Latvia. The more frequent cause of recruitment problems is an unwillingness to change their place of residence. Thus, there is a higher lack of employees outside Riga and in more distant regions of Latvia. Another factor sustaining a lack of optometrists is the proportion of women among students; they build families (marriage, children) after graduation, terminating work due to pregnancy or parental leave. As a result, graduates of the study programme are already employed during their studies – initially as assistants and later as optometrists under the supervision of mentors. I agree that there are also downsides if students work while studying, the less time is devoted to studying or the time for studies is found on late evenings, Saturdays and Sundays decreasing productivity. But the experience of previous years shows that the student's understanding of the profession, as well as practical skills, improve.

Employers look partly negatively at recruiting students because the learning process determines limitations for work timetables. There are still optics stores where optometrist is available only on certain days of the week. Therefore, the increase in the proportion of qualified professionals can ensure a more stable work schedule and better availability of specialists.

A positive feature is that an employee can start work immediately after recruiting. Only some companies have specific training in marketing and service culture. The optometrist works in the health care sector, which is constantly undergoing changes and improvements (new technologies, methods, correction options). Consequently, the optometrist should also continue further training and increase of qualification, which is partly provided by employers. Employers acknowledge that theoretical knowledge and practical skills are high, the graduates can work and adapt to new things.

As the biggest problem, all employers point out the low communication skills and working in a team, as well as lack of a responsible attitude to work. In order to address communication and service skills, we asked the employers to make recommendations on what skills they expect and how they see that these skills can be developed during studies. They acknowledged in the discussion that lack of communication and service skills is noticeable at the beginning and approximately for one to two years. Then, however, young employees fully integrate into the collective, improve their collaboration with colleagues, and even become leaders. Unfortunately, none of the employers could recommend good solutions. The only and the most relevant solution was to support both dispensing opticians and young optometrists with places of practice. The increase of the scope of study courses in communication and service, unfortunately, does not lead to an expected result since students can only gain experience in real conditions when faced with clients and patients. To enable students to become more familiar with optics and the working environment of vision specialists, students can choose such courses as “Clinical Ethics for Optometrists” and “Business Aspects in Optometry”. Clinical Practices in Optometry IV is organised in optometrist potential workplaces, mainly optics stores, to develop not only direct skills of the optometrist but also skills in communication and teamwork.

The employers assessed with the lowest grade the skills of graduates to offer new ideas and

solutions, as well as to adapt to new conditions (changing working environments), the ability to make decisions and justify them, the skills to identify and address problems, the skills to plan, manage and organize other jobs, communication skills, Russian-language knowledge, the ability to work with the client's needs, courage to recommend solutions and products. In the light of these guidelines and offers made by employers, the study process and, in particular, the practices stress the development of communication skills by organising seminars with the participation of the employer or guest lecturer in order to develop an open discussion with students and their communication skills. The distribution of the scope of practice by semester was rescheduled, as well as the content, industry professionals are involved, and students regularly receive feedback on what they have done (practice managers analyse the submitted patient cards and correctness of the recommendations). In Clinical Practice in Optometry III, mandatory seminars are included where students learn to present, analyse, and discuss clinical cases in order to improve their decision-making and justification, as well as problem identification and solving skills.

During the accreditation period, greater involvement of employers in the development and improvement of the study programme was realized by assessing the employers' feedback and suggestions, involving employers and graduates in offering and managing bachelor's and master's theses, identifying the topics of research interesting for employers. We plan to increase this cooperation to improve the employability and level of training of graduates in line with labour market requirements, as well as the prestige of the profession in order to increase the retention of individuals in the current working environment. Activities planned: 1) regular meetings with employers to discuss the topics of the study programme, mutual needs, improvements and increase the employer's understanding of the optometrist profession and acquired knowledge; 2) increasing the feasibility of pursuing practices by discussing additional requirements to be included; 3) continuing research cooperation with employers.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The PMSP Clinical Optometry is presented in several forms of study: full-time (Latvian and English groups), part-time onsite (Latvian group) and part-time extramural (English group). The dynamics of the number of students over the years of study are illustrated in **Figures 3.1.4.1., 3.1.4.2. and 3.1.4.3.** The statistics on the students in all study forms during the reporting period are shown in **ANNEX OptoPM 4.**

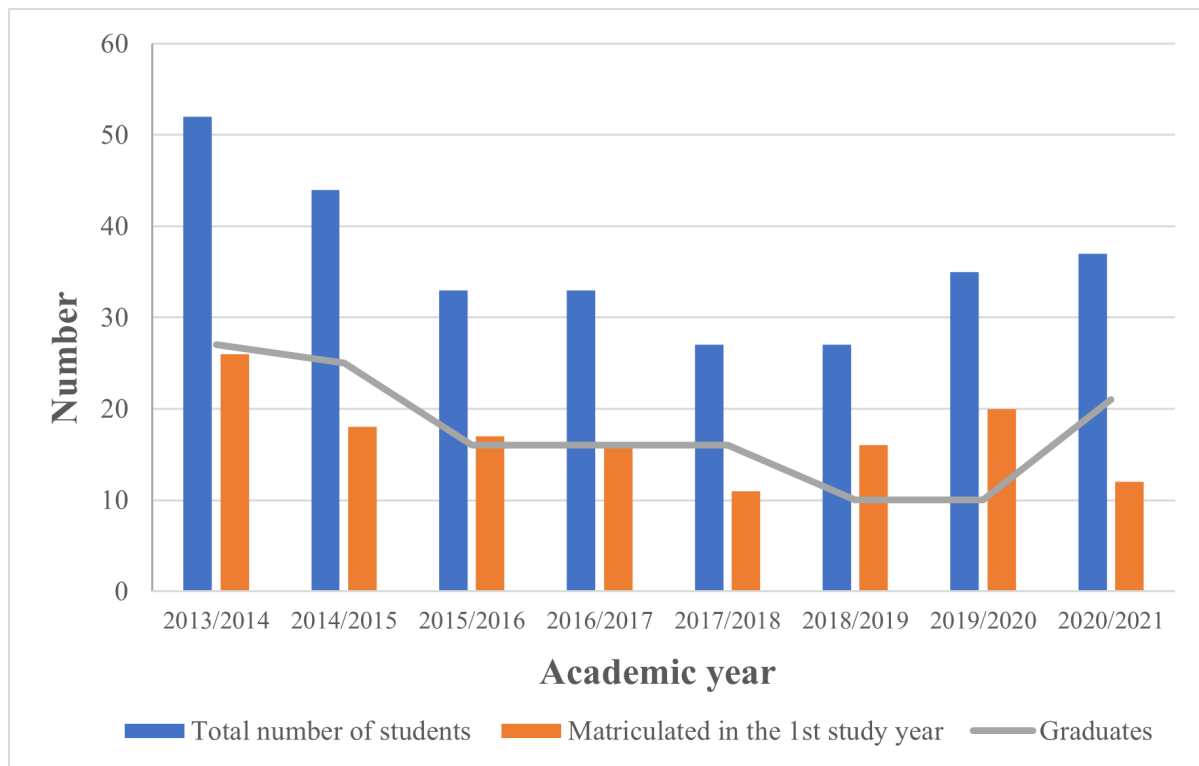


Figure 3.1.4.1. Full-time (Latvian group) student dynamics through academic years.

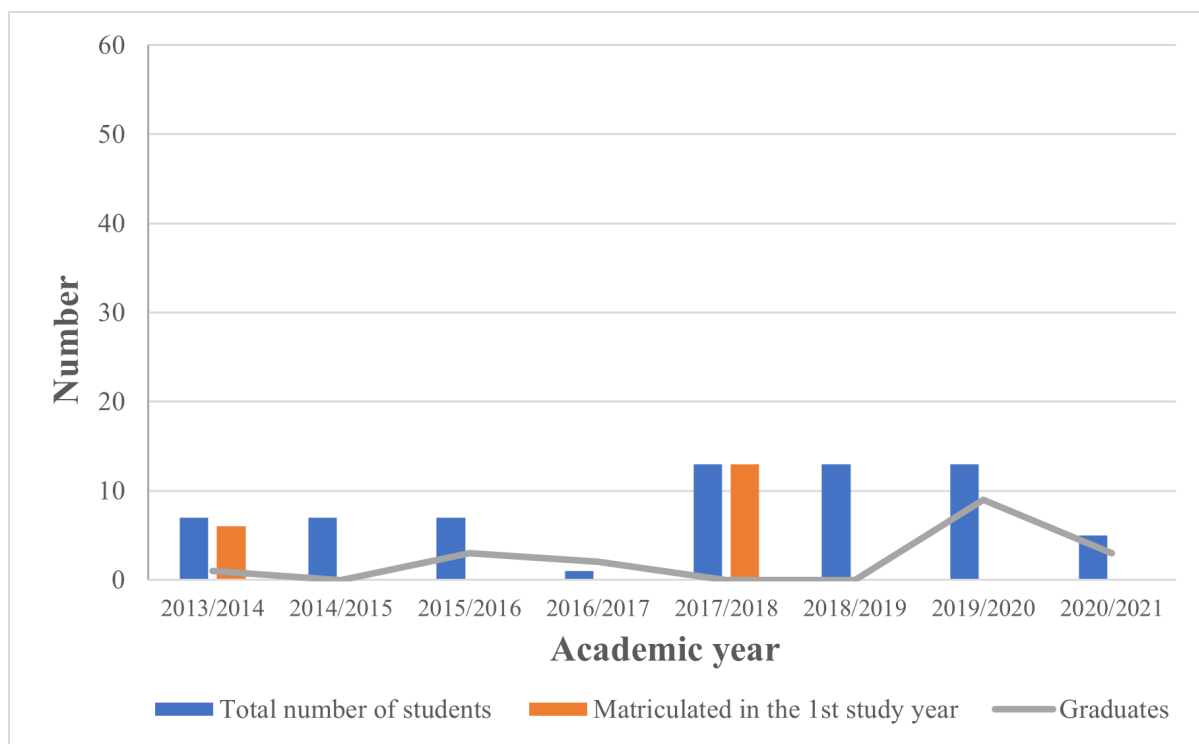


Figure 3.1.4.2. Part-time onsite (Latvian group) student dynamics through academic years. The admission of a new group of students is planned only when the previously admitted group has graduated.

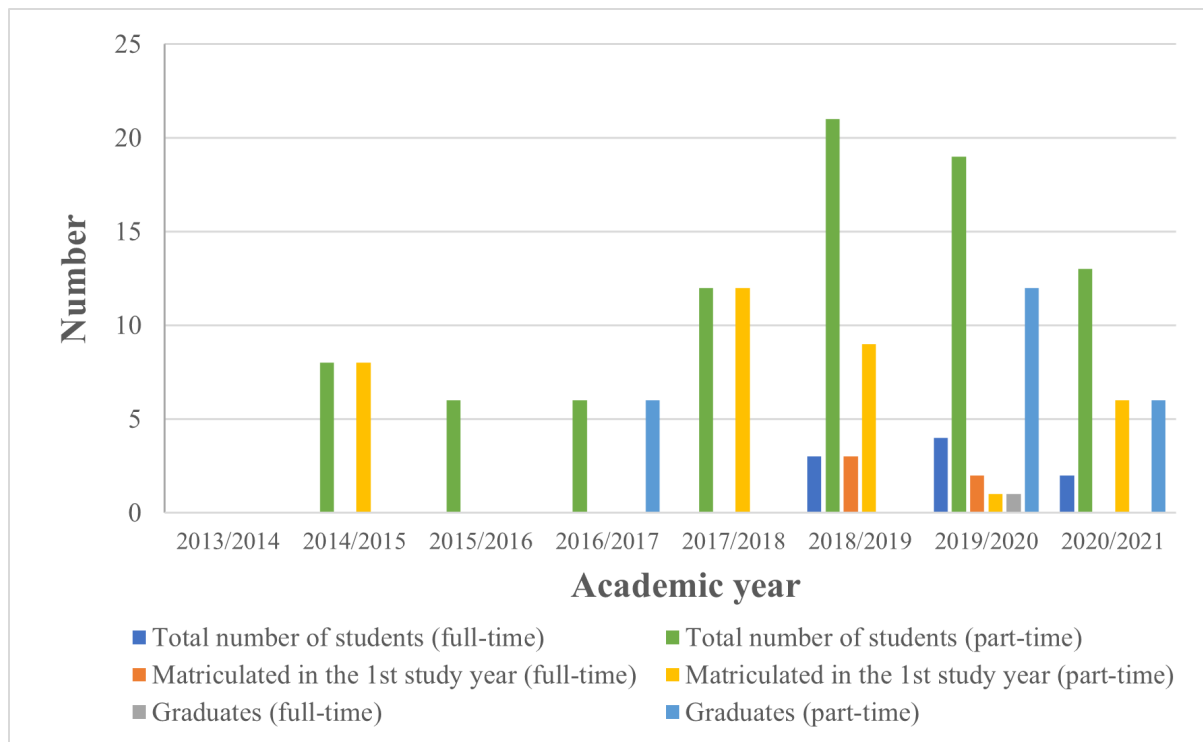


Figure 3.1.4.3. Full-time and part-time extramural (English groups) student dynamics through academic years. Full-time studies started in 2018/2019.

The majority of students are in the full-time Latvian groups. A significant drop in students is observed comparing the beginning (52 students) and the end of the reporting period (37 students). One explanation is the reduction in state-financed budget places. At the beginning of the reporting period, the number of study places to be financed from the funds of the State budget in the professional master's study programme was 20, which decreased to 12 at the end of the reporting period. Since 2016/2017, additional four places are financed from the funds of the Department of Optometry and Vision Science. In particular, this became possible by recovering the correct financial coefficient in 2017 and thereby obtaining more funding for the programme. The Professional Master's degree programme "Optometry" was accredited and included in the study field Health Care in 2013, but the coefficient for the study programme at the University of Latvia was not allocated as for the study field Health Care but as for the study field Natural Sciences. Unfortunately, the policies of the University of Latvia do not support Health Care study programmes and their demands. The director of the study programme has to demonstrate regularly the stability of the study programme: 100% of the State budget places are filled and there is no big drop-out of students every year.

The students have also recognised the reduction in budget places as a key factor why they do not plan to continue their studies in the professional master's study programme as a post-graduate study option. In order to address this issue, the Department of Optometry and Vision Science discuss the employers' financial support for their students by covering their tuition fees. With a shortage of qualified optometrists in the country, employers provide extensive financial support by covering the tuition fees of their employees. Consequently, the University of Latvia acquire students and the employer acquires later a highly qualified optometrist. The study programme successfully implements the rotation model for second-year students. Based on the results of the first year – the comparison of the average grade in the relevant group, the student can get the State budget place for the next study year.

The slight increase in full-time studies in the Latvian group can be seen by comparing 2018/2019

(27 students on 1st October 2019) and 2019/2020 (35 students on 1st October 2019) due to changes in legislation, namely, an optometrist became a medical practitioner on 1st January 2020. This allows the optometrist to practice independently only with acquired qualifications in optometry (which is granted after graduation of the professional master's study programme) and with a certificate (which is granted by the Latvian Union of Professional Organisations of Medical Practitioners). Consequently, those who previously graduated from the BSP Optometry and wanted to continue to work as independent optometrists had to also graduate from the professional master's study programme.

In order to allow such students to study, part-time extramural studies were offered for Latvian groups until 2016/2017 with 25% of contact hours. However, on reviewing the requirements of students, employers, and regulatory enactments, the form of studies was transformed into part-time onsite in 2016/2017. The part-time onsite studies, compared to the part-time extramural studies, have a higher number of contact hours (75%), which enhances the quality of studies and better achievement of the study results. However, the admission of a new group is only possible after the graduation of the previous group. Thus, the students were matriculated in 2013/2014 (the winter admission in January and the studies start with the spring semester). Due to the small number of students in the previous part-time extramural study group, as well as changes in the form of studies from part-time extramural to part-time onsite, which requires more funding due to the increased number of contact hours, a minimum number of students was set as at least 10 students in order to start a new group. Consequently, in 2016/2017, the number of interested parties was less than required. The higher number of students (13 students) enrolled in part-time onsite studies in 2017/2018 is also explained by the changes in legislation. The next group of students in a part-time study onsite form was planned for the spring semester of 2021/2022. However, due to the small number of applications, the group was not completed.

The PMSP Clinical Optometry has students also in English groups. The source of training for foreign students is found in the BSP Optometry thanks to the long cooperation with Italian opticians and optometrists. After graduating, they were interested in continuous learning in the field of optometry and the PMSP Clinical Optometry with its part-time extramural form was a logical continuation because all students in their countries work as optometrists and want to complement their knowledge, skills and competences.

During the accreditation period, there are completed student groups both in part-time extramural and full-time study forms (since 2018/2019) (see **ANNEX OptoPM 5**). There is an interest not only from citizens of the European Union and countries of the European Economic Area but also from other countries, mainly the Middle East and Asia, as well as from former countries of the Soviet Union, where optometry is only in the development process.

Part-time extramural studies are mainly independent studies with several trainings onsite in Riga. During the reporting period, by re-planning the study process to achieve the results of the study programme more successfully, longer but less frequent stays were introduced (3-10 days in Riga, Latvia) to pass examinations and have introductory lectures for the next courses, as well as participate in onsite clinical practising. In addition, e-study materials were improved for successful learning of the topics of the study course, the e-tests were introduced, and communication between readers and students were improved. Covid-19 pandemic created conditions in the whole world as well as in Latvia that supported faster development of special remote learning tools that are already successfully introduced in the study process, for example, video lectures that are offered to part-time extramural students as an additional tool in acquiring defined knowledge, skills, and competence.

The full-time study form in English must gain its popularity because optometrists, who can already

practice as optometrists in their own country with a bachelor's degree in optometry, should be persuaded to continue their studies and obtain a master's degree. In full-time studies, the students are primarily from non-European countries. The number of admissions is three times higher than the number of students. This is related to the long circulation of documents, and, in some cases, the pre-acquired education of applicants does not comply with the admission requirement defined by the University of Latvia (for example, the previous education is not comparable to the bachelor's degree). In the future, we look forward to a much higher number of students in full-time study, as we consider this form to be more successful in acquiring knowledge, skills, and competences.

The small and precarious number of students in English groups is explained by a number of factors:

1. the long process of diploma recognition at AIC, the complexity and delay of the admissions process, which prevents students from completing all travel-related processes and beginning studies in time (in the latest group, students started studies only in the middle of the semester – in November);
2. increase in tuition fees in 2019/2020 (from 2000 Eur to 4000 Eur), which has been recognised by some as an important factor for not starting studies in the professional master's study programme.

The last step – an increase in tuition fee was necessary for view on rising expenses for teaching staff and material and technical equipment. The increase in tuition fees was coordinated with the Student Self-Government of the University of Latvia and based on estimates of study costs. This was the first increase in tuition fees during the reporting period.

In addition, the admission to study programme is being abused to enter the European Union by non-citizens of the European Union. For example, in 2018/2019, 9 persons applied for studies but only 3 students were admitted. After signing the contracts, only 2 continued their studies. One student from India started but continued for only a short time and then stopped for personal reasons without providing a credible and justified reason for discontinuing her studies.

Given that the University of Latvia is one of the few universities in Europe that offers master's studies in Clinical Optometry in English (similar programmes exist in Germany[\[1\]](#), Great Britain[\[2\]](#) and Norway[\[3\]](#)) and to attract more students from foreign countries, the Department of Optometry and Vision Science decided to invest in the European accreditation alongside the accreditation of Latvian. Therefore, we are active in developing the content and arranging the credits of the study programme so that it meets all requirements of the European Diploma in Optometry[\[4\]](#) and the optometrist profession. The European Diploma in Optometry guarantees the acquisition of high standards of profession allowing optometrists to work not only in Latvia but throughout Europe. To date, full accreditation has been granted to optometrists trained at Olten (Switzerland), Kongsberg (Norway), Berlin (Germany), Utrecht (Netherlands), and Stockholm (Sweden). Partial accreditation has been received by optometrists trained at Palacky University (Czech Republic) and the University of Metropolia (Finland). The study programmes accredited in all those universities are bachelor's study programmes that are not offering studies in English. Consequently, obtaining European accreditation would increase the popularity of the PMSP Clinical Optometry by attracting a larger number of applicants.

There is also a small number of foreign students involved in exchange programmes because the University of Latvia is one of the few universities where optometrist qualification is obtained after completion of master level studies. A similar system can be seen, for example, in Poland[\[5\]](#). Students in master-level study programmes are mainly already employed and therefore do not want to travel and stay for longer periods in the other country. Greater foreign mobility is observed in bachelor's level studies. The exchange students may choose not only courses from bachelor's study programmes but also courses from master's study programmes. Therefore, the PMSP Clinical

Optometry regularly have foreign exchange students, but they do not appear in the reports. For example, in 2019/2020, three exchange students (one from Greece and two from Spain) that were listed under the BSP Optometry, selected main courses from the professional master's study programme (e.g., Disorders of Binocular Vision, Vision Training, Psychophysics, Visual Perception, Current Problems in Vision Science, Eye Diseases and Pharmacotherapy).

The figures are more hopeful if out-mobility is considered (see **ANNEX OptoPM 5**).

There is strong cooperation with several universities in Spain. The only difficulty that students have to overcome, and which prevents some students from applying to motility programmes is the requirement to know the official language of the country of destination at least at level B1. Unfortunately, the study programmes are not in English at our foreign partners. Therefore, the students of the professional master's study programme are more likely to use ERASMUS practice facilities to work on their masters' theses or to fulfil Clinical Practice in Optometry IV. For example, three students used this opportunity in 2019/2020. In 2020/2021, there was no out-mobility of students due to restrictions set by the Covid-19 pandemic. In the future, however, we will continue motivating students to take advantage of mobility. In particular, the students at the full-time study form (English group) are invited to use ERASMUS practice to fulfil the requirements of Clinical Practice in Optometry IV. It can be either in one of the optics companies of European countries with high levels of optometry development.

During the accreditation period, several ERASMUS cooperation agreements were concluded at the Department of Optometry and Vision Science (see **Table 3.1.4.1.**).

Table 3.1.4.1.

List of universities with which ERASMUS cooperation agreements were concluded during the accreditation period.

No	University	Country	Type
1.	Cardiff University	United Kingdom	Practice
2.	Centro Universitario Internacional de Madrid	Spain	Studies
3.	Šiaulių Akademija	Lithuania	Studies
4.	Tallinn Health Care College	Estonia	Studies
5.	Universidad Complutense de Madrid	Spain	Studies
6.	Universidad de Alicante	Spain	Studies
7.	Universidad de Murcia	Spain	Studies
8.	Universidad de Valencia	Spain	Studies
9.	Universidad de Zaragoza	Spain	Studies
10.	Universidade do Minho	Portugal	Studies
11.	University of Patras	Greece	Studies

All these universities have cooperated in the acquisition and equating process. Only the United Kingdom has, for the time being, renounced cooperation in the study process, although there was such cooperation in the past. The United Kingdom is now offering cooperation only for practice

improving research experience. One of the reasons could be that the United Kingdom offers studies in optometry in English as well as the University of Latvia. This could also be an obstacle to continuing negotiations on cooperation in studies, as foreign students from non-European countries who are not accepted by the United Kingdom are admitted for studies in Latvia. We think we will not lose much by not continuing this cooperation because there are other universities already interested in new cooperation agreements line in the Netherlands, Italy, and Finland.

Study courses acquired during mobility programmes, that has obtained a positive mark undergo equating process and are fully recognised without requiring the student to take additional examinations or tests. On the other hand, if the student has failed to obtain a positive assessment in one of the courses selected during mobility, the student is given the opportunity to pass the course in the PMSP Clinical Optometry by establishing a suitable individual examination plan. The student is exempt from the additional fee for re-opening the study course and retains the State budget place, if any, during mobility.

[1] <https://www.hs-aalen.de/en/courses/50> [available in English]

[2]

<https://www.hotcoursesabroad.com/study/training-degrees/uk/masters/optometry-courses/loc/210/slevel/57-3-3/cgory/pg.1-4/sin/ct/programs.html> [available in English]

[3]

<https://www.usn.no/english/academics/find-programmes/optometry/msc-in-optometry-and-visual-science/> [available in English]

[4] *European Council of Optometry and Optics*, <http://www.ecoo.info/european-diploma/> [available in English]

[5] <https://rekrutacja.amu.edu.pl/en/studies-cataloge/optometria,303> [available in English]

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The aims and results of the study courses included in the PMSP Clinical Optometry are consistent with the overall aim, objectives, and results of the study programme (see **ANNEX OptoPM 6**). The courses were reviewed so that there is no overlapping of content, but the students can experience the supplementation of their knowledge and integration of previously obtained knowledge into a further study process. In the last two years, the courses of the PMSP Clinical Optometry were reviewed and the content was agreed with the courses of the BSP Optometry. The course content of the study programmes was improved to match the European Diploma in Optometry. In view of the ECTS proposed by the European Council of Optometrists and Optics, some courses were restructured and an increase in ECTS amount was required (for example, the course “Contact Lens Correction” was increased from 4.5 ECTS to 6 ECTS). The number of courses for each semester was reviewed to comply with the regulations of the University of Latvia: no more than 6 exams should be allowed per semester. Consequently, in the study programme, all courses have an even CP number. The exception is the study courses *Civil Protection* and *Environmental Protection*, which are 1 CP courses, according to Cabinet Regulation 716 “Minimum requirements for the content of the compulsory civil protection course and the content of civil protection training for employees” and “Environmental Protection Law”, but these courses are offered only as additional courses (outside the total amount of study).

The linkage of individual courses to the objectives of the Professional Master's degree programme is shown in **Table 3.2.1.1**. The table also includes study courses that are offered in the study model with the preliminary year. Although these additional courses contribute to the achievement of certain objectives of the study programme, they do not duplicate the courses of the PMSP Clinical Optometry but provide the basic knowledge necessary for successful achievement of study results. For students studying in the study programme without the preliminary year (hereinafter – standard model), these study results are acquired within the framework of the BSP Optometry.

The objectives of the PMSP Clinical Optometry:

1. to develop skills in assessing the visual system and diagnosing refractive and functional anomalies of vision;
2. to provide knowledge about the diseases of the eye and its accessory organs, their diagnostic and treatment capabilities, and to develop skills in assessing the health of the eye structures;
3. to develop skills for the use of standard and specialised techniques and equipment in optometry;
4. to develop skills in prescribing and selecting an appropriate type of vision correction based on the results of assessment and diagnosis of refractive and functional anomalies of vision, as well as taking into account the individual needs, goals and values of the client;
5. to provide knowledge and develop skills on preventive measures of vision loss and vision rehabilitation;
6. to develop skills in applying the latest scientific findings in optometry and related fields;
7. to develop skills in professional ethics and communication, as well as in the application of regulatory enactments;
8. to provide knowledge about health protection requirements and emergency and disaster management;
9. to develop skills to use theoretical knowledge and skills working with scientific periodicals in order to form an understanding of research possibilities for a specific problem of visual science in a new environment and in a multidisciplinary context;
10. to develop skills to clearly and unambiguously document, explain, present and justifiably defend the conclusions of their clinical or scientific studies in both specialist and non-expert

- auditoriums, providing logical arguments based on experiments or modelling;
11. to develop basic skills for scientific research and the preparation of publications, as well as to create an interest in continuing education and the systematic improvement of professional qualification.

Table 3.2.1.1.

Linking PMSP Clinical Optometry courses to the underlying objectives of the study programme.

Course Title	Objectives of the Study Programme										
	1	2	3	4	5	6	7	8	9	10	11
Eye Health and Nutrition					x	x			x		
Eye Movements	x		x			x			x	x	
Eye Disease and Pharmacotherapy		x				x					
Disorders of Binocular Vision	x	x		x	x	x			x		
Civil Protection**							x	x			
Individual Vision Correction Techniques		x		x		x			x		
Clinical Ethics for Optometrists						x	x		x		
Clinical Practice in Optometry I	x	x	x	x							
Clinical Practice in Optometry II	x	x	x	x	x	x				x	x
Clinical Practice in Optometry III	x	x	x	x	x	x	x			x	x
Clinical Practice in Optometry IV	x	x	x	x	x	x	x			x	x
Clinical Diagnostic Methods in Optometry			x			x			x		
Contact Lens Correction	x	x	x	x		x	x		x		
Qualification exam in Optometry	x	x	x	x	x	x	x				
Basic Latvian*											
Introduction to the Master's Thesis									x	x	x
Master's Thesis									x	x	x
Modelling in Visual Science			x			x			x		
Emergency Medicine								x			
Paediatric Optometry	x	x	x	x	x	x	x		x		
Psychophysics			x			x			x		
Visual Neuroscience			x			x			x		
Vision Training	x		x	x	x	x			x	x	
Visual Perception			x			x			x	x	
Current Problems in Visual Science						x			x	x	x

Stereovision			x			x			x		
Business Aspects in Optometry						x			x		
Low Vision	x	x		x	x	x	x		x	x	
Environmental Protection**							x	x			
General Medicine for Optometrists		x				x					
Courses for Preliminary Year†											
Anatomy and Physiology of the Eye		x									
Anatomy, Physiology & Biochemistry		x									
Pharmacology for Optometry		x									
Geometrical Optics				x							
Microbiology		x						x			
Neurophysiology		x				x					
Vision and Aging	x	x	x		x	x					
Visual Optics				x							
Cell Pathology		x									
Occupational and Physical Optics				x							
General Pathology		x									

* the course is intended only for students in English groups to provide basic knowledge in Latvian and cultural terms; it does not affect the overall achievement of the results of the programme.

** the course is intended only as an additional course for students who have not acquired it during their bachelor's studies (according to Cabinet Regulation 512) so that the acquired knowledge does not affect the overall achievement of the results of the programme.

† additional initial training courses do not duplicate existing courses in the Professional Master's study programme but provide basic knowledge that helps to better achieve the results of the PMSP.

The BSP Optometry and the PMSP Clinical Optometry offered by the University of Latvia are the only programmes of this type in Latvian universities, as well as the PMSP Clinical Optometry is the only programme of this type in the Baltic States. Together, the two programmes form an internally closed group capable of providing both assistants and primary visual care specialists – optometrists within the requirements of the labour market, as well as the academic staff needed for the implementation and growth of the programmes in the future. The programmes are implemented by the Department of Optometry and Vision Science of the Faculty of Physics, Mathematics, and Optometry at the University of Latvia, which is the physical environment for the scientific base in conducting studies related to the development of bachelor's and master's theses, as well as with laboratories, ambulances and the specialised library needed to prepare primary vision care professionals.

Today, the most important specialists in vision care are ophthalmologists and optometrists. The main aim of the ophthalmologist is to diagnose and treat eye diseases that require a high level of education. The training of ophthalmologists is long and expensive, so it's not useful to employ

ophthalmologists in providing primary vision care. The training of optometrists takes 5 years (3 years in bachelor's study and 2 years in professional master's studies). The academic and professional competence of optometrists is more specialised in the diagnosis and correction of vision and visual function disorders, with a high focus on advanced diagnostic methods. Several years of experience has shown that optometrist after graduation can fully provide primary vision care in the country. In Latvia, a primary vision care organisation and a range of services are approaching Western European standards on the distribution of responsibilities between private and public subjects of the law. More and more optometrists are employed not only in optics stores but also in public and private health care sectors (ambulances, hospitals, private clinics). The scope of expertise, skills and competences needed for optometrists are extended. On 11th December 2019, the new optometrist profession standard was approved, and, on 1st January 2020, the optometrist became a medical practitioner. Consequently, programmes for optometry studies (the professional master's study programme together with the bachelor's study programme) were modified and adapted to current labour market trends, needs and requirements, requirements of the optometrist profession standard (see **ANNEX OptoPM 7**), the specific normative regulation of the corresponding field (see **ANNEX OptoPM 8**), as well as to the specificities and multi-disciplinarity of the visual science.

Not only teaching staff have participated in the development of the study courses and course content, but also employers are interested in the training of new specialists in line with the new technologies and in increasing cooperation between optometrists and ophthalmologists. Each year during the autumn semester, there are meetings with the practice providers and large optics companies to discuss the level of training for the new specialists and experience from the previous year's practices, as well as to discuss the possibilities for the development and the financial support for the material base of the study programme, as well as to discuss the latest trends in the labour market. Meeting with employers highlight the basic knowledge and basic skills for dispensing opticians and optometrists to enable graduates to enrol in the labour market, where the range of automated equipment is growing not only in the field of spectacle manufacturing but also in the field of eye function and eye structure health assessment. There is a constant increase in the range of spectacle lens and contact lens designs, the range of materials and the possibilities and needs of visual rehabilitation and prevention. For example, the study programme included a course "Individual Vision Correction Techniques" to provide students with an in-depth knowledge of the types of refractive surgery, their indications and contraindications, the necessary pre - and post-surgery examinations, and the interpretation of the results obtained, possible complications and their prevention capabilities. In addition, the students learn different calculation methods to determine the amount of surgery required, e.g., the power of the intraocular lens for cataract surgery. In the course "Clinical Diagnostic Methods in Optometry", the students get in-depth knowledge about the application of various investigative equipment (e.g., OCT, aberrometry, etc.), learn to interpret the results preparing them also to be assistants of ophthalmologists, if required. The inclusion of such knowledge in the study programme was initiated by employers and therefore extends the scope of optometrists after graduation (enabling not only to work in optics but also in different medical centres and clinics). For example, on 1st January 2020, 15 optometrists worked in close cooperation with ophthalmologists in health care institutions such as Dr. Solomatina Acu Centrs, Latvian-American Eye Centre, Children's Clinical University Hospital, Riga East Clinical University Hospital, North Riga Regional Hospital Dziedniecība, I.Grundmanes APO, EyeProf.

The content of both the BSP Optometry and PMSP Clinical Optometry is also based on the requirements of the European Diploma in Optometry, which has been developed by European visual care professionals. This standard describes the knowledge, skills and competences required for optometrists (*ophthalmic optician or optometrist*) and their recommended level of ECTS. More than a third of the optometrist's knowledge, skills, and competences correspond to the number of ECTS

recommended for knowledge, skills, and competences of the dispensing opticians. These are learned within the framework of the BSP Optometry. To ensure equal acquirement of the study results for those with bachelor's degree in optometry and without, the PMSP Clinical Optometry offers two study models: the standard model (120 ECTS) and the model with the preliminary year (180 ECTS). The latest is offered to those who do not hold a Bachelor's degree in Optometry but has obtained Bachelor's degree (or comparable to a bachelor's degree) in other scientific fields.

The PMSP Clinical Optometry consists of three main blocks (see **ANNEX OptoPM 9**) – compulsory (mandatory) study courses (Part A) and mandatory (limited choice) selection courses (Part B), and free choice courses (Part C) and complies with the national education standard (see **ANNEX OptoPM 10**):

Compulsory part or Basic courses – 102 ECTS in the standard study model or 123 ECTS in the study model with preliminary year:

- General Optometry Block (30 ECTS) (Eye Disease and Pharmacotherapy, Disorders of Binocular Vision, Clinical Diagnostic Methods in Optometry, Contact Lens Correction, Emergency Medicine, Visual Perception, Current Problems in Vision Science, Low Vision);
- Clinical Practice Block (39 ECTS) (Clinical Practice in Optometry I-IV);
- Final Block (33 ECTS) (Introduction to the Master's Thesis, Master's Thesis, Qualification Exam in Optometry);
- General Block of Introduction Courses (21 ECTS) (Anatomy, Physiology & Biochemistry, Pharmacology for Optometry, Anatomy and Physiology of the Eye, Cell Pathology) intended solely for the study model with the preliminary year.

Limited choice part or Selection courses – 15 ECTS in the standard study model or 54 ECTS in the study model with preliminary year:

- Mandatory Professional Block (6 ECTS) (Paediatric Optometry, Individual Vision Correction Techniques);
- Optional Professional Block (has to obtain 6 ECTS) (Eye Health and Nutrition, Clinical Ethics for Optometrists, Vision Training, Business Aspects in Optometry, General Medicine for Optometrists);
- Optional Academical Block (has to obtain 3 ECTS) (Eye Movements, Modelling in Visual Science, Psychophysics, Visual Neuroscience, Stereovision);
- Mandatory Pre-Professional Block (39 ECTS) (Geometrical Optics, Microbiology, Neurophysiology, Vision and Aging, Visual Optics, Occupational and Physical Optics, General Pathology) intended solely for the study model with the preliminary year.

Free choice part – 3 ECTS, where students choose study courses from the range of study courses offered in other study programmes (which are defined as courses available for free selection in the given academic year).

The compulsory part covers the range of knowledge, skills, and competences required for qualification in optometry. These courses are designed in line with the requirements of the optometrist profession standard and the European Diploma in Optometry, as well as the wishes of employers. The limited choice part includes courses that improve the professional performance of optometrists, as well as academic knowledge in several fields related to visual science. The optional academic block helps the student to learn in-depth one of the academic topics that can be useful for further developing the master's thesis. Throughout the study process, a student must acquire at least two optional professional courses and one optional academic course.

The limited choice part also includes a language course (Basic Latvian, 3 ECTS) intended solely for students in English groups to get basics in Latvian language and culture, so that they can better

integrate into the student environment and participate in the study process with Latvian groups (for example, in the framework of clinical practice). If a student has not acquired the basic Latvian language in previous level studies (bachelor's studies), the student must select the course "Basic Latvian" as an alternative to one of the courses in the optional academic block.

The study programme also includes two additional courses "Civil Protection" and "Environmental Protection" and adapted their content to the minimum requirements as defined by the Cabinet of Ministers on 5th December 2017 Regulation "Minimum requirements for the content of the compulsory civil protection course and the content of civil protection training for employees" (2nd November 2006)[1] and by "Environmental Protection Law"[2]. According to the Cabinet of Ministers on 26th August 2014 Regulation No 512 "Regulations regarding the State standard of second-level professional higher education"[3], these courses are intended for students who have not acquired them at the previous study level (e.g., during bachelor's studies). The number of ECTS obtained in these courses are not included in the total amount of ECTS of the study programme but is accepted as an additional amount of ECTS (above the specified 120 ECTS or 180 ECTS for the model with the preliminary year).

There is great attention made to the study process for students to learn the research activities needed to continue their doctoral studies. In addition to providing basic knowledge, each study course concentrates on the state-of-art in the field and the research direction. As well as the study programme includes the course "Current Problems in Vision Science" that teach the students to look critically at the latest research results in the field of optometry and visual science, and the clinical and research capabilities. The development of the master's thesis is divided into two courses ("Introduction to the Master's Thesis" (9 ECTS) and "Master's Thesis" (21 ECTS)). In general, it teaches students to critically analyse available literature, to prepare a summary, independently plan and perform research, analyse the results (the course "Introduction to the Master's Thesis" also focuses on data analysis and statistics) and formulation of conclusions, as well as on presentation types – written and oral presentation by engaging in discussions on the topic of one's study. In this context, the awarding of a professional master's degree in Clinical Optometry is based on achievements and knowledge in the visual science field.

[1]

<https://likumi.lv/ta/id/295896-minimalas-prasibas-obligata-civilas-aizsardzibas-kursa-saturam-un-nodarbi-nato-civilas-aizsardzibas-apmacibas-saturam> [available in Latvian and English]

[2] <https://likumi.lv/ta/id/147917-vides-aizsardzibas-likums> [available in Latvian and English]

[3]

<https://likumi.lv/ta/id/268761-noteikumi-par-otra-limena-profesionalas-augstakas-izglitibas-valsts-standartu> [available only in Latvian]

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

Two optometry study programmes are provided at the Department of Optometry and Vision

Science of the Faculty of Physics, Mathematics and Optometry, the University of Latvia. Consequently, the majority of employees are involved in the provision of the study process. However, most of the readers of the department are also involved in scientific work. 18 out of 28 employees of the Department of Optometry and Vision Science deliver specific courses and supervise and review scientific works. The readers of the Department of Optometry and Vision Science work in parallel with the study process in science and in achieving project results. Every reader introduces his/her experience, study results, and methods into the study courses ensuring the continuous acquisition of the latest knowledge and skills for students. Students also participated in the achievement of the results of research projects by collaborating with the readers of the Department of Optometry and Vision Science.

The readers actively participate in various projects, international scientific conferences and publish articles in scientific journals. The achievements of the readers over the past six years are reflected in their CVs that is attached to the accreditation documents. Some examples of publications.

In the Web of Science and Scopus databases:

- **Pladere, T., Luguzis, A.,** Zabels, R., Smukulis, R., Barkovska, V., Krauze, L., Konosonoka, V., **Svede, A., & Krumina, G.** (2021). When virtual and real words coexist: Visualization and visual system affect spatial performance in augmented reality. *Journal of Vision*, 21(8), pp.1-18. DOI: 10.1167/jov.21.8.17
- Ali, Q., Heldal, I., Helgesen, C.G., **Krumina, G.,** Costescu, C., Kovari, A., Katona, J., & Thill, S. (2021). Current challenge supporting school-aged children with vision problems: A rapid review. *Applied Sciences*, 11, art. no. 9673, pp.1-23. DOI: 10.3390/app11209673
- **Kassaliete, E.,** Gordeja, A., **Panke, K., Petrova, A., & Krumina, G.** (2021). Accommodative response in various design soft contact lens wearers. *Proceedings of the Estonian Academy of Sciences*, 70(4S), pp.333-340.doi: 10.3176/proc.2021.4S.04
- Liduma, S., **Luguzis, A., & Krumina, G.** (2020). The impact of irregular corneal shape parameters on visual acuity and contrast sensitivity. *BMC Ophthalmology*, 20(1), art. no. 466, pp.1-10. DOI: 10.1186/s12886-020-01737-x
- **Pladere, T., Delesa-Velina, M.,** Andriksone, V., Pitura, R., **Panke, K., & Krumina, G.** (2019). Visual search performance and strategy for three-dimensional visualization systems: Impact of radiologist experience. *Applied Sciences* (Switzerland), 9(22), art. no. 4929. DOI: 10.3390/APP9224929
- **Panke, K., Pladere, T., Velina, M., Svede, A., & Krumina, G.** (2019). Objective user visual experience evaluation when working with virtual pixel-based 3D system and real voxel-based 3D system. *Photonics*, 6(4), art. no. 106. DOI: 10.3390/photonics6040106
- **Krumina, G.,** Skilters, J., Gulbe, A., & Lyakhovetskii, V. (2018). Effect of handedness on mental rotation. *Lecture Notes in Computer Science* (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10871 LNAI, pp.729-733. DOI: 10.1007/978-3-319-91376-6_69
- **Laicāne, I.,** Šķilters, J., Lyakhovetskii, V., Zimaša, E., & **Krumina, G.** (2017). Perception of biological motion in central and peripheral visual fields. *Proceedings of the Latvian Academy of Sciences, Section B: Natural, Exact, and Applied Sciences*, 71(5), pp.320-326. DOI: 10.1515/prolas-2017-0056
- **Ikaunieks, G., Panke, K.,** Segliņa, M., **Švede, A., & Krumina, G.** (2017). Accommodative amplitude in school-age children. *Proceedings of the Latvian Academy of Sciences, Section B: Natural, Exact, and Applied Sciences*, 71(5), pp.387-391.DOI: 10.1515/prolas-2017-0065
- **Karitans, V.,** Lesina, N., **Kassaliete, E., Svede, A., Laicane, I.,** Ekimane, L., Ozolins, M., & **Krumina, G.** (2017). Measuring the refractive state of an eye based on the intensity of the

retinal reflex. *Journal of Modern Optics*, 64(17), pp.1751-1761. DOI: 10.1080/09500340.2017.1314028

- Serdjukova, J., Ekimane, L., Valeinis, J., Skilters, J., & **Krumina, G.** (2017). How strong and weak readers perform on the Developmental Eye Movement test (DEM): norms for Latvian school-aged children. *Reading and Writing*, 30(2), pp.233-252. DOI: 10.1007/s11145-016-9671-7
- **Kassaliete, E.**, Lacis, I., **Fomins, S.**, & **Krumina, G.** (2015). Reading and coherent motion perception in school-age children. *Annals of Dyslexia*, 65(2), pp.69-83. DOI: 10.1007/s11881-015-0099-6
- **Švede, A.**, Treija, E., Jaschinski, W., & **Krūmiņa, G.** (2015). Monocular versus binocular calibrations in evaluating fixation disparity with a video-based eye-tracker. *Perception*, 44(8-9), pp.1110-1128. DOI: 10.1177/0301006615596886
- **Fomins, S.**, **Trukša, R.**, & **Krumina, G.** (2014). Algorithms for skiascopy measurement automatization. *Proceedings of SPIE – The International Society for Optical Engineering*, 9421, art. no. 94210N. DOI: 10.1117/12.2083950

The Department of Optometry and Vision Science is linked to vision studies and all previous and current projects are developed in close cooperation between readers and scientific staff of the department. Major projects involving students of optometry study programmes:

- The Development of Vision Screening and Training Device (LIDA and UL Commercialization project No KC-PI-2020/10)
 - duration: 01.04.2020. -30.06.2022.
 - financing: 302 288.- EUR
 - involved: 6 readers, 18 bachelor and master students and 2 doctoral students
- The Evaluation of the Volumetric Display 3D image's Effect on Human Vision Systems (Contract research project No ZD2019/20807, customer "LightSpace Technologies")
 - duration: 01.04.2019. -31.03.2021.
 - financing: 154 880.- EUR
 - involved: 2 readers, 8 bachelor and master students and 2 doctoral students
- The Development of Environment for Vision Ergonomics Research (UL Foundation project No 2184):
 - duration: 01.04.2017. -31.03.2019.
 - financing: 56 805.- EUR
 - involved: 8 readers, 28 bachelor and master students and 2 doctoral students
- Studies of the Physiology of Vision and Visual Perception and the Development of Method for the Assessment of Parameters (UL project No AAP 2015/B003; ZD2014/AZ77):
 - duration: 01.01.2016-31.12.2019.
 - financing: 182 076.- EUR
 - involved: 8 readers, 83 bachelor and master students and 3 doctoral students
- Studies of the Physiology of Visual Overload and the Development of Methodology for the Diagnostics of Visual Stress (ESF project 2013/0021/1DP/1.1.2.0/13/APIA/VIAA/0001):
 - duration: 01.10.2013-31.12.2015.
 - financing: 496 432.- EUR
 - involved: 8 readers, 24 bachelor and master students and 2 doctoral students
- Study of the Disorders of Visual Function and Perception in School-Aged Children and the Development of Diagnostic Methodology (ERDF project 2011/0004/2DP/2.1.1.1.0/10/APIA/VIAA/027):
 - duration: 01.04.2011 -31.12.2013.
 - financing: 399 524.- EUR
 - involved: 6 readers, 69 bachelor and master students and 1 doctoral student

Readers and students, along with their supervisors participate at the local and international conferences. The larger-scale conferences are the annual international LU Scientific Conference, which hosts a section of Vision Science where 2/3 employees of the Department of Optometry and Vision Science and 15-20 students participate each year. The readers participated in the organisation of several conferences, masterclasses, and seminars. Let's plot a few examples:

- An ambitious event took place on 5th-9th July 2019 at the Nature House of the University of Latvia – 25th *Symposium of the International Colour Vision Society*, in which many readers and students of the Department of Optometry and Vision Science participated as volunteers in order to ensure the event at a high level.
- On 30th November-1st December 2018, in cooperation with the Lithuanian Association of Neuroscientists in Vilnius, a joint conference was held in Lithuania “10th *Conference of the Lithuanian Neuroscience Association and 2nd International Symposium on Visual Physiology, Environment and Perception (VisPEP 2018)*” that involved a large number of participants from the University of Latvia (bachelors, professional masters, doctoral students, and employees of the department). More than half of them participated in the conference both with oral presentations and posters.
- On 5th October 2018, a joint event was organised by the University of Latvia, the Association of Optometrists and Opticians of Latvia (LOOA) and the Latvian Ergonomists' Association “*Ergonomics at work – a challenge in health promotion*”. During the event, both conferences and three masterclasses were organised, the participants of which were students and professionals. The leaders of the masterclasses were readers of the Department of Optometry and Vision Science.
- Together with the Association of Optometrists and Opticians of Latvia and sponsors, the Department of Optometry and Vision Science was actively involved as an organizer in an ambitious Latvian-wide event called “*Contact lens users' health week*”. The event took place from 23rd to 29th October, the conference took place on 26th October 2017. There were 5 guest lecturers who presented topics on contact lenses and vision health care.
- On 6th to 8th October 2016, the readers of the Department of Optometry and Vision Science organised the first international conference for vision specialists and researchers “*International Symposium on Visual Physiology, Environment and Perception (VisPEP 2016)*” with more than 100 participants from 16 countries; the presenters were readers and students of the Department of Optometry and Vision Science.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The design of the PMSP Clinical Optometry does not differ significantly from the PMSP Optometry accredited in 2013. Although the title of the study programme is slightly changed, the study blocks were altered, and study courses and their content were revised and adapted to the current primary vision care requirements. The traditional training method – lectures, seminars, laboratory works and

practice – is dominated in all blocks (general optometry, mandatory professional, optional professional, and optional academic, as well as courses of the preliminary year). The clinical practice mainly highlights the acquisition of practical skills under the supervision of practice supervisors and the individual work of students to develop practical skills (for example, by self-reserving time in laboratories in a specially designed laboratory availability schedule, as well as by working in their own places of practice).

Lectures are a basic method at all courses outside clinical practice. The lectures offer an overview of the basic problems of study courses (concept, theory, classification). In delivering courses, both traditional lectures (introductory lectures, review lectures, problem lectures, visual lectures) and interactive lectures (pairs and group works, project-making, discussions, role games, interactive tests), as well as laboratory and practical works are applied. These methods are consistent with didactics and develop critical analytical thinking. Readers widely use computer presentations and Internet resources. Lecture materials (presentations, video materials, additional literature sources) are also available in the e-studies environment. The results of the student independent work are presented in seminars with the following discussion and public differentiated assessment. In seminars, students gain experience in sharing their knowledge with others and participating in academic discussions.

One of the forms of peer-to-peer work is participation in the Doctoral School of Visual Science, which is carried out in the framework of the study courses “Current Problems in Vision Science” and “Introduction to the Master’s Thesis”. In the Doctoral School of Visual Science, presenters are doctoral students presenting the results of their scientific work. That helps students of the professional master's study programme to learn about the new directions and working methods in science at the Department of Optometry and Vision Science. Regularly, in addition to students, specialists in the relevant field are invited both from Latvia and foreign guest lecturers. Reports on the results of the participation of readers, students and doctoral students in the international conferences and research projects are also presented.

Clinical practice in optometry is divided into 4 parts (Clinical practice in optometry I-IV), where each part includes a number of sections and topics to be studied (more detailed description is available in the Practice Regulation and the course descriptions). Within the Clinical Practice in Optometry I-III, a student is provided with definite contact hours with the supervisors of an individual practice section, where students work individually or in groups. During the contact hours, the course section requirements are defined for the student, specific methods, and devices to be acquired are demonstrated, as well as assessment of visual functions and the eye health of a patient is conducted, monitored by a practice supervisor, which provides consultations about the relevance of the selected correction, monitoring and rehabilitation. The student continues to practice independently in the application of the prescribed methods and equipment, taking into account the requirements defined in each section of the practice, and analysing the obtained results. In practice, students also acquire skills such as vision screening (e.g., for school-age children). In addition to practice, seminars are organised, where students work in groups or individually, discuss the new material, present and defend the results of laboratory works and practice, learn the regulatory frameworks, optometrist’s professional activities, basic ethical principles, preparation of conclusions and referrals, and learn how to present clinical cases. Clinical Practice in Optometry I-III is concluded with a practice exam. In Clinical Practice in Optometry IV, the student work as an optometrist under the supervision of the practice supervisor in optics stores, acquiring the skills of independent work, learning to apply theoretical and practical skills acquired in the study process. Report forms for practice are practice diary, laboratory protocols, patient cards, practice and seminar reports.

In recent years, more and more readers have learned and then introduced the forms and tools of

student-centred education into their study courses. At the heart of the whole study, the process is a student, where the results of the course are achieved through collaboration between students in pairs or groups, as well as the most knowledgeable students are involved in the training of other students in laboratory work, practical work, and clinical practice. For example, in recent years, interactive tests have been more used in the study process to test students for their newly acquired knowledge and to develop discussion skills. Those students who responded correctly in the test explain to the other students which answer was correct and why. The training process actively involves the e-study environment where students perform tasks according to their time, as well as the student, have an opportunity to demonstrate their competencies and to obtain additional points to their final mark by performing specific tasks related to the content of the course – analysis, essays, summaries, etc. The Department of Optometry and Vision science enables students to use all laboratories in working days, where students work individually or in small groups, both in preparing assigned works and in additional training to acquire clinical skills, and by teaching each other. Students are pleased to take this opportunity by signing in the schedule set up by the department in due time so as not to disrupt the study process. Readers encourage the interest of students in carrying out additional works and help and do not refuse counselling outside the classes and certain counselling hours. For all tests, students have feedback – the wrong answers, comments on mistakes, and the student is given the opportunity to show the best performance again if the student is convinced that, for various reasons, he has not been able to show himself on the better side. In recent years, the director of the study programme in collaboration with course readers has adapted the content of the courses to optometrist-specific knowledge, skills, and competencies.

The department also holds methodical seminars in which the teaching staff talk about their experience in student-centred education, use of e-environment and various tools. In the professional master's study programme, all forms of study (full-time, part-time onsite and part-time extramural) have access to an active e-course for all courses where lecture presentations, seminars, practical and laboratory work protocols, and additional literature is available to ensure successful completion of the course.

As far as possible, as well as for the purposes of saving funding, the activities are planned by bringing together first-year and second-year students and full-time and part-time students (particularly for courses at Part B), as well as by combining clinical practice (for Latvian and English groups). As a result, Latvian students have part of the programme in English (e.g., Eye Disease and Pharmacotherapy, Clinical Practice in Optometry I-III) with the possibility to have individual or group consultations afterwards and study materials in Latvian. It corresponds to the requirements defined by the UL Student Self-Government – there must be up to 20% of the courses that are delivered in English. It enhances the knowledge of the language of students, its application to professional matters, and promotes the learning of professional terminology not only in Latvian but also in one of the foreign languages (mostly in English).

The achievements of studies are assessed on the generally accepted 10-point scale in accordance with the Regulation of the Cabinet of Ministers No 240 (13th May 2014) “Regulations on the National Standards for Academic Education”[1] and Decision No 211 of the Senate of the University of Latvia (29th June 2015) “Procedures for Organising Examinations of Study Courses at the University of Latvia”[2]. They follow predefined criteria: extent and quality of knowledge acquired; skills acquired; competences acquired in correspondence to the study results. The study programme respects a number of principles:

- the principle of pooling positive achievements – the education acquired is assessed by summing up the positive achievements of the study course, which is incorporated into the study programme;

- the principle of minimum rating – it is necessary to obtain a positive assessment of the acquisition of the minimum content in the mandatory parts of the programmes;
- the principle of transparency and clarity of requirements – in line with the aim and objectives of the programme as well as the aim and objectives of the study courses, a set of essential requirements for the evaluation of the acquired results has been established;
- principle of the variety of test types used in the evaluation – the evaluation of the acquisition of the programme uses different types of testing specified by the reader in the study course;
- principle of conformity of assessment – the test provides an opportunity to demonstrate the relevance of capacity, knowledge and skills in the relevant tasks and situation analyses of the professional master's study programme. The content to be included in the tests corresponds to the content specified in the study programmes and the required knowledge, skills, and competence.

The scope of the PMSP Clinical Optometry, the distribution and plan of compulsory (Part A), limited choice (Part B), free choice (Part C) courses, as well as contact hours comply with the criteria set by the Cabinet of Ministers on 13th May 2014 Regulations No 240 "Regulations on the State Academic Education Standard" (see **ANNEX OptoPM 10**). The planned learning outcomes, examination methods and assessment criteria are defined in all descriptions of the study courses (see **ANNEX OptoPM 11**) appendix) available in the Information System of the University of Latvia Information System (LUIS) and UL e-learning environment. For the assessment of knowledge, skills and competence, the 10-point grading system is used in all study courses in accordance to study result criteria. Learning outcomes and assessment descriptions are used to formulate criteria in each study course.

Special attention is devoted to improving the assessment of the study results – assessment of knowledge, skills, and competences, improving the assessment forms and the descriptions of study courses, evaluating the methods used in studies and assessment systems. It is worked on supplying e-studies with all the learning materials. New possibilities are the introduction of the Internet and other computer technologies in the study process, both for the acquisition, processing, and storage of information and for operative communication.

In order to contribute to the achievement of the aim of the study course results and study programme, study courses use different forms of assessment of the knowledge, which are selected by the reader in each particular course and identified in the course descriptions as interim evaluation and final examination. In the first lesson, students are presented with both the study course programme and the forms of assessment of the study results. Interim evaluation can include tests (task handling, tests using interactive approaches such as Kahoot, tests during classes, as well as tests in e-studies), laboratory works and practical works that end up with discussing individual results obtained and “defending” the concepts learned. The test is used to evaluate theoretical knowledge. The tests are usually designed to test the knowledge of the facts (alternative and multiple-choice questions), logical thinking (process analysis, logical combinations of well-known facts). For each correct response, a certain number of points determined by the course reader is given. The work of the students is evaluated based on the sum of the collected points. In many courses, students to confirm their knowledge and skills write essays or course's works. Tests are organized as individual work. Laboratories and practical works are organized as individual or group work with 2-4 participants in which reports, and protocols are prepared and defended collectively or individually.

At the end of all study courses, there is a final examination – written or oral course examination or the defence of the course work. Students can attend the final examination if all interim evaluations have been passed defined in the study course. In most study courses of the programme, the final mark of the student consists of accumulated results of study work throughout the semester, in the

framework of a previously clearly postulated percentage distribution. Student proficiency testing is primarily carried out in written form and in the assessment of practical skills. The aim of the tests is to identify the level at which the student has acquired theoretical knowledge and practical skills. In line with the specific nature of the study course, the requirements for attending the practice are laid down. The final assessment of the course is cumulative, i.e., the assessment of the student's work throughout the semester, which forms part of the final rating mark, and the final examination mark. The overall assessment of the acquisition of the course consists of an overall assessment of interim evaluation, representing on average at least 50% of the total assessment, and the assessment obtained in the final examination. The final assessment takes into account all the tasks performed during the semester. A study course is considered to be successful if the score in the 10-point grading scale is not lower than "4" (almost satisfactory) or "passed".

At the end of the study programme, students take two forms of state examination: the Qualification Exam in Optometry and the defence of the Master's Thesis in order to assess whether and to what extent the student has achieved the study results. The student must complete successfully both test forms with a mark of not less than 4 (almost satisfactory). The results of these tests directly demonstrate the effectiveness of the implementation of the study programme in order to achieve the study results and the aim of the study programme, as well as the knowledge, skills, and competences needed to carry out the basic tasks of professional activity defined in the optometrist professional standard. Specialists in the primary vision care field and employers' representatives also participate in the State Examination Commission together with the teaching staff of the Department of Optometry and Vision Science.

In the Qualification Exam in Optometry, the theoretical and practical skills acquired during the study process are assessed, which are directly related to the professional activity of the optometrist. The Qualification Exam in Optometry consists of two parts – theoretical exam (MCQ test) and practical exam. The requirements of the qualification examination have been developed in accordance with the professional knowledge and competence specified in the European Diploma in Optometry and in the optometrist professional standard. The final grade in the Qualification Exam in Optometry is calculated as weighted means of grades where a theoretical exam gives 40% and a practical exam gives 60% of a final grade.

The theoretical exam includes 200 multiple-choice questions (one right answer from at least 5 choices) from various topics (vision problems and their assessment: refraction, accommodation, binocular vision, optometric instruments; specific cases of a vision problem: vision an ageing, low vision, paediatric optometry; vision correction: optics, vision correction tools and methods, contact lens correction; visual physiology and perception; eye diseases and pharmacotherapy: anatomy and physiology of the eye, eye diseases, general pathologies and the eye, ocular pharmacology). In order to prepare for the theoretical exam, the student train independently with the training tests available in e-studies in each of the specified topics. The question bank has at least 3 times more questions than is intended to be included in the final test. The training question bank can include up to 90% of the questions that will be included also in the final test. 10% of the questions from the final test are not available for the training and are included only in the final test. In order to pass the theoretical exam (to acquire a positive mark – at least 4 from the 10-point grading scale), the student must answer at least 75% of the questions correctly. The score is obtained by dividing the interval from 75% to 100% in a 10-point grading from 4 to 10 points.

The practical exam – an important part of the studies – is composed of an assessment of the patient's visual function and determination of the most appropriate vision correction showing practical skills of the student in the optometry field. During the practical exam, the student must perform a full eye and vision examination of one patient, who is not previously known to the student. The practical examinations include the following main parts:

- complaints, ocular and general anamnesis;
- assessment of visual function without correction and with the patient's previously used vision correction;
- objective refraction measurements with static retinoscopy method without the use of cyclopegic agents;
- determination of subjective refraction including the best spherical correction, detection of astigmatism and its assessment with a dial clock test, refinement of astigmatic components with Jackson cross-cylinder test, binocular balancing;
- assessment of binocular functions and far and near, e.g., suppression evaluation, assessment of stereovision, detection of deviation type and angle, assessment of convergence etc. required examinations;
- assessment of accommodative functions, including assessment of visual acuity at near with subjective correction for far, assessment of accommodative amplitude, assessment of positive and negative relative accommodation, assessment of accommodative facility (in the case of presbyopia, determination and refinement of the addition);
- assessment of the health status of eye structures – assessment of the eyelids and anterior parts of the eye using slit-lamp, evaluation of the posterior segment of the eye by using ophthalmoscopy (student can use other equipment and tests available in the examination room for assessing the health status of the eye structures, if indicated, e.g., perimetry, corneal topography, anterior and posterior OCT, intraocular pressure measurement with pachymetry, determination of aberration, etc.);
- manipulations related to contact lens application – assessment of the structures and parameters of the frontal part of the eye like tear meniscus, fitting and removing of a soft contact lens, evaluation of a soft contact lens, etc.;
- documentation and analysis of the results, explaining the results of the examination to the patient and offering and prescription of the most relevant solution (vision correction with glasses and/or contact lenses, vision rehabilitation, additional examinations or referral), as well as diagnosis (vision and visual function disorders, such as accommodative and binocular disorders).

The student should gain a positive mark (4 to 10 points) in each section: Anamnesis and solution (20%), Refraction (40%), Accommodative and binocular functions (20%), Eye health evaluation (10%), Contact Lens Correction (10%). The following aspects of the student's work are evaluated:

- whether the anamnesis and additional information is collected correctly;
- whether an appropriate investigation plan and investigative techniques, tests and equipment have been selected;
- whether the visual function and eye health are technically correct and effectively performed and within the defined timeframe, are the results obtained reliable;
- whether the interconnection of the findings is clear and used to choose the final solution;
- whether the results are properly documented and interpreted;
- whether instructions, explanations of the examination results, the possible solutions (including the most appropriate types of correction) and recommendations are correctly given to the patient are correct;
- whether student follows the hygiene standards, legal and ethical;
- whether the student complies with legal, professional and ethical issues.

Each student is evaluated by 1-2 examiners. If there are 2 examiners, the final mark is taken as the arithmetical average in each section.

The master's thesis is the final phase of the study and aims to demonstrate the student's ability to perform clinical or experimental research in the optometric field. The student applies theoretical

knowledge, academic skills and abilities independently in accordance with the requirements of the Professional Master's study program to develop, design and defend the Master's Thesis. The student systematizes and extends theoretical knowledge, carry out a practical study of optometric or vision science problem, collect and analyse data, and design the Master's Thesis in accordance with the requirements established and approved by the University of Latvia. The student chooses either a topic proposed by the reader, or offers his/ her own topic justifying the choice and required resources. All topics of the Master's theses are confirmed at the meeting of the Department of Optometry and Vision Science. The elaboration of the Master's thesis consists of two stages. During the first stage, the student gets informed of the requirements of the Master's thesis, chooses the topic of the Master's thesis and the research problem, states the research question and/or hypothesis according to the planned research. In accordance with the topic of the Master's thesis, the research methodology is chosen consulting with the supervisor. Based on the analysis of scientific literature, students individually develop a research project. In the second stage, the student performs the research, collects the research data, analyses them, and formulates conclusions. To pre-evaluate the Master's thesis, students submit a draft that is reviewed by the supervisor and reviewer to give suggestions and guidance for further development. Pre-defence of the Master's thesis is also organized as far as possible, which allows students to learn the process of defence of the Master's thesis, to better understand the preparation and presentation of an oral presentation, as well as to get first references and questions on the topic of the Master's thesis.

The final version of the Master's thesis must be submitted in accordance with the UL regulations (not later than one week before defence). Students are required to submit the final version in the LUIS system (pdf file) and as one hard copy to the faculty secretary. The student individually agrees with the supervisor and reviewer on the number of additional printed documents required. The Master's thesis is defended at the session of the State Examination Commission. Elaboration, presentation, and public defence of the Master's thesis improve the student's research skills and independent work abilities. Each student has up to 40 minutes for defence with several sections: report of the secretary of the commission, presentation of Master's thesis (15 min), answers on the questions of the reviewer (8 min), answers on the questions of the commission (8 min), evaluation from the supervisor (2 min), evaluation from the reviewer (5 min), closing words (2 min). The mark for the Master's thesis consists of the mark from the supervisor (30%), the reviewer (30%), and the commission (40%). Students are informed in good time about the algorithm and criteria for the evaluation of the masters' thesis. The supervisor evaluates the research performing process, paying attention to the capacity of the student's independent work and time planning, as well as submitting information on the publications of research work, or participation of the students in the scientific conferences with oral presentations or posters. The reviewer evaluates the content and correctness of the written part, the correspondence of the study to the title, the presentation type, the correctness of the analysis and conclusions of the results. The commission evaluates the student's ability to present the Master's Thesis, respect for academic style, the ability to answer questions and participate in discussions.

Since the study programme is implemented in three different forms – full-time, part-time onsite, and part-time extramural, increased focus is on organising the study process and evaluating the results to ensure equal opportunities for all students to achieve the results of the study programme. Study courses are conducted as onsite lessons (100% for the full-time studies, 75% for the part-time onsite studies, and 25% for the part-time extramural studies) and additional study materials are included in e-studies. For the achievement of the results of the practice, students work both onsite with the supervisor of the practice and individually. Interim evaluation can be assessed both during lessons (on-site) and using interactive tools, including e-studies. In all forms of the studies (full-time, part-time onsite, and part-time extramural), the final examinations, including clinical practice examinations, are conducted onsite. Students of part-time extramural studies arrive in

Latvia for a predefined number of days (6-7 times throughout the study process, where the duration of the stay is between 3 and 10 days) to pass examinations and have introductory lectures for the next courses, as well as participate in onsite clinical practising. During these visits, more attention is paid to exams and practising (e.g., for the development of certain stages of clinical practice, vision screening, practice in clinics etc.). To improve the study process, students of the part-time onsite and part-time extramural study groups are training by using opportunities offered by the e-studies, including video lectures and seminars, forms of various tests and home assignments (for example, uploading video records for clinical practice that are assessed by the supervisor to ensure practice compliance with tasks), and by use of individual consultations.

The most important task of the staff is to ensure a high-quality study and research process at the Department of Optometry and Vision Science, which includes a series of interrelated factors. First, every staff member must be responsible for the compliance of the activities with the Law on Higher Education, the Law on Scientific Activities, the Constitution of the University of Latvia, the rules of the Cabinet of Ministers, the regulations of the Faculty of Physics, Mathematics and Optometry and the Department of Optometry and Vision Science. In addition, the quality assurance of the study process requires the continuous professional development of the academic staff and managers that is evidenced by scientific publications and certificates of professional development and the implementation of feedback following student and graduate surveys. The additional quality assessment tool is open lecture evaluation. Students' opinions and suggestions are vital for the sustainable development of the study process. In order to obtain a student's opinion on the study programme as a whole, including the courses and the teaching staff, both group and individual surveys are widely used. Students' representatives participate in the work of the Council of Studies Programmes, as well as in the meetings of the Council of the Faculty of Physics, Mathematics and Optometry.

One of the fundamental principles of the study programme is democracy and dialogue with students. All students participate in the assessment of study courses. It is a mandatory requirement for them to continue their studies in the next semester. Accordingly, the readers and the director of the study programme have anonymous feedback from the students that do not affect students' assessment at the next stages of their studies. Readers listen to students' recommendations or discuss with the director of the study programme the necessary changes in the course if it concerns funding or additional training. The Student Self-Government is actively involved in all these processes and plays an important role in ensuring a link between students, teaching staff, and the programme administration. The students are informed of the evaluation criteria at the beginning of each study course. The students can contradict the results of studies by submitting an appeal to the head of the study programme in accordance with the Regulations on Studies and Tests.

An important "tool" for monitoring the quality of scientific activity is scientific directions defined by the main scientific interests of academic staff, active projects, and doctoral students at the department, bringing together students from professional master's and bachelor's study programmes for the performance of specific studies. The interim results of these studies are actively discussed at the Doctoral School of Visual Science as well as at the Scientific Conferences of the University of Latvia. Doctoral students are also actively involved in the implementation of several courses, in the organization of practical and laboratory works, as well as in supervising clinical practice.

The preparation of annual self-assessment reports and its discussion at the meetings of the department, at the Council of Studies Programmes, as well as in the meetings of the Council of the Faculty of Physics, Mathematics, and Optometry contribute significantly to the quality management at the Department of Optometry and Vision Science. A lot of important issues are collected from the expert ratings of the UL Quality Assessment Commission, comments from the Academic

Department and discussions at the Senate.

Students' surveys are conducted regularly every year where they assess the content and delivery of the study courses. The director of the study program has access to all ratings and comments, as well as with the ratings of graduates on the study programme. The reader has access only to the ratings and comments for his/her courses. To better understand the internal problems of the professional master's study programme, each course designates the senior of the course, which overtake the duty of communication between the students and readers.

Analysis of assessments of study courses

Starting in 2015/2016, the PMSP Clinical Optometry introduced a mandatory study course evaluation, meaning that the student could not finish the semester sooner and register for the next semester without completing an anonymous course rating questionnaire in the LUIS system. For the previous years until autumn 2015, paper-based surveys had been carried out. As the current director of the study programme overtake the position in 2015, the previous data are no longer available. A summary of all courses will therefore be carried out from 2015/2016 (see **ANNEX OptoPM 12**).

By implementing mandatory assessments of the courses, it led to significant improvements in the quality of studies. Since 2015/2016, there is also greater cooperation with the faculty Students Self-Government and the group representatives. Each year, the director of the study programme attends each course at the beginning of the semester to set out the analysis of data collected in the previous year and invites students to continue to fill the questionnaires with greater responsibility. If a course has a low score (below 5.5 points), the students are encouraged to write down their comments and suggestions. If the course is positively assessed, it is also desirable to indicate what was so positive. This allows readers to share their positive and negative experiences at the methodological seminars.

The students, seeing changes proposed through LUIS's surveys and introduced in the study process, are more open in discussing problems of the course or a reader. It certainly helps the director of the study programme to improve the study programme, organise teaching experience-sharing seminars, and evaluate the work of the reader because it is impossible to attend all lectures for one person. The problems in study courses are also debated and eliminated during the semester because the senior of the course informs about the problems and possible solutions.

For the continuous development of the study programme and to make study process interesting and engaging but not easy for the students, a number of solutions are found: (1) methodological seminars are organised once a semester, so that teaching staff can share their experience of working with students, on new methods and technical tricks; (2); the director of the programme meet with the Student Self-Government and the managers of the Faculty of Physics, Mathematics and Optometry to discuss the problems in all study programmes of the faculty, including the study programmes in optometry, as well as the to discuss possible solutions or share positive examples; (3) reader replacement in courses with a low score on three consecutive years if no positive shift is noticed in the course delivering and no changes are implemented as recommended either by student or the director of the study programme (surveys shows that in many cases the teaching and content of the study course is of great importance; students have always appreciated the content, even if the teaching and presentation of topics were not appreciated); (4) a wider integration of e-courses that enable students to reach lectures and also work in this environment by submitting their home assignments, laboratory work protocols, reports, etc.; (5) review and development of the content of all courses of the study programme in order to comply with the professional standard of optometrist, the requirements of employers and the European Diploma in Optometry.

In general, students are satisfied with the study courses. Evaluating the study programme assessment, it can be noted that students consider the courses offered in the program to be very versatile, providing both professional and academic knowledge. It is noted that the courses are well structured. As a big plus, the small size of the Department of Optometry and Vision Science is positively assessed providing better information sharing and opportunity for individual work with each student. The surveys show that students would like to improve practices and increase practical skills.

The course assessment demonstrates that students rarely put a maximum score of “7 points” because such is human nature that they always want something better. In the case of students, they want fewer home assignments, more additional materials in Latvian, books in Latvian etc. However, the specific of vision science and a small number of studies should be taken into account. In order to issue books in Latvian, it also needs sales. Therefore, the study literature – books – in specific courses is mainly exclusively in English. However, students are given the opportunity to participate in onsite lectures, where the reader gives, shows, clarifies and instruct them on various topics as well as offers various tests, workshops in Latvian. The study courses and programmes, in general, are assessed with a slightly higher score by students in English groups (e.g., 2018/2019: Introduction to Master’s Thesis – 5.79 points in Latvian groups but 6.89 points in English groups; Visual Perception – 5.85 points in Latvian groups but 6.77 points in English groups).

Looking at the overall data of course assessment starting from 2015/2016 (see **ANNEX OptoPM 12**), there is a tendency that the overall average score is gradually increasing in each of the following academic years. Look on specific courses for which the assessment has increased, it is related either to the replacement of the reader or to the review and development of the content and delivery type of the study course. The reason for the replacement of the readers can be different: retirement, termination of employment, students claims or workload reduction. Some courses planned in previous accreditation (Ocular Diseases in Children, Physical Optics, Optical Diagnostic Methods, Behaviour Optometry) were not offered because their content overlapped with the content of other courses within the PMSP Clinical Optometry or the BSP Optometry.

The table (see Appendix 134) ends with the average ratings with the ten-point system. Since the system established by the University of Latvia has a maximum rating of 7 points, the numbers look small at the first glance. But transforming them into a ten-point system demonstrates that, overall, the average score of all courses from 2015/2016 is almost 8 points and then increases slightly each year, reaching nearly 9 points in 2020/2021.

The overall conclusion, which can be drawn from the data, is that the study programme is developing in a positive direction and that there is room to strive for a stable 9-point assessment in the future. A 10-point score can only be dreamed of because it is already a utopia, namely that if you have different students, different cultures and different interests, you will never be able to have a 100% good study programme. Future development plans are related to (1) practice improving and, as far as possible, including practical parts in different courses (e.g., in assessing specific clinical cases); (2) improving e-courses: reviewing and inserting relevant materials, titles of books, organising video lectures and seminars, particularly for part-time students in order to allow students to study and acquire high-level knowledge; (3) review and supplement the content of the courses with up-to-date information and trends, as the field of optometry and vision care is rapidly evolving and developing (by stronger involvement of employers); (4) organisation the methodological seminars and discussions for the teaching staff; (5) regular meetings with student representatives to discuss the overall situation in the course, as well as problems which could be avoided during the semester rather than waiting for a whole study year.

[1] <https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitiba-standartu> [available only in Latvian]

[2]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/3/nr_211_parbaudiju_mu_organizesana_eng.pdf [available in English]

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

In the framework of the PMSP Clinical Optometry, a practice of 39 ECTS is being implemented in accordance with the “Regulations on the state standard of second-level professional higher education”[1] (RL CM Regulations No. 512, 26.08.2014.), “Procedure for the practice organization for the UL students”[2] (UL Ordinance No. 1/86, 16.04.2007.) and optometrist profession standard (International Standard Classification of Occupations (ISCO) code 2267 01)[3]. The aim of the practice is to strengthen and extend the theoretical knowledge of students with practical skills required to perform the basic tasks and duties of an optometrist as defined by the optometrist profession standard (see **ANNEX OptoPM 13**). General objectives of practice:

1. to develop skills in the assessment of visual function and eye structure health using standard and specific optometric methods and devices by choosing an appropriate eye examination plan for the patient;
2. to strengthen knowledge and skills in the independent result analysis and diagnostics of refractive and functional anomalies of vision;
3. to strengthen knowledge and skills appropriate vision correction prescription (glasses, contact lenses, low vision correction, prismatic correction etc.) and give aftercare recommendations.
4. to develop knowledge and skills of vision rehabilitation performance;
5. to provide an overview of the latest examination and treatment methods in optometry and ophthalmology;
6. to develop skills to document, interpret, and give information to the patient and his/her guiding persons about the obtained vision examination results;
7. to develop skills of the professional ethics and communication;
8. to give knowledge and understanding about the regulations of the optometrist’s professional work;
9. to form an overview and build research skills in the development of scientific work in clinical optometry or vision science.

The practice is divided into four parts and covers a number of topics in order to meet the objectives of the practice (see **Table 3.2.4.1.**) and provide both basic and advanced knowledge and skills in the assessment of vision and visual functions and eye structures, problem diagnosis and diversity of correction. The breakdown, aim and objectives of clinical practice and the results to be achieved

are described in the Practice Regulation and in the corresponding course descriptions. As the PMSP Clinical Optometry also have foreign students, the study programme aims to be able not only to train those who do not have prior knowledge in Clinical Optometry but also to provide additional expertise to those who have obtained optometrists qualification in previous studies that allow them to practice as optometrists in their country of residence.

Table 3.2.4.1.

PMSP Clinical Optometry breakdown of clinical practice module on topics (1 CP corresponds to 1.5 ECTS)

Practice Theme	CP	Hours
Refraction	1	40
Binocular functions	1	40
Eye accommodation	1	40
Eye structures	1	40
Dispensing	1	40
Full vision examination	2	80
Insight into the work of a professional optometrist	1	40
Assessment of colour vision and contrast vision	1	40
Additional methods for binocular function assessment	1	40
Low vision assessment	1	40
Eye movement examination	1	40
Student ambulance	9	360
Practice in eye clinics	1	40
Practice in optics shops	4	160
TOTAL	26	1040

During the reporting period, the main changes in the implementation of practices are related to (1) the development of content, taking into account changes in primary vision care, in visual function assessment and diagnosis, as well as emerging new diagnostic and correction tools and types on the market; (2) re-organisation of content, taking into account the guidance and expectations of students and employers. For example, in 2019/2020, the breakdown of practice credits between the semesters was changed (until 2019/2020 – 12 ECTS in 1st semester, 9 ECTS in 2nd semester, 12 ECTS in 3rd semester, 6 ECTS in 4th semester, starting with 2019/2020 – 12 ECTS in 1st semester, 12 ECTS in 2nd semester, 9 ECTS in 3rd semester 6 ECTS in 4th semester). In the 1st semester, the practice part was increased where students perform the full vision examination by using standard vision and visual function assessment methods and tools, as well as the assessment of the health of the eye structures by training on each other. This allows students to get involved in the full vision examination procedure already during the 2nd semester (mainly practising with their friends and relatives). The part “Assessment of colour vision and contra-vision” has been transferred from 1st semester to 2nd semester, while the part “Additional methods for binocular function assessment” and “Low vision assessment methods” are moved from 3rd semester to 2nd semester. Thus, 2nd

semester has a strong emphasis on practising specific methods and equipment to be fully prepared for Student Ambulance during the 3rd semester and to start to work as an optometrist under the supervision of a professional certified optometrist. The introduction of such changes does not alter the overall scope, aims and objectives of clinical practice but rather improves the possibilities to fully achieve the results of the practice.

The aim and objectives of the practice are consistent with the aims and objectives of the study programme (see **Table 3.2.4.2.**) since graduates receive not only the Professional Master's degree in Clinical Optometry but also the Qualification in Optometry. Consequently, the study programme focuses on the development of practical skills. The students acquire practical skills not only in practice but also in a number of courses (e.g., Visual Perception, Contact Lens Correction, Paediatric Optometry, etc.), where not only lectures but also practice and laboratory work are provided.

Table 3.2.4.2.

Linking of practice objectives to the study results of the PMSP Clinical Optometry.

Result No		Objectives of the practice								
		1.	2.	3.	4.	5.	6.	7.	8.	9.
Knowledge	1.	x	x	x	x	x				
	2.	x	x			x				
	3.							x	x	
	4.					x				x
Skills	5.	x	x			x	x	x		
	6.			x	x			x		
	7.									x
	8.									x
Competence	9.	x	x	x	x		x	x	x	

The knowledge, skills and competences acquired during practice are assessed during the Qualification Examination in Optometry. Students' feedback indicates that the practice is well planned, provides a wide range of knowledge and skills, allowing all skills to be acquired during two years of study, so start individual work of optometrist that was possible till the end of 2019. Starting from 1st January 2020, an optometrist became a medical practitioner requiring all graduates to take a post-graduate certification exam to work independently as an optometrist. Consequently, the conduct and content of the practice were reviewed to bring it into line with the requirements of the optometrist professional standard, the Association of Optometrists and Optics of Latvian and employers, the regulatory enactments that will further regulate the activities of optometrists in Latvia, as well as the requirements of the European Diploma in Optometry, so that graduates have the opportunity to practice not only in Latvia but also abroad.

Clinical Practice in Optometry I-III takes place in the Department of Optometry and Vision Science, optics, or other workplaces with which a bilateral agreement on the provision of practices has been concluded (see **ANNEX OptoPM 14** for the list of cooperation agreements on the provision of practices). In several sections, students are provided with contact hours with the supervisors of an individual practice section, where students work individually or in groups; during the contact hours,

the students are introduced to the requirements of the course section, given the opportunity to use the specific methods and equipment, to practice documenting and interpreting the obtained results. The student continues to practice independently in the application of the prescribed methods and equipment, considering the requirements of each practice section, as well as analysing the results obtained. Clinical Practice in Optometrist IV takes place in optical stores or other workplaces of optometrists with whom a bilateral practice agreement has been concluded. The student has the right to offer another place of practice for any part of Clinical Practice in Optometry I-IV. The main lecturer of the course decides its relevance to the requirements of the Study Program. In such case, a tripartite agreement between the University of Latvia, place of practice and student is concluded, where duties and responsibilities of all parts are included. Students in part-time onsite and part-time extramural studies are primary using tripartite agreements. However, each case is considered individually, offering additional practising hours if required either in the laboratories of the Department of Optometry and Vision Science, Student Ambulance, or companies with whom a bilateral practice agreement has been concluded.

The Department of Optometry and Vision Science works to meet all requirements for clinical practice for students in English groups:

- in the full-time study program, the clinical practice is organized in English, as well as the students work together with the students from Latvian groups in order to expand the opportunities to acquire practical skills;
- in the part-time extramural study program, clinical practice (including introductory part) is provided during the students' visit in Riga (1-2 times per semester);
- for Student's Ambulance in Clinical Practice in Optometry III, patients able to communicate in English are attracted both for full-time and part-time extramural students.

If students (both in Latvian and English groups) have difficulty finding a suitable practice place, the practice reader assists the student with the provision of the practice place by contacting the companies with which bilateral cooperation agreements have been concluded, especially informing the practice place about the preferred language of communication. For Clinical Practice in Optometry IV, students (especially students in the English groups) can use the opportunities of ERASMUS + practice either by finding a practice place independently or with the help of lecturers of the Department of Optometry and Vision Science. The only requirement for such practice abroad is that all study requirements are met and there are no academic debts. For example, in the spring semester of 2020, Mehrdad Naderi, a full-time (English) student, completed Clinical Practice in Optometry IV at a Swedish optic company. Anna Matjušenko, a part-time (Latvian) student, had Clinical Practice in Optometry IV at the eye clinic in the Netherlands. There is a possibility that the clinical practice for part-time extramural students (English group) is realized in Latvian optics companies. For example, in 2019, Rufat Musayev (Azerbaijan) had Clinical Practice in Optometry IV at Ltd Vision Express Baltija. Although the COVID-19 pandemic has limited the scope for such practices, different solutions are being sought to take into account the epidemiological requirements of each country, so that the optometric practice abroad can continue.

During practice, the student gets introduced to the structure of the institution, the organisation of work and the issue of the optometric practice. The student takes the day-to-day tasks of the institution and learns through pre-set practice tasks. During practice, the student consults with the institutional supervisor or supervisors of practice sections. In the event of a conflict, the student should inform the supervisor of the practice section or the director of the study programme.

During studies, students fill a so-called *portfolio* of practice, where they keep records of all tasks of practice, laboratory works, reports and patient cards, as well as a diary of practice, where at least 150 patients are included that have undergone visual function examination and correction (the

specific characteristics of patients in each part of the practice are described in the Practice Regulation). It requires a well-equipped practice place and patient engagement. To ensure that, the Department of Optometry and Vision Science has established the Student Ambulance where patients can apply for free vision examination by students (under supervision of professional optometrist), as well as contracts with companies and optometrists are established. All patients are informed and agree that the vision examinations and correction is carried out by the students under the supervision of professional optometrists. In the future, with the development of UL infrastructure, it is planned to expand the Student Ambulance, where students would be able to pursue clinical practices throughout the year. Patients would pay a small symbolic fee for the visit. The income of the Student Ambulance would be forwarded to the development of the Student Ambulance.

At the end of each Clinical Practice in Optometry, there is an exam on the student's knowledge and skills acquired during the practice. The students who submitted all required reports of the practice are allowed to take the exam. The practical exam is assessed by a commission established by the main lecturer of the course and includes the readers from the Department of Optometry and Vision Science holding qualifications in optometry. The number of examiners, as well as the examination type and tasks, are determined by the specific nature of the part of the practice. Only by successfully passing (obtaining at least 4 points in the 10-point grading system) the current practice part, the student is allowed to be admitted to the next part of the Clinical Practice in Optometry.

[1] <https://likumi.lv/ta/id/268761-noteikumi-par-otra-limena-profesionalas-augstakas-izglitiba- valsts-standartu> [available only in Latvian]

[2]

https://www.ppmf.lu.lv/fileadmin/user_upload/lu_portal/projekti/ppmf/Prakse_un_darba_piedavajumi/prakses_organizšanas_kartiba.pdf [available only in Latvian]

[3] <https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-121.pdf> [available only in Latvian]

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

At the end of the PMSP Clinical Optometry, each student works on the second scientific work (after Bachelor's Thesis). Therefore, the student should be able to demonstrate some independence in developing a thesis. The supervisor ensures advice and support.

In the reporting period (from 2013/2014 to 2020/2021), 159 Master's Theses in Latvian groups and

25 Master's Theses in English groups were defended in the PMSP Clinical Optometry. The topics of the master's theses can be classified in clinical and experimental studies, which mainly concern topics in optometry and visual science.

The topics of clinical studies are mainly related to the application and approbation of different clinical methods, the assessment of visual or eye parameters in different age groups, the impact of external factors on vision quality, the vision ergonomics etc.:

- studies of vision parameters in different clinical conditions and age groups (accuracy of subjective refraction assessment; the impact of small-diaphragm on visual acuity; assessment of visual field; changes in the accommodative response under different conditions; methods of subjective and objective evaluation of accommodation; the impact of optical correction mode on visual function; visual acuity and contrast assessment in keratoconus patients; changes in visual function following eye surgery (following implantation of intrastromal corneal segments);
- evaluation of ocular structures (measurement of the optical density of macular pigment in optometric practice; functions of tear system and its examination; the relationship between the intraocular pressure and the features of the optic nerve disc);
- evaluation of the use of diagnostic methods and tools (evaluation of the aniseikonia tests);
- contact lenses and contact lens care (design of contact lenses and its effect on visual acuity; accommodation response in different design contact lenses; formation of micro-organism biofilms on contact lenses; microflora of contact lens container; comparison of contact lens solutions);
- visual perception (analysis of eye movements in visual perception tests for school-age children; assessment of reading fluency with different visual perception and cognitive tests);
- rehabilitation studies (amblyopia treatment using specialised computerized techniques; the relationship of eye-hand coordination to visual functions; study of visual training effectiveness (for sportsmen and individuals with vision and general disorders); changes in colour vision sensitivity before and after cataract surgery; correction options for colour vision defects; colour vision thresholds);
- myopia control (effect of orthokeratology on myopia progression);
- visual ergonomics (impact of lighting and screen brightness on vision; the impact of tinted lenses on shooting accuracy; a working distance of smartphone users);
- use of diagnostic medical products (use of high-molecular and low-molecular fluorescein in optometric practice);
- vision screening in children (effect of specialist qualification);
- studies in another related field (microbiology: Methicillin-resistant *staphylococcus epidermidis* and its distribution in healthy subjects).

The topics of the experimental studies are mainly related to different visual functions and visual perception capabilities in simulated conditions, including eye movement studies, as well as new diagnostic methods and their approbation:

- studies of vision parameters in simulated conditions (assessment of visual acuity and contrast vision in fogged conditions; comparison of defocus and light distribution; adaption to optical defocus; the impact of fogging on near-task performance; effect of crowding effect on reading capabilities; effect of cycloplegia on the perception of a blur; experimental studies of accommodation; effect of induced aberrations on vision);
- evaluation of the application of diagnostic methods and instruments (effect of aberrations on assessing the diameter of the retinal vessels; assessment of eye structures by a spectroscopy method; measuring the thickness of tear film by interferometer; the impact of corneal freezing on its structure; development of contrast vision test with chromatic

modulations; assessment of accommodation with polychromatic stimuli; measurement methods of retinal thickness; getting retinal images with different lighting; development of new stereo tests; creation and approbation of new colour tests);

- eye pupil response studies (during the day, in different lighting; in different conditions – monocular and binocular);
- eye movement studies (study of smooth pursuit parameters; eye movement in contour tracking; the impact of saccades on vergences; changes in vergence response under different conditions; adaptation of saccadic eye movements in athletes; eye movements while reading pseudo-texts; the impact of languages on eye movements);
- visual perception studies (response time and eye movements in visual perception tasks; structural studies of visual stimuli; study of visual and working memory; effects of fatigue on visual perception; studies of biological motion and coherent motion; the impact of various external factors (instructions, visual noise, object size, etc.) on the performance of visual perception tasks; visual attention and driving)
- designing of eye, retinal and crystalline lens models.

Primarily, topics for master's theses are offered by readers of the Department of Optometry and Visual Science, where the specific nature of the topics is determined by a number of factors, such as the current trends (e.g., myopia control, development of new methods and technologies for assessment of visual functions, visual perception and eye structures, application of the latest treatment methods, etc.), availability of technical equipment, active projects and topics proposed by doctoral students (assisted by supervisors of doctoral students). For example,

- from 2013 to 2015, the department carried out a project “The study of visual overload physiology and the development of methodology for visual stress diagnostic”, where 17 master's theses were developed and defended on the effect of fatigue on various visual functions and visual perception;
- from 2015 and 2020, a study about vision and workplace ergonomics was carried out, where 10 masters' theses were developed and defended.

Previously discussing and gaining the support of the department and the agreement of the supervisor, the student may offer his/her topic for the master's thesis. Five master's theses were developed in ERASMUS + programme (not only studies but also practice) for students, where a student had the opportunity to develop a study in a collaboration institution, obtain data and analyse them. In recent years, employers have been increasingly encouraged to offer topics for bachelor's and master's theses that are interesting for practising optometrists and employers. For example, during the reporting period, 10 Master's theses were defended that were recommended by employers or practising optometrists and ophthalmologists.

In English groups (especially part-time extramural), students mainly choose topics offered either by readers of the Department of Optometry and Vision Science and that they can carry out in their country and in their workplace, or they chose their own topics derived from the specific nature of their practice (e.g., assessment of the effectiveness of visual training and specific correction; application of contact lenses in different diseases; study of orthokeratology effectiveness, etc.).

The average grade of Master's theses was 8 points (*the distribution of grades are demonstrated in Figure 3.2.6.1.*), where the grades from 7 to 9 points were the dominant ones.

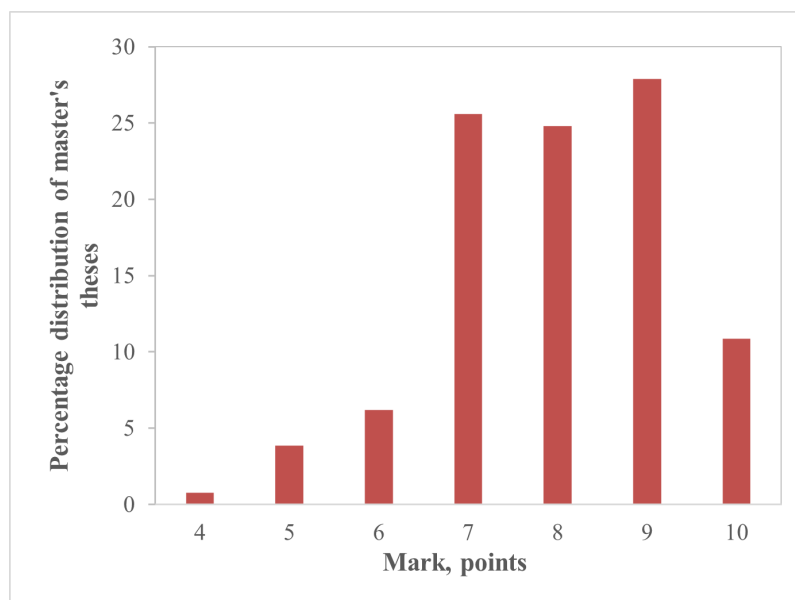


Figure 3.2.6.1. Distribution of grades for master's theses defended in the PMSP Clinical Optometry in academic years from 2013/2014 to 2019/20. In total, 129 masters theses were defended.

Between 2013/2014 to 2019/2020, 39% of master's theses including both clinical and experimental studies obtained the highest grades – 9 and 10 points. In **ANNEX OptoPM 15**, the list of master's theses is summarized with the highest rating (10 points) and the acknowledgement of the rector of the University of Latvia.

During the reporting period, we focused on the quality of the master's theses. In order to improve the quality, the following steps were performed:

- requirements were established for the development of final theses in Latvian and English (including the development of Bachelor's and Master's theses) in accordance with the requirements of the Department of Optometry and Vision Science (requirements were based on the generally accepted requirements of the University "Requirements for the development and defence of the final theses (bachelor's, master's, doctoral dissertation, and qualification work) at the University of Latvia", approved by the University of Latvia on 3rd February 2012, No 1/38);
- the content of the courses "Current Problems in Vision Science" and "Introduction to the Master's Thesis" were reviewed to emphasise the key points in the development of research works, the diversity of research designs, to develop critical thinking, to introduce with the requirements for written and oral presentation of the study, as well as in preparation and presentation of scientific abstracts and posters;
- the submission of the draft of the Master's theses was introduced that allowed students to make substantial content corrections and identification of mistakes and errors, that was noticed by the reviewer, before final submission;
- the pre-defence was introduced to enable students to present their master's thesis, practice in answering questions using arguments and justifying their opinion, as well as see the strengths and weaknesses of their research;
- students were invited to present their master's theses at the annual Scientific Conferences of the University of Latvia and seminars and conferences organized by the Association of Optometrists and Opticians of Latvia, as well as other related conferences, not only in Latvia but also abroad (e.g., VisPEP, DOC, etc.) in order to improve their presentation skills.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

Study base

The BSP Optometry and PMSP Clinical Optometry are implemented at the Department of Optometry and Vision Science of The Faculty of Physics, Mathematics, and Optometry at the University of Latvia, the House of Nature, Jelgavas Street 1. The implementation of the PMSP Clinical Optometry (content, teaching staff, study plans, study forms and promotion) are the responsibility of the programme director, who is directly subordinate to the Head of the Department of Optometry and Vision Science. The director of the PMSP Clinical Optometry is an associate professor Aiga Švede. The study methodologist helps to plan and organize study process, as well as manages student affairs, provides students with all the necessary services in the study process.

Since 2015, the Department of Optometry and Vision Science is located at the Academic Centre of the University of Latvia on Jelgavas Street 1. Therefore, it is possible to use the extensive offer of the Academic Centre for the needs of the study programme. Auditoriums are shared with students of all faculties located at the House of Nature. One UL employee is responsible for all auditoriums at the House of Nature planning the premises upon request of the study programmes, as well for seminars, practical classes, and exams. For the implementation of both study programmes, there are 23 auditoriums, 5 computer classes, 45 student study laboratories, and 69 research laboratories in biology, geography, geology, chemistry, biochemistry, physiology, etc. at the House of Nature. The auditoriums have a variety of capacity: 9 small ones with capacity up to 30 seats, 10 medium-size to 50 seats, and 4 large auditoriums up to 300 seats. If necessary, the study process can also use auditoriums at the House of Science on Jelgavas Street 3, located next to the House of Nature.

All auditoriums have whiteboards and/or blackboards, projectors, laptops, and Internet access to allow the readers to deliver lecture without using their own computers. The e-studies platform can be used to demonstrate presentation. Interactive whiteboards are also available for some auditoriums.

There are five computer classes in the House of Nature with capacity 15-20 workstations. The computer classes have all the necessary computer programmes not only for implementation of the study programmes in Optometry, but also for other study programmes of the University of Latvia, such as statistical programmes (SPSS, R, etc.), image analysing programmes (ParaView, ImageJ, etc.), programming languages (Visual Studio, Java, etc.), standard office programs (MS Excel, Word, Access, Outlook, etc.), drawing programmes, etc.

In support of specific studies, practices and research processes, the Department of Optometry and Vision Science has several modern laboratories (e.g., Refraction Laboratory, Eye Movement Laboratory, Vision Ergonomics Laboratory, Colour Vision Research Laboratory, Neurophysiological Process Research Laboratory), Spectacle Laboratory, and Students Ambulance. To control the occupation of the laboratories, students use a lab occupation schedule for skill development and research purposes.

Free wireless Internet is available for students throughout the Academic Centre of the University of Latvia (the House of Nature and the House of Science). UL offers students a free opportunity to use several IT programmes including Microsoft Office 365, SPSS MathWorks MatLab, etc. software for a private computer for a period of study. The students can also use computers available in the libraries of the House of Nature and the House of Science.

The PMSP Clinical Optometry has collaboration with other foreign universities that provide optometry studies, as well as with larger Latvian and global optics companies such as OC Vision, Vision Express, Essilor, Hoya, Alcon, etc. The foreign universities offer our students experience in another environment, while foreign students can get to know the opportunities of our study programme, both the modern study environment and well-equipped laboratories. Good collaboration is developed with optics companies that provide students with practice places. The companies help to provide the materials needed in the study process, such as catalogues, spectacle lenses and frames, contact lenses and their solutions that allow students to achieve predefined study objectives and skills. OC Vision regularly offers students new equipment for the development of master's theses.

The Department of Optometry and Vision Science researchers offer regularly study topics and a possibility to share the results at the Scientific Conference of the University of Latvia and international conferences organised for students and young scientists, such as *Development in Optics and Communications - DOC* (in Riga), *Open Readings* (Vilnius).

Information and methodological provision

The methodological support of the University of Latvia for the implementation of the study programme is extensive and prepared according to the specifics of different study programmes. In addition to traditional information resources – library books – access is provided to more than 170 000 subscribed e-resources in various fields of study and science. For the implementation of study courses, the opportunities offered by the e-learning environment of the University of Latvia are used - the uploading of lecture materials, the use of online tests to supplement and assess students' knowledge. Each lecturer is obliged to create an appropriate e-course in both Latvian and English. Remote training uses a variety of tools for the acquisition of knowledge, skills and competencies, such as video lectures, tests, online submission of papers and tasks and online feedback, opportunities to obtain study materials, which is essential for students outside Latvia, and access to books from the UL library. E-environment enables quick and easy communication between student and teaching staff and vice versa. E- environment gives the student access to study materials, the possibility to keep track of their progress and course completion, the lecturer access to the latest books and publications anytime and anywhere.

The UL Library is included in the Library Register (BLB1000) of the Ministry of Culture of the Republic of Latvia; on 22 June 2017 it received the Library Accreditation Certificate and was granted the status of a library of national importance for five years. The basic principle of the Library's activity is the accessibility of its services to every user, ensuring the same range and quality of services in all departments. The variety of services offered, the layout of the library's premises and its opening hours will continue to be closely coordinated with users' information needs.

The opening hours of the 8 sectoral libraries of the University Library are adapted to the convenience of students. The opening hours for library customers are from 9.00 to 21.00 on weekdays, and from 9.00 to 18.00 in some sectoral libraries. On Saturdays, the hours are from 9.00 to 17.00. The libraries of the Houses of Nature and Science are open 7 days a week, 24 hours a day. The four sectoral libraries are open all year round, including during the summer. The sectoral libraries ensure all services that promote independent studies. Services are provided in accordance with UL Library Terms of Use, approved on 1 February 2017 with UL Rector's Order No. 1/39.

According to the Terms of Use, the services may be used by UL students, teaching staff, personnel, other libraries, students from other universities, as well as any residents. UL Library provides free basic services and paid services.

Free of charge basic services

- Electronic ordering/reservation/extension of the use of information resources from state significance union catalogue and receipt of information resources for on-site use in the library reading room or for using at home.

The service is available to users registered at UL Library by using Union Catalogue on any mobile device from any place with internet access.

- Delivery of information resources

When ordering resources in Union Catalogue from any library, the UL academic personnel, researchers and doctoral students have the option to indicate the most convenient place to receive the reserved information resource – the sectoral library. This option is available for other users, by ordering information resources only from the Repository.

- Self-service

All sectoral libraries offer self-service scanning services, 5 sectoral libraries offer self-service devices for receiving/submitting the books or extending the period of use of books. With the help of devices, the user can independently receive and hand-in information resources or extend the period of use. The UL students, academic and general personnel can receive laptops at the Library of the House of Sciences by using the laptop usage self-service device with 36 laptops.

- Use of open access reading rooms, computers, and internet

It is possible to use a collection of reference literature and periodicals, stationary and portable computers (both the UL Libraries and users' personal) in the reading rooms, as well as Internet connection, including WI-FI, which is operating in all UL buildings. Reading rooms serve not only as a place for studies and research for the students but also as a place to meet and spend their free time.

- Night subscription, booking of information resources in advance

For the convenience of users, the “Night Subscription” service is offered, the aim of which is to provide users – students, lecturers and employees of the University of Latvia with the opportunity to borrow a certain on-site information resource from the library in the time period from the closure of the library until the opening hour or to book it in advance for a certain number of hours. The service is free of charge, but, if the information resource is not returned on time, a contractual penalty is applied for the delay of the period of the loan in accordance with the price list of paid services of the UL Library.

- Supply of information resources in the summer

This offer allows users to receive required information resources twice a week at the most convenient sectoral library (Library at Kalpaka Boulevard, Library at Raiņa Boulevard, Library of Natural Sciences, Library of the House of Science) from 4 sectoral libraries, which are closed during the summer.

- Inquiries and consultations

One of the main functions of the library is providing information to the users – consulting, providing information, user training and support in research.

The main consultant of the UL Library (the Library at Aspazijas Boulevard) provides the official and general information services of the Library. The users can also receive individual consultations and information in the library, by e-mail: info-bibl@lu.lv, by phone: 28623551, using Skype – address: LU Bibliotēkas consultants. Consultations are also provided by any employee of the sectoral library staff at the library or by phone, or by using Skype. The consultant of the Library and staff of branch libraries provide bibliographic, thematic, factual, addressive, specific and other information and consultations to the students, academic, scientific and general staff of the University of Latvia. In case of any questions, the users may also use the options available in the UL Library portal: “Ask the librarian”, “Frequently asked questions”, “Submit your feedback”.

- Training for users

The knowledge and skills to work independently, to find, evaluate and use quality information resources and e-learning tools are essential to raising the level of learning. To improve users' skills and abilities, the UL Library has established a training system.

The Library has developed 3 training scenarios which are used by the Library staff to provide training "Electronic Collections for Your Successful Studies", "E-resources for Mobile Studies", E-resources in Industry".

Paid services

The list of UL Library paid services and price list is approved by the UL Rector's Order of 07.03.2016 No. 1/111.

- Compilation of a list of information resources

The service provides information support to every user. Specialists of UL Library compile a list of information resources on the topic required for the user as soon as possible, for example, during the process of developing a term paper or other type of work. The user can order the list by electronically filling in the electronic application form, where the user can indicate the required chronological coverage, languages, types of information resources (books, magazine articles, electronic resources, etc.), etc.

- SBA, SSBA services

The UL Library offers its users to order information resources that are not available at the UL libraries from other libraries and document repositories in Latvia by using interlibrary lending service, and from abroad by using international interlibrary lending service, as well as receive electronic copies of scientific articles in printed form or by e-mail.

Library collection

The collection of the UL Library is created in accordance with the study and research fields of the University, requirements of study programmes, thus providing information for all study levels of the University of Latvia – bachelor's, master's, doctoral, as well as scientific research areas. When replenishing the collection with information resources, the purchase of e-resources has been set as a priority. Acquisition of new resources to the collection is carried out in accordance with the centrally allocated funding of the University of Latvia, which is approved annually by the order of the University of Latvia. The granted funding is used to purchase necessary books, to pay for a subscription of sectoral databases and subscription of periodicals. The UL Library ensures the acquisition of information resources, based on orders of academic personnel, proposals from the student council or employees of the Library, which are submitted to LUIS and approved by the Dean of the Faculty or the Executive Director. Anyone, who is interested, can also recommend the purchase of a specific publication by submitting a proposal to the employee of the Library verbally

or in writing. If the proposal is supported by the Dean/Executive Director of the particular faculty, the Library purchases the proposed publication.

In 2021, there are 1.7 million information resources available for the users of the Library. In accordance with the UL study and research infrastructure, the collection of the UL Library is located in 8 sectoral libraries and the Repository. The UL Library collection, with an information resource matching LU BSP Optometry and PMSP Clinical Optometry, includes **1094** copies of printed editions by 1st January 2022, of which 978 copies are in the library of the House of Nature, 88 copies are in the library of the House of Science and two are on the Repository. All copies of printed editions required for the study programmes in Optometry are purchased from additional funding obtained by the Department of Optometry and Vision Science. The available stocks at the libraries at the Houses of Nature and Science are shown in **Table 3.3.1.1.**

Table 3.3.1.1.

Literature available in the library (printed publications) for the implementation of PMSP Clinical Optometry

Total in the collection of the Library of the University of Latvia on 01.01.2022. existing printed publications									
Study programmes	Printed editions (copies)				Language				
	Total	Books	Periodicals, other types of publications	Other types of expenditure	Latvian	English	Russian	Germany	Other
<i>BSP Optometry & PMSP Clinical Optometry</i>	1094	1007	59	28	55	995	20	10	2
Total in the study direction in the collection of the Library of the University of Latvia: 31 046 copies									

The Library together with the UL IT service offers the UL e-resources repository. The Library, authors of publications, UL departments or representatives of UL editions regularly upload electronic versions of their publications, digitised information resources of cultural and historical value, theses and dissertations of UL faculty members and their abstracts to the UL e-resources repository in order to ensure the collection, preservation, free and permanent online access to the scientific achievements of the UL. The LU e-resources repository[1] was established in 2011.

In line with the UL Strategic Plan, the UL Library is increasing the number of e-resources and developing remote access to e-resources in order to enable users to use resources remotely. The number of databases is being targeted within the funding allocated to the Library. Each year, the usability of subscribed databases is analysed and users are surveyed on the need to purchase new databases. The e-resource list from A to Z is available in the Library section of the UL portal. More information on e-resources is available on the UL Library website "E-resources from A to Z"[2]. The UL offers the opportunity to use subscribed electronic information resources (databases, e-book platforms) outside the UL computer network by logging in with a LUIS username and password.

Subscribed e-resources, including materials for the PMSP Clinical Optometry

EBSCO Academic Search Complete – a multi-sectoral scientific information resource where information from more than 12 500 full-texts, including 7 300 science-reviewed journals, is available. Resources are available in sectors such as optometry, optics (related to ophthalmology), medicine (related to ophthalmology), biology (related to ophthalmology), pharmacy, nutrition

science, etc. **Emerald eJournals Premier** – a full-text multi-sectoral database containing information in sectors such as optometry, medicine (related to ophthalmology), general medicine, nursing, pharmacy, nutrition science, etc. **Oxford Journals** – collection gives access to more than 280 authoritative and leading journals issued in collaboration with the world's most important scientific organisations. The database consists of full-text journals with high citation index scores in different science sectors: optometry, medicine (related to ophthalmology), life sciences (related to ophthalmology), physics (related to ophthalmology), medical treatment, nutrition science, etc. **Letonika** – a directory and translation system whose main purpose is to provide systematised, encyclopaedic reference and translation information. Letonika offers to search for and work with information found in 11 encyclopaedia and other reference resources, 13 dictionaries (translating, interpretative, terminology), as well as collections with 10,000 images, audio recordings, etc. **LETA – News, Archives and Nozare.lv** – offers the possibility to search for operationally published news, photos, videos, press releases, articles from the Latvian press, statistics, and other information. **ProQuest Dissertations & Theses Global** – the largest worldwide database of dissertations and theses, contains more than 2.3 million theses in different sectors: natural and medical sciences (related to ophthalmology), humanities and social. **SAGE Journals Online** – the full-text magazine database of the publishing company SAGE, which offers articles from more than 500 journals. The database represents a variety of sciences – life and biomedical, medical treatment, optometry, medicine (related to ophthalmology), pharmacy, nutrition science, etc. **SAGE Research Methods** – a library of study methods containing more than 1,000 books, reference editions, journal articles and other resources in a variety of industries, including optometry, medicine (related to ophthalmology), medical treatment, etc. SAGE Research Methods is an important online tool for researchers. There are two of them available in UL – SAGE Research Methods – Books and Reference and SAGE Research Methods Cases. **ScienceDirect** – the multi-sectoral database of the publishing company Elsevier, which includes sectors such as optometry, medicine (related to ophthalmology), medical treatment, nature sciences (related to ophthalmology) and technical sciences, etc. The database contains information about several thousand journals and books issued by Elsevier. The full texts of approximately 2,650 journals are available. **Scopus** – a database of bibliography and quoting information from the publishing company Elsevier, contains records of more than 21,000 journals, 86,000 e-books and 6.8 million conference materials, as well as 27 million patents. The database includes sectors such as optometry, medicine (related to ophthalmology), medicine, nutrition science, etc. **SpringerLink** – the full-text journal database of the company Springer Nature, which offers access to more than 6 million articles from more than 3,400 journals, covering the fields of science related to ophthalmology, humanities, and social sciences. **Web of Science** – database contains the most significant scientific information about more than 12,000 journals, offering bibliography and citation information, summaries, and other information. Areas such as optometry, medicine (related to ophthalmology), medical treatment, radiography, nursing, pharmaceutical, nutrition science, etc., are included. **ClinicalKey** – a wide range of medical and health care journals, online books and other reference materials.

E-books available in the UL Library, including materials for the PMSP Clinical Optometry

ProQuest Ebook Academic Complete, an e-book platform with 10943 editions of e-books purchased or subscribed by the UL Library on request of the study programmes in Optometry from the world's largest publishers (e.g., McGraw-Hill Education, Bloomsbury Publishing, Princeton University Press, Emerald Publishing Limited, IOS Press, Indiana University Press, etc.).

Free-access resources containing materials for the PMSP Clinical Optometry

ArXiv.org, BMC, Bookboon, Bookyards, BioOne Complete, Cogent OA, Directory of Open Access Books, Directory of Open Access Journals (DOAJ), EuDML, Eurostat Data, FreeBooks4Doctors, F1000

Research, Google Scholar, Herbert Publications, HighWire Press, IEEE Open, Journals for Free, KARGER Open Access, Library Publishing Media, MDPI, Online College Classes, Optipedia, Open Access Research Database (OARD), Periodika.lv, PLoS – Public Library of Science, ScienceOpen, Science Books Online, SpringerOpen, Wiley Open Access, WorldWideScience, Zenodo.

Material and technical base

The laboratory equipment of the Department of Optometry and Vision Science is designed to meet the needs of practical works and practices, with regular replenishment and refurbishment of equipment – optometric tools, vision tests, visual function assessment stations, modern eye structure assessment equipment (biomicroscope with filming and imaging capabilities, WAM system, OCT, autorefractometer, osmolarity measuring equipment, retinal pigment density measuring equipment, indirect binocular ophthalmoscopy simulator, straylight measuring instrument, various colour vision assessment tests, etc.). For detailed information on the material and technical basis of both study programmes in Optometry is presented in **ANNEX OptoPM 16**.

A total of six vision examination stations are fully equipped, which students can also use outside the planned classes for training clinical skills required by the study process, working on laboratory and scientific works. The renewal of laboratory equipment is based on funding from the Department of Optometry and Vision Science, base funding of the scientific staff and funding from EU, ERDF foundations, UL foundation and UL projects. At present, the increase in the material-technical base is so extensive that it supports not only the whole study process but also research projects in the fields of optometry and visual science.

[1] <http://dspace.lu.lv> [available in Latvian and partly in English]

[2] <https://www.biblioteka.lu.lv/resursi/e-resursi-no-a-lidz-z/> [available in Latvian and English]

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Since the Department of Optometry and Vision Science is responsible for the implementation of two study programmes in optometry, the financial base is combined and not separately distributed to the relevant study programme. The State-funded budget places (68 bachelor's and 12 master's) and the additional funding obtained from the students that pay for their studies provide basic

functions of the study programmes – environment (including all auditoriums proportional to the size of the department, 100% of all rooms for academic and administrative staff and laboratories of the Department of the Optometry and Vision Science), as well as salaries of the teaching staff. In various projects (continuing education, research projects, development projects, etc.), additional resources are obtained that provide an opportunity to renew the laboratory equipment (the optometric instruments and small equipment), as well as to purchase new books for the organisation of the study process.

The calculation of the cost for the PMSP Clinical Optometry (see **ANNEX OptoPM 17**) is based on the available State funding for one budget place (7,355 EUR) that is formed from base funding of 1,630 EUR, level coefficient 1.5 and study field coefficient 3, and is based on the methodology for calculating the cost of study programmes developed by the Studies Department of the University of Latvia. However, this calculator does not reflect the real situation, because the same premises, purchased books and technologies are used for both study programmes in optometry and all study forms. While the English groups are too small, we combine the first- and second-year students in each study programme, combine practical classes with Latvian groups in the professional master's study program, as well as implement some study topics in English for both Latvian and English groups. As readers have a higher fee for teaching in English, the tuition fee is also different for Latvian and English groups. Calculating the total costs of all study forms for the academic year 2020/2021, the teaching expenses (including vacations, taxes) were about 312,000 EUR, infrastructure expenses – 33,000 EUR and other expenses – about 12,000 EUR. After all internal fees defined by the University of Latvia and the Faculty of Physics Mathematics and Optometry, there remains about 253,000 EUR per year from the State-funded budget places, about 90,000 EUR per year from students, who pay for their studies, and about 15,000-20,000 EUR per year from other projects for infrastructure improvement and purchase of books as the available funding of the Department of Optometry and Vision Science

We have calculated the minimum number of students required for the effective implementation of the study programme in English groups so that the tuition fee fully covers at least the salaries of the involved academic staff. However, these calculations are variable, as everything is determined by the size of the group of students and a reasonable tuition fee that is in relation to the cost of the study programme and does not exceed the tuition fees of other countries where optometry studies can be available in English. The minimum number of full-time students should be 10-12 students per study year for the PMSP Clinical Optometry which is implemented in the Latvian language. In part-time onsite studies of PMSP Clinical Optometry, which is implemented in the Latvian language, the minimum number of students should be 10 students per study year. In full-time studies, which are implemented in the English language, there should be at least 10 students and part-time extramural studies must be 8 students each year. Tuition fees at the University of Latvia are determined by a separate directive for each academic year, taking into account the cost of the study place, including all costs of the study process, tuition fees for similar programmes at other universities and potential students' interest in the study programme.

The study costs of the Latvian groups are balanced with the income, varying according to the courses of the limited choice part, as well as combining groups of students in these study courses. Part of the expenses is also covered by the income from the students that pay for their studies at the PMSP Clinical Optometry, as well as from various study development projects.

If we calculate according to the methodology developed by the University of Latvia, the average cost per student is 5,043 EUR per year in the PMSP Optometry in both language groups. Estimates are made for 12 state-funded budget places, 4 “budget places” guaranteed by the Department of Optometry and Vision Science, and 8 private funding. There are also paid study places in the study programme. In addition to the costs of teaching staff, the cost calculation also includes general staff

costs – 31.3% of academic staff (EUR 497 per student per year), infrastructure expenditure (EUR 250 per student per year), renovation of the technical base, services (EUR 303 per student per year).

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The study programme is based on more than 25 years of experience in the training of optometrists at the Department of Optometry and Vision Science of the University of Latvia, the legislation of the Republic of Latvia, which stipulates that an optometrist is a medical practitioner – functional specialist – from January 1, 2020, the Optometrist professional standard, as well as the latest trends and requirements for the optometrist education system in the European Union regulated by the ECOO[1] which determines the content and scope of the courses. That required involve competent readers in the development of course content.

The principal responsibility of the head of the Department of Optometry and Vision Science is to attract competent readers to the study programmes. The qualification is evaluated to ensure that the reader has appropriate competences to deliver the course and to help students to reach course results. If it is not possible to provide the content of a single course with a single reader, the course can be delivered by several readers. In cooperation with other faculties, the study programme involves competent readers for general courses. The qualification requirements of all readers are regulated by both the Law on Higher Education and the internal standards of the University of Latvia. Most readers are elected, and their academic positions are in line with previous achievements: obtained degrees and previous scientific, teaching, and professional experience. Other readers may be selected for the realisation of the study programme in English groups. Most importantly, the reader of the study course must have adequate competence in the field and an appropriate level of academic English – B2, as well as the willingness to cooperate with the director of the study programme and students.

Various forms and support mechanisms are used to increase the qualifications of the teaching staff in order to improve the academic skills of the elected reader within six years: experience exchange in other universities, participation in the international academic and scientific conferences and seminars, and experience not only in didactics but also in scientific work.

PMSP Clinical Optometry meets the minimum or recommended requirements for the weighted average credit point proportion of the courses to academic qualifications. The following are planned in the study programme: professors and associated professors (17%), assistant professors (31%), lecturers (22%) and assistants, readers, and industry specialists (30%). Most study courses are delivered by assistant professors, lecturers, and other readers. The professors are involved in the

delivery of specific study courses and where specific expertise is required or to train the new generation. In addition, guest professors are involved in teaching individual courses (e.g., a guest professor from Tartu University (Estonia) was invited to deliver the course “Visual Neuroscience” in 2019/2020).

Industry specialists are also actively involved in the study process to implement high-quality Clinical Practice in optometry. Usually, these are the qualified optometrists with a five-year-long clinical practice as optometrists. The practice also involves doctoral students with qualifications in optometry who practice as optometrists. The doctoral students lead individual introductory parts of the clinical practice, as well as supervise Student Ambulance acquiring experience in didactics. High expectations have been made on the further development of the Academic Centre of the University of Latvia and in particular the building of the Health House where the multi-disciplinary out-patient department is planned. This would allow attracting more vision specialists to the implementation of clinical practice. Consequently, teaching staff would be more involved in the research activities.

[1] *European Council of Optometry and Optics*, <http://www.ecoo.info/european-diploma/> [available in English]

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

In the PMSP Clinical Optometry, courses are delivered mainly by teaching staff from the Department of Optometry and Vision Science. Only 3 (10%) courses are delivered by readers from other faculties and departments of the University of Latvia: the additional courses (Civil Protection and Environmental Protection) and a Latvian language course for English groups. Looking at the academic year 2019/2020 and the teaching staff involved (see **ANNEX OptoPM 18**), 22 readers were involved in the implementation of the programme both for Latvian and English groups and in all study types – in full-time, part-time onsite and part-time extramural. 11 or 50% of them had a doctoral degree and each one was competent in the topic of the course (see **ANNEX (zip file) Optometry - Teaching Staff CVs**). Some courses (e.g., Contact Lens Correction, Clinical Practice in Optometry I-III) are delivered by two or more readers since the content of the course requires more knowledge, skills, and competences, which can be provided by a number of readers by dividing the work between themselves.

The content and the scope of the PMSP Clinical Optometry are based on the requirements of the European Diploma in Optometry and aligned with the content of the BSP Optometry. Consequently, the structure of the two study programmes was developed as the first step and then the content of the study courses was composed involving competent readers. Knowing the content of the study course, the heads of the faculties or departments of the University of Latvia were addressed to find the best, qualified reader willing to cooperate with the directors and students of the Optometry study programmes. By shared forces and interest to develop the content of the course and to implement it with new, exciting learning methods, as well as taking into account course evaluations, we have developed the collective of the readers that are highly specialized and found ways how to link the general courses with the knowledge, skills, and competences required for the dispensing optician and the optometrist and how to implement examples from the optometric field.

At the beginning of the previous accreditation period (see **Table 3.4.2.1.**), professors were more

involved in the implementation of the study programme. Over time, the number of professors has decreased due to retirement. There has also been a generational shift over the years and the new generation has come – assistant professors, lecturers, and assistants, who are proportionally more in number. The average age of the teaching staff (in years) (see **Table 3.4.2.2.**) has changed from 54 years at the beginning of the accreditation period to 42 years at the end of the accreditation period. Younger readers continue to join, and this has managed to keep the average age constant.

Table 3.4.2.2.

Teaching staff participating in the implementation of the study programme from 2013/2014 to 2020/2021.

	Academic Year							
	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Professors	4	3	3	2	1	1	2	1
Associate Professors	0	0	0	0	0	0	0	3
Assistant Professors	5	5	6	8	6	8	8	7
Lecturers	1	1	5	5	5	5	4	5
Assistants	0	0	0	0	0	2	3	4
Readers, Industry Specialists	3	4	2	5	4	5	5	3
TOTAL	13	13	16	20	16	21	22	23

Table 3.4.2.2.

Changes in the composition of age groups from 2013/2014 to 2020/2021

Age groups, in years	Academic Year							
	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
<25 years	0	0	0	0	0	0	1	0
25-30 years	0	0	5	4	4	5	4	4
31-40 years	5	5	5	7	6	7	6	8
41-50 years	0	0	1	2	2	3	6	6
51-60 years	2	3	1	2	2	4	2	2
>60 years	6	5	4	5	2	2	3	3

Average age, in years	54	53	44	44	41	42	42	42
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In addition, for a few courses (Clinical Practice in Optometry I-III, Emergency Medicine, Clinical Ethics for Optometrists, Civil Protection), the readers (hourly paid) and industry specialists were attracted. Their competencies are appropriate to ensure that the results of the study programme are achieved. The quality of each reader is evaluated by all students by revealing positive and negative parts of the course delivering processes. That helps the director of the study programme to analyse the composition of readers and the necessary changes or develop content-based methodological courses focused on success stories. The readers can share their experiences and learn from each other. The increase in the number of the teaching staff at the end of the accreditation period can be explained by an increase in the number of doctoral students, which are primarily involved in the implementation of Clinical Practice, and new readers with a doctoral degree. Students and graduates evaluate positively the changes in the teaching staff because younger readers come with new ideas and activities.

Every year and every semester observation of the reader takes place performed by other experienced colleagues. At random, two readers of the Department of Optometry and Vision Science are appointed who evaluate the open lecture and then discuss the advantages and disadvantages with the evaluated reader. All reports are then available to the director of the study programme and the head of the department to assess the overall picture and to discuss the necessary developments based on data derived from the anonymous course evaluation made by students and from observation of the open lecture.

ANNEX OptoPM 18 compiles the information about the teaching staff through the previous accreditation period. On the other hand, **ANNEX OptoPM 12** demonstrates course evaluation by academic years through the previous accreditation period.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

In the development and improvement of the study programme, the student's proposals are taken into account both by using the evaluations of study courses and by speaking in person with the representatives of the student groups. The issue is addressed if students are frustrated with pursuing a study course or have serious problems with the lecturer of the course. The director of the study programme listens to both the opinion of the students and the lecturer of the course. Then, changes are made in the course content and implementation type, or the course is supplemented with new teaching methods. If the above measures do not make a positive change over three years and the problems persist, a new course lecturer is being sought. The lecturer was replaced for such courses as "General Medicine in Optometry" and "First Medical Aid" (later "Emergency Medicine") in 2017/2018, as well as for the study course "Current Problems in Vision Science" in 2019/2020, because there were no changes in the delivering of these courses and the suggestions of the students and the director of the study programme, were not taken into account. The course "Eye Diseases in Children" was removed from the study programme in 2019/2020 because students were highly dissatisfied with the implementation of the course and the lecturer made no requested corrections in the teaching process. The course was replaced by a new course "Paediatric Optometry" with another lecturer.

The cooperation of faculty members is strongly supported by anonymous evaluations of the content of the study courses and teaching methods. Every lecturer has the opportunity to get acquainted only with the evaluation results for his/her course and to discuss the problems with the director of the study programme to find the best solution. If students have indicated that the content is overlapping in some courses, then a compromise is found with relevant lecturers: what and how will be presented in each course to avoid unnecessary overlapping of information but students can get multifaceted insight into one topic. In case of content overlapping, the content of the courses was updated by the lecturer in cooperation with the director of the study programme.

The PMSP Clinical Optometry has a small total number of students. In 2019/2020, there were 71 students in all study groups (full-time, part-time onsite, part-time extramural) in Latvian and English, of which 56 were not budget students but paid for their studies. Due to the small number of English groups, lectures for the first- and second-year students were combined. A total of 22 lecturers were involved in the implementation of the study programme. Thus, the proportion of the number of students and the teaching staff within the study programme was approximately 1:3. This ratio does not demonstrate anything because it is known that the same lecturer can have two or more courses in one academic year. The most important thing is not the above-mentioned ratio, but the effectiveness of the study programme in relation to the allocated funding. The structure of the professional master's study programme in Latvian groups covers all costs related to the study process – both infrastructure and salaries, improvement of the technical base and purchase of new books. For the time being, implementation of the professional master's study programme in English groups requires combining study courses not only for the first- and second-year students but also

combining some courses (e.g., Clinical Practice in Optometry) with the Latvian groups and delivering them in English, which is also a mandatory requirement at the University of Latvia (to have 20% of courses in English also for Latvian groups). We worked a lot on the cost estimation for the study programme in English groups, the tuition fee was increased to cover expenses for small groups of students. But it is already becoming an obstacle in attracting new students. Therefore, in the future, we will work more on advertising the study programme for English groups and on the student attraction system after European accreditation.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	Annex_OptoPM_19_PMSP_Kliniska_optometrija_Diploma_paraugs.docx	OptoPM_19.pielikums_PMSP_Kliniska_optometrija_Diploma_paraugs.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Annex_OptoPM_4_PMSP_Kliniska_optometrija_Studentu_skaita_statistika.docx	OptoPM_4.pielikums_PMSP_Kliniska_optometrija_Studentu_skaita_statistika.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	Annex_OptoPM_10_PMSP_Kliniska_optometrija_Atbalstiba_valsts_izglitiba_standartam.docx	OptoPM_10.pielikums_PMSP_Kliniska_optometrija_Atbalstiba_valsts_izglitiba_standartam.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	Annex_OptoPM_7_PMSP_Kliniska_optometrija_Atbalstiba_profesijas_standartam.docx	OptoPM_7.pielikums_PMSP_Kliniska_optometrija_Atbalstiba_profesijas_standartam.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Annex_OptoPM_8_PMSP_Kliniska_optometrija_Atbalstiba_nozares_regulejumiem.docx	OptoPM_8.pielikums_PMSP_Kliniska_optometrija_Atbalstiba_nozares_regulejumiem.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Annex_OptoPM_6_PMSP_Kliniska_optometrija_Studiju_kursu_kartejums.docx	OptoPM_6.pielikums_PMSP_Kliniska_optometrija_Studiju_kursu_kartejums.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	Annex_OptoPM_9_PMSP_Kliniska_optometrija_Studiju_plani.docx	OptoPM_9.pielikums_PMSP_Kliniska_optometrija_Studiju_plani.docx
Descriptions of the study courses/ modules	Annex_OptoPM_11_PMSP_Kliniska_optometrija_Kursu_apraksti.docx	OptoPM_11.pielikums_PMSP_Kliniska_optometrija_Kursu_apraksti.docx
Description of the organisation of the internship of the students (if applicable)	Annex_OptoPM_13_PMSP_Kliniska_optometrija_Prakses_nolikums.docx	OptoPM_13.pielikums_PMSP_Kliniska_optometrija_Prakses_nolikums.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Dentistry (49724)

Study field	Health Care
ProcedureStudyProgram.Name	Dentistry
Education classification code	49724
Type of the study programme	Second level professional higher education programme (length of full time studies at least 5 years)
Name of the study programme director	Romualds
Surname of the study programme director	Ražuks
E-mail of the study programme director	romualds.razuks@lu.lv
Title of the study programme director	Dr.med
Phone of the study programme director	+37129289184
Goal of the study programme	The goal of SP Dentistry is to prepare qualified specialists in the field, whose theoretical and practical skills are appropriate, in order to independently start practicing in general dentistry.
Tasks of the study programme	<ol style="list-style-type: none"> 1. To prepare specialists necessary for the needs of the Latvian economy and abroad for professional careers and / or further studies, in which the skills and abilities acquired in the program will be used. 2. To provide knowledge corresponding to the level of higher education in the fields of basic medical sciences. 3. To provide high-quality theoretical and practical knowledge in the fields of general and clinical medicine. 4. To ensure the acquisition of a high level of theoretical knowledge and practical skills in specialized dental study courses.

Results of the study programme	<p>KNOWLEDGE</p> <ol style="list-style-type: none"> 1. Is familiar with characteristics of healthy structures of whole human body and orofacial region and with most common general diseases or pathological conditions, and with epidemiology, aetiology, pathogenesis, clinical characteristics, clinical, radiological and laboratory diagnostics, differential diagnostics, treatment equipment, methods, techniques and sequence, possible complications during and after treatment, treatment prognosis modelling of diseases and pathological conditions of orofacial structures (caries, diseases of the dental pulp, periodontium, soft tissues of oral cavity, inherited pathologies of orofacial region, inherited and acquired pathologies of occlusion, traumas of teeth and jaws, fractures, loss of the teeth); as well planning and promotion of general and oral health and the primary, secondary and tertiary prevention of diseases and / or pathological conditions. 2. Knows the role of microorganisms, fungi, parasites, and viruses in the etiopathogenesis of general and orofacial diseases, knows focal infection theory, and understands the multifactorial and systemic nature of oral diseases, as well as the control of infectious and radiation doses in dentistry. 3. Understands influence of nutrition, habits and lifestyle to the general and oral health, and the specifics of care of medically compromised patients of all ages (e.g., patients before, after and during treatment of oncological diseases, patients with various systemic diseases - compensated and not compensated, patients who have received organ transplants, etc.). 4. Knows pharmacokinetic and pharmacodynamic properties of medications used in general medicine and dentistry and knows indications, contraindications of medications, the procedure for prescription of medications for patients of all ages to prevent and treat diseases of the orofacial region and, in the case of emergencies, as well as orientates in the side effects caused by medicinal products in the oral cavity. 5. Orientates in communication psychology, structure and organization of health care system, basics of professional ethics and use of scientific methodology in critical analysis of literature, developing of research in the field of dentistry, as well as understands the importance of multidisciplinary medical care in dentistry. 6. Knows the international classification of general diseases and diseases of hard and soft tissues of orofacial region, traumas, inherited anomalies, and pathologies. <p>SKILLS</p> <ol style="list-style-type: none"> 7. Does correct collection of the patient's general, social, family and dental anamnesis, extraoral and intraoral examination, recording findings in the patient's medical card, performs or prescribes additional examination (X-ray examination, biopsy, laboratory tests) in accordance with professional ethics, referring patient to specialist of another medical field (e.g. neurologist, otorhinolaryngologist, paediatrician, endocrinologist, etc.) if needed. Summarises gathered information and presents it to the patient or parents if patient is a minor. Infection control and radiation dose control are provided throughout all diagnostic, treatment planning, and treatment process. 8. Assesses caries risk and intensity, analyses nutrition diary and creates an individual oral health improvement plan for patients of all ages; motivates the patient and appoints follow-up recall appointments. 9. Diagnoses and provides treatment of emergency and urgent situations in dentistry - pulp and periapical tissue diseases, fractures of teeth, fillings and/or prosthetic elements, periodontal diseases, dental traumas, pericoronitis, intraoral abscesses, taking into account the possible impact of general diseases and prescription of medications appropriate to the dental diagnosis on planned manipulation, as well as diagnoses general / systemic health-threatening clinical situations. 10. Evaluates the patient's level of anxiety and stress, develops and applies an appropriate psychological and medical anxiety and stress reduction algorithm with high quality pain control under local anaesthesia, or appoints the patient's treatment under sedation or general anaesthesia; analyses in detail the medical condition of a medically compromised patient and perform dental care for that patient. 11. Does the conservative dental treatment - treats diseases of hard dental tissues (caries) and pathological conditions of hard dental tissues (erosions, attrition, abrasion, abfraction), not complicated periodontal diseases and pathological conditions, as well as basic manipulations for improvement of dental aesthetics - aesthetic fillings and teeth bleaching. 12. Does not complicated extractions of teeth and roots, intraoral incisions, basic periodontal surgery manipulations (access flap, crown lengthening for one tooth), screening of cancer of oral soft tissues and diagnosing and local treatment of diseases/pathologies of oral soft tissues, as well as does planning of surgical stage of dental implants and regenerative procedures. 13. Diagnoses development deviations and pathologies of occlusion in different age groups, as well as does treatment of not complicated clinical cases in collaboration with orthodontist. 14. Treats dental traumas in patients of different age groups and provides pre- and postoperative care for those patients. 15. Analyses condition and function of occlusion, masticatory muscles and temporomandibular joint, develops prosthetic treatment plan needed for rehabilitation of oral cavity and does prosthetic work with fixed, removable and simple design dental implant supported prosthetic restorations, providing rehabilitation of function and dental aesthetics. 16. Does differential diagnostic of odontogenic and non-odontogenic pain of orofacial region in all age groups, analyses impact of general diseases and medications used to the development of above-mentioned situations and refers patient to specialist of other medical branches (neurologist, otorhinolaryngologist, psychiatrist, endocrinologist etc). 17. Acts in case of emergencies in dental practice and outside - local anaesthesia emergencies, hypertensive crisis, angina pectoralis, myocardial infarction, choking, asthma attack, hyperventilation, adrenal crisis, stroke, vasovagal syncope, postural hypotension, diabetic conditions, anaphylaxis and other allergic reactions, seizures, and assess the possible act of violence against the patient. 18. Develops analytical clinical thinking, performs evidence-based analysis and presentation of clinical cases, analyses scientific literature and draws conclusions, as well as treat communicable patients with special needs or systemically compromised patients and take measures to improve oral health and prevent oral diseases in this group of patients, consulting with other medical professionals or referring a patient. <p>COMPETENCE</p> <ol style="list-style-type: none"> 19. Understands the close interaction of the evidence-based theoretical and clinical aspects of medical sciences with the concept of health and disease or pathology in dentistry and interprets biochemical processes in the human body, normal and pathological physiology and anatomy, genetic factors, immunological conditions and psychological aspects of feelings and behaviour. 20. Understands the importance of communication psychology and professional ethics in the daily work of a dentist with patients of different age groups and in communication with colleagues of his or her and other specialties, as well as referring the patient to other specialists of his or her own or other fields for obtaining the desired treatment result and prognosis, integrating the field of dentistry into a multidisciplinary health care algorithm. Knows the laws and regulations governing the practice of dentistry and the duties and responsibilities of the doctor and the patient. 21. Examines and treats patients of specific groups of the society - children, pregnant women, nursing mothers, the elderly, victims of violence and medically compromised patients of all ages - with an in-depth understanding and a high sense of responsibility. 22. Integrates evidence-based theoretical knowledge to ensure patient-centred treatment that meets the highest modern clinical, professional, and ethical criteria in dental practice. 23. Respects human rights and freedoms of patients and colleagues and does not discriminate patients or colleagues on the basis of social class, ethnic group, religion or belief, sexual orientation, general health or mental condition.
Final examination upon the completion of the study programme	<p>Diploma thesis</p> <p>Final examination in dentistry</p>

Study programme forms

Full time studies - 5 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	5
Duration in month	0
Language	<i>latvian</i>
Amount (CP)	200
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	-
Qualification to be obtained (in english)	<i>Degree in dentistry</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 5 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	5
Duration in month	0
Language	<i>english</i>
Amount (CP)	200
Admission requirements (in English)	<i>Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	-
Qualification to be obtained (in english)	<i>Degree in dentistry</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

2nd level professional higher education program "Dentistry" (hereinafter SP Dentistry) parameters are in place clarifications.

In the new accreditation period:

1. The aim of the study program

The aim is to prepare qualified specialists in the field, whose theoretical and practical skills are adequate to start practicing in general dentistry independently.

Justification: The aim of the study program is more specific and more appropriate to the specifics of the specialists to be trained in the field of health care.

2. Results of the study program

Justification: The results of the study program have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The study courses have been developed and are being updated by analyzing the latest scientifically based trends and recommendations of AADE (Association for Dental Education in Europe), changes in the regulatory enactments of the Republic of Latvia, Latvian Dentists Association certification and requirements for all dentists whether they will start their dental practice in Latvia or abroad. Labor market development trends in Latvia and abroad show a continuing demand for dentists who want to improve in continuing education courses and postgraduate education programs following the development of the profession in the fields of new medical science achievements and technological development. **The content of the study courses in the SP Dentistry provides such an opportunity to provide students with a full-fledged and expanded knowledge base, emphasizing the integration of a student-centered and evidence-based approach not only in clinical but also in general medicine courses.** General medicine courses are linked to

and followed by clinical subjects. Students develop analytical clinical thinking. The content of the course is developed by emphasizing the need for a general medical knowledge base in the daily practice of a dentist.

The skills and competencies acquired in the SP Dentistry not only allow the graduate to fully meet the requirements of the professional standard, but also to work competitively in their profession internationally, using the acquired knowledge as a full-fledged reference point for further education.

SP Dentistry is one of the newest study programs in the field of health care at the University of Latvia, which allows for the progressive development of a modern approach to the study process. In the first 2 years of study, a modular system is used (bone-joint system, muscles, sensory organs, lungs, heart, blood vessels, kidneys, etc. topics were mastered as modules). Analyzing the latest research and proposals of the European Association of Dental Education (ADEE) in the field of dental education, it was concluded that the latest trends in dental education will be more fully and efficiently implemented without modules. The ten semesters of the LU program consist of two blocks - the first five semesters are general medicine with a gradual introduction to dentistry, but the next five semesters are focused on learning the simplest and most complex dentistry, which allows to create and strengthen students' knowledge base and clinical thinking before starting clinical work. Before starting practical work with patients, students work in a modernly equipped simulated pre-clinic. In order to further develop students' clinical skills, practical classes in the clinic take place not only within the study courses, but two semesters of clinical practice are provided - in the eighth and tenth semesters. Students' practical work is based on the principles of integrated dentistry. In the training of students, great attention is paid to the critical analysis of scientific literature, developing students' skills to search, select and analyze scientific literature, thus promoting students' research interest. The content of the study courses is adapted to the needs of the 21st century population and the Cohort effect, including disciplinary, pedagogical, procedural, practical, tactical, situational and codified knowledge in working with students. The study process of the SP Dentistry is focused on interdisciplinary dentistry, as it is developed according to the student-centered approach, providing an individual approach to each student - practical work is implemented in small groups of up to 5 people, as well as ensuring student involvement in the study program improvement process.

Dentistry is a separate medical specialty, as is otorhinolaryngology, ophthalmology, gynaecology and obstetrics, and so on. Thus, dentistry is part of a full-fledged Health care field. Dentists treat orofacial structures that are not treated by other specialists - teeth, periodontal tissue, alveolar bone, and dentists play a very important role in the diagnosis and treatment of diseases of the soft tissues of the oral cavity (for example, side effects of medications, immunological diseases, bacterial diseases, etc.) as well as pre-cancer screening of the oral cavity (oral leukoplakia, oral submucosal fibrosis, oral erythroplakia, actinic cheilitis, squamous cell cancer, etc.). Undoubtedly, dentistry also includes another important aspect - preventive dentistry, which is one of the cornerstones of public health. In turn, aesthetic dentistry is able to improve a person's smile, which is an integral part of an individual's self-esteem, thus improving the individual's psychologically favourable functioning in society.

The duration of the study program is 5 academic years or 10 semesters. The total number of contact hours in the programme is 5000 contact hours. Each semester an active study process takes place for 16 weeks. The calculation shows that the average active study process takes place 31.25 contact hours per week or 6.25 contact hours per day, which effectively avoids the overload associated with the study process, which in turn improves the quality of studies and the study process as a whole.

Admission requirements SP Dentistry fully complies with the Cabinet of Ministers 19.02.2002. to

Regulation No. 68 "Minimum requirements for the acquisition of professional qualifications of dentists, pharmacists, nurses and midwives"[1].

The study program is developed in accordance with the EU Directive 2005/36 / EC on the recognition of professional qualifications [2], which is directly related to the guidelines of the European Association of Dental Education in Europe "Profile and competencies for the Graduating European Dentist Update 2009" [3], "Curriculum Structure, Content, Learning and Assessment in European Undergraduate Dental Education" [4]. The study program has been developed in collaboration with the University of Tromsø, Norway. Programme for Master degree in dentistry[5], which manifests itself in the use of methodological materials and expert advice.

During the development of the program the relevant regulatory enactments of the Republic of Latvia have been taken into account - 02.11.1995. "Law on Higher Education Institutions" [6], 20.06.2001. "On Regulated Professions and Recognition of Professional Qualifications" [7], 12.06.1997. Law "Medical Treatment Law" [8], and Cabinet of Ministers 19.02.2002. Regulations No. 68 "Minimum Requirements for Educational Programs for Obtaining the Professional Qualification of a Dentist, Pharmacist, Nurse and Midwife". Specialists in the field, such as maxillofacial surgery, endodontics and pediatric dentistry, participated in the development of the study courses of the program. The content of the courses corresponds to the needs of future dentists, the study course plan is designed to form a basis for starting clinical study courses. LU lecturers are involved in teaching preclinical and general medical study courses. The study program is implemented full-time (10 semesters) in English. In the first year, in addition to general biomedical subjects - biochemistry, cell biology, embryology, etc., students also study classical humanities subjects - philosophy, ethics and foreign language - foreign students study Latvian. Students acquire practical skills starting from the 3rd study year, when the study course "Preventive Dentistry. Diagnosis and treatment planning ". The study plan is indicated in Appendix 1. The volume of the study program is 300 ECTS, according to the regulatory enactments of the Republic of Latvia, the compulsory study courses (Part A) amount to 192 CP, limited elective courses (Part B) 6 ECTS and optional courses (Part C) 6 ECTS. Clinical practice is provided for 6, 7, 8, 9. and in the 10th semester. The clinical practice at the MF Dental Clinic of the University of Latvia is managed and supervised by lecturers and certified dentists of SP Dentistry.

[1] <https://likumi.lv/ta/en/en/id/59364>

[2] <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32005L0036>

[3] <https://pubmed.ncbi.nlm.nih.gov/20946246/>

[4] <https://pubmed.ncbi.nlm.nih.gov/21762317/>

[5] https://en.uit.no/education/program/284209/odontologi_-_master

[6] <https://likumi.lv/ta/en/en/id/37967>

[7] <https://likumi.lv/ta/en/en/id/44108>

[8] <https://likumi.lv/ta/en/en/id/44108>

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

Graduates of the study program obtain a professional qualification - the degree of dentist. The aim

of the study program SP Dentistry is to prepare qualified specialists in the field, whose theoretical and practical skills are appropriate to start practicing in general dentistry independently.

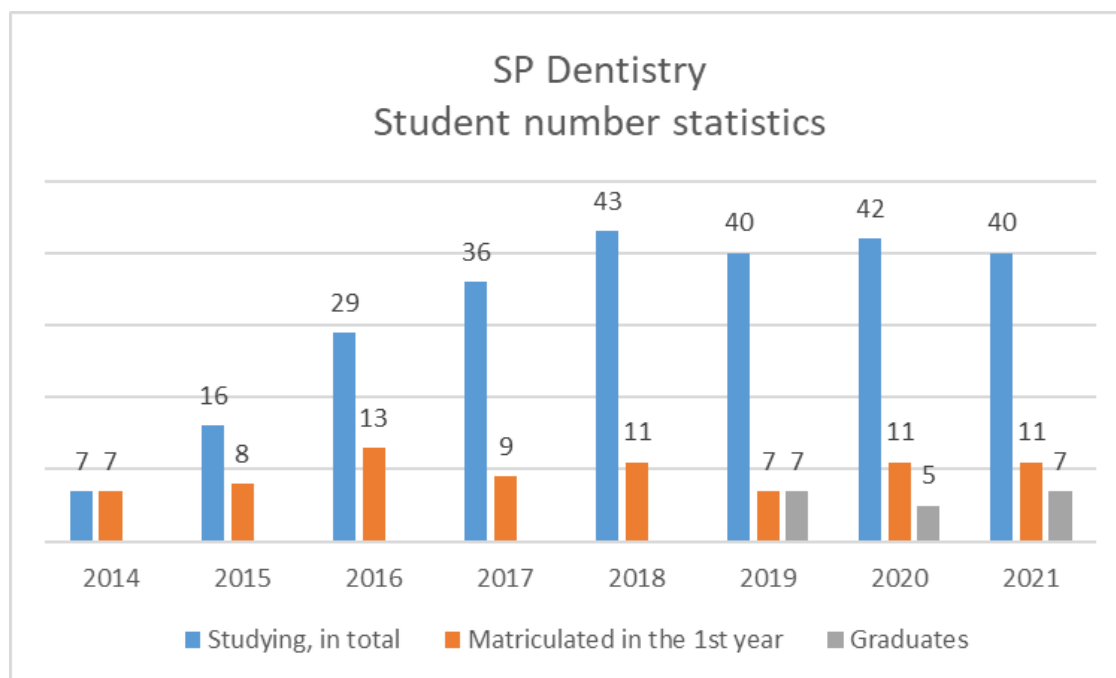
Most dentists in Latvia are self-employed. SP Zobārstniecība graduates have the opportunity to start working in a private practice or start their own private practice in Latvia or abroad as soon as the Latvian Dentists Association professional certificate is received, which is mandatory for all graduates of the program, regardless of whether they are Latvian nationals or foreigners. Experience to date has shown that all graduates successfully complete the requirements of the certification exam, thus confirming the compliance of the knowledge, skills and competencies acquired in the program. The level of preparation of the graduates of the study program gives them the opportunity to continue their studies in residency or doctoral programs.

According to the available information, all graduates work in the acquired specialty in Latvia or in their countries of origin. The most accurate information is available for 2020/2021. graduates of the academic year. 2 of them work in the UK in both the private and public NHS sectors. 1 works in the private sector in Norway. 1 works in the private sector in Tashkent. 3 Latvian students work in the following private practices - Dentiks, Riga; A.Lāce's private practice in dentistry (Baldone) and Goldingen Dental and Libau Dental (Kuldīga), which reflects the desire of Latvian students not only to study, but also to continue working in their specialty in Latvia.

Globalization of the professions has become a necessity among schools and universities across the world. Dentistry programme tends to create dental graduate who are effective and reflective practitioners capable of responding to the demands of the 21st century and aims to maintain the highest learning standards, and to facilitate knowledge, understanding and skills by using a broad range of teaching, learning and assessment methods. Keeping pace with the globalization of higher education, the dental program focuses on training specialists for both the Latvian and international markets at same time.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The first students of SP Dentistry were matriculated in 2014 and the first graduates graduated in 2019. During the reporting period, the number of students in English in the program has reached 42-43 and maintains this level during the last three years (see [4.annex.Zob_Statistics on students_Eng.docx](#)). The number of first-year matriculators has approached the maximum possible, as it is limited by the capacity of the study clinic of the program, which stipulates that the maximum number of matriculated students did not exceed 12. In 2019, the number of matriculated students 3.1.4.1 pictures.)



3.1.4.1 . Dynamics of SP Dentistry students

The dropout of the number of students of SP Dentistry is on average 8% against the number of students studying each year, the main reason for termination of studies is non-fulfillment of the requirements of the study program, the second reason is non-fulfillment of financial obligations in time. Students have also indicated that they can receive their national scholarships to cover tuition fees, but these are granted for a period of study (5 years). Thus, if a student develops study debts and cannot be transferred to the next course of study, the total duration of studies increases, but he or she does not receive a scholarship from his or her home country and is very likely forced to drop out due to inability to pay tuition fees.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

Labor market development trends in Latvia and abroad show a continuing demand for dentists who want to improve in continuing education courses and postgraduate education programs following the development of the profession in the fields of new medical science achievements and technological development. The content of the study courses in the SP Dentistry provides such an opportunity to provide students with a full-fledged and expanded knowledge base, emphasizing the integration of a student-centered and evidence-based approach not only in clinical but also in general medicine courses. General medicine courses are linked to and followed by clinical subjects. Students develop analytical clinical thinking. The content of the course is developed by emphasizing the need for a general medical knowledge base in the daily practice of a dentist.

In accordance with the current events in the field and the labor market, the clinical practice courses of SP Dentistry have been improved during the last two years, providing students with the opportunity to perform clinical work every semester from the 6th to the 10th semester. In the treatment process - to patient-centered, integrated dentistry. Information on necessary innovations and additions to the study courses of the program is regularly collected from employers in Latvia. The goals and tasks of the study courses form a unified algorithm, where the goal and tasks of the study program are achieved gradually - from the simplest to the most complex. The thematic sequence is respected. Emphasis is placed on the integrated interaction of study courses, emphasizing the approach and topicality of multidisciplinary medicine. In order to achieve the tasks of SP Dentistry, the program is regularly evaluated both from the point of view of the labor market demand and the needs of students. The program is closely related to research and practical acquisition of the student's chosen field of specialization. To achieve the task, the lecturers of the program focus not only on the content, but also on the forms of teaching, promoting argumentation, active positioning skills in students, not only providing knowledge, but also strengthening abilities in specialization. The labor market situation requires creative and knowledge-flexible professionals who will be educated throughout their lives, so the program provides the basis for the student's further education, knowledge and skills that will allow graduates to work in oral health care, both in business and in the public sector. The development of students' intellectual and practical skills during their studies is implemented through the skills to analyze and interpret scientific data. Students are involved in scientific research, not only by joining the topics of the lecturers, but also by topics of their choice. The results of the research are reflected in their presentation in diploma theses, which helps to prepare students for interdisciplinary work and knowledge exchange after graduation. Within the framework of clinical courses, students in the program are regularly introduced to the latest innovations in dental technology and materials used. The program uses the latest technologies for training. LU Dental Clinic is provided with the possibility of visualization of medical manipulations, but all study course description courses, lecture, seminar and practical materials are offered in the university e-learning environment, which also allows remote lectures, consultations, final and intermediate examinations on the Microsoft Teams platform. During their studies, students develop the ability to work in international and interdisciplinary teams, as well as to provide sufficient knowledge of the legal framework related to dental practice in Latvia, the European Union and other countries abroad. In order to achieve the tasks set by SP Dentistry, the provision of a flexible approach to the content of the study process in relation to possible changes in the regulatory framework of the European Union and Latvian state health care systems serves. The promotion of the considered conditions allows to prepare competitive, highly qualified dentists in the Latvian and foreign labor market, which is evidenced by the analysis of the work process and postgraduate specialization training of graduates of the program. Work in the preclinical course starts already in the third semester, but the first courses in dental specifics - Dental Anatomy, Microbiology and Oral Microbiology - are acquired already in the

2nd semester. From the 5th semester, students are introduced to the specification of clinical work and current issues in dentistry. Students learn the vital importance of the prevention of oral diseases and learn to apply it in clinical practice as a leading tool for maintaining and improving the patient's oral health. Great importance is attached to professional ethics and types of psychological communication, developing and applying in practice a stress reduction algorithm for all age groups of patients. Attention is paid to the care of specific groups of patients - especially gerodontology, taking into account the aging tendencies of the world population and the specifics of dental care for the elderly. Work with pregnant women and new mothers is analyzed to create a positive change in this group's perception of the importance of oral health before, during and after childbirth. The foundations are laid for the understanding of the prevention of early oral diseases - taking into account the high rates of caries intensity in the world, Europe and Latvia in children under 7 years of age. The role of nutrition in oral health - students work with caries risk and intensity programs and develop prevention plans according to current world guidelines. Programs - Cariogram and CAMBRA. Students acquire skills to work with patients with special needs - specific prevention methods, special techniques of oral care techniques, the use of specialized tools. Students learn how to diagnose precancerous conditions in the oral cavity so that a patient with a possible diagnosis can get help as soon as possible and survival increases. The risk of systemic disease is analyzed with an emphasis on the care of medically compromised patients. Rationale - The increase in the incidence of various diseases in the world, Europe and Latvia and the rapidly entering principle of individualized treatment tailored to specific patients in modern medicine. The connection of SP Dentistry courses with the tasks of the program is shown in 3.2.1.1 Table [8.annex_Zob_mapping_of_study_courses_Eng.docx](#) shows the mapping of the study program - the connection of all study courses with the results of the study program - knowledge, skills and competence.

Tasks of the SP Dentistry program, the numbering of which corresponds to the numbers indicated in Table 3.2.1.1:

1. To prepare specialists necessary for the needs of the Latvian economy and abroad for professional careers and / or further studies, in which the skills and abilities acquired in the program will be used.
2. To provide knowledge corresponding to the level of higher education in the fields of basic medical sciences.
3. To provide high-quality theoretical and practical knowledge in the fields of general and clinical medicine.
4. To ensure the acquisition of a high level of theoretical knowledge and practical skills in specialized dental study courses.

Table 3.2.1.1

Linking SP Dentistry study courses with program tasks

Study courses	Tasks of the study program			
	1	2	3	4
Basics of biochemistry		x		
Chemistry I		x		

Philosophy and cognitive sciences	x		x	
Cell biology		x	x	
Introduction to medicine studies	x	x	x	
English for Medicine I	x			
Latvian as foreign language for medical studies I	x			
Basic course in human anatomy	x	x	x	
Organic chemistry		x		
Professional English for dental students II	x			
Latvian as foreign language for Doctors V (conversation practice)	x			
Special histology for dental students		x	x	
Human physiology for dental students		x	x	
Microbiology and oral microbiology		x	x	x
Dental anatomy. Waxing course	x			x
Immunology for dental students		x	x	
General pathology		x	x	
Medical embryology		x	x	
Hereditary diseases		x	x	
Dental biomaterials	x			x
Internal medicine I	x	x	x	
Head and neck anatomy for dental students	x	x		x
Preclinical course I	x			x
Oral physiology	x			x
Pharmacology and oral pharmacology	x	x	x	x
Internal medicine II	x	x	x	

Preclinical course II	x		x
Science of nutrition. Nutrition and oral health	x	x	x
Professional ethics in dentistry	x		x
Psychology	x	x	x
Environment protection	x		x
Civil protection	x	x	
Preventive dentistry. Diagnosis and treatment planning	x	x	X
Preclinical course II	x		x
Preclinical course III	x		x
Stomatognathic function	x		x
Oral, facial and jaw radiology I	x	x	X
Oral medicine I	x	x	x
Pediatric dentistry	x	x	x
.Cariology 1. Endodontology 1. Periodontology 1.	x		x
Orthodontics I	x	x	x
Prosthetics I	x		x
Clinical practice I	x	x	x
Periodontology II	x		x
Cariology II	x		x
Ophthalmology and otorhinolaryngology	x	x	x
Oral, facial and jaw radiology II	x	x	x
Oral surgery and pain control	x	x	x
Pediatrics and children rights for dentistry students	x	x	x
Clinical practice II	x	x	x

Public health. Epidemiology. Introduction to research methodology	x	x		x
Gerodontology	x		x	x
Orthodontics II	x			x
Integrated dentistry I	x		x	x
Clinical practice III	x		x	x
Neurology and psychopathology. Introduction to forensic medicine	x		x	x
Oral medicine II	x		x	x
Organization and management of healthcare	x	x		x
Infectology and dermatology for dental students	x		x	x
Endodontology II	x			x
Prosthetics II	x			x
Periodontology III	x		x	x
Clinical practice IV	x		x	x
Research project in dentistry	x		x	x
Clinical practice V	x		x	x
Integrated dentistry II	x		x	x
Final examination in dentistry	x	x	x	x

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the

study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

SP Dentistry study courses are taught in the form of lectures, seminars and practical classes. The study course material is available to students in the e-learning environment, students are trained in its use. For the acquisition of each study course, the amount of independent work hours is calculated, which is implemented using the materials inserted by the course lecturers in e-studies, library resources, which are adjusted to the course content according to the lecturers' instructions. Students are also provided with information about available foreign databases for mastering the respective study courses. Support in organizing the implementation of studies is provided to students by curators from among the academic staff and mentors from among the senior students. Students are provided with information about the possibility of extracurricular activities. In order to promote the understanding of the content of the study courses, the lecturers provide individual consultations to the students.

Students work in small groups - a maximum of 5 people per lecturer. This allows to provide an individual approach, dynamically assessing the student's success in the study process and the measures that are necessary to better achieve the program objectives.

Preclinical work begins already in the third semester, thus ensuring the amount of contact hours of the preclinical course, which allows students not only to develop clinical skills, but also to analyze both the aim and tasks of the work and the results to be achieved in seminars. Early acquisition of clinical skills ensures the most effective use of the limited time allocated for dental studies, enables the student to conclude early on their suitability for the chosen profession.

The program envisages many contact hours in the clinic - preclinical 80 + 120 + 240 academic hours. The dental clinic not only conducts clinical work, but also includes many practical demonstrations and seminars.

Clinical work with a patient: 120 + 160 + 320 + 200 + 240 academic hours, which includes not only clinical work, but also the development and presentation of treatment plans, development of clinical thinking. Particular emphasis is placed on developing an evidence-based treatment plan by developing an optimal and rational plan. The concept of oral rehabilitation is being integrated, emphasizing the absolute need for sequential, long-term prognostic treatment of the patient's oral cavity, including the prevention of oral disease as one of the tools.

Students have access to information about the purpose and tasks of the study course, they are clearly defined in the course description, which allows to achieve the maximum possible result. The course results are indicated in the course description. In all theoretical courses, emphasis is placed

on clinical application, and the clinical thinking of each student is promoted individually through the individual analysis of clinical cases.

An Integrated Dentistry course has been introduced to provide students with a full insight into the modern approach to dentistry - patient-centered, multidisciplinary, evidence-based treatment based on the latest advances in science and technology.

The evaluation criteria and minimum standards for preclinical and clinical work used in daily practice have been developed in the dental program. The evaluation criteria have been developed with the aim of evaluating objectively, excluding the possibility that the student is evaluated subjectively.

The organization of assessment of students' knowledge is determined by the Regulations "Organization of Study Course Examinations at the University of Latvia" approved by the Senate of the University of Latvia on 29.06.2015 (issued in accordance with Section 15, Paragraph one and Clause 5.6 for the acquisition of courses approved by the MF Council on 30.10.2018).

Acquisition of the course is assessed with a grade in the 10-point system, the course is considered to have been successfully completed if the grade is not lower than "4" (almost average) or "passed" (if such assessment is provided in the course description). In this case, the student obtains credit points for the acquisition of a specific course. The total assessment of the course is made up of the total assessment of the intermediate examinations - not less than 50% of the total assessment of the course and the assessment obtained in the examination - not less than 10% of the total assessment of the course. The total assessment of the course acquisition is calculated in the e-learning environment of the University of Latvia according to the algorithm specified in the course description, taking into account the assessments obtained in the intermediate examinations and exam. The description of the study course indicates that the students will not be admitted to the next examination if the previous intermediate examinations indicated in the description of the study course have not been passed. The description of the study course shall indicate the type of examination and intermediate examinations - written, oral or a combined form of intermediate examinations. Students who have not successfully passed the intermediate examinations of the study course have the right to retake this intermediate examination twice more. The final exam of the course is allowed to be taken three times, in the third time the results of the course are evaluated by the commission.

The experience accumulated over the years shows that the assessment system of the University of Latvia is understandable to students and lecturers, it promotes the development of the knowledge base for the sequential acquisition of the study courses of the program.

At the end of the studies, students must develop a diploma thesis based on research and literature analysis. The diploma thesis is evaluated in accordance with the procedures specified by the University of Latvia, presenting it in public before the state examination commission. The need to develop and present a diploma thesis promotes the involvement of students in scientific research, students learn the basic principles of the presentation of scientific research results, learn to present them for defense in a public discussion.

Student-centred learning includes the followings tenets - the reliance on active rather than passive learning, an emphasis on deep learning and understanding, increased responsibility and accountability on the part of the student, an increased sense of autonomy in the learner, an interdependence between teacher and learner, mutual respect within the learner teacher relationship, and a reflexive approach to the teaching and learning process on the part of both teacher and learner.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

SP Dentistry implements internships in the amount of 39 ECTS, in the amount of 120 + 160 + 320 + 200 + 240 academic hours. The main tasks of the student internships included in the program:

- 1) To perform clinical work with the patient, integrating knowledge and skills of professional ethics both in work with the patient and in communication with colleagues,
- 2) to strengthen skills in collecting anamnesis,
- 3) to improve knowledge and skills about the patient's extraoral and intraoral examination and recording of findings in the patient's clinical map,
- 4) to analyze in detail the prevention of oral diseases,
- 5) to continue to acquire the conventional approach in cariology, endodontics, periodontology, exodontics and oral prosthetics, allows to achieve the goal of the program and achieve the intended study results.

During the internship, dental students are provided with clinical experience, which provides an understanding of the specifics of daily clinical work, students improve manual skills and their dexterity, promote the application of acquired skills and knowledge in real everyday dental practice, learn to perform the most comprehensive treatment planning, implement theoretical treatment methods. and fair treatment of patients.

The tasks indicated in the practice descriptions are fully coordinated with the tasks set in the program and, they allow to fully achieve the goal of the SP Dentistry - to prepare qualified specialists whose theoretical and practical skills are adequate to start practicing in general dentistry.

The set tasks of the SP Dentistry program are implemented 100% in full in the Dental Clinic of the University of Latvia, mainly without involving the clinical base of other medical institutions, which allows for continuous monitoring, evaluation and adjustment of the student skills development process.

Opportunities for internship education in a foreign language in Latvia are limited, as the English language skills of patients and the potential work team tend to be quite limited. However, the Latvian language skills of foreign students until the internship period (which is planned for the 10th semester) are high enough to be able to communicate adequately with patients and colleagues. During the academic year 2020/2021 English-speaking students completed part of their internship in private orthodontic practice with dr. D.Priede (Riga) and private dental practice Elsia (Riga).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The selection of the topics of students' final theses is based, as a first condition, on the latest research trends and current events in the European Union and the World, obtaining this information from publications in scientific, internationally cited publications. The second main condition for choosing topics for students is the ability to actually do such work. It depends on the competence of the supervisors of the final thesis, the lecturers of SP Dentistry to supervise the work on the chosen topic, as well as on the necessary technological support, which is available for use at the University of Latvia. Since the accreditation of the program in 2014, the defense of the final theses has taken place in 2019 and 2020. Orthodontics and oral microbiology are the dominant fields in the choice of diploma thesis topics, which are topical topics in the dental industry, as the number of such patients in the daily practice of dentistry has been increasing recently, thus requiring specific treatment skills from new dentists. SP Dentistry attracts competent high-level teaching professionals in these fields who conduct scientific research in these areas.

The choice of the topics of the final theses in the fields of orthodontics and oral microbiology is determined not only by the topicality of the problems, but also by the possibility to qualitatively develop the research part based on physical, bite evaluation and radiological examinations. The selected students' final works in the field of orthodontics were successfully presented to the final examination commission and on the basis of them scientific publications were made in internationally published journals:

* Julia Pircher, Dace Priede, Baiba Roze, Sergei Parshutin, Dace Arkliņa, Inga Vaska, Valdis Folkmanis, Lilian Tzivjan, Ieva Henkuzena. Dentofacial and myofunctional disorders of preschool children in Latvia. *Medicine (Kaunas)*, 2019, 55 (Supplement 1); 25.

* Dace Priede. Association between malocclusion and orofacial myofunctional disorders of preschool children Latvia. *Journal of Orthodontics & Craniofacial Research*. Accepted for publication, article is in production process.

Research in the field of orthodontics is continued by students choosing these topics for their dissertations.

Oral microbiology, as a field of choice for the topic of the final theses, has gained its popularity and remains relevant not only because of its topicality and supervision - a competent lecturer and researcher, but also because modern technological support is available. In order to perform the necessary research, the technical equipment and laboratory base available at the Faculty of Geography and Earth Sciences of the University of Latvia were used. As a result of the cooperation between the faculties, the students successfully developed their final theses, as well as made a publication in internationally cited publications:

* Zbignevs Marcinkevics, Kapil Ilango, Paula Balode, et. al. The assessment of gingivitis using remote photoplethysmography. *Proceedings of SPIE - The International Society of Optical Engineering*. Volume 11585, 2020.

* Rubins U., Marcinkevics Z., Muckle R.A., Henkuzena I., Roze A., Grabovskis A. Remote

photoplethysmography for assessment of oral mucosa. Optics InfoBase Conference Papers Volume, Part F142-ECBO 2019, 2019European Conference on Biomedical Optics, ECBO_2019; Munich; Netherlands; 23 June 2019 through 25 June 2019; Code 142118.

The students also chose the topics of the diploma thesis about the application of the laser therapy method in the treatment of root canals, with the aim to use the acquired skills in their dental practice after graduating from the program. Often, students use patient questionnaires as a research method, which opens the door to a multidisciplinary approach, such as determining the fear index in the study of fear assessment. The main benefit of such multidisciplinary cooperation for the student - the application of individualized treatment of patients in everyday practice, working with other health care professionals.

List of diploma thesis topics:

- Genotoxicity of bisphenol A containing dental composites. Genotoxicity of bisphenol A - containing dental composites. Stud. Kristīne Borisova, manager Ieva Henkuzena.
- The prevalence of caries in preschool kindergarten children in Latvia assessed with ICDAS II. Prevalence of caries as assessed by ICDAS II (International System for the Detection and Evaluation of Caries) in Preschool Children in Latvia. Stud. Herath Mudiyansele Gayani Madhushika Jayasinghe, leader Baiba Roze.
- Tongue thrust habit and orofacial findings of preschool children in Latvia. Infantile swallowing habits and other findings in the orofacial complex for preschool children in Latvia. Stud. Patricia Jurševiča, manager Dace Priede.
- The assessment of microcirculation in oral mucosa by means of imaging photoplethysmography. Evaluation of oral mucosal microcirculation using imaging photoplethysmography. Stud. Robert Andrianirina Muckle, Head Dr.biol.asoc.prof. Zbignevs Marcinkevics. Influence of oral health related behavioral patterns, nutritive habits on dental caries distribution in pre-school children of kindergartens in Latvia.
- Influence of oral health behavior patterns, dietary habits on the prevalence of dental caries in preschool children in Latvia. Stud. Vitalijs Pniņins, leader Ieva Henkuzena.
- Associations between general health conditions and non-nutritive habits with caries intensity in preschool children in Latvia. Stud. Ramona Priede, manager Dace Priede
- Measurement of degree of convergence of full crown preparation by Latvian dentists: an in vitro study of dental casts. Examination of dentists' full crown convergence preparations in Latvia. Stud. Semjons Creditor, manager Pēteris Apse.
- Tooth root resorption: a literature review and case study. Root resorption: a review of the literature and cases. Stud. Simon Joselowitsch, head of Peter Apse.
- The use of orthodontic treatment need index (IOTN) in a referred to Latvian Population. Use of the Orthodontic Treatment Needs Index (IOTN) for the mentioned population of Latvia. Stud. Laura Katharina Hoepfner, Managed by Dace Priede.
- Biomaterials: Biodentine and Mineral trioxide aggregate (MTA) use in dentistry, anonymous survey. Use of biomaterials biodentin and mineral trioxide aggregate (MTA) in dentistry. Stud. Jūlija Dobrinkina, head Dr.biol.asoc.prof. Zbignevs Marcinkevics
- The assessment of gingivitis using remote photoplethysmography. Evaluation of gingivitis using remote photoplethysmography. Stud. Kapil Ilago, head Dr.biol.asoc.prof. Zbignevs Marcinkevics

Multidisciplinary is increasingly prevalent in the choice of topics for students' diploma theses.

Currently, the publication of 3 diploma theses is planned - "Influence of the psychiatric disease bulimia nervosa on oral health"; "Translation and validation of the Latvian version of the index of dental anxiety and fear IDAF-4C+)" s "Evaluation of local gingivitis using photonics methods" .

The choice of diploma thesis topics is made by analysing evidence-based current events in both dentistry and general medicine. Emphasis is placed on the choice of multidisciplinary topics, keeping pace with modern requirements in dentistry.

Both local inter-institutional cooperation and cooperation with foreign institutions are currently used in the development of diploma theses (the graduate of the next academic year has started writing a diploma thesis and active cooperation is taking place with the Latvian and Norwegian Cleft Centre).

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The base of theoretical and preclinical studies of SP Zobārstniecība is located in the newly built LU Academic Center Science House at Jelgavas Street 3 in 2019, as well as in the Nature House Jelgavas Ie in 2015. The academic center allowed creating a modern study base for students that fully complies with normative and international university development trends. SP Dentistry students The House of Sciences has created opportunities to use the most modern technologies in the study process, with which all auditoriums and laboratory rooms are provided. The Science House also has small, isolated rooms for one student's individual work or work in small groups, where students can easily prepare for knowledge tests. In the coming years, the logical development of the Academic Center is planned - design and construction of a health house. It is planned to create a study, science and research base in the field of outpatient services, which will create synergies between treatment, pedagogy and science and promote the development of new treatment technologies. The Health House will provide services to 28,000 clients per year (UL students and staff, residents of the Torņakalna area of Riga, including dentistry, as it is also planned to house the new dental training clinic at the University of Latvia, combining theoretical, preclinical and clinical study courses in one place - LU Academic Center).

The material and technical base located at the LU Science House fully ensures the quality implementation of SP Dentistry and the achievement of study results, as it is a modern study environment, where the study process is possible, access to library resources, individual student work with study materials.

SP Dental Clinical Base The Dental Clinic is located in the premises of the University of Latvia on Aspazijas Boulevard 5. The Dental Clinic is a structural unit of the University of Latvia FM, which is registered in the Latvian Register of Medical Institutions. The dental clinic complies with all the requirements of the regulatory enactments of the Republic of Latvia and is regularly inspected, just like any medical institution registered in Latvia. The dental clinic was established in 2012, equipped with modern technical devices, clinical manipulation, visualization and radiological examination of

patients. The dental clinic has 12 full-fledged dental workplaces in two halls, which is the maximum number of students who can simultaneously participate in practical classes with mannequins or patients under the supervision of teachers. The clinic has all the necessary auxiliary rooms and an auditorium for lectures and seminars. The support and provision of the study process in the Dental Clinic is performed by two certified dental assistants.

The University of Latvia Dental Clinic has created opportunities for all major dental manipulations and examination of patients before them, which ensures a full-fledged study process in clinical study courses using devices and other technical equipment that is equivalent to the equipment of private dentists in Riga. In the dental clinic, the course of practical classes of all study courses is possible, in accordance with the requirements of the program and allows to achieve the intended study results - training of able-bodied dentists.

The information base, including the services of the classical library, is available to the students of SP Dentistry in the premises of the Science House, where it is possible to obtain textbooks for appropriate study courses. The number of printed items for SP Dentistry students is shown in Table 3.3.1.1. The study literature is compiled on the basis of the lists of literature created by the lecturers in the descriptions of the study courses, which are regularly updated to include the latest editions. Every year, MF is allocated funds for the purchase of new study literature.

Table 3.3.1.1.

Literature available in SP Dentistry library

UL study field "Health Care"									
Total printed editions in the LU Library collection as of 01.12.2020									
Study programme	Printed Editions (Copies)				Language				
	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
Dentistry	126	109	1	16	13	112	0	1	0

Total number of items in the study field in the collection of the UL Library: 30101 copies

Students have very wide access to a variety of e-resources - both the most popular databases in EBSCO database medicine - AHFS Consumer Medication Information, EBSCO Academic Search Complete, Web of Science, Scopus, ClinicalKey, MEDLINE Health Source: Nursing / Academic Edition, European Pharmacopoeia, SpringerLink, Emerald eJournals Premier, Oxford Journals JSTOR, ProQuest Dissertations & Theses Global, SAGE Journals Online, SAGE Research Methods, ScienceDirect, Physical Review Online Archive (PROLA), UpToDate, and a very extensive e-book library from the e-book platform Dawsoner and ProQuest Ebook Academic Complete.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and

higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Tuition fees at the University of Latvia are determined by a separate directive for each academic year, taking into account the cost of the study place, including all costs of the study process, tuition fees for similar programmes at other universities and potential students' interest in the study programme. The financial basis of SP Dentistry consists of the obtained funds from paid students, thus ensuring the basic functions of the study program - payment for premises, payment for lecturers, payment for practical classes and clinical placements in medical institutions. The additional funds obtained in various projects provide the purchase of simulation softwares and equipment, and small inventory, as well as new books for the organization of the study process.

SP Dentistry cost calculation is performed taking into account the study program cost calculation methodology developed by the Department of Studies of the University of Latvia. The cost of one student per year is 14000 EUR. Calculations have been made for 12 paid students. There is no state budget place in the study program.

The funding available to SP Dentistry is tuition fee income. In 2021, the tuition fee revenue was 404,250 EUR, of which 299,145 EUR was available to the faculty. The cost per student is 15,000 EUR per year. The following items are included in the cost calculation - teaching staff costs, general staff costs, infrastructure costs, other costs, costs of materials and services, as well as indirect costs of the University of Latvia

Tuition fees for Latvian and English students are the same.

In order to ensure the profitability of SP Dentistry the minimum number of students is 10

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The implementation of SP Dentistry involves highly qualified MF academic staff for teaching theoretical and preclinical study courses, which provides a full-fledged theoretical basis for the acquisition of dental clinical study courses. The lecturers of the preclinical study courses continue to cooperate with the students even after the successful final examination of their study course, performing joint research work, the results of which are later used in diploma theses. For example, Dr.biol.asoc.prof. Zbignevs Marcinkevičs, who teaches the study course “Physiology for Dental Students”, also conducts joint research with students in the field of photoplethysmography evaluating the treatment options for gingivitis, which are transformed into successful diploma theses.

When creating SP Dentistry, it was necessary to attract lecturers - to teach clinical courses in dentistry, which would have a wide range of professional skills and experience, combined with pedagogical skills to work with students. Initially, these lecturers changed frequently, but in recent years a stable team of dentists has been formed, which ensures the acquisition of dental skills at the MF Dental Clinic.

Foreign visiting professors are involved in the successful implementation of the study program and transfer of academic experience. For example, 2016/2017. Three lecturers from the Lithuanian University of Health Sciences (Kaunas) Nomeda Baseviciene, Zana Sakalauskiene and Julija Narbutaite participated in the study year. Since 2018/2019. During the study year, SP Dentistry uses the services of a radiologist, visiting professor Jurgen Biederer from the University of Heidelberg.

The highly qualified teaching staff involved in SP Dentistry provides a set of high-level theoretical knowledge and practical skills, which is tested annually in the certification exam of the Latvian Association of Dentists. This is an examination independent of the University of Latvia MF, mandatory for all graduates of the SP Dentistry program, including foreigners, before starting to practice in the profession. All 2019 and 2020 The graduates of the program successfully passed this complex test, which includes both theoretical questions and practical analysis of clinical cases.

All lecturers involved in the study program comply with the requirements of Article 39 of the Law on Higher Education Institutions, which stipulates that lecturers and assistants who do not have a scientific and academic degree need five years of practical work experience corresponding to the subject to be taught.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The analysis of changes in the composition of the teaching staff of SP Dentistry during the reporting period shows a generally low level of change, which is close to the natural change of the generations of lecturers. It is determined by the stable staff of the University of Latvia MF over the years, who teach theoretical and general medicine study courses at SP Dentistry. This part of the lecturers makes up the majority of the teaching staff and provides the academic atmosphere and traditions of MF and SP Dentistry. When creating a new Dentistry program at the University of Latvia, it was necessary to involve dentists alongside the existing stable teaching staff, because the MF did not have lecturers in this profession. Three of the 8 attached lecturers - dentists already had teaching experience and they successfully continued their work during the reporting period,

working on the development and improvement of the program. These lecturers ensured stable development of the program, participated in the development of planning documents, new study courses and take care of the technical and material provision of the Dental Training Clinic. SP Dentistry faces initial difficulties in attracting other lecturers - dentists, because they came from private dental practices in and near the city of Riga, without the skills necessary for the pedagogical process. Not everyone is able to combine teaching in SP Dentistry with continuing work in private practice, which is necessary for a practicing dentist - clinician, because the number of patients in SP Dentistry training clinic is insufficient to maintain a high level of professional dental skills, and the salary is not competitive compared to private practice. Despite these difficulties, a stable team of dentists and clinicians was gradually formed, who provided the theoretical and practical parts of the study courses, as well as the practice, at SP Dentistry. In parallel with the work, the lecturers of SP Dentistry continue to practice in private dental clinics of the city of Riga, introducing in the study process the experience gained in practice on innovations in treatment and the use of various materials. The stable formation of a team of lecturers-dentists results in the successful completion of the first two graduations and the positive dynamics of the evaluation of student surveys .

Attracting new collaboration opportunities and guest lecturers is one of the active goals of the Dentistry programme. Currently, the University of Tartu, the University of Oslo and the Lithuanian University of Health Sciences Klaipeda University are potential partners. Successful and long-term cooperation with these universities is already taking place at the Faculty of Medicine. The collaboration is planned not only as lectures, but also as demonstrations by a high-level international specialists. Successful cooperation in the field of periodontology has already taken place with Lithuanian specialists, as well already the second academic year the part of course of Oral, Facial and Jaw Radiology is led by prof. J. Biederer (Germany).

The study program in a foreign language is implemented by attracting lecturers with experience in the study and work process in English - the lecturers include graduates of the Karolinska Institutet (Sweden), specialists with internships at the University of Oslo (Norway), and dentists practicing dentistry in English-speaking countries in private practices. The lecturers include authors of international publications, specialists with post-graduate education and practicing dentists who are actively involved in Latvian oral promotion programs ("I have clean teeth", 2014; Riga City Council Oral Health Project for Preschool and Primary School Children, 2019). Teachers actively attend both Latvian and foreign courses and apply an evidence-based practical and theoretical approach to patient care in their daily work. The lecturers are mutually calibrated and problem-oriented meetings are held at least once a month. Internationally recognized and evidence-based literature is used in the study process. Critical analysis is used in the analysis of scientific articles

The composition of lecturers is indicated in Table 3.4.2.1.

Table 3.4.2.1

List of lecturers of SP Dentistry

Name, surname	Position	Taught study courses
Bajinskis Ainārs	Associated professor	Oral, facial and jaw radiology I Oral, facial and jaw radiology II
Beļicka Līga	Lecturer	English for Medicine I Professional English for dental students II

Dumpis Uga	Professor	Infectology and dermatovenerology for dental students
Dūdiņa Kristīne	Teacher	Psychology
Ebela Inguna	Associated professor	Pediatrics and children rights for dentistry students Introduction to medicine studies
Erts Renārs	Professor assistant	Research project in dentistry
Galuzā Agate	Lecturer	Special histology for dental students
Gorņeva Ilona	Associated professor	Latvian as foreign language for medical studies I
Grečāņa Jana	Teacher	Clinical practice I Clinical practice II Research project in dentistry
Jansone Baiba	Professor	Pharmacology and oral pharmacology
Kamzola Ginta	Teacher	Internal medicine I Internal medicine II
Krauze Baiba	Teacher	Preclinical course I Preclinical course II Preventive dentistry. Diagnosis and treatment planning Preclinical course III Oral medicine I Pediatric dentistry Cariology 1. Endodontology 1. Periodontology 1. Clinical practice I Periodontology II Cariology II Oral surgery and pain control Clinical practice II Gerodontology Integrated dentistry I Clinical practice III Oral medicine II Endodontology II Periodontology III Research project in dentistry Integrated dentistry II Final examination in dentistry

Kužniece Ingrīda	Lecturer	Public health. Epidemiology. Introduction to research methodology
Marcinkevičs Zbigņevs	Associated professor	Human physiology for dental students Oral physiology Research project in dentistry
Markovs Jurijs	Professor	Medical embryology
Mežinska Signe	Associated professor	Professional ethics in dentistry Research project in dentistry
Miščuks Aleksejs	Associated professor	Emergency Medicine and Basic Life Support(Practice)
Nemtsev Boris	Teacher	Stomatognathic function Prosthetics I Prosthetics II
Priede Dace	Lecturer	Orthodontics I Orthodontics II Research project in dentistry
Priķšāne Anda	Associated professor	Organic chemistry
Purmalis Oskars	Lecturer	Environment protection
Ražuks Romualds	Teacher	Civil protection Organization and management of healthcare
Rekēvica Agnese	Teacher	Basic course in human anatomy Head and neck anatomy for dental students
Selga Tūrs	Associated professor	Cell biology
Sjakste Nikolajs	Professor	Basics of biochemistry Hereditary diseases
Solomatins Igors	Associated professor	Ophthalmology and otorhinolaryngology
Strazda Gunta	Associated professor	General pathology
Šantare Daiga	Professor assistant	Science of nutrition. Nutrition and oral health

Šķilters Jūrgis	Professor assistant	Philosophy and cognitive sciences
Švirksts Jānis	Associated professor	Chemistry I
Tatjana Karamzina	Teacher	Clinical practice I Clinical practice II
Tračevska Tatjana	Associated professor	Microbiology and oral microbiology Immunology for dental students
Upīte Jolanta	Researcher	Pharmacology and oral pharmacology
Vabels Grigorijs	Teacher	Neurology and psychopathology. Introduction to forensic medicine
Veipa-Lo Julijana	Lecturer	Dental anatomy. Waxing course Dental biomaterials Clinical practice I Clinical practice II Clinical practice IV Research project in dentistry Clinical practice V
Verulidze Jeļena	Teacher	Clinical practice I Clinical practice II

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying

the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The cooperation of the teaching staff involved in the SP Dentistry takes place both at the stage of study course development, when the study courses of theoretical disciplines and general medicine were developed and improved taking into account the specifics of the dental profession. These recommendations are based on the recommendations of dental lecturers, which are based on long-term practice in working with various dental pathologies, as well as working with different age groups of patients, often with parallel disorders of other organs and systems. Special attention is paid in the development of clinical courses to the emergency conditions of the dental patient, which may occur unexpectedly as a result of psychological stress, manipulation, exacerbation of the course of somatic chronic illness. For this reason, in cooperation with dentists - lecturers of clinical subjects and supervisors of practical classes with the teaching staff of the University of Latvia, Faculty of Medicine, study courses are developed that are suitable for students of the SP Dentistry programme. Professional Ethics in Dentistry, Latin for Dental Students, Special Histology for Dental Students, Human Physiology for Dental Students, and others.

The cooperation of the teaching staff is also observed in the course of the study process, with the participation of lecturers of various disciplines within the modules provided within the study courses: anatomists, histologists, physiologists, pathologists, internal medicine clinicians. Examples of the following multidisciplinary study courses / modules: Musculoskeletal system, Respiratory, digestive, excretory and circulatory systems.

The interconnection of study courses takes place in the description of each study course, specifying in detail which study courses must be successfully acquired in the respective disciplines before the start of the next study course.

The teaching staff of the faculties of the University of Latvia is used in the implementation of the study courses of SP Dentistry, which are not applicable to the field of dentistry, thus the advantages of the University of Latvia as a Classical University are used.

The total number of lecturers involved in SP Dentistry at the time of submitting the self-assessment report is 49, of which the number directly related to dentistry is 8. The number of students at the time of submitting the self-assessment report is 41. The ratio of students to faculty is 41:49. and 41: 8.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_Zob_Dentistry_diploma and supplement_Eng.docx	11. pielikums_Zob_Diploma_pielikums_lv.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_Zob_Statistics on students_Eng.docx	4.pielikums_ZOB_Statistikas dati par studējošajiem_LV (1).docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	5.annex_ZOB_compliance with the state education standard_Eng.docx	5. pielikums_Zob_atbilstība valsts izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	6.annex_Zob_compliance with the professional standard_Eng.docx	6.pielikums_Zob_atbilstība profesijas standartam_LV(1).docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	9.annex_Zob_Compliance of the study program with the specific normative regulation of the corresponding field_Eng.docx	9. pielikums_Zob_atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam_LV.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_Zob_mapping of study courses_Eng.docx	8. pielikums_Zob_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_Zob_Study_plan_Eng.docx	1.pielikums_Zob_studiju plāns_LV(3).docx
Descriptions of the study courses/ modules	7.annex_Zob_kursu_apraksti_Eng.docx	7.pielikums_Zob_kursu_apraksti_LV.docx
Description of the organisation of the internship of the students (if applicable)	10.annex_Zob_Clinical_practice_Eng.docx	10.pielikums_Zob_prakses_nolikums-LV.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Medicine (49721)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Medicine</i>
Education classification code	<i>49721</i>
Type of the study programme	<i>Second level professional higher education programme (length of full time studies at least 5 years)</i>
Name of the study programme director	<i>Arnolds</i>
Surname of the study programme director	<i>Jezupovs</i>
E-mail of the study programme director	<i>arnolds.jezupovs@lu.lv</i>
Title of the study programme director	<i>Dr.med</i>
Phone of the study programme director	<i>+37126569093</i>
Goal of the study programme	<i>To educate future specialists in the theory and practice of the medical profession through scientifically based medical activities directly or indirectly affecting human beings through disease prevention, diagnosis, treatment, rehabilitation and research in order to provide society with quality medical care in accordance with humanistic principles.</i>
Tasks of the study programme	<i>1. to explain the structure, functions and psychology of a healthy and sick person;</i> <i>2. to acquire methods of prevention, diagnosis, treatment, rehabilitation and research in the medical field</i> <i>3. to provide an understanding of the preconditions, implementation measures and importance of healthy individuals and societies</i> <i>4. to master health care systems and explain the ethical, organizational, economic and legal aspects of their functioning;</i> <i>5. to provide an overview of the principles of health care organisation in emergencies and the role of the team in implementing them;</i> <i>6. to provide insight into the history of medicine and to demonstrate the importance of lifelong learning in academic and professional careers.</i>

Results of the study programme	<p><i>Knowledge:</i></p> <ol style="list-style-type: none"> <i>1. describes the body structure, functions and mental state of a healthy and sick person;</i> <i>2. knows the manifestations of the most common pathologies of the human body and methods of prevention, diagnosis, treatment and rehabilitation;</i> <i>3. lists the names, indications, contraindications, most common side effects of the medicinal product as well as describes the pharmacokinetics and interactions;</i> <i>4. knows the effects, indications and contraindications of diagnostic and treatment methods;</i> <i>5. understands the role of the healthy individual in society and is oriented towards the organization and implementation of public health promotion;</i> <i>6. explains the principles of the functioning of the health care system in various situations, including emergencies;</i> <i>7. knows the rights of the patient and the legal responsibility of the medical practitioner;</i> <i>8. describes the course of medical development and the main findings.</i> <p><i>Skills:</i></p> <ol style="list-style-type: none"> <i>9. carries out academic and educational work in society on the importance and benefits of a healthy society;</i> <i>10. recognizes life-threatening emergencies, assesses the patient's vital signs and provides first aid;</i> <i>11. examines the patient and makes a diagnosis by physical, laboratory, imaging and histopathological methods;</i> <i>12. explains the cause of the illness and the treatment required to the patient or his/her authorised person in accordance with ethical and deontological requirements;</i> <i>13. treats the patient;</i> <i>14. provides support and comfort to the patient and their relatives;</i> <i>15. prescribes medicines in accordance with the requirements of the prescription;</i> <i>16. completes medical documentation in accordance with medical treatment standards and principles of good practice;</i> <i>17. is familiar with the medical treatment rights and obligations specified in the regulatory enactments of the European Union and the Republic of Latvia;</i> <i>18. works with information technologies in communication, treatment and research.</i> <p><i>Competence:</i></p> <ol style="list-style-type: none"> <i>19. formulates diagnoses and other terms related to the position of a doctor in the correct professional language;</i> <i>20. resolves clinical cases and situations in accordance with the professional requirements of medical treatment, regardless of the stage of development;</i> <i>21. assesses the threats to public and environmental health and takes timely action to prevent or eliminate them;</i> <i>22. implements the norms of professional ethics and legal responsibility of a doctor.</i>
Final examination upon the completion of the study programme	<p><i>Final test</i> <i>Diploma thesis</i></p>

Study programme forms

Full time studies - 6 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>6</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>240</i>
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>-</i>
Qualification to be obtained (in english)	<i>Doctor's degree</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 6 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	<i>6</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>240</i>
Admission requirements (in English)	<i>Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>-</i>
Qualification to be obtained (in english)	<i>Doctor's degree</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

During the reporting period, of 2nd level professional higher education study program Medicine (hereinafter SP Medicine):

1. Study programme improvement of tasks

Justification:

Was supplemented by following the development trends of the industry. Recommendations of the Latvian Medical Association, cooperation partners - hospitals and students.

Reviewing and improving the content of all study courses, as well as new study courses.

Four study courses have been completely redesigned. According to the Cabinet of Ministers Regulation No. 512 Courses have been developed for the requirements of 33.1. 1. Economic, social, cultural and organizational aspects of health care, 2. Management, communication, risk management and legal aspects in a health care organization, 3. Entrepreneurship in the total amount of six CP.

Suddy Course The Practical procedure techniques is designed to strengthen students' practical skills in performing the manipulations required by the standard of the medical profession and to better prepare students for practical work as residents.

Five study courses have been created by reorganizing the courses of the previous study plan. The study course Physics in Medicine is created by combining and updating the courses Physics I and Physics II, respectively the study course Chemistry for medical students is based on the course Chemistry I and the course Organic Chemistry. The course Neurology II and Neurosurgery has been created by combining the study courses Neurology II and Neurosurgery to provide an integrated training approach to closely related disciplines. The study course Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine has been developed by improving the course Oncology, Radiology, Forensic Medicine to include palliative care. The course Diploma Thesis in Medicine has a content-corrected course Diploma Thesis, which is further divided into two parts, so that students can start developing a diploma thesis in time.

Justification:

The requirements of employers and the specifics of the labor market, as well as comply with the strategy of the University of Latvia in ensuring the study process and the requirements of the development of science.

thus reviewing and improving the content of all study courses, as well as new study courses.

3. The study results of SP Medicine are structured in three parts - knowledge, skills and competence.

Justification:

The division of study results is established in accordance with the Law on Higher Education Institutions [1] and “Standards and Guidelines for Quality Assurance in the European Higher Education Area, 2015” [2]. Analyzing the study results of SP Medicine in comparison with the Cabinet of Ministers 24.03.2009. Regulation No. 268 “Regulations on the Competence of Medical Practitioners and Students Acquiring First or Second Level Professional Higher Medical Education Programs in Medical Practice and the Amount of Theoretical and Practical Knowledge of These Persons” [3] and the Description of Level 7 Results of the European Qualifications Framework , it is possible to conclude that the study results meet the necessary requirements.

Rationale for the implementation of the transition period study programme plans

SP Medicine updated study program structure plan based on the decision of the Council of the Faculty of Medicine of the University of Latvia No. MF-V12.2 / 90 was introduced in the study process from 2020.2021. In the autumn semester of the academic year 2019, students of SP Medicine had already started their studies according to the previous study program structure plan, which differed significantly from the updated study program plan, therefore the need for the study process in the period from 2020 to 2025 is justified. to implement in accordance with the plans of the transition study programme. The differences between the two plans of the study programme structure are shown in Appendix 1.

[1] <https://likumi.lv/ta/en/en/id/37967>

[2] https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf

[3] <https://likumi.lv/ta/id/190610> (the source is available only in Latvian)

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

SP Medicine is an integral part of the University of Latvia's health care study field, which provides training for highly qualified health care specialists.

SP Medicine code complies with the regulations of the Cabinet of Ministers No. 322 on the classification of education in Latvia and demonstrates the affiliation of the program to the group of programs in the field of health care of the second level professional higher education (corresponding to the fifth level of professional qualification).

The **aim** of SP Medicine is to educate future specialists in the medical profession with scientifically based medical activities directly or indirectly acting on humans, performing disease prevention, diagnosis, treatment, rehabilitation and research to provide the public with quality medical care.

The plan of SP Medicine (see [1.annex_Ārsti_study_plan_Eng.docx](#)) shows that medical treatment studies are multidisciplinary and these studies combine several branches of science, incl. chemistry, psychology, etc. The medical profession is included in the set of regulated professional

activities or regulated professional participation in the professions specified by law in the Republic of Latvia, setting the standard of the profession. SP Medicine provides medical education that complies with the European Union Council Directive 2005/36/EEC [1] on the recognition of professional qualifications and LR 20.06.2001. the requirements of the Law on Regulated Professions and Recognition of Professional Qualifications [2] and prepares a doctor who, through scientifically based medical activity, directly or indirectly affects a person in the prevention, diagnosis, treatment and rehabilitation of diseases; to train doctors who are part of a comparable degree system in Europe, creating opportunities for the free movement of workers and providing the public with qualified medical care; doctor's education in general consists of theoretical knowledge, practical skills, doctor-worthy (professional) attitude and behavior.

- SP Medicine **Tasks:**

1. to explain the structure, functions and psychology of a healthy and sick person;
2. to acquire methods of prevention, diagnosis, treatment, rehabilitation and research in the field of medicine
3. to give an idea of the preconditions, implementation measures and significance of a healthy individual and society;
4. to acquire health care systems and explain the ethical, organizational, economic and legal aspects of their functioning;
5. provide insight into the principles of organizing health care in emergencies and the role of the team in their implementation;
6. to provide insight into the history of medicine and to demonstrate the importance of lifelong learning in academic and professional careers.

SP Medicine complies with the Latvian Qualifications Framework (LQF), European Qualifications Framework (EQF) level 7. Graduates have reached the level of knowledge, skills and competence defined according to the LQF level 7 descriptors, as evidenced by the degree of Doctor obtained. SP Medicine graduates are able to independently formulate and critically analyze complex scientific and professional problems, justify decisions and, if necessary, perform additional analysis. Able to integrate knowledge from different fields, to contribute to the creation of new knowledge, to the development of research or professional methods, to show understanding and ethical responsibility for the scientific results or the potential impact of professional activities on the environment and society.

SP Medicine Admission conditions correspond to the aim and tasks of the study program. Admission requirements are adequate to achieve the learning outcomes and students are admitted in accordance with approved procedures and criteria. Students have the opportunity to recognize study courses if study courses have been acquired at another higher education institution or study program, the content and amount of credit points of which correspond to SP Medicine.

SP Medicine is a discipline-based program with problem-based learning elements. The uniqueness of the study program in the Latvian and international context is characterized by the students' original research and wider elective course opportunities, at the same time providing early practice opportunities.

[1] <https://eur-lex.europa.eu/legal-content/LV/TXT/PDF/?uri=CELEX:32005L0036&from=LV>

[2] <https://likumi.lv/ta/en/en/id/26021>

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

During the reporting period, SP Medicine has been redesigned and adapted to today's labor market trends, needs, requirements and industry specifics. Not only lecturers, but also employers RAKUS and PSKUS leading specialists, who are interested in the preparation of new specialists, have participated in the improvement of the study program - development of study courses and course content.

SP Medicine provides medical education that complies with the European Union Council Directive 2005/36 / EC on the recognition of professional qualifications and the requirements of the Law of the Republic of Latvia on regulated professions and recognition of professional qualifications, and prepares a doctor who acts directly or indirectly per person in the prevention, diagnosis, treatment and rehabilitation of diseases; to train doctors who are part of a comparable degree system in Europe, creating opportunities for the free movement of workers and providing the public with qualified medical care; doctor's education in general consists of theoretical knowledge, practical skills, doctor-worthy (professional) attitude and behavior.

SP Medicine consists of compulsory study courses, limited elective study courses, as well as free elective courses are available in the program, which are provided by the range of LU courses or a student can choose a course from any other study program in accordance with LU regulations. In the free choice part of SP Medicine, English is relevant for Latvian students to strengthen the skills acquired in Part B and to be able to communicate with patients in Latvian, while Latvian students often choose Russian for medical professionals to improve their Russian language skills and communicate in a language that patients can understand.

During the reporting period, the study plan of SP Medicine also includes two compulsory study courses (Civil and Environmental Protection), the corresponding minimum content of which is determined by the Cabinet of Ministers on 05.12.2017. Regulations No. 716 "Minimum Requirements for the Content of the Compulsory Civil Protection Course and the Content of Civil Protection Training for Employees" and 02.11.2006 "Environmental Protection Law". SP Medicine is unique because it is the only Medicine Program in Latvia that is implemented in a classical university environment, using the potential of all faculties, as well as the only one that includes students' original research. Students acquire knowledge in preclinical study courses, clinical study courses, practical skills, acquire and strengthen practical skills, develop a diploma thesis and defend

The requirements for medical education are strictly defined in the legislation, however, there is an opportunity to improve the content of study courses, improve communication skills and deepen the acquisition of medical statistics required for research work. Medicine is one of the priority areas of Latvia's smart strategy. SP Medicine introduces scientific tendencies in the study process. During the reporting period, SP Medicine lecturers have led or participated in both international (Horizon 2020 projects, Ukraine-Latvia bilateral cooperation project, ERANET project, Taiwan-Latvia-Lithuania project, Norway-EEA project) and local funded research projects (ERDF, LZP, LAS), LU priority areas Biomedicine and Pharmacy project.

SP Medical treatment is sustainable, because according to the labor market assessment performed by PwC in 2020, the number of doctors per 10,000 inhabitants in Latvia has decreased in recent years . Comparing the number of doctors per 1,000 inhabitants in Latvia, Lithuania, Estonia, Finland, Norway and Slovenia, it is one of the lowest in the group of these countries

In negotiations with employers, the Latvian Medical Association, and looking at publicly available

information, in 2019 more than 1,000 doctors, nurses and other health care professionals were missing in Latvian hospitals and the NMPD. Also, given the aging of the medical profession, it is possible to conclude that the demand for doctors will continue to grow in the future. Until now, employers have provided positive feedback on SP Medicine graduates - doctors - medical practitioners who directly or indirectly affect a person with a scientifically based medical activity and examine the patient within their professional activities, prescribe diagnostic tests for the patient and analyze their results, prescribe medical treatment and inform about their use, perform medical procedures, ensure continuity and continuity of comprehensive treatment, perform prevention of infectious and non-infectious diseases, advise patients on health promotion options, document the patient's treatment process, study diseases, their prevention and treatment.

Analyzing the employment of graduates, then in total 97% of graduates continue their studies and are employed in health care institutions, but 3% of graduates do not work in their specialty.

[1] <https://likumi.lv/ta/en/en/id/295896>

[2] <https://likumi.lv/ta/en/en/id/147917>

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

SP Medicine is delivered in Latvian and English. Statistical data on students enrolled in all study forms during the reporting period are presented in

4_annex_Ārsti_studentu_skaita_statistika_eng.docx	
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Comparing the data of the study years 2013 and 2020 (see Figure 3.1.4.1.), it can be concluded that the number of students has increased during the reporting period. The increase in the number of students matriculated in 2019 and 2020 and 2021 also in the number of students is ensured by the students in the English stream.

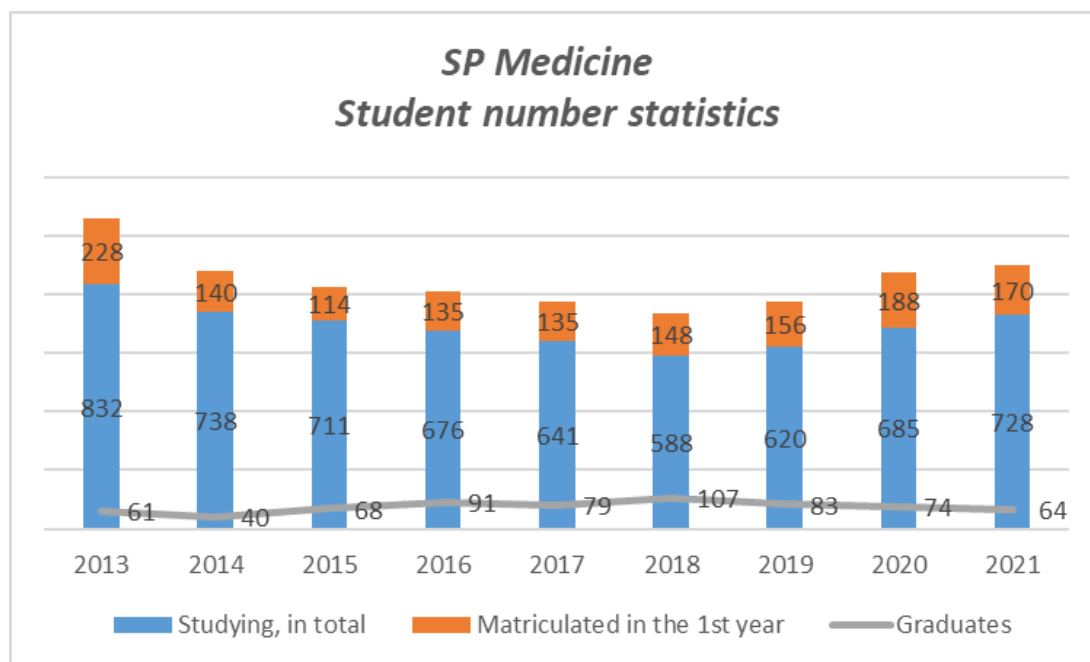


Fig. 3.1.4.1. Dynamics of the number of SP Medicine students

In the reporting period from 2013 to 2021, the proportion of drop-outs has fluctuated between 8 and 13% of the total number of students enrolled in the SP Medicine. It should be noted that some of the ex-matriculated students have resumed their studies and are studying or have successfully completed the study program. The main reasons for student exmatriculation for Latvian students:

1. for failure to meet the requirements of the study programme on time, which is manifested by insufficient knowledge on the part of the student which prevents them from meeting their academic obligations.
2. of their own volition, driven by work, finances and, in rare cases, health problems.

The main reasons for student ex-matriculation for English students;

1. at will, facilitated by the fact that students have the opportunity to study in their home countries after the 2nd or 3rd year.
2. for timely non-fulfillment of the requirements of the study program, which manifests itself both as insufficient knowledge of students and delay and non-attendance of classes.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module

and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

During the reporting period, study courses were reviewed in order to meet the requirements of the EU directive in medical education, Cabinet of Ministers Regulations No. 268 of 24.03.2009 "Regulations regarding the Competence of Medical Practitioners and Students Acquiring First or Second Level Professional Higher Medical Education Programs in Medicine and the Amount of Theoretical and Practical Knowledge of These Persons" and the requirements specified in the Medical Profession Standard. Taking into account the recommended ECTS volumes, some courses were restructured in SP Medicine and ECTS was increased or decreased. In its turn, in accordance with the regulations of the study program of the University of Latvia, in order not to have more than 6 exams in one semester, the contents of some study courses were combined in one study course. An exception is the study courses Civil Defense and Environmental Protection, which are 1.5 ECTS courses according to the Cabinet of Ministers Regulations No. 716 of 05.12.2017 "Minimum Requirements for the Content of the Compulsory Civil Protection Course and the Content of Civil Protection Training of Employees" and 02.11.2006. Environmental Protection Law. The connection of all SP Medicine study courses with the tasks of the program is shown in Table 3.2.1.1, but Appendix 4 shows the connection of all courses with the results of the study program - knowledge, skills and competence.

Tasks of the study program:

1. to explain the structure, functions and psychology of a healthy and sick person;
2. to acquire methods of prevention, diagnosis, treatment, rehabilitation and research in the field of medicine
3. to give an idea of the preconditions, implementation measures and role of the whole individual and society
4. to master health care systems and explain the ethical, organizational, economic and legal aspects of their functioning;
5. provide insight into the principles of organizing health care in emergencies and the role of the team in their implementation;
6. to provide insight into the history of medicine and to demonstrate the importance of lifelong learning in academic and professional careers

3.2.1.1. Table

Linking the study courses of SP Medicine with the tasks of the program

Study course	Tasks of the study program					
	1.	2.	3.	4.	5.	6.

Angiology	X	X		X		X
Basics of Biochemistry	X	X				
Human Anatomy III	X	X				
Human Anatomy I	X	X				
Human Physiology I	X	X				
Human physiology II	X	X				
Civil protection					X	
Dermatovenerology	X	X				X
Research Project			X	X	X	X
Diploma thesis (medicine) I						
Diploma thesis (medicine) II						

Obstetrics	X	X	X	X	X	X
Lifestyle course for prevention of chronic diseases			X			
Basis of Point-of-Care-Testing		X				
Electrocardiography		X				
Methods of endovascular in surgery		X				X
Pharmacology I	X					
Pharmacology II	X					
Physics in Medicine	X	X				
Physical, Rehabilitation and Sports Medicine	X	X	X			X

Final Examination in General Medicine	X	X	X	X	X	X
Gynaecology	X	X			X	X
Basics of Genetics	X	X				
Family medicine			X	X	X	X
Hereditary Diseases	X	X				
Internal Diseases I	X	X	X			
Internal Diseases II		X	X	X		
Internal Diseases III		X	X	X		
Internal Diseases IV			X	X	X	
Internal Diseases V				X	X	X

Propaedeutics of Internal Diseases I	X	X				
Propaedeutics of Internal Diseases II		X	X	X		X
Introduction to Algology		X				X
Introduction to Medicine Studies	X	X				
Introduction to Cell Biology	X	X				
Infections I		X		X		X
Infections II		X		X	X	
New diagnostic methods in medical microbiology		X				
Clinical Immunology		X				
Clinical Practice I		X	X	X		

Clinical Practice II		X		X		
Clinical Practice III		X		X		
Clinical Practice IV		X		X		
Clinical Practice V		X		X		
Basics of Clinical Care	X	X		X		
Surgery				X	X	X
Principles of Surgery	X	X		X		
Chemistry for medical students	X					
Laboratory medicine		X		X		
Practice of Family Medicine and Emergency Medicine				X	X	X

Practice of Internal Diseases				X	X	X
Practice of Surgery				X	X	X
Medical Biochemistry	X	X				
Medical Embryology	X	X				
Medical Law				X	X	
History of Medicine & Medical Ethics				X		X
Medical Latin		X				
Medical statistics 2					X	X
Medical statistics I			X			

Principles of medical devices and applications		X			
Microbiology II		X			
Microbiology, Immunology, Parasitology		X			
Molecular Genetics		X			
Narcology				X	
Emergency Medicine and Basic Life Support (Practice)	X	X			X
Neurology I	X			X	
Neurology II and neurosurgery	X			X	
Normal Anatomy II	X	X			

Normal Anatomy IV	X	X				
English for Medicine I	X					
English for Medicine II		X				
Ophthalmology	X			X	X	
Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine	X			X	X	X
Organ and System Pathology I	X	X				
Organ and system pathology II				X	X	
Otorhinolaryngology	X			X	X	
Paediatrics I	X			X	X	

Paediatrics II	X		X	X
Pneumonology, Allergology	X		X	X
Practical procedure techniques	X		X	X
Latvian as a Foreign Language for Medical Studies I	X			
Latvian as a Foreign Language for Medical Studies II		X		
Latvian as a Foreign Language for Medical Studies III		X		
Psychiatry and psychotherapy I	X		X	X
Psychology and the basics of medical psychotherapy	X		X	X

Epidemiology and Public Health			X	X		
Female and Family Sexual and Reproductive Health Care	X		X			
Social Medicine	X	X	X			
Specific Considerations of Surgery and Anesthesiology				X	X	X
Traumatology and Orthopedic surgery	X			X	X	
Urology	X			X	X	
Entrepreneurship				X		
Basics of Nutrition Science			X			

Management, Communication, Risk Management and Legal Aspects in a Health Care Organization				X	X
Economic, Social, Cultural and Organizational Aspects of Health Care				X	
Environmental Protection and Environmental Health		X		X	
General pathology		X			
General and Special Histology	X	X			
Visual Diagnostics		X		X	

During the reporting period, the findings of evidence-based medical science are taken into account in the development of the content of the study courses of SP Medicine, integrating it into the learning process (evidence based medical education)

During the reporting period, SP Medicine has been redesigned and adapted to today's labor market trends, needs, requirements and industry specifics. Not only lecturers, but also employers REUH and PSKUS leading specialists, who are interested in the preparation of new specialists, have participated in the improvement of the study program - development of study courses and course content.

Following the development trends of the medical industry and taking into account the recommendations and feedback of employers and students, the following improvements have been

made during the reporting period of SP Medicine:

- 1) In order for students to acquire the basics of medical psychotherapy, which is important for future doctors, in addition to psychology, the existing course "Psychology" has been supplemented and modified "Psychology and basics of medical psychotherapy";
- 2) A new course "Medical Statistics I" has been introduced in order to better prepare students for research work and analysis of scientific literature, which is necessary for the acquisition of clinical subjects and to help prepare for the development of a diploma thesis;
- 3) A new course "Medical Statistics II" has been introduced to provide students with in-depth knowledge of statistics required for literature analysis, research work and diploma thesis development;
- 4) In addition to psychiatry, the course "Psychiatry" also includes the topics of psychotherapy and the course "Psychiatry and Psychotherapy I" has been created;
- 5) A new course "Family Medicine" in the amount of 3 ECTS has been created, which is dedicated specifically to family medicine, which is one of the cornerstones of the health care system. Previously, the study plan contained only "Practice in family medicine", but this course also discusses the theoretical aspects of primary care and organizes clinically oriented seminars;
- 6) In the course "Study practice in family medicine" in addition to family medicine, within the study course students also practice in emergency medicine, thus the course "Study practice in family medicine and emergency medicine" has been created;
- 7) The amount of the course "Clinical Practice V" has been reduced by 1.5 ECTS, but the amount has been reduced in certain disciplines, which are also considered in other study courses, in order to find an opportunity to include new courses in the study plan;
- 8) The amount of the course "Specialized Surgery and Anesthesiology" has been reduced by 1.5 ECTS, as part of the content (neurosurgery) overlaps with other courses and will also be incorporated into them;
- 9) The courses "Microbiology", "Immunology", "Parasitology" are combined in the course "Microbiology, immunology, parasitology", because their topics are interrelated and partially overlap. The total number of ECTS has been reduced to ensure the inclusion of additional courses relevant to medical studies in the study plan, as well as the amount of 1.5 ECTS in microbiology is transferred to Microbiology II at the request of lecturers and employers, covering a wider and more relevant range of topics;
- 10) The volume of the course "Microbiology II" has been increased upon the recommendation of lecturers and students, because the content of the course covers a wider and more relevant range of topics than was previously possible;
- 11) Part B courses "Clinical aspects of addiction", "Tropical medicine", "Clinical experimental surgery" are excluded because there is no demand for these courses;
- 12) Following the recommendation of employers, the name of the course "Pulmonology, Allergology" has been changed to "Pneumonology, Allergology";
- 13) Adaptation of the general acquisition courses implemented by SP Medicine directly to medical practitioners, for example, the courses "Chemistry I" and "Organic Chemistry" have been combined and the course "Chemistry for Medical Students" has been created;
- 14) SP Treatment reduced Part C from 12 ECTS to 9 ECTS;

15) due to the mobility of Erasmus + staff to the University of Latvia, the number of lecture hours in a foreign language increases during the study process;

16) students deepen their knowledge of the scientific terminology of the field in English by reviewing the scientific literature during the elaboration of the diploma thesis;

17) students participate in the annual International Medical Conference of the University of Latvia, which takes place in English;

18) In the study process, students use information from international databases, such as ClinicalKey, Uptodate, Scopus, PubMed.

Every year in the autumn semester there are talks with internship providers to

discuss the level of training of the trained specialists and the course of the

previous year's internships, as well as to discuss the possibilities of improving

the study program, as well as about the latest trends in the labor market.

During the reporting period, the findings of evidence-based medical science are taken into account in the development of the content of the study courses of SP Medicine, integrating it into the learning process (evidence based medical education).

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

During the reporting period, the plan of SP Medicine has been improved by indicating the distribution of courses:

- Compulsory part (Part A) 336 ECTS (including diploma thesis 15 ECTS and final examination 3 ECTS);
- Compulsory optional part (B) 15 ECTS;
- Optional (C) part 9 ECTS.

SP Medicine Practice is intended for practice in the amount of 37.5 ECTS from the 3rd to the 6th

year of study. During the internship in the 12th semester, there is an opportunity to practice abroad. Taking into account that SP Ārstniecība belongs to the study programs of regulated professions, therefore their content complies with the requirements of the EU Directive 2005/36 / EC. The program is designed for 40 hours of study per week, of which 16 hours - 24 hours are contact hours and the rest are individual study hours. The program is implemented in full-time full-time studies (12 semesters), in Latvian and English.

The student-centered approach is followed by updating study courses, paying special attention to the meaningful formulation of study results, thus promoting dialogue between lecturers and students on the content of studies, organizational forms and methods. In turn, correctly formulated study results promote students' understanding and co-responsibility for their own learning, self-evaluation and understanding of the received assessment.

In the study process, lecturers use methods, examination forms and assessment criteria appropriate to the study goal and planned study results. Both traditional lectures (introductory lectures, review lectures, problem lectures, visual lectures) and interactive classes (pair and group work, project development, discussions, role plays, interactive tests) as well as laboratories and practical work are used in the acquisition of various study courses. These methods are in line with learning didactics and develop critical analytical thinking. Computer presentations and Internet resources are widely used in lectures. Course lecture materials (presentations, video materials, additional literature sources) are also freely available in electronic form in the e-learning environment. The results of students' independent work are presented in seminars with subsequent discussion and public differentiated assessment. In the seminars, students gain experience to share their knowledge and participate in academic discussions. Partly in the spring semester of 2020, in the autumn semester of 2020 and in the spring of 2021, during the constraints of the COVID 19 epidemiological situation, the study process took place online, it should be noted that online discussions have their benefits:

- Students tend to think more critically about what they write, knowing that the comments are permanent.
- Students feel safer in an online discussion than in an audience.
- It is easier for students to share different opinions or out-of-the-box ideas.
- When students write answers, they have the opportunity to go into the answers of other students and give more nuanced and convincing arguments themselves.
- Anonymous writing can help overcome fear of public judgment or ridicule.
- Everyone has the opportunity to be heard.

Employers are involved in the implementation and improvement of study courses (they are invited to lead separate seminar classes, often classes are organized as experience exchange visits to workplaces, etc.). In order to promote the development of students' research competence, students in successive courses have the opportunity to analyze and study in depth the problems of interest to them in the field. The e-environment is actively used in the study process, in which students perform tasks according to their time possibilities, as well as the student is given the opportunity to demonstrate their competencies and gain additional points for their final assessment by performing specific work related to the course content - analysis, essays, reports, summaries, etc. Lecturers encourage, interest students in additional work, as well as help and do not refuse consultations. Study courses in seminars promote students' presentation, presentation and discussion skills. In order for students to achieve study results - to acquire and strengthen knowledge, skills and develop competence - the study process is dominated by methods in which students' activities are

important. In the study process, methods are used that promote students' communication in the performance of study tasks, solving real problems in the field, modeling situations. The physical environment of studies is also gradually changing: classrooms can be easily transformed into group work, individual work, students can use digital technologies. The study environment supports students' independence in achieving their study goals, while providing lecturer guidance and support. Students have access to a modern study environment in the Torņakalns Science House with the possibility to use the library's book storage and electronic resources, as well as laptop rental points in the university premises. Both the modern study environment and the limitations of the epidemiological situation during COVID 19 facilitated the improvement of lecturers' digital competence in the study process. Each lecturer went through and improved their knowledge and skills according to these stages of the digital progress process.

Lecturers mostly use methods that encourage students' active participation, critical thinking and reflection. The e-learning environment is used in the study process and to promote independent studies. An e-learning environment (Moodle) has been created for each study course, in which students have access to lesson materials, task descriptions in addition to study materials related to the course topics, as well as study tasks (tests, forums, seminars, etc.). All assessments of intermediate and final examinations of study courses with the justification of the mark are recorded and available to students in the e-learning environment. Students receive support and feedback from lecturers during the study process. Evaluation criteria for posting marks have been previously published in e-studies. Assessment gives students the opportunity to show the extent to which they have achieved the expected learning outcomes. Following the study principles of student-centered education, student mobility is promoted (recognition of study results), students participate in research and social activities initiated by the academic staff in society, thus gaining significant experience by using what they have learned in practice. Implementing the internal quality assurance policy, the study program is implemented in such a way that students are encouraged to actively participate in the improvement of the study process. There are procedures for submitting student suggestions and resolving complaints, and for reviewing student appeals. In the improvement of the study process, the results of student surveys are evaluated and taken into account.

When assessing study outcomes, the basic principles of assessment formulated in the Regulation of the Cabinet of Ministers of the Republic of Latvia No.240 of 13.05.2014 Regulations on the State Academic Education Standard are observed:

- the principle of aggregation of positive achievements - the education acquired is assessed by aggregating the positive achievements in the course, this is embedded in the course description
- the principle of mandatory assessment - a passing grade is required for the completion of all study programme content;
- the principle of openness in assessment - in accordance with the programme aims and objectives and the aims and objectives of the study courses, the University has established a set of requirements for the assessment of learning outcomes;
- the principle of variety in assessment - different types of assessment are used to assess the completion of the study programme;
- the principle of assessment relevance - the assessment allows the opportunity for students to demonstrate knowledge, skills and competence in appropriate tasks and situations. The examination content shall be consistent with the course syllabus.

Forms of student assessment

The main forms of assessment of the knowledge acquired in the study programme are midterm

tests, their number and type are specified in each course description: test works, culminating in an individual discussion of the obtained results and a "defence" of the concepts learned in the work, reports, essays, presentations of individual and group work. Tests are used to assess theoretical knowledge. The final phase of all study courses consists of a *final examination* - written or oral examination, a test or a thesis defence. Only students who have fulfilled all course requirements, as specified by the teacher in the course description, are allowed to take the final examination. The assessment of students' knowledge is mainly carried out in written form and through the assessment of practical skills. The purpose of the examinations is to determine the level at which the student has acquired the theoretical knowledge and acquired the skills to apply them to practical tasks. According to the specific nature of the course, there are requirements for attendance at practical classes. The final assessment of the course is cumulative, i.e. the assessment of the student's work throughout the semester, which forms part of the final assessment, and the examination paper. The overall assessment of the course completion consists of the total grades obtained in the midterm tests, which should on average represent at least 50% of the overall assessment, and the grades obtained in the examination/test. All assignments completed during the semester are taken into account in the final assessment. The SP Medicine 3rd year concludes with a combined examination comprising: a multiple-choice test; a practical examination at the patient's bedside (in clinical disciplines); theoretical questions. OSCEs (Objective Structured Clinical Examinations) have been introduced in the study courses taught by the Department of Surgery and the Department of Internal Medicine at the Faculty of Medicine, which increases the objectivity of assessments.

Special attention is paid to the improvement of learning outcomes assessment - knowledge, skills and competences, improvement of course descriptions, revision of the methods and evaluation system used in studies, work is being done to make study course materials available in the Internet environment. New opportunities are opened up by the introduction of the Internet and other computer technologies in the study process for the acquisition, processing and storage of information, as well as for rapid communication.

Students are informed about the assessment criteria, methods and requirements for obtaining credits at the beginning of each study course - in the first class/introductory lecture. The achievements of all study courses are evaluated on the generally accepted 10-point grading scale in accordance with the laws and regulations of the Republic of Latvia and the Decision No. 211[1], based on the following criteria: the amount and quality of the knowledge acquired; the skills acquired; the competence acquired in line with the intended learning outcomes. Examinations and tests are taken individually. A study course should be considered as successfully completed if the grade in the 10-point grading system is not lower than "4" (almost satisfactory) or "pass".

Forms of study work assessment

Ensuring the quality of teaching and research is the most important task of the academic team, and involves a number of interrelated factors. At the beginning of the course, the student receives information on credit requirements, mid-term examinations and the semester's timetable. The student workload for the study programme is equivalent to 40 academic hours of work per credit. Study achievements are evaluated on a 10-point grading scale in accordance with the Regulation of the Cabinet of Ministers of the Republic of Latvia No.240 of 13.05.2014 Regulations on the State Academic Education Standard ("Noteikumi par valsts akadēmiskās izglītības standartu"[2]), based on the following criteria: the amount and quality of the knowledge acquired; the skills acquired; the competence acquired in line with the intended learning outcomes. The lowest grade still considered positive is 4 (almost satisfactory). The highest grade is 10 (with distinction). Lecturers have scheduled tutorials to ensure that students achieve the expected learning outcomes in the time allowed. Interim testing provides an overview of the achievement of the programme learning

outcomes. During the semester, various forms of examinations are used: written test works, multiple-choice tests in e-learning environment (Moodle), colloquiums, lectures, seminars, essays and examination. Students can keep track of their midterm grades individually in their e-learning profiles on the UL student e-learning site. The Moodle environment provides lecture materials, seminar topics and presentations, lecture plans for individual student-centred organisation of study work. In the test works, students are given the opportunity to fully demonstrate their analytical, creative and research abilities, the knowledge they have acquired and their ability to apply scientific knowledge. The variety of methods is based on the complex of theoretical knowledge and practical skills to be acquired, as well as on the academic freedom of the lecturer, as permitted by law.

The SP Medicine concludes with a thesis and a final examination in medicine. In the thesis, the student learns the skills to critically analyse scientific literature, guided by the principles of evidence-based medicine, to formulate a hypothesis, the aim and objectives of the thesis, to select and apply appropriate material and methods, to select and apply appropriate statistical data processing methods to address specific research questions, summarise the results, formulate conclusions in line with the thesis objectives and results, interpret and discuss the data obtained and compare them with data published in scientific articles, evaluate the merits and drawbacks of the thesis, formulate the practical significance of the findings, proposals and possible further research directions. After the thesis has been developed and submitted, the student presents and defends it at a meeting of the State Examination Board.

The final examination in medicine is allowed to be taken if all examinations of the study period have been successfully passed and the doctor's diploma thesis has been elaborated, formatted, submitted and defended on time in accordance with the requirements (Regulations on elaboration and defence of final theses at the University of Latvia, Regulations of the UL Faculty of Medicine on the UL Doctor's Diploma Thesis).

The final examination in medicine is an integrated assessment of the knowledge, skills and competence acquired during studies, which meet the requirements of the medical profession. The final examination in medicine comprises three parts:

- practical examination in internal diseases;
- practical examination in surgery;
- theoretical examination in medicine.

Using students' views to improve the learning process is critical for sustainable development. Both group surveys and individual interviews are regularly carried out to obtain students' opinions on the study programme as a whole, the courses it offers and the respective teaching staff. Student representatives are active participants in the meetings of the Board of the Health Care Study Programme as well as of the Faculty Council.

The content of SP Medicine in Latvian and English is identical.

[1] https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumentu/Dokumentu_EN/3/nr_211_pabaudijumu_organizesana_eng.pdf

[2] <https://likumi.lv/ta/id/266187> (the source is available only in Latvian)

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the

study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

Internship is an important part of the SP Medicine. During the internship, students acquire or develop knowledge, skills and competence in accordance with the internship regulations and the course description. Students are briefed before the internship and each student receives an internship programme. Prior to arrival at the internship site, the student receives a letter from the internship supervisor setting out the tasks to be carried out at the internship site, which are mutually agreed in advance between the UL and the on-site internship supervisor. In the course of his/her daily duties at the internship institution, the student is expected to solve and master pre-defined internship tasks, the progress and results of which are to be described in the internship report. The supervisors are certified doctors and chief physicians from Riga and regional hospitals, from the Emergency Medical Service (NMPD), from general practitioners' practices (see Annex 307 for the List of Cooperation Agreements). In case of conflicts, the student should contact the study programme director or the internship supervisor. The organisation of the internship is appropriate to its aims and objectives, the internship course descriptions are available.

At the end of the internship, the student must prepare an internship report (diary). The certificate of acquired knowledge and skills shall be signed by the on-site internship supervisor, while the internship supervisor shall sign the internship report to certify compliance with the requirements of the regulations.

During the internship, the student must complete an internship diary, which must be submitted in order to receive the final grade. Each student receives an evaluation from the placement supervisor. The student's diaries and the supervisors' evaluations are kept in the student's personal file.

The internships are divided into 3 parts (see Table 43 for the internship course titles):

1. Basics of Clinical Care (practice), Emergency and First Aid Course (practice);
2. Clinical Practice (I, II, III, IV, V) - work with a patient under the supervision of a faculty member - obtaining a medical history, objective examination, drawing up a laboratory and instrumental examination plan and treatment plan, performing practical manipulations, writing an academic medical history;
3. Practice of Surgery, Practice of Internal Diseases, Practice of Family Medicine and Emergency Medicine

Table 3.2.4.1

SP Medicine Practices

Nosaukums LV	Name ENG	ECTS
Klīniskā prakse I	Clinical Practice I	3
Klīniskā prakse II	Clinical Practice II	3

Klīniskā prakse III	Clinical Practice III	3
Klīniskā prakse IV	Clinical Practice IV	4,5
Klīniskā prakse V	Clinical Practice V	4,5
Klīniskās aprūpes pamati (prakse)	Basics of Clinical Care	6
Mācību prakse ģimenes medicīnā un neatliekamajā medicīnā	Practice of Family Medicine and Emergency Medicine	4,5
Mācību prakse iekšējajās slimībās	Practice of Internal Diseases	3
Mācību prakse ķirurģijā	Practice of Surgery	4,5
Neatliekamās un pirmās palīdzības kurss (prakse)	Emergency medicine and Basic life Support (practice)	1,5

Medical institutions and the University of Latvia have concluded agreements on the implementation of training and internships, it should be emphasized that early training at the patient's bed is an undoubted strength of the implementation of the study process.

The improvement of the quality of internships is facilitated by the participation of students in clinical internships within the framework of international mobility, the analysis of the results of which allows to assess the adequacy of students' acquired skills and competences in the European Higher Education and Labor Market Area. The opportunity to implement the quality of students' internships at SP Medicīne is facilitated by the possibility to implement internships at the University of Latvia in health care institutions under the supervision of the Ministry of Health, as well as in municipal and private health care institutions.

Communication of English students with patients is provided in different ways depending on the specific situation, for example, relatively many patients speak a language understood by students, foreign students are included in local student groups for internships, thus reducing language barriers, while students do not understand unclear concepts. .

Students of the last year of study are allowed to do internships in their home countries, thus ensuring communication with patients in their mother tongue

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

Each year, the SP Medicine thesis themes are approved on the basis of their topicality, current developments in the field or the issues raised by the topic. The thesis themes are related to the priority research areas of the Medical and Health Science sector, linking them to market trends in the sector:

1. Clinical and basic research in cardiovascular, metabolic and regulatory diseases:
 - studies on genetic markers in metabolic syndromes and obesity in different age groups;
 - studies on autoimmunity;
 - research in nanomedicine;
 - other clinical research.
2. Epidemiological and other research in public health, health care, its organisation and policy development, including innovative ICT solutions to expand the re-use of data stored in eHealth systems:
 - population screening studies, including oncology and preventive medicine;
 - research on metabolic diseases, including adiposity and deficiency conditions (e.g. iodine deficiency) in populations of different ages;
 - research on the potential to reduce cardiovascular mortality;
 - research on measures to reduce child mortality;
 - pilot studies on public health measures;
 - population studies with extensive collection of biological material and a multidisciplinary approach to analysis, including the GISTAR gastrointestinal oncology prevention trial;
 - research on the development and improvement of population screening technologies;
 - research on ethics, patient rights and balancing societal risks;
 - studies on the provision of health services related to the changing demographic structure, including primary and secondary levels of health care, their financing, investment absorption and policy transfer;
 - nutrition research: research to prevent the spread of chronic diseases - healthy, balanced diets and physical activity throughout the life course.
3. Clinical and basic research in microbiome research and infectious diseases, including tuberculosis research:
 - studies to detect bacterial antibiotic resistance;
 - studies on the gut microbiome in different age groups;
 - studies on the early diagnosis in detection of septicemia causative agents;
 - studies on multidrug-resistant tuberculosis.
4. Innovative translational medicine based on cell target identification:
 - regenerative medicine and tissue bioengineering, stem cell research
 - neuroprotection research in neurodegenerative diseases, cell targeting;
 - research on natural active substances and the development of personalised medicine technologies.

The SP Medicine introduces the latest scientific trends in the study process, the lecturers of the study programme ensure high scientific quality of students' final works.

The assessment of the theses takes place in a closed meeting of the Final Examination Board after all the theses scheduled for the meeting have been heard. The assessment is communicated to the students, each individually, after the session. The following criteria are taken into account in the assessment of the thesis: 1) the quality of the content and its compliance with the thesis writing guidelines; 2) the thesis presentation and the answers to the questions of the Board and the reviewer; 3) the evaluation and comments made in the review.

The high quality of the diploma theses was reflected in the fact that the authors of the highly evaluated diploma theses, graduates of the programme, continue their studies at the doctoral level. After obtaining a Doctoral degree they pursue their academic, research and teaching careers at the Faculty of Medicine. During the reporting period, four FM graduates have completed their doctoral studies at the Faculty of Medicine, obtained their doctoral degrees and continue their studies and research work at the Faculty of Medicine, thus ensuring the renewal of the academic staff.

The quality of the diploma theses is also confirmed by the excellent evaluations and the Rector's commendations (see Annexes 7 and 8 for a list of theses with excellent evaluations and the Rector's commendations and a list of defended diploma theses).

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the information provided in Chapter - the Study Programme Resources and Facilities, the programme resources consist of financial resources (source of funding - state budget grants, tuition fees, study programme costs), infrastructure and material and technical facilities, as well as methodological and informational support.

The training facilities of the Faculty of Medicine are located in several UL faculties: the Faculty of Medicine, Faculty of Physics, Mathematics and Optometry (FMOF), Faculty of Chemistry (KF), Faculty of Biology (BF), Faculty of Business, Management and Economics (BVEF) and the Faculty of Humanities (HZF).

Infrastructure and facilities

SP Medicine material and technical facilities include:

- Lecture rooms
- Teaching laboratories and chairs
- Internship sites

Since the academic year 2016/2017, some part of the SP Medicine has been implemented at the House of Nature, the UL Academic Centre in Toruń. The new building provides a modern and comfortable study environment for both students and lecturers. The description of the material and technical facilities in the reporting period can be divided into several stages, but it should be emphasised that it has improved and become more modern, in line with the current development trends. The most significant changes in the material and technical facilities have been brought about by the opening of the House of Nature (2015) and the House of Science (2018) of the UL Academic Centre, where the SP Medicine is being implemented. The study process takes place in modern classrooms equipped with multimedia devices, interactive whiteboards and internet access, providing high quality audio and visual presentation of lectures. The design of the lecture rooms allows the desks to be freely rearranged, making them adaptable to different forms of learning,

such as lectures, seminars, group work or circular discussions, which also contributes to a democratic and open learning process. The buildings have access to the Internet via wireless technology, an open library space that provides all the necessary study literature, course descriptions and study materials are placed in an e-learning environment that is increasingly used in the study process. Students have access to modern laboratories with the necessary presentation equipment, Wi-Fi access in all rooms, individual and group study rooms with electrical outlets. The concept of the UL academic campus in Torņakalns is the integration of the study process and a multidisciplinary approach, providing students with a broad, versatile and in-depth knowledge, for example, physics for medical students, chemistry for medical students.

Teaching laboratories and departments

For the implementation of various study courses, the SP Medicine has access to teaching laboratories at various UL faculties.

For the course Chemistry for Medical Students, SP Medicine students have access to modern chemistry laboratories in the Faculty of Chemistry, located in the House of Nature, equipped with individual workstations, modern high quality fume hoods, everything necessary for the synthesis of medicinal substances (fume hoods, electric cookers-mixers, rotary evaporators, etc.) and equipment for laboratory work in chemistry for medical students.

For the course Physics in Medicine, SP Medicine students have access to a modern FMOF laboratory, located in the House of Science, with individual workstations and modern equipment.

For the implementation of human physiology study courses in the BF laboratories, the following equipment is used for students' practical work: metobometer, Finopress, plethysmograph, laser dopplerograph, pneumograph, spirometer, mechanoelectric transducer, perimeter, audiometer, bioimpedence analyser, etc. At the BF, SP Medicine students study human physiology in well-equipped classrooms and laboratories.

In the FM Department of Anatomy and Histology, laboratories 326 and 327 are used for general and special histology practical classes, cell biology classes, each laboratory has 30 individual workstations for students, equipped with Leica microscopes for each student and lecturer (DM500, Leica Microsystems, DM750, Leica Microsystems), 417 are used for general and special histology practical classes, cell biology classes, and 418 are used for general and special histology practical classes. Each laboratory has 16 individual workstations for students, equipped with Leica microscopes for each student and lecturer (DM500, Leica Microsystems, DM750, Leica Microsystems). During the reporting period, fluorescence microscopes (DM750, Leica Microsystems), digital cameras (ICC50E, Leica Microsystems), teaching tablets (Apple iPad Wi-Fi 32GB), classroom monitors (Toshiba TD-E653), as well as microscope kits for cell biology, general and special histology courses were purchased to equip these rooms.

In the anatomy rooms (each with 16 workplaces for students), anatomy training is taught using both the native specimen (cadaver) and modern teaching aids - plastinated human bodies and organs, which have been made for the UL Faculty of Medicine by Gubener Plastinate GmbH using Prof. G. von Hagen's technique. The superficial muscles, nerves and arteries are exposed in the body, and some deep muscles are exposed in the upper and lower limbs (forearm - muscles of the anterior and posterior groups, lower limb - open femoral canal, popliteal fossa, visible exit and branching points of *n. ischiadicus*). The head is split coronally, exposing the cranial cavity, the brain and meninges, and the nasal and oral cavities. The abdominal wall is open so that the entire viscera complex and the posterior wall of the abdominal cavity are visible. The structures of the plastinised body remain unchanged even at the microscopic level. During the reporting period, the lower limb of a female, the upper limb with arteries, veins and nerves, the male internal and external genitalia,

the female pelvis and perineum with 5 parts, the female pelvis with ligaments, blood vessels, nerves, perineum, organs and a high-quality hand, classic unisex torso with open neck and back, 6-part human skull model, spinal cord model, skeletal model with ligaments, human skull model made of artificial bone, one side transparent, the other side complete with brain and vertebrae, head preparation (half) and head preparation (full) were purchased for the anatomy course.

The Department of Pathology uses laboratories 326 and 327 for practical classes, each laboratory has 30 individual workstations for students, equipped with Leica microscopes for each student and lecturer (DM500, Leica Microsystems, DM750, Leica Microsystems). As part of the laboratory work, students perform lung ventilation function assessment with the Spirograph, as well as allergy tests, etc.

The laboratory of **the Department of Medical Biochemistry** has a spectrophotometer, 2 centrifuges, pH-meters, electrophoresis apparatus and a balance. The laboratories are used for students' practical work and research. The laboratory is equipped with laboratory supplies necessary for students' practical work.

The Microbiology Teaching Group and the Orthopaedics Teaching Group are located in the *Hospital of Traumatology and Orthopaedics* (TOS) premises (60 sq.m and 48 sq.m), which include an auditorium, a classroom and a laboratory with 10 training places for students with binocular microscopes. Laboratory work uses clinical microbiological material from patients in the Hospital's Microbiology Laboratory, which is grown in Petri dishes. The material is stained in the required colours and after microbiological diagnosis the material is used in the teaching process.

Diagnostic workstation, with the necessary equipment purchased for the workstation operation, for the interpretation of orthopaedic and radiological images used in traumatology and orthopaedics, for the training of SP Medicine students and for the development of scientific theses. The workstation consists of a computer with an extended memory, which allows the creation of a long-term database of clinical cases, receiving and sending examinations from other computers in the Hospital, as well as medically certified monitors with maximum resolution, which allows the simultaneous viewing of two projections or the comparison of two examinations performed at different times. It also includes a printer-scanner for printing publications and teaching materials, digitisation of pre-recorded notes, and a networked software system for managing medical imagery and associated data - RIS. Using a computerised measurement system, students will be able to analyse different clinical cases and the descriptions of the work performed will be stored in a single database so that the lecturer can assess the student's performance and, if necessary, jointly compare the pre- and post-operative clinical picture. The digitally stored material can later be used for internationally relevant scientific publications.

For the Orthopaedics teaching group, the Deluxe Functional Knee Joint Model (3B Scientific) was purchased during the reporting period - an accurate and fully formed mobile, flexible knee joint model, which allows to demonstrate the structure of the knee joint in relation to its functionality and the effects of movement on the joint both in normal and altered joint mobility, movements with the cartilage additionally coloured blue.

The Centre for Social Paediatrics is located in the House of Science and is housed in spacious, refurbished rooms where students can learn social medicine and the basics of Montessori's pedagogy. Students are trained to use multi-sensory therapy with children with special needs, as well as autistic and hyperactive children.

The Clinical departments are located in Riga University Hospitals, branch hospitals and municipal hospitals, and the following facilities are used for lectures and practical classes:

The Department of Internal Medicine is located in the PSKUS (212.0 sq.m), in Building 23.

Internal medicine courses are implemented in the PSKUS using the hospital's classrooms and clinical facilities (Building 9, Building 10, Building 15, Building 32). The quality of the study facilities will be improved with acquiring the new premises in PSKUS Building 10.

The Department of Paediatrics and teaching rooms are located in the BKUS Gaiļezers (84.20 sq.m) and for quality teaching of paediatric and paediatric surgery courses, the resource of teaching rooms is supplemented by two teaching rooms in the BKUS Torņakalns (45.8 sq.m).

The Department of Oncology and their training room are located in the RALUS/ Latvian Oncology Centre (LOC) (42.10 sqm).

The Department of Surgery is located in the RAKUS Gaiļezers hospital (50, 10 sq.m), and teaching rooms are also located in the Bīķernieki and LOC hospitals. New and modern teaching aids and mullages are used in the study process - for chest drainage, practical skills in suturing. A model for surgical training - the Skin Suture Trainer (3B Scientific) - gives students the opportunity to practice suturing skills, perform intradermal sutures, combined sutures and learn to close complex wounds with heterogeneous edges. The Suture Practice Arm (3B Scientific), a model for surgical training, allows students to perform more than 100 sutures and to create wounds in the fingers and hand, as well as to learn how to close them. The Suture Practice Leg (3B Scientific) - students can make more than 100 stitches on each wound and create new wounds all over the leg.

The Latvian Centre of Infectiology (17.02 sq.m) and the Centre for Tuberculosis and Lung Diseases at the RAKUS are also used as teaching bases for clinical study courses.

The Headline Clinic is used for otorhinolaryngology training, and Dr Solomatin Eye Rehabilitation and Vision Correction Centre is used for ophthalmology training.

For clinical studies, training facilities are also located in other major Latvian hospitals - Riga City Maternity Hospital (33.14 sq.m), Riga Centre for Psychiatry and Narcology (RPNC), etc. In the reporting period, for the practical training of the course Obstetrics, a labour simulator, a labour demonstration mulage - pelvis, a model of the female pelvis with ligaments, blood vessels, nerves, perineum, organs, an episiotomy suturing simulator and a model of the cervical opening and fetal head movement during labour were purchased. For the practical training of the course Gynaecology, a breast self-examination muffler was purchased during the reporting period.

The SP Medicine uses mannequins, mannequins for practical manipulation and examination skills in anaesthesiology and emergency care, gynaecology, paediatrics, clinical care, surgery and internal medicine.

Chest drain simulator (3B Scientific) - the chest drain model represents realistic natural body measurements (lying down) and tactile sensations. Ribs can be felt through the skin of the model. Up to 25 surgical incisions can be made in the soft part of the model. ALS SkillMaster 4000 (Leardal) - Life-size full-volume manikin, with simulation programmes - Oral and nasal intubation; LMA and combitube intubation and ventilation; Defibrillation and 3-lead ECG; IV training; Bilateral lung obstruction can be simulated; Vomiting, sighing, cheek simulation; Synchronised carotid pulse; Detector sensors: respiratory, pulse, at site of precordial shock, CPR, defibrillation; 4-lead ECG monitoring, defibrillation and i/v therapy. Add-on "HeartSim 4000" (Leardal) - Rhythm and resuscitation stimulator with monitor display - 2500 cardiac rhythm variants; Programmable scenario for resuscitation; Visual monitoring on screen in real time, with curves and numeric indicators; Precise control and modification of set parameters depending on performance; Computer program with language options.

Defibrillator (Leardal) - Low Biphasic Energy Defibrillator self-testing; Child defib paddles integrated under adult; easy to read LCD colour monitor with 8" diagonal and 4 waveform visualisation,

integrated printer with Pre- and Post-shock (time memory) automatic recording of data, date, time and other indicators. The defibrillator ensures that the patient has an "interrupted" waveform when the device is switched on and not when connected (in case of poor electrode contact not to be confused with asystole), internal child defibrillation paddles included, automatic/manual/suffler mode (AED mode) available, integrated CO2 monitoring is possible, as well as on-screen curves and numbers, non-invasive and invasive pressure monitoring can be added, as well as an indicator to determine the correctness of the vital signs. The defibrillator performs automatic data collection and event display - 300 events or the last 50 ECGs. Includes SpO2 sensor and sterile paediatric defibrillation paddles.

The Patient Care Laboratory has been established, equipped during the reporting period for both SP Medicine and PBSP Nursing students. The Patient Care Laboratory has an IV Injection Arm - the model of IV arm provides an opportunity for students to practice IV injections, blood sampling, and learn proper insertion of IV system, arm manikin with multi vein system, manikin for IM injections, manikin for IV injections, Catheterisation Simulator (Male) Catheterisation Simulator, Male (3B Scientific) - the simulator consists of the lower abdomen of a male and gives the students the opportunity to feel the mucosal resistance when inserting the catheter. With correct catheterisation, artificial urine appears in the bladder when the catheter is inserted. Purchased a training manikin for catheterisation and enema insertion, for practicing nursing skills a Newborn Patient Care Baby manikin (Laerdal) and a Nursing Kid VitalSlim manikin (Laerdal) - newborn baby manikin with intensive care and resuscitation capabilities - CPR algorithm training, practical skills in classes on the respiratory system, the cardiovascular system and other classes related to respiratory, cardiovascular, gastrointestinal pathology (e.g. infectious diseases). Students are given a clinical exercise during which they have to evaluate a clinical finding (a manikin is programmed with different clinical conditions such as inspiratory or expiratory dyspnoea, airway noises, different auscultatory findings, etc.) and draw up a treatment plan. Using the manikin, students can learn practical skills in nasogastric probe insertion, bladder catheterisation, intravenous injection, intubation. In 2020, a SimMan 3G simulator was purchased to provide different patient scenarios to help students prepare for real-life situations.

The teaching facilities and equipment are fully in line with the aims and objectives of the SP Medicine.

SP Medicine students have placements in medical institutions and 35 GP practices, all contracted, see Annex 307.

SP Medicine students have access to the Moodle e-environment, which is used for dissemination of study materials and submission, checking and analysis of study works. Moodle is an e-environmental tool in addition to the LUIS environment, which provides for the input of study assessments. Due to the restrictions imposed by the Covid 19 pandemic, lectures and classes for SP Medicine students were conducted online.

Methodological and information support

As of 01.12.2020, there are 2406 printed publications available in the Faculty of Medicine Library (see Table 47), of which almost 95.0% are books and 4% are other publications (CD, DVD). Of the printed publications available to SP Medicine students in the UL Library collection, 50% are in Latvian, 45% in English and 3% in Russian. In total, the Faculty of Medicine Library has 30101 copies of printed publications for the implementation of studies in the Health Care area.

3.3.1.1 Table

Literature available in the library for the implementation of the SP Medicine programmes[\[1\]](#)

UL study direction Health Care**Total printed publications in the LU Library collection as of 01.12.2020**

Printed publications (copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other publications	Latvian	English	Russian	German	Other
<i>Medicine</i>	2406	2283	12	111	1217	1091	75	22	1

Total number of copies in the **LU Library collection: 30101**

Students have very wide access to various e-resources - both the most popular databases in medicine EBSCO databases - AHFS Consumer Medication Information, EBSCO Academic Search Complete, Web of Science, Scopus, ClinicalKey, MEDLINE Health Source: Nursing/Academic Edition, European Pharmacopoeia, SpringerLink, Emerald eJournals Premier, Oxford Journals JSTOR, ProQuest Dissertations & Theses Global, SAGE Journals Online, SAGE Research Methods, ScienceDirect, Physical Review Online Archive (PROLA), UpToDate, and a very extensive library of ebooks from the ebook platform Dawsonera and ProQuest Ebook Academic Complete. SP Medicine students actively use **ClinicalKey** - Elsevier's electronic medical information resource. It covers 52 specialties and is designed for research, clinical practice and student learning, containing different types of information resources: more than 650 full-text journals, more than 1150 full-text books, 1400 reports containing concise information and recommendations on diseases. Also included are 800 FirstConsult summaries, 5000 practical guidelines, more than 3.4 million images, tables, charts, more than 40 000 ProceduresConsult materials, etc.

The UL Library in cooperation with UL Information Technology Department provides free online access to the UL e-resource repository.[2] **A mobile** version of the repository is also available for students' convenience. The library collection is generally adequate for the implementation of the SP Medicine and scientific research development and is updated every year with the most up-to-date information resources according to the information needs of the academic staff and students. Details of the electronic resources, databases and usage statistics available to students can be found in Section 7.3 of the report.

SP Medicine students, where possible, are provided with the possibility to link the study programme with scientific research (creative) work and students are involved in lecturers' scientific research grants and research programmes.

[1] The data on information resources presented in the table are the same for Bachelor's and Master's level programmes, they are not separated, because everyone can use any information resource offered by the UL Library.

[2] <http://dspace.lu.lv/>

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its

funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

In order to estimate the funds needed for financial support, the SP Medicine (Latvian and English streams) carries out a costing calculation according to the UL developed methodology, using information on the structure and costs of the programme and teaching staff and the number of students. For funding necessary for the conduct of studies, the SP Medicine (Latvian and English streams) uses:

- 1) State budget grant from the Ministry of Education;
- 2) Tuition fees.

The state budget subsidy for a study place for each calendar year is determined in accordance with the annual agreement between the Ministry of Education and the University of Latvia, taking into account the base cost of a study place in a given year, the level of the study programme and the cost coefficient for the thematic field of education. Based on the costing of the SP Medicine according to the UL developed methodology, the main cost items are faculty remuneration - 46%, general staff - 15%, property and services - 9%, infrastructure costs 4% and 26% indirect costs.

The budget allocation per study place in the Faculty of Medicine is EUR 5705, consisting of a base funding of EUR 1630, a level factor of 1.0 and a field of study factor of 3.5. The tuition fee is set by the SP Medicine by a separate ordinance for each academic year, taking into account the cost of the study place, including all costs of the study process (see above), tuition fees for similar programmes at other universities and the interest of potential fee-paying students in the study programme. Taking into account the availability of financial resources, calculations are made and solutions are developed to optimise the cost of study in order to make optimal use of the highly qualified lecturers, elective courses are implemented together for Latvian and English students or in cooperation with other Health Care programmes.

In order to ensure the profitability of SP Medicine, the minimum number of students in Latvian is 25, but in English – 10

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Qualifications of lecturers comply with the Law on Institutions of Higher Education and the UL regulatory enactments, which determine the qualifications of lecturers in academic Master's programmes:

1. Cabinet of Ministers Regulation No. 49 of 23.01.2018 Regulations on Latvian Science Sectors and Sub-Sectors [1]). Law on Institutions of Higher Education ([2], Higher Education Law 02.11.1995)
2. University of Latvia Regulations on Study Programmes and Continuing Education. Programmes (UL Senate Resolution No. 102 of 24.04.2017) [3]).

In order to ensure a qualitative and innovative implementation of the study programme, several criteria are used for the selection of SP Medicine lecturers. The following are the mandatory criteria for the selection of lecturers:

1. teaching staff qualifications meet the requirements stipulated by laws and regulations;
2. professional qualifications, research area relevant to the study programme/course, relevant publications and work experience;
3. adequate knowledge of the official language and of foreign languages.

The SP Medicine teaching staff fully meet the requirements specified in the laws and regulations. The teaching staff qualifications are confirmed by their competence in the field of scientific research and professional activity, which is also appropriate to the study programme and the respective course content. The application of selection criteria ensures that the study programme involves lecturers who have both teaching experience and active scientific and professional activity, which ensures the achievement of the study programme aim.

The following types of staff development are used :

1. At least once a year lecturers participate in the international conference on medical sciences organised by the UL Faculty of Medicine, where SP Medicine lecturers, professionals of the field and lecturers from different Latvian and foreign universities participate with their reports.
2. Lecturers participate in international scientific conferences, Erasmus plus mobility, local and international research projects, conferences and seminars organised by professionals in the field.
3. Participates in continuing education courses for additional English language training, leadership skills and digital skills within the project "Renewal of academic staff and development of competences at the University of Latvia" of specific support objective 8.2.2.

3.4.1.1. Table

Upgrading the qualifications of SP Medicine lecturers

Programme teacher	Participation in refresher courses
Bārzdīņš, Juris	Baltic Institute of Corporate Governance, Board Member Education.
Birka, Ilze	Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment - C1 level

Civjāne, Liliāna	<p>European Association for Research on Adolescents (EARA) workshop: Understanding and practicing open science. Porto, Portugal.</p> <p>European Distance and E-Learning Network (EDEN) webinar: When education moves home: implications for students, academics, administrators, and education leaders.</p> <p>European Distance and E-Learning Network (EDEN) webinar: How to start teaching online.</p> <p>International Society for Quality of Life Studies (ISQOLS), workshop: The future of OECD well-being measures. Granada, Spain.</p>
Daugule, Ilva	<p>Master Training Workshop on "Research and publishing skills". Innovations to improve the quality of education. UL, Latvia.</p> <p>Developing online learning and digitising learning content.</p> <p>8th Congress of the European Academy of Paediatric Societies</p> <p>Extended resuscitation in paediatrics: the hospital phase.</p>
Gulbe, Dagnija	<p>University didactics: contemporary theories and practice, Professional development education</p> <p>Development of leadership competences of academic staff</p> <p>Current developments in emergency medicine</p> <p>Advanced adult cardiopulmonary resuscitation:prehospital phase</p> <p>Etiquette and communication skills in real and virtual environments</p>
Golubovska, Iveta	Academic staff's skills in publishing academic research
Ebela, Inguna	<p>Latvian paediatricians' education and in-service training conferences and seminars, quarterly. LPA, UL MF, RSU, Latvia.</p> <p>Academic English, level C1. LU, Latvia.</p>
Erts, Renārs	<p>Data Science Conference, course Why R? Austria.</p> <p>Developing online learning and digitising learning content. UL, Latvia.</p> <p>Innovations to improve the quality of teaching. UL, Latvia.</p> <p>Izglītība VAR/Education CAN, a forum for education leaders. Liepāja, Latvia</p> <p>The R User Conference, a hands-on course on useR! Munich, Germany.</p>
Ivanovs, Igors	University didactics: contemporary theories and practice, Professional development education
Jansone, Baiba	<p>Methodology for formulating and assessing learning outcomes</p> <p>Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment - C1 level</p> <p>TRANSGENIC BREEDING PROJECT MANAGEMENT: THEORY AND APPLICATION</p> <p>Public Speaking, Fundamentals of the Art of Speaking and Presentation (advanced level) for interaction with industry and audiences</p>
Jezupovs, Arnolds	English for Professional Purposes (Medicine II) Further Education

Folkmane, Inese	English for Professional Purposes (Medicine II) Further Education
Folkmanis, Valdis	English for Professional Purposes (Medicine II) Further Education
Krams, Alvis	Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment – B2 Level.
Kupča, Sarmīte	<p>Childhood mental and behavioural disorders, including eating disorders - anorexia, bulimia, compulsive overeating - in children and adolescents</p> <p>Current developments in otorhinolaryngology from the BKUS</p> <p>Procedures for testing for alcohol, drugs, psychotropic or toxic substances</p> <p>9th Latvian Conference on Rare Diseases</p> <p>Current issues in paediatrics: questions on allergic diseases in infants and children</p> <p>Paediatric Emergencies</p> <p>Vaccine-preventable diseases - 2020</p> <p>Current developments in drug therapy in paediatrics</p> <p>Underweight gain in infants and young children</p> <p>Surgical management and perioperative care tactics for children and young people with heart disease: improving staff skills and competencies</p>
Kužniece, Ingrīda	<p>Skills Development Programme: Innovations to Enhance the Quality of Education. UL, Latvia.</p> <p>Skills Development Programme: Developing Online Learning and Digitising Learning Content. UL, Latvia.</p> <p>Online course: Generation X,Y,Z AND A challenges for employers, parents and educators.UL, Latvia.</p> <p>NAP, ESF Training LAB, Skills Development Programme: Development of Leadership Competences of Academic Staff. Latvia.</p>
Loseviča, Marina	Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment – C1 Level.
Leonova, Elīna	English for Professional Purposes (Medicine II) Further Education
Mežinska, Signe	University didactics: contemporary theories and practice, Professional development education
Misiņš, Jānis	Public monitoring of health quality and effectiveness
Olsena, Solvita	English for Professional Purposes (Medicine II) Further Education
Rostoka, Evita	Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment – B2 Level.

Strazda, Gunta	Enhancing Professional English Language Skills of University Academic Staff for Work in a Study Environment – C1 Level. Data analysis and reporting with MS Excel, for beginners (Level 1)
Stāka, Aiga	English for Professional Purposes (Medicine II) Further Education
Srebnis, Andrejs	English for Professional Purposes (Medicine II) Further Education
Šaripo, Vita	Electrocardiography II Continuing education
Šantare, Daiga	Baltic course in clinical nutrition International Workshop on Helicobacter & Microbiota in Inflammation & Cancer
Vilde, Aija	English for Professional Purposes (Medicine II) Further Education

[1] <https://likumi.lv/ta/id/296661-noteikumi-par-latvijas-zinatnes-nozare-un-apaksnozarem> (the source is available only in Latvian)

[2] <https://likumi.lv/ta/en/en/id/37967>

[3] REGULATIONS on University of Latvia study and continuing education programmes

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

There are three groups of teaching staff at the University of Latvia: teaching staff in elected academic positions, teaching staff in acting elected academic positions (acting and visiting lecturers), and hourly lecturers. Selection and recruitment for elected academic positions and acting academic positions shall be in accordance with the Regulations on Academic and Administrative Positions at the University of Latvia (*Nolikumam par akadēmiskajiem un administratīvajiem amatiem Latvijas Universitātē*)^[1] According to the Regulations, the academic positions at the University are: professor, associate professor, assistant professor, senior researcher, lecturer, researcher, assistant, research assistant. Decisions on the need to create certain posts are taken by the Faculty. According to the UL Regulations, the minimum requirements for all applicants for academic positions are set, i.e. knowledge of the official language in accordance with the requirements of the regulatory enactments, knowledge of foreign languages at the level required for the performance of the academic position duties and continuous improvement of one's academic and scientific qualifications. Other requirements vary according to the academic position, e.g. for the post of assistant professor, a doctoral degree is a requirement, while for associate professors these requirements are even higher, i.e. significant academic and teaching experience, a wide range of publications and experience of participation in scientific projects.

During the reporting period, the core teaching staff of the SP Medicine at the UL Faculty of Medicine is stable. The composition of the respective teaching staff is reflected in Tables 48 and 49. The SP Medicine is implemented by sixteen (16) professors, two (2) visiting professors, twenty-seven (27)

associate professors, twenty-seven (27) assistant professors, one (1) acting assistant professor, thirty-two (32) lecturers and several guest lecturers.

48.

Table 48

List of SP Medicine lecturers

Name, surname	Position	Scientific degree	Taught study courses
Aksiks Igors	asociētais profesors	Dr.habil.med.	<u>Neiroloģija II un neiroķirurģija</u> Neurology II and neurosurgery <u>Klīniskā prakse V</u> Clinical Practice V
Andersone Daina	profesors	Dr.habil.med.	<u>Iekšējās slimības III</u> Internal Diseases III <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Iekšējo slimību propedeitika I</u> Propaedeutics of Internal <u>Mācību prakse iekšējajās slimībās</u> Practice of Internal Diseases
Baumane Kristīne	docents	Dr.med.	<u>Oftalmoloģija</u> Ophthalmology
Bārzdiņš Juris	asociētais profesors	Dr.oec	<u>Vadīšana, komunikācija, risku pārvaldība un tiesiskie aspekti veselības aprūpes organizācijā</u> Management, Communication, Risk Management and Legal Aspects in a Health Care Organization <u>Veselības aprūpes ekonomiskie, sociālie, kultūras un organizatoriskie aspekti</u> Economic, Social, Cultural and Organizational Aspects of Health Care
Biederer Juergen	viesprofesors	Dr.med.	<u>Vizuālā diagnostika</u> Visual Diagnostics

Brinkmann Olaf Anselm	viesprofesors	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Boka Sarmīte	docents	Dr.med.	<u>Cilvēka anatomija III</u> Human Anatomy III <u>Normālā anatomija IV</u> Normal Anatomy IV
Boka Viesturs	profesors	Dr.med.	<u>Ķirurģija</u> Surgery
Bukovskis Māris	asociētais profesors	Dr.med.	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse II</u> Clinical Practice II
Civjāne Liliāna	asociētais profesors	Dr.phil.	<u>Vides aizsardzība un vides veselība</u> Environmental Protection and Environmental Health <u>Sabiedrības veselība un epidemioloģija</u> Epidemiology and Public Health
Daugule Ilva	asociētais profesors	Dr.med.	<u>Pediatrija I</u> Paediatrics I <u>Pediatrija II</u> Paediatrics II <u>Klīniskā prakse III</u> Clinical Practice III
Dumpis Uga	profesors	Dr.med.	<u>Infekcijas I</u> Infections I <u>Infekcijas II</u> Infections II
Dzirkale Zane	docents	Dr.pharm.	<u>Farmakoloģija I</u> Pharmacology I <u>Farmakoloģija II</u> Pharmacology II
Ebela Inguna	asociētais profesors	Dr.med.	<u>Ievads medicīnas studijās</u> Introduction to Medicine Studies

Eglītis Jānis	asociētais profesors	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Erts Renārs	docents	Dr.phys.	<u>Medicīniskā statistika I</u> Medical statistics I <u>Medicīniskā statistika 2</u> Medical statistics 2 <u>Medicīniskās aparatūras uzbūve, fizikālie darbības un iedarbības principi</u> Principles of medical devices and applications
Ērglis Andrejs	profesors	Dr.med.	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Klīniskā prakse II</u> Clinical Practice II
Folkmane Inese	asociētais profesors	Dr.med.	<u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Klīniskā prakse IV</u> Clinical Practice IV
Folkmanis Valdis	profesors	Dr.med.	<u>Neiroloģija I</u> Neurology I <u>Neiroloģija II un neiroķirurģija</u> Neurology II and neurosurgery <u>Sociālā medicīna</u> Social Medicine
Golubovska Iveta	docents	Dr.med.	<u>Specializētā ķirurģija un anestezioloģija</u> Specific Considerations of Surgery and Anesthesiology <u>Neatliekamās un pirmās palīdzības kurss (prakse)</u> Emergency Medicine and Basic Life Support (Practice) <u>Ievads algoloģijā</u> Introduction to Algology

Gončars Valdis	docents	Dr.med.	Traumatoloģija un Ortopēdija Traumatology and Orthopedic surgery
Gordjušina Valentīna	asociētais profesors	Dr.med.	<u>Vispārējā patoloģija</u> General pathology <u>Orgānu un sistēmu patoloģija I</u> Organ and System Pathology I <u>Orgānu un sistēmu patoloģija II</u> Organ and system pathology II
Hegmane Alinta	asociētais profesors	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Isajevs Sergejs	profesors	Dr.med.	<u>Vispārējā patoloģija</u> General pathology <u>Orgānu un sistēmu patoloģija I</u> Organ and System Pathology I <u>Orgānu un sistēmu patoloģija II</u> Organ and system pathology II
Ivanova Patrīcija	docents	Dr.med.	<u>Ķirurģija</u> Surgery <u>Ķirurģijas elementi</u> Principles of Surgery <u>Endovaskulārās metodes ķirurģijā</u> Methods of endovascular in surgery <u>Mācību prakse ķirurģijā</u> Practice of Surgery <u>Klīniskā prakse V</u> Clinical Practice V <u>Specializētā ķirurģija un anestezioloģija</u> Specific Considerations gery and Anesthesiology
Ivanovs Igors	asociētais profesors	Dr.med.	<u>Ķirurģija</u> Surgery <u>Mācību prakse ķirurģijā</u> Practice of Surgery

Jansone Baiba	profesors	Dr.med.	<u>Farmakoloģija I</u> Pharmacology I <u>Farmakoloģija II</u> Pharmacology II
Januškevičs Sergejs	docents	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Jezupovs Arnolds	asociētais profesors	Dr.med.	<u>Ķirurģija</u> Surgery <u>Ķirurģijas elementi</u> Principles of Surgery <u>Diplomdarbs</u> Research Project <u>Diplomdarbs (ārstniecība) I</u> Diploma thesis (medicine) I <u>Diplomdarbs (ārstniecība) II</u> Diploma thesis (medicine) II <u>Gala pārbaudījums ārstniecībā</u> Final Examination in General Medicine <u>Praktisko manipulāciju tehnika</u> Practical procedure techniques <u>Klīniskā prakse V</u> Clinical Practice V <u>Specializētā ķirurģija un aneste- zioloģija</u> Specific Considerations gery and Anesthesiology
Jurka Normunds	docents	Dr.med.	<u>Ekspresdiagnostikas pamati</u> Basis of Point-of-Care-Testing
Kalnberzs Konstantīns	profesors	Dr.habil.med.	Traumatoloģija un Ortopēdija Traumatology and Orthopedic surgery
Kārklīņa Helēna	docents	Dr.med.	<u>Cilvēka anatomija I</u> Human Anatomy I <u>Normālā anatomija II</u> Normal Anatomy II

Knipše Gundega	profesors	Dr.med.	<u>Cilvēka anatomija I</u> Human Anatomy I <u>Normālā anatomija II</u> Normal Anatomy II
Krams Alvils	asociētais profesors	Dr.med.	<u>Pneimonoloģija, alergoloģija</u> Pneumonology, Allergology <u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse II</u> Clinical Practice II
Krieviņš Dainis	profesors	Dr.med.	<u>Angioloģija</u> Angiology
Krūmiņa Džanna	asociētais profesors	Dr.med.	<u>Cilvēka anatomija III</u> Human Anatomy III <u>Normālā anatomija IV</u> Normal Anatomy IV
Kumsārs Indulis	docents	Dr.med.	<u>Elektrokardiogrāfija</u> Electrocardiography <u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse III</u> Clinical Practice III <u>Iekšīgo slimību propedeutika I</u> Propaedeutics of Internal <u>Klīniskā prakse V</u> Clinical Practice V <u>Klīniskā prakse II</u> Clinical Practice II
Kupča Sarmīte	docents	Dr.med.	<u>Pediatrija I</u> Paediatrics I <u>Pediatrija II</u> Paediatrics II <u>Klīniskā prakse III</u> Clinical Practice III

Ķevere Laura	docents	Dr.med.	<u>Psihiatrija un psihoterapija I</u> Psychiatry and psychotherapy I
Latkovskis Gustavs	profesors	Dr.med.	<u>Elektrokardiogrāfija</u> Electrocardiography <u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības II</u> Internal Diseases II <u>Iekšējo slimību propedeitika I</u> Propaedeutics of Internal <u>Klīniskā prakse V</u> Clinical Practice V <u>Klīniskā prakse III</u> Clinical Practice III <u>Klīniskā prakse II</u> Clinical Practice II
Leja Mārcis	profesors	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Līduma Iveta	docents	Dr.med.	<u>Mikrobioloģija, imunoloģija, parazitoloģija</u> Microbiology, Immunology, Parasitology <u>Mikrobioloģija II</u> Microbiology II
Leonova Elīna	docents	Dr.biol.	<u>Bioķīmijas pamati</u> Basics of Biochemistry <u>Medicīnas bioķīmija</u> Medical Biochemistry
Markovs Jurijs	profesors	Dr.habil.med.	<u>Vispārējā un speciālā histoloģija</u> General and Special Histology <u>Medicīnas Embrioloģija</u> Medical Embryology

Mežinska Signe	asociētais profesors	Dr.sc.soc.	<u>Veselības aprūpes ekonomiskie, sociālie, kultūras un organizatoriskie aspekti</u> Economic, Social, Cultural and Organizational Aspects of Health Care <u>Medicīnas vēsture un ētika</u> History of Medicine & Medical Ethics
Mintāle Iveta	docents	Dr.med.	<u>Iekšējās slimības V</u> Internal Diseases V <u>Dzīvesstila mācība hronisku slimību profilaksei</u> Lifestyle course for prevention of chronic diseases
Misiņš Jānis	docents	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Miščuks Aleksejs	asociētais profesors	Dr.med.	<u>Specializētā ķirurģija un anestezioloģija</u> Specific Considerations of Surgery and Anesthesiology <u>Neatliekamās un pirmās palīdzības kurss (prakse)</u> Emergency Medicine and Basic Life Support (Practice) <u>Ievads algoloģijā</u> Introduction to Algology
Olsena Solvita	asociētais profesors	Dr.iur.	<u>Medicīnas tiesības</u> Medical Law
Pīrāgs Valdis	profesors	Dr.med.	<u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības III</u> Internal Diseases III <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Mācību prakse iekšējajās slimībās</u> Practice of Internal Diseases

Puķīte Margarita	docents	Dr.paed.	<u>Dzemdniecība</u> Obstetrics <u>Ginekoloģija</u> Gynaecology <u>Sievietes un ģimenes seksuālās un reproduktīvās veselības aprūpe</u> Female and Family Sexual and Reproductive Health Care <u>Klīniskā prakse II</u> Clinical Practice II
Puķītis Aldis	asociētais profesors	Dr.med.	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse V</u> Clinical Practice V <u>Mācību prakse iekšējajās slimībās</u> Practice of Internal Diseases
Radziņa Maija	asociētais profesors	Dr.med.	<u>Vizuālā diagnostika</u> Visual Diagnostics
Riekstiņa Vija	docents	Dr.med.	<u>Iekšējās slimības I</u> Internal Diseases I <u>Klīniskā prakse II</u> Clinical Practice II
Rostoka Evita	docents	Dr.med.	<u>Bioķīmijas pamati</u> Basics of Biochemistry <u>Medicīnas bioķīmija</u> Medical Biochemistry
Rubins Andris	profesors	Dr.habil.med.	<u>Dermatoveneroloģija</u> Dermatovenerology <u>Klīniskā prakse II</u> Clinical Practice II
Rubins Silvestrs	asociētais profesors	Dr.med.	<u>Dermatoveneroloģija</u> Dermatovenerology <u>Klīniskā prakse II</u> Clinical Practice II

Rudzītis Ainārs	docents	Dr.med.	<u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse III</u> Clinical Practice III <u>Klīniskā prakse I</u> Clinical Practice I <u>Klīniskā prakse II</u> Clinical Practice II
Rumba-Rozenfelde Ingrīda	profesors	Dr.habil.med.	<u>Pediatrija I</u> Paediatrics I <u>Pediatrija II</u> Paediatrics II <u>Klīniskā prakse III</u> Clinical Practice III
Selga Tūrs	asociētais profesors	Dr.biol.	<u>Ievads šūnu bioloģijā</u> Introduction to Cell Biology
Sīviņš Armands	docents	Dr.med.	<u>Ķirurģija</u> Surgery <u>Mācību prakse ķirurģijā</u> Practice of Surgery
Sjakste Nikolajs	profesors	Dr.habil.biol.	<u>Bioķīmijas pamati</u> Basics of Biochemistry <u>Iedzimtas slimības</u> Hereditary Diseases <u>Medicīnas bioķīmija</u> Medical Biochemistry
Solomatins Igors	asociētais profesors	Dr.med.	<u>Oftalmoloģija</u> Ophthalmology <u>Klīniskā prakse IV</u> Clinical Practice IV
Srebnis Andrejs	docents	Dr.med.	<u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine

Stāka Aiga	docents	Dr.med.	<u>Iekšķīgo slimību propedeutika I</u> Propaedeutics of Internal Diseases I <u>Iekšķīgo slimību propedeutika II</u> Propaedeutics of Internal Diseases II <u>Klīniskā prakse I</u> Clinical Practice I
Strazda Gunta	asociētais profesors	Dr.biol.	<u>Vispārējā patoloģija</u> General pathology <u>Orgānu un sistēmu patoloģija I</u> Organ and System Pathology I <u>Orgānu un sistēmu patoloģija II</u> Organ and system pathology
Strazdiņš Uldis	asociētais profesors	Dr.med.	<u>Iekšķīgās slimības V</u> Internal Diseases V <u>Klīniskā prakse V</u> Clinical Practice V <u>Mācību prakse iekšķīgajās slimībās</u> Practice of Internal Diseases
Šantare Daiga	docents	Dr.med.	<u>Uzturzinātnes pamati</u> Basics of Nutrition Science <u>Onkoloģija, terapeitiskā radioloģija, paliatīvā aprūpe un tiesu medicīna</u> Oncology, Therapeutic Radiology, Palliative Care and Forensic Medicine
Šavlovskis Jānis	docents	Dr.med.	<u>Cilvēka anatomija III</u> Human Anatomy III <u>Normālā anatomija IV</u> Normal Anatomy IV <u>Vizuālā diagnostika</u> Visual Diagnostics
Taivans Immanuels	profesors	Dr.habil.med.	<u>Vispārējā patoloģija</u> General pathology <u>Orgānu un sistēmu patoloģija I</u> Organ and System Pathology I <u>Orgānu un sistēmu patoloģija II</u> Organ and system pathology II

Tolmane Ieva	asociētais profesors	Dr.med.	<u>Infekcijas I</u> Infections I <u>Infekcijas II</u> Infections II <u>Klīniskā prakse V</u> Clinical Practice V <u>Klīniskā prakse III</u> Clinical Practice III
Tračevska Tatjana	asociētais profesors	Dr. boil.	<u>Mikrobioloģija, imunoloģija, parazitoloģija</u> Microbiology, Immunology, Parasitology <u>Mikrobioloģija II</u> Microbiology II <u>Jaunākās diagnostikas metodes medicīniskajā mikrobioloģijā</u> New diagnostic methods in medical microbiology
Vjaters Egils	asociētais profesors	Dr.med.	Uroloģija Urology
Zadorožnijs Sergejs	docents	Dr.med.	Traumatoloģija un Ortopēdija Traumatology and Orthopedic surgery
Ražuks Romualds	docenta p.i	Dr.med	<u>Civilā aizsardzība</u> Civil protection
Aizsilniece Ilze	lektors	Ārsta grāds	<u>Ģimenes medicīna</u> Family medicine <u>Mācību prakse ģimenes medicīnā un neatliekamajā medicīnā</u> Practice of Family Medicine and Emergency Medicine
Birka Ilze	lektors	Ārsta grāds	<u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse III</u> Clinical Practice III
Buliņa Inita	lektors	Ārsta grāds	<u>Iekšējās slimības III</u> Internal Diseases III <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Mācību prakse iekšējajās slimībās</u> Practice of Internal Diseases

Čerņavska Inta	lektors	Ārsta grāds	<u>Specializētā ķirurģija un anestezioloģija</u> Specific Considerations of Surgery and Anesthesiology <u>Neatliekamās un pirmās palīdzības kurss (prakse)</u> Emergency Medicine and Basic Life Support (Practice)
Freimane Amanda	lektors	Ārsta grāds	<u>Cilvēka anatomija I</u> Human Anatomy I <u>Normālā anatomija II</u> Normal Anatomy II
Galuza Agate	lektors	Ārsta grāds	<u>Vispārējā un speciālā histoloģija</u> General and Special Histology <u>Medicīnas Embrioloģija</u> Medical Embryology
Geldnere Kristīne	lektors	Ārsta grāds	<u>Iekšējo slimību propedeitika I</u> Propaedeutics of Internal Diseases I <u>Iekšējo slimību propedeitika II</u> Propaedeutics of Internal Diseases II <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības III</u> Internal Diseases III <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Mācību prakse iekšējajās slimībās</u> Practice of Internal Diseases
Gulbe Dagnija	lektors	Mg.sc.sal.	<u>Klīniskās aprūpes pamati (prakse)</u> Basics of Clinical Care
Kalējs Jevgeņijs	lektors	Ārsta grāds	<u>Dzemdniecība</u> Obstetrics <u>Ginekoloģija</u> Gynaecology

Kārkliņa Daiga	lektors	Ārsta grāds	<u>Pediatrija I</u> Paediatrics I <u>Pediatrija II</u> Paediatrics II <u>Klīniskā prakse III</u> Clinical Practice III
Kozirovskis Viktors	lektors	Ārsta grāds	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II
Krastiņa Zane	lektors	Ārsta grāds	<u>Dzemdniecība</u> Obstetrics <u>Ginekoloģija</u> Gynaecology <u>Klīniskā prakse II</u> Clinical Practice II
Krastiņš Kalvis	lektors	Ārsta grāds	Traumatoloģija un Ortopēdija Traumatology and Orthopedic surgery
Kužniece Ingrīda	lektors	Ārsta grāds	<u>Vides aizsardzība un vides veselība</u> Environmental Protection and Environmental Health <u>Sabiedrības veselība un epidemioloģija</u> Epidemiology and Public Health
Ķūse Velga	lektors	Ārsta grāds	<u>Infekcijas I</u> Infections I <u>Infekcijas II</u> Infections II
Laizāns Paulis	lektors	Ārsta grāds	<u>Specializētā ķirurģija un anestezioloģija</u> Specific Considerations of Surgery and Anesthesiology <u>Klīniskā prakse V</u> Clinical Practice V
Landsmane Inga	lektors	Ārsta grāds	<u>Narkoloģija</u> Narcology

Loseviča Marina	lektors	Ārsta grāds	<u>Psihiatrija un psihoterapija I</u> Psychiatry and psychotherapy I
Ozola- Azovska Dace	lektors	Ārsta grāds	<u>Neiroloģija II un neiroķirurģija</u> Neurology II and neurosurgery
Ozola-Zālīte Imanta	lektors	Ārsta grāds	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse III</u> Clinical Practice III
Peksis Kaspars	lektors	Dr.med	<u>Otorinolaringoloģija</u> Otorhinolaryngology <u>Klīniskā prakse IV</u> Clinical Practice IV
Roze Rūdolfs	lektors	Ārsta grāds	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Iekšējo slimību propedeitika I</u> Propaedeutics of Internal <u>Klīniskā prakse V</u> Clinical Practice V <u>Mācību prakse iekšējajās</u> <u>slimībās</u> Practice of Internal Diseases <u>Klīniskā prakse III</u> Clinical Practice III <u>Klīniskā prakse II</u> Clinical Practice II
Rudzāts Agris	lektors	Ārsta grāds	<u>Ķirurģija</u> Surgery <u>Mācību prakse ķirurģijā</u> Practice of Surgery
Popova Anna	lektors	Ārsta grāds	<u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības IV</u> Internal Diseases IV <u>Klīniskā prakse V</u> Clinical Practice V <u>Klīniskā prakse IV</u> Clinical Practice IV

Sergejevs Dmitrijs	lektors	Ārsta grāds	<u>Mācību prakse ģimenes medicīnā un neatliekamajā medicīnā</u> Practice of Family Medicine and Emergency Medicine <u>Ievads medicīnas studijās</u> Introduction to Medicine Studies
Smeltere Ligita	lektors	Dr.med.	<u>Neiroloģija I</u> Neurology I <u>Neiroloģija II un neiroķirurģija</u> Neurology II and neurosurgery
Sorokina Milāna	lektors	Ārsta grāds	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Iekšējās slimības II</u> Internal Diseases II <u>Klīniskā prakse I</u> Clinical Practice I <u>Klīniskā prakse II</u> Clinical Practice II
Sūna Normunds	lektors	Ārsta grāds	<u>Neiroloģija I</u> Neurology I <u>Neiroloģija II un neiroķirurģija</u> Neurology II and neurosurgery <u>Klīniskā prakse IV</u> Clinical Practice IV
Šaripo Vita	lektors	Ārsta grāds	<u>Iekšējās slimības I</u> Internal Diseases I <u>Iekšējās slimības V</u> Internal Diseases V <u>Klīniskā prakse II</u> Clinical Practice II
Veide Sarmīte	lektors	Ārsta grāds	<u>Ģimenes medicīna</u> Family medicine <u>Mācību prakse ģimenes medicīnā un neatliekamajā medicīnā</u> Practice of Family Medicine and Emergency Medicine

Vilde Aija	lektors	Ārsta grāds	<u>Infekcijas I</u> Infections I <u>Infekcijas II</u> Infections II
Zeidaka Linda	lektors	Ārsta grāds	<u>Ķirurģija</u> Surgery <u>Mācību prakse ķirurģijā</u> Practice of Surgery
Kokare Inese	pasniedzējs	Ārsta grāds	<u>Fizikālā, rehabilitācijas un sporta medicīna</u> Physical, Rehabilitation and Sports Medicine
Kriķe Petra	pasniedzējs	Ārsta grāds	<u>Iekšējās slimības II</u> Internal Diseases II <u>Iekšējās slimības V</u> Internal Diseases V <u>Klīniskā imunoloģija</u> Clinical Immunology <u>Klīniskā prakse III</u> Clinical Practice III
Šlisere Baiba	pasniedzējs	Ārsta grāds	<u>Laboratorijas medicīna</u> Laboratory medicine
Užāns Andis	pasniedzējs	Ārsta grāds	<u>Psiholoģija un medicīniskās psihoterapijas pamati</u> Psychology and the basics of medical psychotherapy

49 Table

List of lecturers of SP Medicine invited from other faculties

Name, surname	Position	Scientific degree	Taught study courses
Auziņš Mārcis	profesors	Dr. habil. phys	Fizika medicīnā Physics in Medicine
Rašals Īzaks	profesors	Dr. habil. biol.	Ģenētikas pamati Basics of Genetics

Gorņeva Ilona	asoc. prof	Dr.philol.	Profesionālā svešvaloda (latviešu valoda) ārstiem I Latvian as a Foreign Language for Medical Studies I Profesionālā svešvaloda (latviešu valoda) ārstiem II Latvian as a Foreign Language for Medical Studies II Profesionālā svešvaloda (latviešu valoda) ārstiem III Latvian as a Foreign Language for Medical Studies III Medicīniskā latīņu valoda Medical Latin
Linē Aija	asoc. prof	Dr. biol.	Molekulārā ģenētika Molecular Genetics
Plakane Līga	asoc. prof.	Dr. biol.	Cilvēka fizioloģija I Human Physiology I Cilvēka fizioloģija II Human physiology II
Priekšāne Anda	asoc. prof.	Dr. chem	Ķīmija medicīnas studentiem Chemistry for medical students
Purmalis Kārlis	asoc. prof.	Dr. oec	Uzņēmējdarbības pamati Entrepreneurship
Beļicka Līga	lektors	Mg. philol.	Nozares angļu valoda mediķiem English for Medicine I Nozares angļu valoda mediķiem II English for Medicine II

During the reporting period, as the number of students increased, the need for lecturers increased, see Table 50.

50.table

During the reporting period, SP Medicine newly attracted lecturers

Name, surname	Position	Scientific degree
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Baumane Kristīne	docents	Dr.med.
Bārzdiņš Juris	asociētais profesors	Dr.oec
Civjāne Liliāna	asociētais profesors	Dr.phil.
Erts Renārs	docents	Dr.phys.
Kumsārs Indulis	docents	Dr.med.
Kupča Sarmīte	docents	Dr.med.
Leonova Elīna	docents	Dr.biol.
Mintāle Iveta	docents	Dr.med.
Olsena Solvita	asociētais profesors	Dr.iur.
Radziņa Maija	asociētais profesors	Dr.med.
Rudzītis Ainārs	docents	Dr.med.
Ražuks Romualds	docenta p.i	Dr.med
Aizsilniece Ilze	lektors	Ārsta grāds
Freimane Amanda	lektors	Ārsta grāds
Galuza Agate	lektors	Ārsta grāds
Kārkliņa Daiga	lektors	Ārsta grāds
Krastiņš Kalvis	lektors	Ārsta grāds
Kužniece Ingrīda	lektors	Ārsta grāds
Landsmane Inga	lektors	Ārsta grāds
Sergejevs Dmitrijs	lektors	Ārsta grāds
Smeltere Ligita	lektors	Dr.med.
Strazdiņš Uldis	asociētais profesors	Dr.med.
Sūna Normunds	lektors	Ārsta grāds
Veide Sarmīte	lektors	Ārsta grāds

During the reporting period, a number of lecturers have developed their academic careers, such as

three (3) associate professors: Baiba Jansone, Valdis Folkmanis, Sergejs Isajevs have become professors, while five (5) assistant professors Igors Ivanovs, Signe Mežinska, Ieva Tolmane, Maris Bukovskis, Iveta Golubovska and Aleksejs Miščuks have been elected as associate professors, while Sergejs Zadorožnijs, Valdis Gončars, Jānis Šavlovskis, Zane Dzirkale, Indulis Kumsārs, Iveta Līduma have been elected as assistant professors. Doctoral degrees in medicine, biology, pedagogy, chemistry and economics are obtained, which is a great advantage resulting from the opportunities for multidisciplinary cooperation at the UL. For example, chemistry courses are taught by an associate professor of the Faculty of Chemistry, medical physics by a professor of the FMOF, and economics by an associate professor of the BVEF. During the reporting period, seventeen lecturers of the SP Medicine defended their doctoral theses and obtained doctoral degrees.

During the reporting period, lecturers have been trained in the Moodle programme, English language courses and digital skills courses. The professional traineeship of lecturers is ensured by their involvement in attraction and execution of research projects, participation in international scientific conferences.

Each semester, the SP Medicine lecturers meet to review the programme's current developments and students' opinions on the quality of courses and programme content as expressed in the LUIS survey, to discuss the course content improvement and to coordinate the distribution of diploma thesis topics.

Various forms and support mechanisms are used to increase the qualifications of the teaching staff in order to improve the academic skills of the elected reader within six years: experience exchange in other universities, participation in the international academic and scientific conferences and seminars, and experience not only in didactics but also in scientific work.

[1]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/5/nr_153_akad_visp_amatu_nolikums_eng.pdf

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The SP Medicine lecturers represent several branches of science, for example, chemistry courses are taught by lecturers of the UL Faculty of Chemistry (KF), business courses are taught by an associate professor of the UL Faculty of Business, Management and Economics (BVEF). Interaction and cooperation between academic staff take place during various events organised by the University: staff meetings, scientific conferences, science cafés, continuing education courses and information meetings about scientific projects.

During the reporting period, each semester the SP Medicine lecturers discuss the credit requirements for study courses and update the course content to align the relevant knowledge, skills and competence with the latest trends in the field. The curriculum is developed in response to student suggestions, both through course evaluations and face-to-face discussions with course leaders or representatives.

The staff meetings discuss expanding library collections with the latest literature and useful databases. The SP Medicine lecturers meet at the end of each semester to evaluate the students' opinions on the quality of the courses and programme content expressed in the LUIS survey and, based on the students' suggestions, to discuss the course content improvement and to coordinate the thesis topics.

The study process planning and supervision, the respective progress and quality control are carried out in accordance with the Health Care study plan.

The ratio of students to teaching staff cannot be calculated precisely, as teaching staff work part-time in the SP Medicine. The ratio of students to teaching staff is around 10.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_Ārsti_diploms_ar_pielikumu_Eng.docx	11.pielikums_Ārsti_diploms_ar_pielikumu_LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_Ārsti_studentu_skaita_statistika_Eng.docx	4.pielikums_Ārsti_studentu_skaita_statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	10.annex_Ārsti_Compliance with the State Education Standard_Eng.docx	10.pielikums_Ārsti_atbilstība valsts izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	5.annex_Ārsti_atbilstība profesijas standartam_Eng.docx	5.pielikums_Ārsti_atbilstība profesijas standartam_LV.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	6.annex_Ārsti_atbilstību atbilstošās nozares specifiskajam normatīvajam regulējumam_Eng (1).docx	6.pielikums_Ārsti_atbilstību atbilstošās nozares specifiskajam normatīvajam regulējumamLV (2).docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_Ārsti_studiju kursu kartējums_Eng.docx	8.pielikums_Ārsti_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_Ārsti_study plan_Eng.docx	1.pielikums_Ārsti_studiju plāns_LV.docx
Descriptions of the study courses/ modules	7.annex_Ārsti_kursu_apraksti_Eng.docx	7.pielikums_Ārsti_kursu_apraksti_LV.docx
Description of the organisation of the internship of the students (if applicable)	9.annex_Ārsti_Prakses nolikums ENG.doc	9. pielikums_Ārsti_prakses nolikums_LV.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Medicine (50721)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Medicine</i>
Education classification code	<i>50721</i>
Type of the study programme	<i>Second level higher higher education for obtaining the qualification of a medical specialist and for obtaining the qualification of a dental specialist.</i>
Name of the study programme director	<i>Dainis</i>
Surname of the study programme director	<i>Krieviņš</i>
E-mail of the study programme director	<i>dainis.krievins@lu.lv</i>
Title of the study programme director	<i>LU profesors, Dr.med.</i>
Phone of the study programme director	<i>+371 29450000</i>
Goal of the study programme	<i>The aim of the full-time 2nd level higher professional education residency study program "MEDICINE" of the University of Latvia is to ensure in-depth acquisition of theoretical knowledge and practical skills in one of the basic medical specialties, sub-specialties or additional specialties after obtaining higher medical education (doctor's degree or specialist qualification), to prepare specialists for independent medical activity and administration of certain clinical trials in the acquired specialty, as well as to provide the necessary knowledge for passing the certification examination in the specialty in accordance with the regulatory enactments of the European Union and the Republic of Latvia.</i>

Tasks of the study programme	<ol style="list-style-type: none"> 1. To enable residents to acquire the necessary theoretical knowledge and practical work skills on the etiology, pathogenesis, clinical symptoms, diagnostics, differential diagnosis, treatment, rehabilitation and prevention of diseases acquired in the specialty; 2. To give residents the opportunity to acquire theoretical knowledge and practical skills in working with modern medical technologies used in the specialty, diagnostics, etc. the use of medical equipment and the interpretation of results, to provide an opportunity to acquire diagnostic manipulations and therapeutic methods, being able to evaluate the usefulness and indications for their use; 3. To provide knowledge and skills for the analysis of scientific literature and research activities, which are also useful for further doctoral studies; 4. To provide an opportunity to acquire practical skills required both in outpatient care and in a highly qualified and specialized university clinic; 5. To prepare new colleagues who will be able to actively participate in the work of lifelong learning for health care professionals in the future, as well as to prepare new specialists for academic work in education in medicine and other life sciences; 6. To provide an opportunity to become creative and innovative young professionals in health care and medical science; 7. To provide an opportunity to gain international experience in the study process; 8. To teach the basic principles of medical deontology and ethics, which must be observed in one's professional activity; 9. To provide knowledge about the legal bases of a doctor's professional activity; 10. To develop the ability to organize and manage the work of a health care institution, to be able to get involved in the issues of state health care planning and policy.
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Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. knows the etiological factors and pathogenetic mechanisms of the disease, diagnostic and treatment methods, principles of operation of modern technologies in medicine and indications and contraindications for their application; 2. knows clinical disciplines both in specialty and related fields; 3. orients in the analysis of scientific literature and knows the principles of research, ethics and legal issues. <p>Skills:</p> <ol style="list-style-type: none"> 4. uses modern diagnostic and treatment methods, including the latest technological advances that are characteristic of their specialty; 5. works professionally in accordance with legal and ethical norms, organizes own and the team's professional activities, including working in a multidisciplinary team; 6. actively participates in scientific activities, analyzes the obtained results, improves knowledge and skills, increases ability to work in a competitive environment; <p>Competence:</p> <ol style="list-style-type: none"> 7. analyzes and understands complex medical problems and solves them by making correct and reasoned decisions, developing an adequate action plan and not increasing one's personal responsibility; 8. works well in a multidisciplinary team for the common goal of improving patient health; 9. provide experience in educational activities and actively participates in health policy issues.
Final examination upon the completion of the study programme	<p>State examinations: 1. Examination, which may be a certification examination in the specialty at the same time (Cabinet Regulation No. 943 of 18 December 2012 "Procedure for Certification of Medical Practitioners" provides for the possibility to simultaneously take the residency state examination and Certification examination if agreed upon by the educational institution and the certification commission (paragraphs 27.5 and 43).(https://likumi.lv/ta/en/en/id/253782)</p> <p>2. Research work (diploma thesis) and diploma defence . Research work can be: 1) a research work reported at an international conference or congress; 2) a research work published in a peer-reviewed medical publication; 3) a patented invention.</p>

Study programme forms

Full time studies - 2 years - latvian

Study type and form	Full time studies
Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	88
Admission requirements (in English)	a medical degree and professional qualification in a basic doctor's specialty pediatrician
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	neonatologist

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 3 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	3
Duration in month	0
Language	<i>latvian</i>
Amount (CP)	132
Admission requirements (in English)	<i>a medical degree</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	<i>dermatologist, venereologist; family physician (general practitioner);</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 4 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	4
Duration in month	0
Language	<i>latvian</i>
Amount (CP)	176
Admission requirements (in English)	<i>medical degree</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	<i>laboratory doctor, ophthalmologist; otolaryngologist; pathologist; pediatrician, psychiatrist; psychotherapist; radiotherapist; sports doctor</i>

Full time studies - 5 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	5
Duration in month	0
Language	<i>latvian</i>
Amount (CP)	220
Admission requirements (in English)	<i>medical degree</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—

Qualification to be obtained (in english)	<i>anesthesiologist reanimatologist; vascular surgeon; radiologist; gynaecologist; endocrinologist; pneumonologist; gastroenterologist; infectologist; internist; cardiologist; surgeon; thoracic surgeon; emergency physician; nephrologist; oncologist chemotherapist; pneumonologist; rheumatologist; heart surgeon; trauma and orthopaedic surgeon;; urologist</i>
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Full time studies - 6 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>6</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>264</i>
Admission requirements (in English)	<i>medical degree</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	<i>neurosurgery</i>

Full time studies - 3 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>3</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>132</i>
Admission requirements (in English)	<i>qualification of one of the basic specialties of a doctor</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	<i>osteopath</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 4 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>4</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>176</i>
Admission requirements (in English)	<i>qualification in one of the specialties: internist; dermatologist venereologist; pneumonologist; family physician (general practitioner), otolaryngologist; pediatrician</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	—
Qualification to be obtained (in english)	<i>allergologist</i>

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

University of Latvia study field "Health Care" full-time 2nd level higher professional education study program in residency MEDICINE (Education classification code - 48721), accredited on 31 May 2013 (Accreditation sheet No.69).

At the end of the study program, the qualification of a doctor's specialist in one of the basic specialties, subspecialties or additional specialties of a doctor is obtained, which, after obtaining a professional certificate, gives the right to work independently in one's own speciality.

The second level higher professional education study program in the residency MEDICINE includes 34 sub-programs of medical specialties with a study period from 2 to 6 years or 88 CP (132 ECTS) to 264 CP (396 ECTS).

Changes:

1) Changes in the study classification code of the study program **from 48721 to 50721** in accordance with the regulations of June 13, 2017 No. 322 "Regulations on the Classification of Education in Latvia" (Annexes 1 and 2). <https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitiba-klasifikaciju> (*the document is available only in Latvian)

2) Added speciality subprogrammes with the acquisition of the corresponding qualification at the end of the study:

- **Infectology (qualification - infectologist)**
- **Laboratory medicine (qualification - laboratory physician)**
- **Emergency medicine (qualification - emergency physician)**
- **Psychiatry (qualification - psychiatrist)**
- **Psychotherapy (qualification - psychotherapist).**

3) The name of the programme has been changed: In accordance with the regulation No. 268 of the Cabinet of Ministers of the Republic of Latvia "Regulations on the competence of medical practitioners and students acquiring first or second level professional higher medical education programs in medical practice and the amount of theoretical and practical knowledge of these persons"

(<https://likumi.lv/ta/id/190610-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust-pirma-ai-otra-limena-profesionalas-augstakas-mediciniskas>), (*the document is available only in Latvian)

- **Thorax surgery to Thoracic surgery;**
- **Otorinolaryngology to Otolaryngology;**
- **Phthisiopneumology to Pneumonology;**

4) Changes in the duration of study programs and the transition of the speciality from the status of a subspecialty to a basic speciality, in accordance with the amendments to the regulation No.268 of

the Cabinet of Ministers of the Republic of Latvia "Regulations on the competence of medical practitioners and students acquiring first or second level professional higher medical education programs in medical practice and the amount of theoretical and practical knowledge of these persons" (the regulation version No. 784 of 13.12.2016): (<https://likumi.lv/ta/id/287388-grozijumi-ministru-kabineta-2009-gada-24-marta-noteikumos-nr-268-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust>)

(*the document is available only in Latvian)

Internal Medicine 3 years to Internal Medicine 5 years

Endocrinology (*subspecialty, to be acquired after mastering the internal medicine program*) **3 years** - to **Endocrinology**, *basic speciality 5 years* (if studies are started after obtaining a medical degree, or 3 years if studies are started after obtaining an internist's qualification);

Gastroenterology (*subspecialty, to be acquired after mastering the internal medicine program*) **3 years** - to **Gastroenterology**, *basic speciality 5 years* (if studies are started after obtaining a medical degree, or 3 years if studies are started after obtaining an internist's qualification);

Cardiology (*subspecialty, to be acquired after mastering the internal medicine program*) **3 years** - to **Cardiology**, *basic speciality 5 years* (if studies are started after obtaining a medical degree, or 3 years if studies are started after obtaining an internist's qualification);

Nephrology (*subspecialty, to be acquired after mastering the internal medicine program*) **3 years** - to **Nephrology**, *basic speciality 5 years* (if studies are started after obtaining a medical degree, or 3 years if studies are started after obtaining an internist's qualification);

Rheumatology (*subspecialty, to be acquired after mastering the internal medicine program*) **3 years** - to **Rheumatology**, *basic speciality 5 years* (if studies are started after obtaining a medical degree, or 3 years if studies are started after obtaining an internist's qualification).

5) The title and duration of the study program have been changed, in accordance with the amendments to the Cabinet of Minister's regulation No. 268 of March 24, 2009 "Regulations on the competence of medical practitioners and students acquiring first or second level professional higher medical education programs in medical practice and the amount of theoretical and practical knowledge of these persons" (<https://likumi.lv/ta/id/190610-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust-pirma-vai-otra-limena-profesionalas-augstakas-mediciniskas>)

(the regulation version No.368 of 26.06.2018): (<https://likumi.lv/ta/id/299963-grozijumi-ministru-kabineta-2009-gada-24-marta-noteikumos-nr-268-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust-pi...>)

(*the document is available only in Latvian)

Program **Diagnostic Radiology 4 years** to the program **Radiology 5 years**

6) Research work (diploma thesis) and diploma defence.

Research work can be:

1. a research work reported at an international conference or congress;
2. a research work published in a peer-reviewed medical publication;
3. a patented invention.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The study program "Medicine" is one of the professional higher education programs included in the broad study field "Health Care". The program is comprised of 34 sub-programs of specialties, which are united by common goals, tasks and achievable results, however, preserving the study results specific to each specialty and described in more detail in the descriptions. The name of the program Medicine has been chosen because it includes not only the acquisition of diagnostics and treatment, but also a much wider field - incl. research, the interrelation with other fields of environmental studies and exact sciences, with the organization of teamwork in health care, etc., referential to the health care in general.

The content of the program is developed in order to comply with the state standard of professional higher education and ensures the acquisition of knowledge, skills and competences required for the performance of professional activities in accordance with the 7th level knowledge, skills and competence of the Latvian Qualifications Framework (LQF) specified in the Latvian Classification of Education.

The title of the speciality programs, the duration of studies and the qualification to be awarded comply with the regulations of Latvian and European regulatory enactments: 24.03.2009. No 268 "Regulations regarding the competence of medical practitioners and students who acquire first or second level professional higher medical education programs in medical treatment and the amount of theoretical and practical knowledge of these persons" (<https://likumi.lv/ta/id/190610-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust-pirma-vai-otra-limena-profesionalas-augstakas-mediciniskas>) (*the document is available only in Latvian) and Directive 2005/36 / EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications. (<https://eur-lex.europa.eu/eli/dir/2005/36/oj/?locale=en>)

The aim of the study program Medicine is to ensure the acquisition of theoretical knowledge and practical skills by preparing specialists for independent medical practice and clinical research and providing the necessary knowledge, skills and competence to take the certification exam in the speciality according to the European Union and the Republic of Latvia.

Upon graduation from the program Medicine, the obtained study results confirm the compliance with the requirements of the LQF and EQF level 7 in accordance with the Cabinet of Ministers Regulations of 13 June 2017 on the Classification of Education in Latvia (<https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitibas-klasifikaciju>) (*the document is available only in Latvian), that means that young professionals are able to demonstrate in-depth knowledge and the comprehension of their professional field and its latest innovations for the further creative development and scientific work, are able to apply independently the theory, methods and problem-solving skills in order to provide research activities or highly qualified professional activities. They are able to argue and explain complex aspects and problems of their field of science, to improve independently their competence, to take responsibility individually and in a multidisciplinary team, to promote the development of innovation in the field. The acquired

competence after the graduation of the program allows to formulate independently and to analyze critically complex scientific and professional problems, to integrate knowledge of various fields, to make a contribution to the creation of new knowledge, development of research and professional methods. Acquired knowledge, skills and competence are the same for all graduates, regardless of the acquired specialty qualification.

Studies in the 2nd level higher professional education study program Medicine can be started only after obtaining a doctor's degree. Acquisition of speciality sub-programs ensures the next step in the provision of the health care workforce because only after completing the residency studies and obtaining a professional certificate, the qualified specialist is entitled to work independently in his / her speciality

Admission to the sub-programs of the Medical specialties of the program takes place on a competitive basis. The number of study places is determined by the Ministry of Health in accordance with the Cabinet Regulation No. 685 "Procedures for Admission, Distribution and Financing of Residency". (<https://likumi.lv/ta/id/235421-rezidentu-uznemsanas-sadales-un-rezidenturas-finansesanas-kartiba>)

(*the document is available only in Latvian)

When planning study places financed from the state budget, both the existing provision of human resources in health care and the age structure of active medical specialists are taken into account, paying special attention to the number of doctors of pre-retirement and retirement age, as well as the planned number of graduates.

The duration of studies in the sub-programs of the Medical specialties of the program varies, depending on the speciality and the qualification to be obtained, from 2 to 6 years. It is regulated not only by Cabinet Regulation No. 268 and Directive 2005/36 / EC of the European Parliament and of the Council of 7 September 2005, (<https://eur-lex.europa.eu/eli/dir/2005/36/oj/?locale=en>), as well as the recommendations of the European Union of Medical Specialists (UEMS <https://www.uems.eu/>). The European Directive defines the minimum study time for a speciality/qualification, while the UEMS guidelines, which are regularly reviewed, updated and, if necessary, revised, recommend an optimal study time, which may be longer than the European Directive. Latvian professional doctors' associations follow UEMS recommendations when providing recommendations for program development or correction of existing programs.

Observing the above-mentioned requirements in the development of programs, the University of Latvia is convinced of the equal competition of graduates not only in the Latvian but also in the European labour market.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

The health and social care sector is among the sectors with the largest employment

the share is over the age of 50, which makes up 34-47% of the employees in the subgroups of occupations in the field of health care (the average level in the national economy is 29%).

Comparing the latest international indicators compiled by the OECD, it can be concluded that the number of doctors in Latvia is slightly below the EU average:

- 3.2 practising doctors per 1000 population in Latvia;
- an average of 3.5 practitioners per 1000 inhabitants in the EU.

There are still significant inequalities in the distribution of the number of doctors (full-time employees) between Riga and the regions of Latvia.

Inefficient generational change in the health care system and conditions for payment for services, including remuneration and insufficient support programs to motivate young specialists, hinder the rational use of the capacity of medical staff.

The migration of medical professionals in the EU context is one of the most important challenges in the field of human resource planning. With its high quality of medical education and low salaries, Latvia has been occupying the position of a donor country for medical practitioners for several years.

The number of doctors employed in hospitals providing emergency medical care, secondary and tertiary health care in Latvia is lower than in OECD countries on average:

- in Latvia about 35%;
- more than 75% in OECD countries (only 25% work outside the hospital sector).

The current and future demand for health services and human resources for health is determined by a number of factors: demographic processes, morbidity, use of health services, health care delivery patterns (affecting human resource needs in primary, inpatient and long-term care), economic growth and health expenditure (proportion of publicly paid and paid services).

In order to improve the situation in the field of human resources for health care, from 2015, state-paid residency places are given priority if there is an agreement on starting an employment relationship in a medical institution outside Riga. At the same time, after completing state-paid residency studies, there is a requirement to work in state or municipal medical institutions for 3 years, as well as in the practice of family doctors. (<https://www.vm.gov.lv/lv/media/6086/download> - Conceptual report "On health care system reform") (*the document is available only in Latvian)

Given the growing shortage of human resources in the medical sector, highlighted in particular by the epidemic caused by the Covid-19 virus in the last two years, it is clear that the number of students in the Medical program must not decrease but, on the contrary, increase. Of course, one of the influencing factors is the number of graduates who become applicants for residency studies.

Assessing the involvement of existing students in health care, it can be seen that almost 80-90% in the last years of studies have already found their next job or are already working in it with a small workload in parallel with their studies.

In the course of a survey of employers, 9 medical institutions responded to the invitation to give their assessment. The survey was conducted in February 2021 with the data collected from large medical institutions. The two largest university clinics in Riga, specialized clinics in Riga, as well as medical institutions in Zemgale, Vidzeme and Latgale took part in the survey. There are 7 institutions representing the state or public sector, but two, in their turn, are private. Only one of the medical institutions has a small number of employees, from 10 to 49 employees, in all the rest the number of employees exceeds 250 people. Higher education varies from 20 to even 2363. As already assumed, the economic activity of all interviewed employers is health care and social assistance.

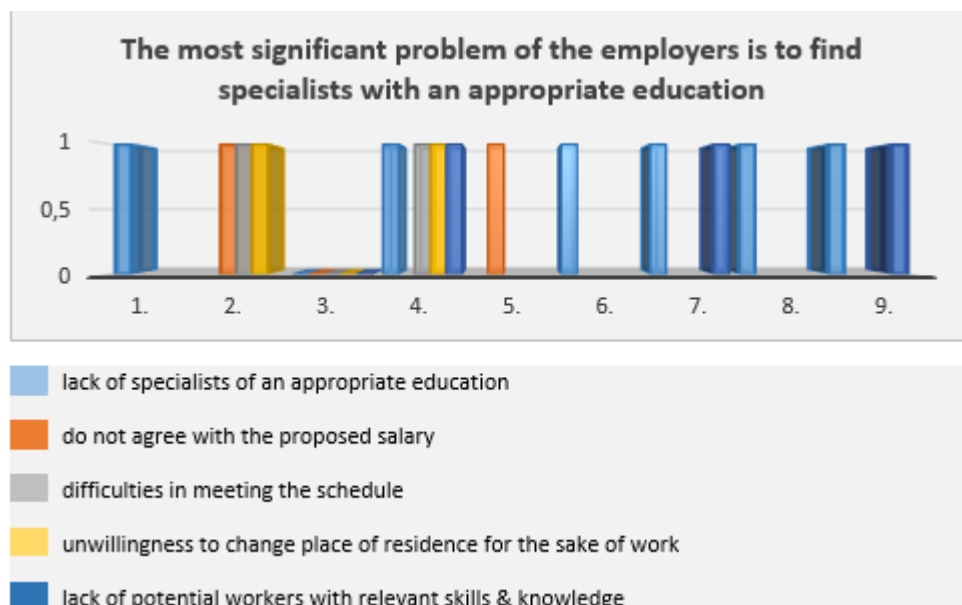
The survey data obtained show that when selecting employees for an institution, higher education received in a particular speciality is taken into account. Seven respondents consider this important when choosing a speciality for specific positions, two take this into account when choosing an

employee, but do not indicate a specific position as a goal.

Being asked whether the experience gained during the studies is taken into account, six of the respondents replied that yes, it is taken into account when selecting employees for specific positions.

In its turn, when asked whether it matters which university one received education in, five of the respondents noted that this is not significant, two respondents did not find an answer to this question, and two more answered that it only matters when selecting employees for specific positions.

It should be taken into account that the absolvents of the residency of the University of Latvia began their careers in all the medical institutions (from 2 to 221 employees).

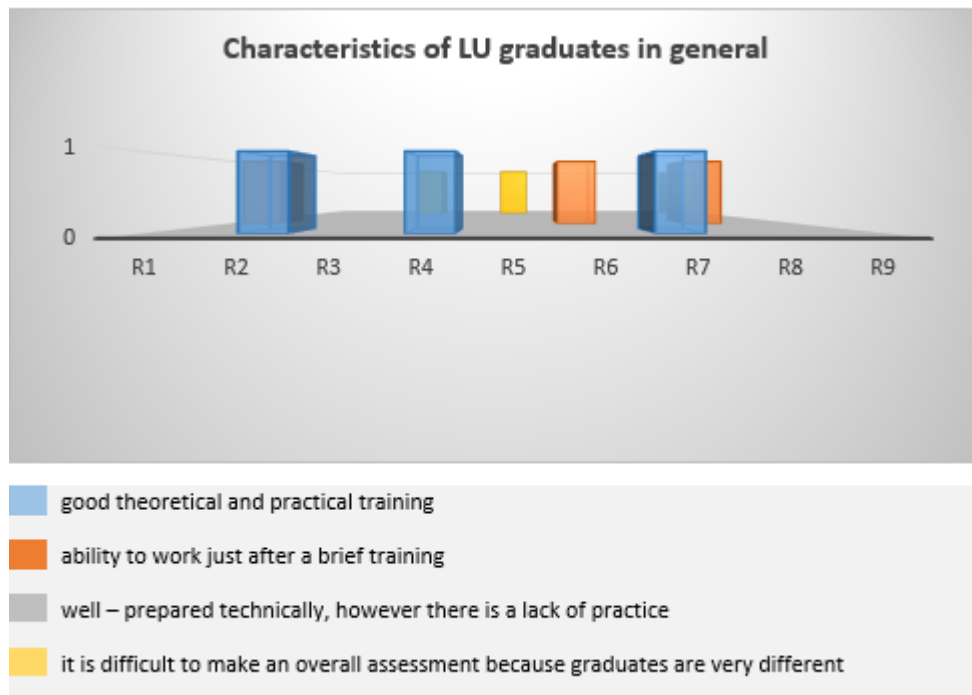


Almost all respondents (except one) had faced some difficulties in finding an appropriate specialist. The most significant factor that has been outlined -a finding specialists with the appropriate education.

Most often, there are no anesthesiologists, radiologists, emergency doctors, traumatologists, orthopedists, gynaecologists, obstetricians and therapists.

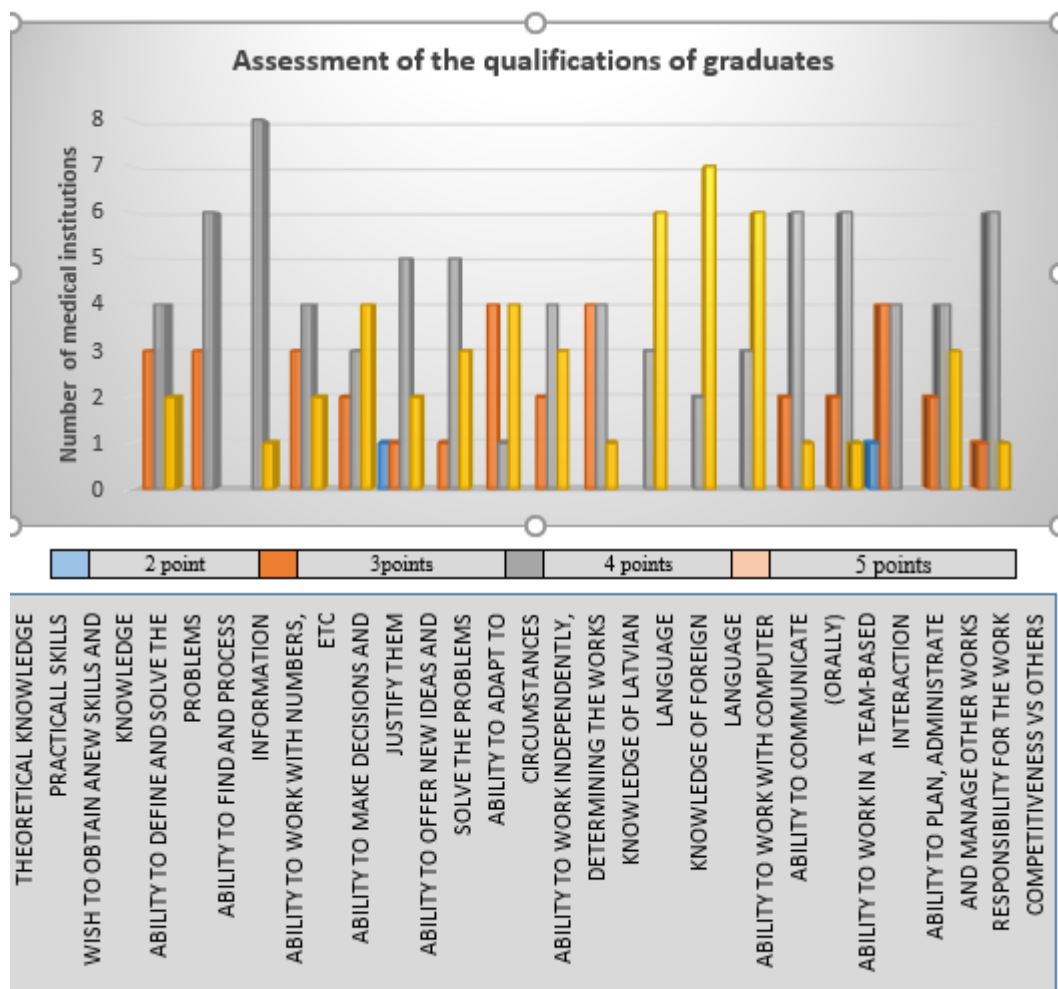
Dissatisfaction with salary is noted by both the Riga medical institutions and the regional medical institutions, and the unwillingness of the future employee to change his place of residence is a typical problem for regional medical institutions.

Answers to the question of how employers could characterize LU graduates working in the institution during the last 3 years were divided: most (4) medical institutions note the need for short-term on-the-job training, while 3 of the surveyed medical institutions note good theoretical and practical preparation. Of course, the more new colleagues start working, the more statistically significant the personal characteristics of each graduate will be.

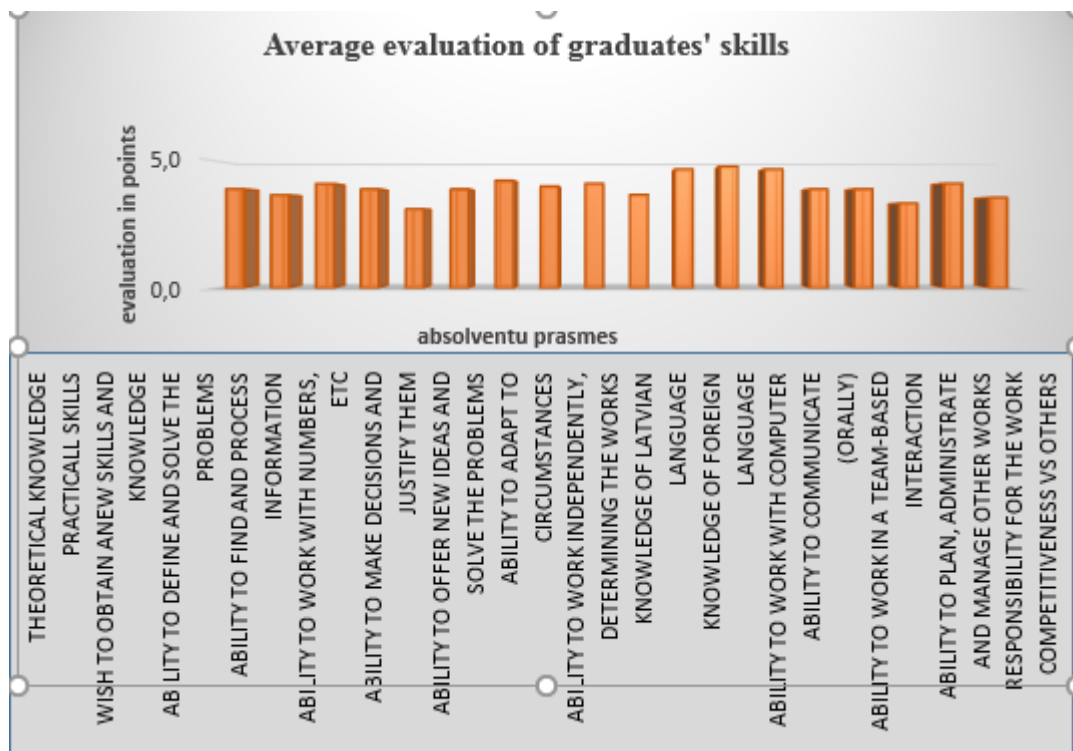


In order to get a more accomplished picture of the employer's opinion about the graduates of the residency of the University of Latvia, namely, regarding their skills, -these skills of graduates should be evaluated on a 5-point system, where 0 means - I know, but I cannot evaluate, cannot be evaluated.1-very bad, 2-bad, 3-average, 4-good, 5-very good).

The results obtained show an average good rating.



Language skills, computer skills, the ability to find and process information, and the ability to offer new ideas were noted as highly valued skills of graduates. Theoretical and practical skills are highly valued, with particular emphasis on the ability to acquire new knowledge and skills, as well as communication, teamwork and competitiveness skills. The ability to identify and solve problems, the ability to manage and organize other work, the ability to work independently, scheduling work and time lag from a slight lag in assessment. This assessment can be explained by the fact that graduates who have not yet developed any managerial or administrative skills over the past three years come with life and work experience.



Assessing the skills of LU graduates from the point of view of employers, it is clear that they are generally above average, which allows us to think about good competitiveness in the labour market in the health care sector.

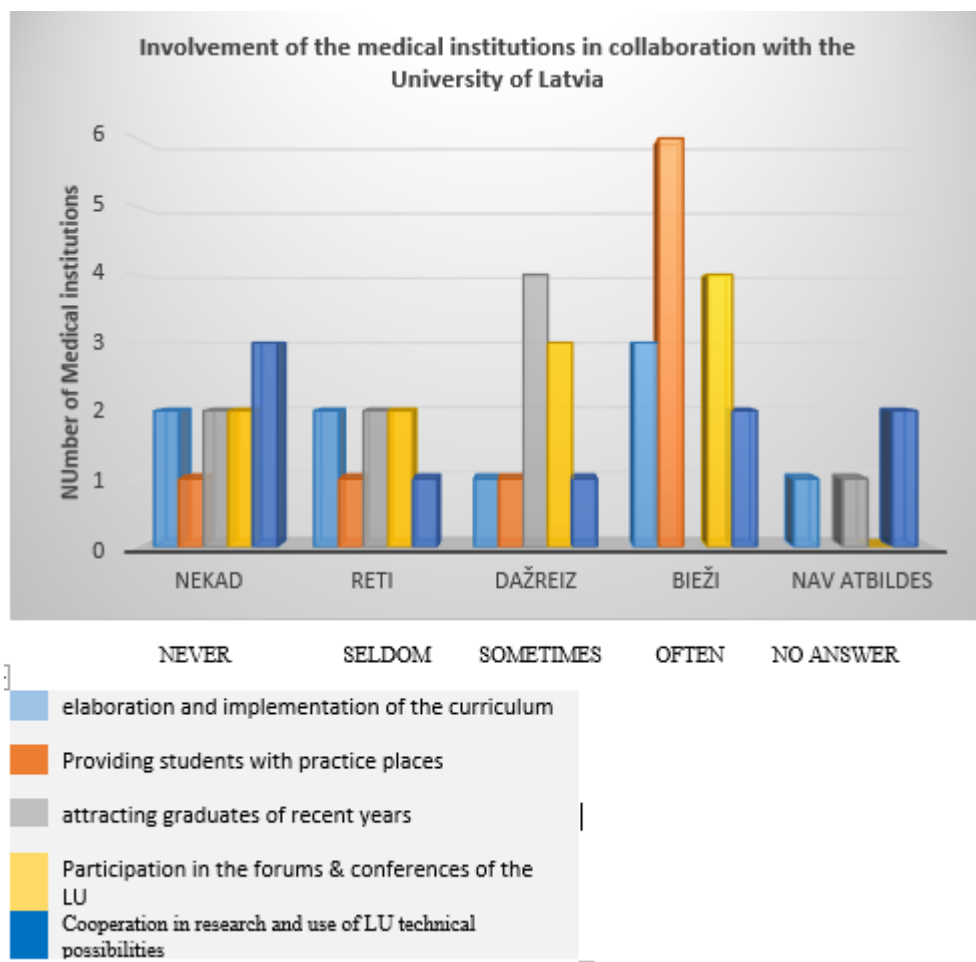
The University Hospital offers its own vision on this matter: the practical skills of LU residents in several major medical specialities are based on the practical skills acquired during co-education. And this is a serious handicap for the further development of the young doctor.

The work of students and graduates of the last year of study under the residency program "Medicine" of the University of Latvia shows a high degree of self-organization and initiative. This applies to treatment, work with an individual patient, as well as administrative and organizational issues.

The residents of LU are characterized by the desire and ability to get involved in the problem, to find ways out of difficult situations that require a decision to be made in a short time. In addition, there is a multi-faceted, far-sighted and sustainable approach to decision-making both in a team and individually.

Attention should be paid to the communication skills of the residents of the University of Latvia, which should be especially emphasized in the emergency hospital, where a friendly attitude towards both patients and their relatives plays a very important role in ensuring a favourable atmosphere and well-being of patients.

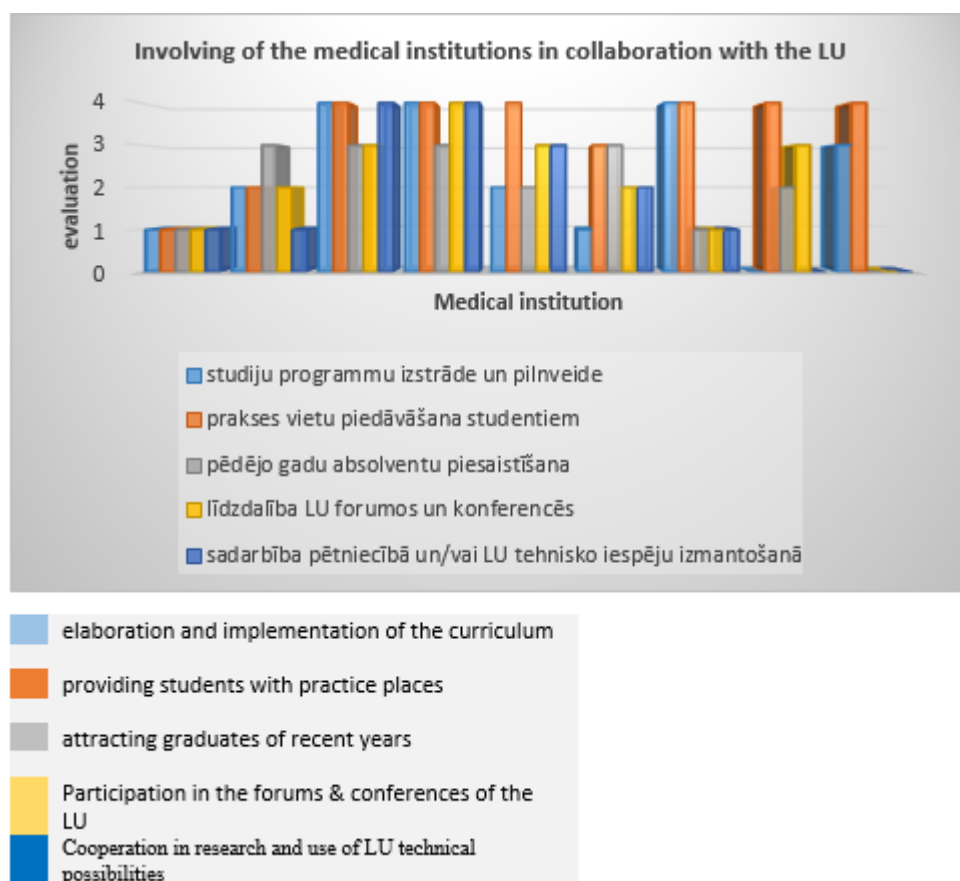
During the residency program, the residents of the University of Latvia purposefully and with a real interest participate in educational events organized by the hospital and others, where they acquire new knowledge and skills. Residents of LU are also happy to participate in research work. Answers to the employer's question about how often he engages in activities that include cooperation with the University of Latvia show that cooperation should be improved.



The interest of medical institutions lies in the provision of human resources, so cooperation in organizing internships for students is the most active position.

The university clinics participate in various academic and scientific activities.

In its turn, the assessment of medical organizations for each of the positions shows that there are medical organizations that are actively working at all levels of cooperation. The assessment was given on a scale from 1 to 4, which means: 1-never, 2-rarely, 3-sometimes, 4 -often.



During the survey, employers expressed their proposals for further cooperation.

In summary, the main conclusions are:

1. providing internships to students;
2. research collaboration;
3. participation in conferences organized by the University of Latvia.

Regional medical institutions not only offer internships for students and residents but also provide housing and experienced mentors.

A specialized medical institution in Riga wishes to cooperate directly in the field of research and/or use of technical facilities of the University of Latvia.

The University Clinic gives a very broad explanation: the current cooperation of the hospital with the University of Latvia has long been assessed as fruitful and based on honest and mutually respectful relations.

In all activities mentioned in question 14, the hospital cooperates with the University of Latvia. The intensity of cooperation and the scope of joint activities vary from period to period and due to other circumstances.

The hospital, based on the already existing positive experience, will continue cooperation with the University of Latvia in all forms of cooperation.

Cooperation is already underway within the framework of research projects of specific state research programs. Cooperation in research work will be continued using both the technical capabilities of the University of Latvia and its intellectual potential.

Hospital researchers and clinical specialists participate in forums and conferences organized by the University of Latvia. Cooperation in this direction must be continued and expanded.

The hospital is ready to participate and contribute to the development and improvement of educational programs, as we consider such cooperation a far-sighted and sustainable contribution not only to the qualitative change of generations of the hospital but also to the preparation of the base of the intellectual potential of medicine and medical science of the state.

The development of medicine in the state in general and in the university hospital, in particular, is unthinkable without close, mutually oriented cooperation with universities and their academic staff, therefore the position of the hospital for cooperation with the University of Latvia is open and favourable.

It should be noted that already during the studies, residents are given the opportunity to get to know their potential job after graduating from the program. In turn, the demographic situation in a country with the growing number of doctors pre-retirement and retirement age is a clear indication of the need for a faster influx of new doctors into the Latvian labor market in the health care sector. Over the past two years, in the shadow of the Covid-19 virus pandemic, the involvement of residents in the treatment of infectious patients has been an invaluable aid to the work of all, especially universities and big regional Hospitals.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

- **Statistics on students in the programme**

The number of students in the speciality subprograms of the study program MEDICINE is determined by the human resource planning in the health care sector, which takes into account the number of existing specialists in the country, age parameters (retirement / pre-retirement age), provision of medical institutions and specialists. The number of places financed from the state budget is strictly regulated, it is supervised by the Ministry of Health of the Republic of Latvia in accordance with the 685th Regulations of the Cabinet of Ministers of the Republic of Latvia "Procedures for Admission, Distribution and Financing of Residency". (<https://likumi.lv/ta/id/235421-rezidentu-uznemsanas-sadales-un-rezidenturas-finansesanas-kartiba>) (*the document is available only in Latvian)

The number of state-funded study places in medical specialties is determined by the Ministry of Health on the basis of the following data:

1. information provided by medical treatment institutions regarding the required number of doctors;
2. number of doctors not working full time;
3. number of unemployed doctors;
4. the expected number of doctors who will reach retirement age within the next five years;
5. Mutual analysis of statistical data on the provision of doctors in the Member States of the European Union;
6. demographic situation and development prognoses;
7. proposed the number of medical personnel for full-time workloads.

In turn, the University of Latvia determines the number of students who study at their own expense or at the expense of third parties in coordination with professional associations and medical

institutions where the training of residents takes place. When planning study places, the number of residents of the respective speciality in both universities should be taken into account, together with the capacity of the number of specialists with the right to train a specialized clinic. There are specific study courses that require a special qualification of lecturers, or training is possible only in one specialized clinic (for example, oncology). This factor limits the total number of residents in a given academic year. The number of students in paid study places is also determined by the peculiarities of the speciality and the job offer after completing the residency in the public or private health care sector. There will always be only paid studies in a speciality such as osteopathy. There is a lot of interest in the speciality of dermatovenerologist, however, given the small number of state budget places offered, there is also competition for paid places. At the end of the residency, the young specialists mostly start their careers as private practitioners in medical institutions, as well as in the cosmetology and beauty care business.

Analyzing the number of admitted residents in the speciality sub-programs (Figure 1) shows the changes in the total number of admitted residents, which in each particular year depended on the number of allocated budget places in those specialities whose programs are also implemented at the University of Latvia. If a relatively large number of places were awarded in such specialities as pediatric subspecialties, neurology, child psychiatry, medical experts, etc. programs, the number of other places decreases accordingly, while the total number of places financed from the state budget remained at around 200 on average.

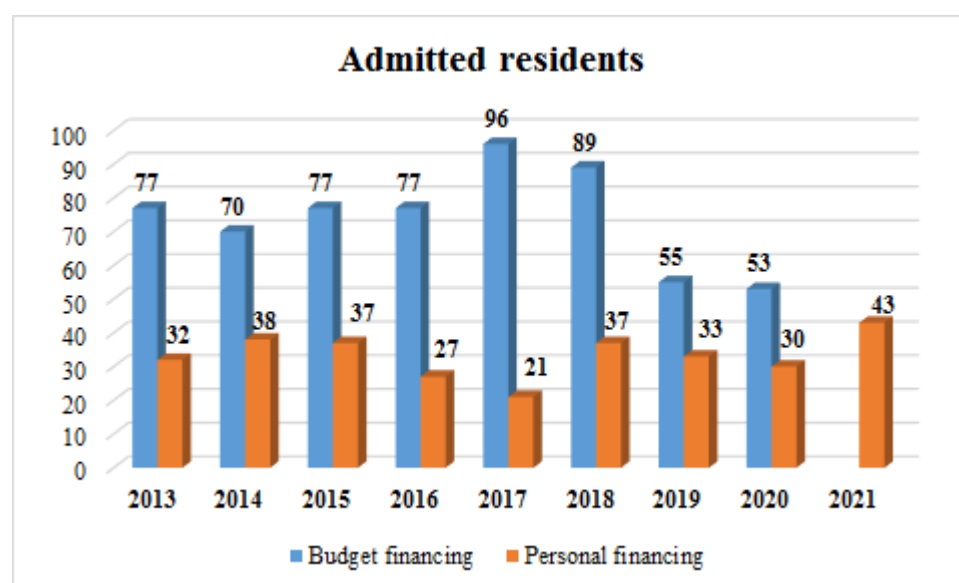


Figure 1.

The proportion between the number of places paid for by the fee and the state budget may change in situations when, after the 1st or 2nd year of study, residents repeatedly participate in the tender for state budget funding and obtain it.

The increase in 2017 is due to the accreditation of 5 new speciality sub-programs (laboratory medicine, emergency medicine, psychiatry, psychotherapy and infectology). Starting this year, additional attention is being paid to the assessment and improvement of the mental health of the society, therefore the number of places financed from the state budget in both the psychiatry program and the child psychiatry program has increased. The largest number of students enrolled at the personal expense is usually either in programs with a relatively small number of state budget places, but these are the specialities in which the young specialist will eventually be able to work in private health care (eg ophthalmology, endocrinology, otolaryngology, dermatovenerology), or in an additional speciality such as osteopathy, which will never have a place in the state budget.

As the number of state budget places decreases, the number of paid study places remains.

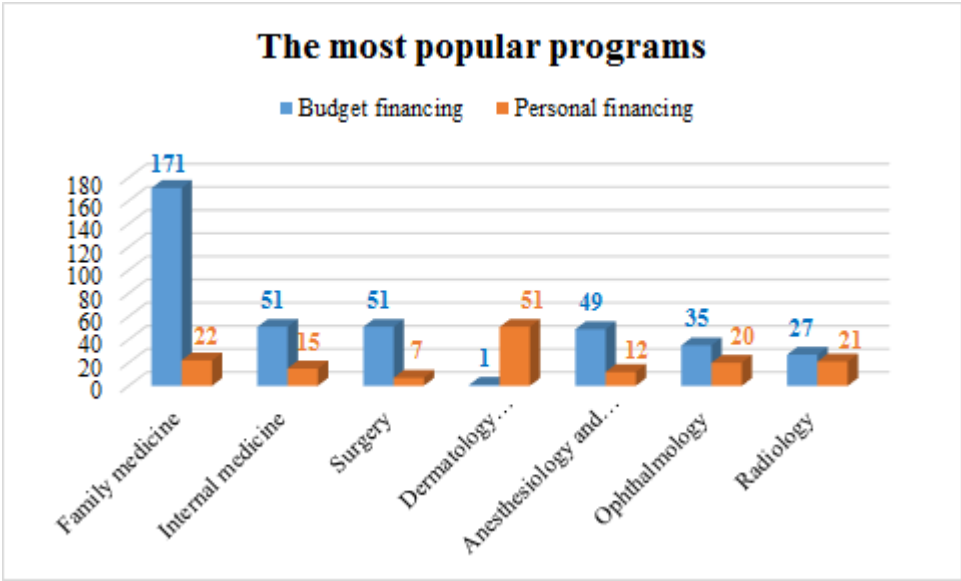


Figure 2

Figure 2 shows the study programs with the largest number of students, which is determined both by the number of places financed from the state budget (for example, the program Family Medicine), as well as the demand from students who are ready to study for a fee (for example Dermatovenerology, Ophthalmology, Radiology).

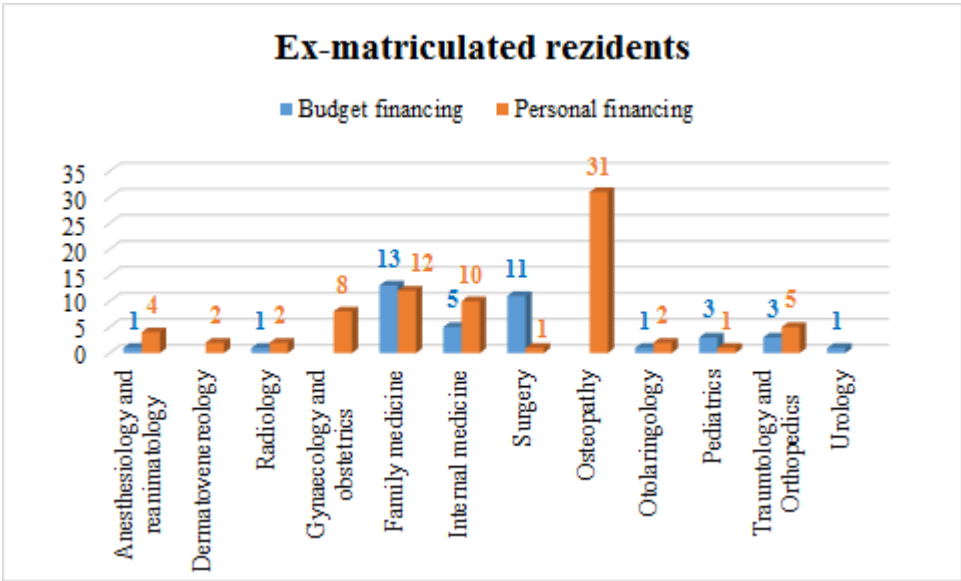


Figure 3.

Figure 3. shows the number of students who dropped out in the speciality sub-programs starting from the 2013 academic year.

The most common reason for deduction (75%) is at the student's own request. As can be seen, students are deducted more for personal funds, which is most likely due to financial problems and the inability to pay for their studies.

A large number of students who dropped out of the program Osteopathy is related to the specifics of the program. Students do not assess the amount of in-depth knowledge in anatomy and embryology when starting their studies, therefore they sometimes stop their studies after the first years of studies.

The relatively small number of deducted residents in study places financed from the state budget is due to the fact that those residents who have studied for financing from the state budget and terminated their studies without a significant reason must repay part of the funding for education to the state. 685 “Procedures for Admission, Distribution and Financing of Residency”.

The relatively large number of dropouts who studied for state budget funding in the family medicine speciality program is due to the fact that some residents had chosen a speciality only to obtain state budget funding, but realized that the speciality was not binding on them and stopped their studies.

The second most important reason for voluntarily terminating studies at a study place financed from the state budget is to start working in a speciality in one of the European Union countries. This usually happens after 2-3 years of study in Latvia, when the basic skills required for the speciality are acquired. It can be mentioned for such specialities as surgery, paediatrics, traumatology. Some cases when a resident terminates his / her studies in one of the speciality programs are related to a change of the study program, which is possible on a competitive basis (for example, vascular surgery or transition from an internal medicine program to endocrinology).

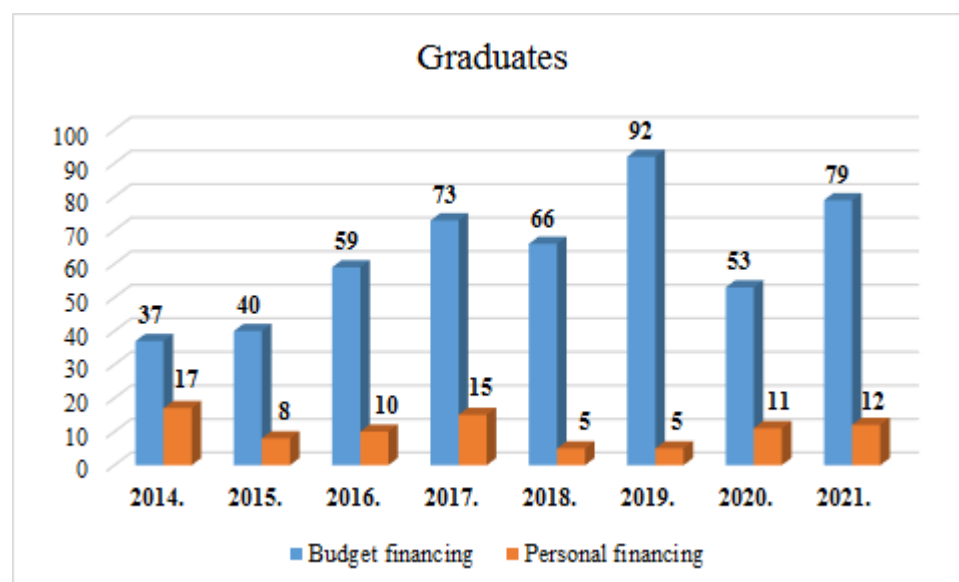


Figure 4

Figure 4 shows the total number of graduates in the MEDICINE program.

Figure 5 shows the number of graduates by sub-programs of specialities. The largest number of graduates in this period was in the speciality of general practitioners, internal medicine, dermatovenereology, cardiology, surgery and radiology (diagnostic radiology).

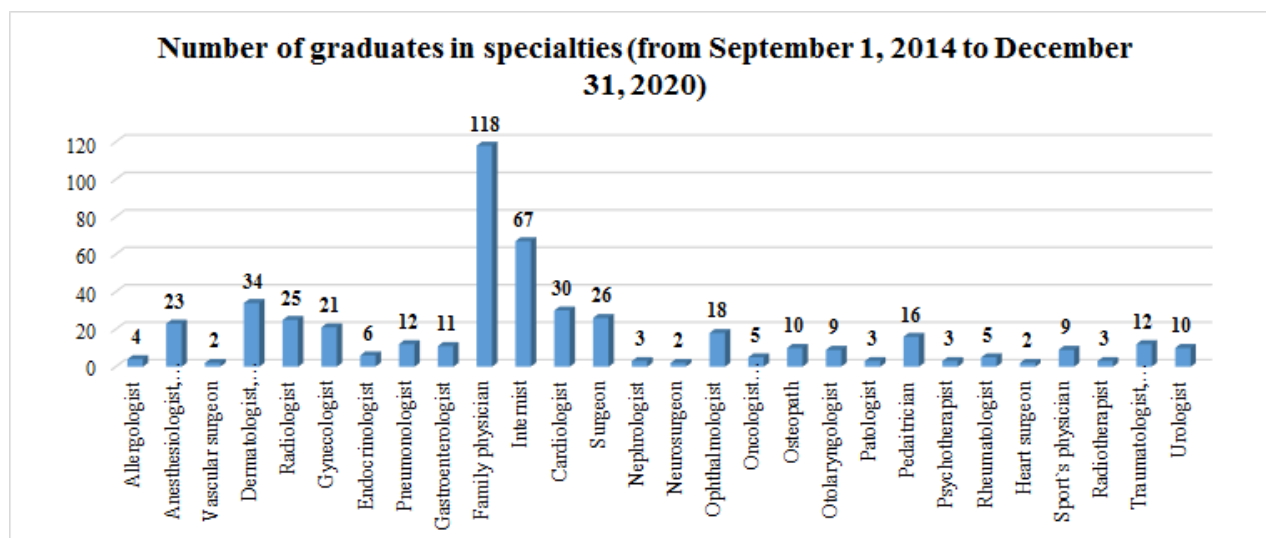


Figure 5

Figure 5 shows the distribution of graduates by specialties (as of 31 December 2020).

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The content of the training courses has been developed in accordance with the Resolution of the Cabinet of Ministers No. 24.03.2009. 268 (edition of the Decree of the Cabinet of Ministers No. 784 of December 13, 2016) "Regulations on the competence of medical workers and students mastering the programs of professional higher medical education of the first or second level in the field of treatment, and the amount of theoretical and practical knowledge of these persons" (<https://likumi.lv/ta/id/190610-noteikumi-par-arstniecibas-personu-un-studejoso-kuri-apgust-pirma-vai-otra-limena-profesionalas-augstakas-mediciniskas>) (*the document is available only in Latvian), in agreement with professional associations and societies. The Regulations of the Cabinet of Ministers define the requirements for the speciality of a doctor in each specific program, which

are binding in Latvia. However, these requirements, which have been modified in the content of study programs, are set as the minimum of the program. In several specialities (eg, urology, vascular surgery, anesthesiology-resuscitation, psychiatry, radiology, etc.), the programs have been supplemented with recommendations and recommendations of the European Union of Medical Specialists (UEMS) for the provision of residency programs. It is based not only on the training of specialists corresponding to the Latvian level but also on the European level under the LU residency program. Upon completion of residency in Latvia, new specialists have the opportunity to pass an international exam. Consequently, the LU residency program has been dynamic and continues to evolve in accordance with changes in Latvian legislation, the vision of Latvian professional associations of requirements for certification of specialists and the recommendations of the European UEMS. The training courses include new themes in accordance with the current events of the respective period in a certain area (for example, current events of COVID-19 and special requirements in 2020-2021).

LU residency courses are highly valued in the job market. Thus, in the assessment of the largest employers – medical institutions in 2020 – 96% of the residency graduates of the University of Latvia are rated “excellent”, “very good” or “good”. In turn, when selecting employees, the employer assessed that all employees fully comply with the requirements established by the medical institution and are well prepared to perform their duties.

The Pauls Stradiņš University hospital, which is responsible for supervising the largest training base for residents and implementing LU subprograms, rated the programs of LU residents and their compliance with current market needs as "excellent", and in some programs as "very good". The high quality of residency programs LU is evidenced by the high demand from employers for paid residency positions provided by LU through 34 subprograms.

Since 2013-2020 in accordance with Latvian health care priorities and the requirements of employers, the following new special subprogrammes have been defined and supported by the Latvian Medical Association:

- **Psychiatry** (mental health has been identified as a priority in the country for the last 3 years, there is a large shortage of specialists in the country, ageing of specialists);
- **Psychotherapy** (mental health in the country has been identified as a priority in the last 3 years, there is a great shortage of specialists in the country, demand for the program especially from regional medical institutions, ageing of specialists, specialists groups, competing in their methods, and the need for a different program, realized not by means of the RSU program);
- **Infectology** (increased importance of nosocomial infection in health care, specialists groups, competing in their methods, and the need for a different program, realized not by means of the RSU program);
- **Emergency medical care** (the need for NMC in hospitals, training of crisis coordinators, which has not yet been sufficiently included in the CSF program, but was a request of medical institutions).
- **Laboratory medicine** (a speciality developing during the last 5 years with the need to train more specialists in this field).

Taking into consideration the rapid and diverse development of medicine as a science, both in terms of technology and the discovery of new information, and the growing interest and need for individualized patient care, it is to be regularly included in the resident curriculum, both in the form of training of residents as in the form of theoretical seminars/discussions as the possibility of participating in ERASMUS + exchange programs in leading European clinics. During their studies, residents have the opportunity to be engaged in research activities, which for many residents is like

a further study in the doctoral curriculum. Selected research themes are relevant not only at the Latvian level.

Evaluation of the relationship of the curriculum/modules and the relationship of the objectives of the curriculum/module with the goals of the curriculum and achievable results:

- Courses of study in most surgical specialities in the first 2 years are mutually comparable, which creates flexibility for the need to change the surgical speciality after the 1st or 2nd year of study. All internship courses in the first 2 years are mutually comparable, which creates the flexibility to change internship subspecialties after the 1st or 2d year, if necessary. In accordance with the Cabinet of Ministers Regulation No. 315 Amendments to the Regulations of the Cabinet of Ministers No. 268 "[Regulation on the competence of practising doctors and students mastering the programs of professional higher medical education of the first or second level in the field of treatment, and the volume of theoretical and practical knowledge of these persons](#)" 7.1¹(*the document is available only in Latvian). When mastering a residency training program in the main specialities specified in clause 7.1, a higher education institution may apply for a partial exemption, taking into account previously acquired theoretical knowledge and practical skills.
- The objectives of the training courses are fully subordinated to the objectives of the entire subprogramme and the objectives of the entire curriculum. The main goal of the educational program is to prepare students for professional certification in the relevant specialities. This means producing knowledgeable and qualified young professionals who are familiar with the diagnosis, treatment and prevention of diseases in their field, working independently as part of a team that is involved in both health policy and research. LU programs provide this completely. More than 98% of the graduates who passed the exam in the commissions for attestation of specialities of the Latvian Association of Doctors passed it with a positive assessment and received a certificate in their professional speciality.
- In the undergraduate study program "Medicine" the general curriculum is taught, and in Residency curriculum is carried out according to the requirements of a particular speciality in accordance with clause 268 of the Cabinet of Ministers "Requirements defined in regulations".
- Common to all: The **Research work**, which is clinical or basic medical research, is a required course for all sub-programs of the residency speciality. Series of theoretical informative lectures **Legal Framework and Ethics** since 2020, especially in the context of COVID-19 and strengthening the protection of patients' rights and the European Union's Data Protection Regulation.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study

programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The residency study process takes place in a medical institution. An individual study plan for the whole year is developed for each resident, which can be changed only after coordination with the head of the speciality program and the person in charge of the speciality at the medical institution. At least 85% of studies are the acquisition of practical skills in the speciality, that is because the training is very individual. One doctor with the right to study can provide knowledge and train practically no more than 2 residents simultaneously. The principles for the specialities in the process of development of theoretical material are different for surgery, traumatology and orthopaedics, urology, etc., as well as for specialities more closely related to the use of various technologies in daily work (radiology, therapeutic radiology, laboratory medicine, ophthalmology, etc.) and specialities of oral medicine (internal medicine, endocrinology, pneumology, anesthesiology and resuscitation, emergency medicine) and family medicine. For these specialities, during operational activities, the responsible senior colleague also provides theoretical knowledge, just as in radiology this knowledge is to be provided in parallel with working with visual diagnostic equipment or evaluating the image obtained. Actually, some time is especially devoted to seminars and discussions. In the specialities of internal medicine, more attention is paid to training in the format of seminars / interactive discussions, analysis of clinical cases. In order to save the study time of residents and intensify the educational process, theoretical training takes place mainly in a medical institution chosen as a clinical training base. Seminars/lectures are conducted by lecturers from the University of Latvia, who are most often highly qualified specialists practising in university clinics. Residents are given the opportunity to attend events of the professional association of their speciality already during residency, in which one of the sections is usually the latest achievements, innovations and discoveries in the speciality, acquaintance and development of new reference points in Latvia. Residents are given the opportunity to participate in training events organized by the participating medical institution - Riga Stradiņš University Hospital -specialized conferences organized by clinics on topical issues, free of charge. The diversity of speciality programs allows creating the study process creatively, using digital technologies, the use of which has gained special relevance in the 2020/2021 academic year, which provides online lectures, seminars, as well as the defence of diploma theses and state examinations. When acquiring a study course, requirements for obtaining credit points have been defined, which may differ slightly for each speciality and course, however, the basic principles remain. There is an intermediate test in which practical work must be done. Overdue work must be submitted. For specialities and training courses that provide for the development of certain manipulations, the minimum number of actions that must be performed (operation, specific manipulation, etc.) during the course is determined. At the end of the training course in all specialities, an oral test is conducted, most often in the form of an analysis of a task or a clinical case. Supervisions are essential in the psychotherapy program. On the other hand, in a radiology program, where the student's ability to see the details and nuances of a visual image is important, an individual approach to the student is especially important. After each academic year, tests of practical skills in visual diagnostic methods are carried out, in which the compliance of the manipulation process with procedural norms is assessed, the structure is described, the elements are described, the conclusion of the radiologist corresponds to the description and objective conclusion. In addition, research work and presentation skills are assessed during each academic year.

The course instructor has the opportunity to use both oral, written and combined assessment methods. Properly formulated learning outcomes help students understand the relevance of their level of preparation to the curriculum, their own self-esteem and understanding of the assessment received. In the educational process, teachers use methods, examination forms and assessment criteria that correspond to the learning objectives and planned the learning outcomes.

After the second year of study, residents of all specialities are assessed on acquired skills and competencies, so that in the future, if the resident has acquired everything necessary according to the requirements, he can continue to work not under the direct supervision of the teaching doctor, but under such guidance, which implies some independence and responsibility of the resident. Since 2019, from the 3rd academic year, not only the responsibility of the resident has changed, but also the remuneration of students has been increased through state budget financing.

According to the mutual agreement between the University of Latvia and the Ministry of Health on residency financing and its appendices on the lecturer's and student's questionnaires, students receive support and feedback from lecturers during the study process and, in their turn, evaluate their work, their communication with the residents, their wish to be involved in the educational process, their experience and their ability to give their knowledge and experience to junior colleagues.

Following the principles of student-centred education, students participate in research and social activities initiated by academic staff in society, gaining by this significant experience and applying the acquired knowledge in practice. . Implementing the internal quality assurance policy, study programs are implemented in such a way that residents are encouraged to actively participate in the improvement of the study process.

There are established a proper order and procedure for submitting residents' proposals and resolving complaints. When improving the educational process, the results of surveys of residents are evaluated and taken into account. The students of residency prefer to give recommendations on improving the educational process to the heads of subprograms of their speciality and the organizers of the educational process.

In residency studies, at least 75-85% have a practical job in a medical institution, which ensures not only the acquisition of practical skills but also the acquisition of theoretical knowledge through practical work under the direct supervision or guidance of the training doctor. Special attention is paid to the choice of training places. Clinical university hospitals (Pauls Stradiņš Clinical University Hospital, Riga East Clinical University Hospital and Children's Clinical University Hospital), specialized medical institutions (Traumatology and Orthopedics Hospital, Riga Psychiatry and Narcology Center, Emergency Medical Service, Rehabilitation Center Vaivari) and GP practices are selected as priority training places. Taking into account the lack of qualified doctors in regional medical institutions, it is possible to acquire courses of separate study programs in regional medical institutions after the evaluation of the 2nd study year and skills and competence. The aim is to get to know the potential job, working conditions in a regional medical institution. There are courses that are also provided in other medical institutions if the specifics of the program require it or it improves the quality of the training results of the program. Programs such as dermatovenerology, sports medicine, otolaryngology, psychotherapy can be mentioned here. All study clinical training places have long-term experience in providing the study process, training the necessary knowledge, skills and competencies. Clinical bases for training are selected taking into account the care activity of the medical institution: the appropriate number of patients, sufficient operational activity (for manipulations, operations), technological support and the capacity of teaching staff.

At the end of each study course, students record their achievements in the resident study books provided for that purpose, the report on the completion is one of the most important intermediate

examinations of the study course, without it is not possible to take the course test. The heads of the speciality sub-programs, in turn, can evaluate the clinical practice places according to the results achieved in the study process.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

In the last year of study, residents of all specialities develop clinically-oriented research work, the topic of which is dedicated to the topical issues of their speciality. The requirements for the development of the residency work (qualification work) are regulated by the internal regulatory enactments of the University of Latvia. Only in strict compliance with the Law on the Processing of Personal Data (<https://likumi.lv/ta/en/en/id/300099>) and with the permission of the Ethics Committee for the performance of research work, after the approval of the topic of the work, the collection, processing and presentation of data material are started. The supervisor of the research work can be both the head of the program and one of the lecturers who have at least 5 years of work experience in the speciality.

Two supervisors can be chosen for the research work of a family medicine resident: one - a family doctor, in whose practice the resident studies the program, the other - if the chosen topic is specific, more belonging to one of the narrowly specific topical issues of internal medicine. When choosing a topic for their research work, residents are invited to relate it to the latest developments in the industry, issues of interest to the resident themselves and/or help to solve a problem in the industry. Residents are encouraged to choose a topic that could further serve as a research topic in their doctoral program.

It is typical that the research work of family medicine residents is more focused on public health issues, epidemiology of various diseases, preventive measures in disease prevention, while the work of residents of surgical specialities more often studies the regularities between the application

of different surgical techniques and treatment results.

The interest of the residents of the anesthesiology and resuscitation program in research is more pronounced than finding the most successful treatment solution for patients in life-threatening situations, but the research activity of the residents of the internal medicine specialities is more focused on finding the most successful treatment solution.

Some examples of research work:

1. Effect of interval training on the level of cytokines associated with the risk of cardiovascular disease in patients with type 2 diabetes (Endocrinology).
2. NPY concentration in patients with type 1 diabetes mellitus with various risk factors for cardiovascular disease (Endocrinology).
3. Incidence and causes of unreasonable implantable cardioverter-defibrillator therapies in P. Stradiņš University Hospital distance monitoring patients (Cardiology).
4. Application and results of therapeutic hypothermia using endovascular catheter cooling in patients after cardiopulmonary resuscitation (Cardiology).
5. *Evaluation of osteopathic manipulation effectiveness in Computer Vision Syndrom treatment as a particular case off Asthenopia (ICD-10-CM;H53.1) (Osteopathy).*
6. Exfoliation in cataract surgery (Ophthalmology).
7. Formation of eye support apparatus with different types of implants after eye removal surgery and their influence on empty orbit syndrome (Ophthalmology).
8. The role of radiotherapy in the complex treatment of metastatic brain tumours VSIA „Riga East University Hospital/ Latvian Oncology Centre (Therapeutic radiology).
9. Results of osteopathic treatment in the treatment of shoulder pain and thoracic outlet syndrome after laparoscopic abdominal surgery (Osteopathy).
10. Analysis of the significance of anthropological and examination data of patients with obstructive sleep apnea in the diagnosis and treatment of OSA. (Otolaryngology).
11. Influence of the amount and intensity of aerobic training on the functional state of the cardiovascular system. (Sports Medicine).
12. Athletes' knowledge of nutrition and their eating habits before and after exercise (Sports Medicine).
13. Importance of antibacterial therapy in patients with acute uncomplicated appendicitis. (Surgery).
14. Influence of neoadjuvant radiation and chemotherapy, age, sex and degree of tumour differentiation on the number of isolated and metastatic lymph nodes after radical surgical treatment of colorectal cancer (Surgery).
15. Analysis of factors influencing survival at the Latvian Oncology Center for radically operated patients with pancreatic cancer. (Surgery).
16. Aspects of treatment of colorectal cancer complicated by impenetrability (Surgery).
17. Overall survival of radically operated colorectal cancer patients at the Latvian Oncology Center and factors influencing it (Surgery).
18. Laparoscopic biliary cure in patients with choledocholithiasis. (Surgery).
19. Radiological diagnosis of post-traumatic cartilage lesions of the knee joint. (Radiology).
20. The role of tomography-synthesis in the mammographic diagnosis of breast diseases. (Radiology).
21. Analysis of hemodynamic status in patients with unstable hemodynamics and pelvic fractures after retroperitoneal pelvic tamponade during the first 24 hours after injury. (Traumatology and orthopaedics).
22. Wrist bone of the wrist II-V. Comparison of surgical treatment methods for basic and intermediate phalangeal extra-articular fractures. (Traumatology and orthopaedics).

23. Family medicine practice patients' health information search habits on the Internet and health knowledge in the e-environment. (Family Medicine).
24. Risk assessment of the development of type II diabetes in patients with arterial hypertension (Family medicine).
25. Effects of different doses of morphine after caesarean section. (Anesthesiology and Intensive Care).
26. Postoperative cognitive dysfunction after neurosurgical operation of the spine in the supine position. (Anesthesiology and Intensive Care).
27. Effect of mean arterial pressure on skin microcirculation oxygenation in patients with septic shock (Anesthesiology and Intensive Care).

The following criteria are taken into account when evaluating the diploma thesis: The topic of the thesis, its wording and topicality; the aims and tasks of the work, the research methods used and their compliance with the level of modern medicine; scope and structure of work. It is evaluated whether the work is considered to be a completed study with certain results and clearly formulated conclusions. In the defence process, the scope of the presentation, the material, its perceptibility, as well as the resident's own presentation skills and ability to defend their opinion by answering the questions of the commission are evaluated.

Scientific research work can be:

- research work reported at an international scientific conference or congress;
- scientific work published in one of the international peer-reviewed medical publications or databases;
- a patented invention in the industry.

If the resident is one of the authors of the research paper, the personal contribution to the work must be presented, which is approved by the head of the residency speciality program.

The research work is evaluated in depth by the reviewer, the work is generally evaluated by the state examination commission. The evaluation is given in a 10-point system.

Analyzing the evaluations of diploma theses over the period from 2014 to 31 December 2021, we see that the most common evaluation of 35% is excellent (9) and 30% very good (8). The highest rating - excellent - has been received by 22% of graduates, which testifies to the high responsibility of both the student and his / her supervisor. It should also be mentioned that the highest marks are more often given to students of specialty programs that have had few study places financed from the state budget and a large competition for students. Examples are rheumatology, cardiac surgery, cardiology, endocrinology, vascular surgery and otolaryngology programs.

The high evaluations of diploma theses also indicate the active involvement of students in scientific activities within the clinic and purposeful progress towards doctoral studies in the future. Not a single diploma thesis research has resulted in a presentation or poster presentation at an international medical conference or congress. The other evaluations - good (7) represent 9% of the total number of marks, almost good (6) - 7% and average (5) - only 1% of all evaluations. No one had a lower grade, and it must be admitted that it would not be acceptable for a future medical specialist either.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The residency study process is financially supported by two sources. According to the Cabinet of Ministers Regulations No. 685 "Procedure for Admission, Distribution and Financing of Residency" (<https://likumi.lv/ta/id/235421-rezidentu-uznemsanas-sadales-un-rezidenturas-finansesanas-kartiba>)(* a document is available only in Latvian) the University of Latvia receives funding from the State budget, which forms the largest section of financial resources. Its use positions are defined in an agreement between the University of Latvia and the Ministry of Health of the Republic of Latvia. 91% of the total funding allocated for residency is allocated to medical institutions for the salary of a resident, the remuneration of lecturers working in a medical institution and the maintenance of resources related to the residency, while 9% of the funding is provided to the University of Latvia. The second section consists of tuition fees from residents who study at their own expense or at the expense of third parties.

Residency studies are carried out in medical institutions. The largest number of LU residents is related to P. Stradiņš University Hospital and Riga East University Hospital. University clinics and the main specialized medical institutions are a logical choice, as they are able to provide both the required amount of treatment and highly developed medical technologies, as well as highly qualified specialists who carry out academic work and research. The main clinical training places: clinical university hospitals (P. Stradins University Hospital, Riga East University Hospital and Children University Hospital) and specialized medical institutions (Hospital of traumatology and Orthopedics, Riga Psychiatry and Narcology Centre, Department of Emergency medicine, Rehabilitation Center Vaivari), family doctor practices. Each year, the number of students is coordinated with medical institutions to ensure an appropriate training process. Clinical bases are certified and equipped with all the necessary infrastructure to ensure the treatment process. The LU Residency Development Program in cooperation with medical institutions has purchased equipment for mastering study programs (resuscitation mannequins, chest manipulation mannequin, gynaecology-obstetric mannequins, ultrasonography apparatus, etc.).

According to the Cabinet of Ministers Regulations No. 685 "Procedure for Admission, Distribution and Financing of Residents" (Title of Regulations in the wording of Cabinet Regulation No. 227 of 17 April 2018), the material and technical base for students is supplemented annually in co-operation with those responsible for specialties in medical institutions ensure a successful training process and achievement of study results.

To provide theoretical knowledge, LU has provided students with access to the following databases: ClinicalKey, UpToDate, ScienceDirect, SCOPUS, Oxford Journals, ProQuest Ebook Central Complete Collection, SAGE Journals, SAGE Research Methods, SpringerLink Contemporary Journals, and more.

Level II professional higher education program in residency Medicine is acquired in medical institutions, using their resources in daily work. The mutual cooperation agreement with the medical institutions defines the obligations of both contracting parties. Office space with all the necessary technical equipment is provided for the work of the staff involved in the organization of the residency. In addition to the theoretical training, the following equipment was purchased:

As of January 1, 2022, there are a total of 52 agreements with medical institutions on the training

of residents are in force:

1. Dr Lucenko practice;
2. Dr Alises Nicmanes family physician practice;
3. Ādažu hospital;
4. Doctor`s practice "Svīre Plus";
5. Associations of Balvi and Gulbene hospitals;
6. Bauska Hospital;
7. Children University Hospital;
8. Bulduri Doctorate;
9. Cēsis Hospital;
10. Daugavpils Psychoneurological Hospital;
11. Daugavpils Regional Hospital;
12. Dr Ella Šatalova family physician and paediatrician practice;
13. Dr Gulbis Raitis - family physician practice;
14. Dr Gundegas Meinertes family physician practice;
15. Family physician`s Andra Baumaņa practice;
16. The family physician`s E. Tirāna practice;
17. Family Phisicians practice
18. Hospital "Ģintermuiža";
19. Ievas Grīnšteines family physician practice;
20. Ilzes Jākobsones family physician practice;
21. Jelgava City Hospital;
22. Jelgava Outpatient department;
23. Jēkabpils Regional Hospital;
24. Jūrmalas Hospital';
25. Latvian American Eyes Centre;
26. Latvian Maritime Medical Centre;
27. Latvian Centre of Plastic, Reconstructive surgery and Mycrosurgery;
28. Latvian Centre of Psychosomatic, Psychotherapy and Psychodynamic Psychiatry;
29. Liepāja Regional Hospital;
30. Dr Ligita Vulfa practice;
31. Līgas Purmales Family physician practice;
32. Loradent Clinic "Headline";
33. Lustika Daina - family physician and paediatrician practice;
34. Madona Hospital;
35. Ogre District Hospital;
36. Centre of Development of Osteopathic Medicine;
37. Pauls Stradiņš University Hospital;
38. Municipality of Rēzekne;
39. Rēzekns Hospital;
40. Riga 1st Hospital;
41. Riga 2nd Hospital;
42. Riga East University Hospital;
43. Riga Maternity Hospital;
44. Sadu Alberto - family physician practice;
45. Smiltene Red Cross Hospital;
46. Sigulda Hospital;
47. Stopiņu Policlynics;
48. Hospital of Traumatology and orthopaedics;

- 49. Tukuma Hospital;
- 50. Health Centre-4;
- 51. Vidzemes Hospital;
- 52. Ziemeļkurzeme Regional Hospital.

Mutual agreements with medical institutions specify not only the lists of students and their specialities, financial obligations, but also the list of specialists who will be involved in the training of residents and will be responsible for the work of residents in their speciality.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Funding for the provision and development of the study program consists of state budget funding in accordance with the Cabinet of Ministers of the Republic of Latvia Regulations No. 685 "Procedure for Admission, Distribution and Financing of Residency" (<https://likumi.lv/ta/id/235421-rezidentu-uznemsanas-sadales-un-rezidenturas-finansesanas-kartiba>) (*a document is available only in Latvian) and tuition fees paid by students or third parties.

9% of the state budget funding remains at the disposal of the University of Latvia, the rest of the funding flow goes to the medical institution with which the employment of the budget resident is concluded when starting studies. The funding received by the medical institution includes the remuneration of not only the resident but also the lecturers for training in the clinical base. As of January 1, 2022, in accordance with Cabinet Regulation No. 685 funding allocated to medical institutions:

9.4. of this Regulation 11.5. the number of financial resources to be allocated to the medical institutions referred to in paragraph 1 for the training of residents in the first and second year of residency in the main speciality does not exceed 37,759.20 euros per calendar year per resident, if the residency takes place in a regional multi-profile hospital per calendar year per resident if the residency takes place in another medical institution;

19.4.1 of this Regulation 11.5. The number of financial resources to be allocated to the medical institutions referred to in sub-paragraph for the training of residents starting from the third year of residency in the main speciality and the first year of residency in the additional speciality and sub-speciality shall not exceed EUR 41,154.24 per calendar year per resident in practice outside Riga, and 32,535.72 euros per calendar year per resident, if the residency takes place in another medical

institution;

The funding of the University of Latvia for one budget resident per year is 1297.68 euros, which in cooperation with P. Stradiņš University Hospital provides a joint subscription fee for the UpToDate database, purchase of technologies necessary for training work organization, promotion of residents' research activities and presentation of its results outside Latvia.

The tuition fee remains the same for all speciality programs - 3000.00 euros per year, of which 90% is required for the remuneration of teachers and staff because the peculiarity of residency studies is that one lecturer can teach/supervise no more than 2 residents in practical work at the same time.

As residents each study according to an individual plan and cost items are determined by Cabinet Regulation No. 685 and the agreement between the University of Latvia and the Ministry of Health of the Republic of Latvia, then the number of students in one study program does not affect the positions of the use of funding. In addition, it should be taken into account that there are special programs for which the number of graduates in the country is limited due to their high specifics (for example, heart surgery, neurosurgery, etc.), so there will never be a large number of students in these programs. Even more - there have been and will be years of study when in some speciality programs no budget place is allocated and there will be no demand for paid study places.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Each sub-program of the speciality is managed by the head of the program, who in most cases is the leading specialist in Latvia in the relevant field, often the head of a Latvian professional association or otherwise a nationally recognized specialist. The head of the program is the one who determines the involvement of other teaching staff in the acquisition of practical skills and theoretical knowledge. Preference is given to the teaching staff of the university or, if there is no corresponding course, the program is implemented by the leading specialist of the clinic or a certified doctor with at least 5 years of work experience in it. Taking into account the fact that training is mostly provided in clinical university hospitals or specialized medical institutions, the teaching staff involved in the implementation of the program is determined by an agreement between LU, the head of the speciality sub-program and the medical institution's delegated person responsible for residency training. The teaching staff is selected on the basis of the possibilities to implement the activities envisaged in the study program in the appropriate medical institution and the compliance of the teaching staff with the requirements of regulatory enactments.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff

over the reporting period and their impact on the study quality.

- **Analysis and evaluation of changes in the teaching staff during the reporting period**

The average number of responsible LU lecturers involved in the program "Medicine" is 170. The number of lecturers in each study year may vary slightly, as it depends on the number of residents and their distribution by sub-programs of specialties and medical institutions.

During the reporting period, there have been changes among sub-program managers related to the early retirement of 3 program managers, as well as the entry of new and talented teachers into the academic environment. In total, it has affected 4 programs (dermatology, venereology; pneumology; sports medicine; laboratory medicine). The composition of the teaching staff involved in practical training has been updated. It has become younger in the age structure, which is related to changes in the age structure of the staff of the main clinical training bases. There is a significant increase in the section on academic indicators of teachers. If in 2013 76 of the lecturers of the residency sub-programs had a doctoral degree in medical sciences, then in 2020 it is 108 lecturers (an increase of 42%). During this period, an increase is also observed in the qualification and academic growth of sub-program managers: an increase in the number of managers with a PhD degree from 19 to 25 (32%) and an increase in the number of assistant professors, associate professors or professors from 18 to 21 (17%). Several lecturers have completed their doctoral studies, defended their doctoral degrees and become sub-program managers (for example, doc. S. Zadorožnijs, dr. K. Peksis, Assoc.professor A. Miščuks).

A positive contribution to the study process is the joining of LU residency graduates to the ranks of lecturers after 5 years of professional activity in the speciality. Special mention may be made of young specialists in dermatology, venereology, cardiology, allergology, endocrinology, anesthesiology and traumatology and orthopaedics.

It should be noted that a part of the academic staff purposefully chooses to be the teaching staff of the LU residency programs, due to the high quality and training principles of the LU residency programs.

Several lecturers of residency specialties have passed the European professional certificate (Dr.med. Kristīne Baumanė, doc. Patrīcija Ivanova). The certificate of the European residency training base was obtained in ophthalmology (LU ophthalmology training base in Bīķernieki Hospital in 2020). In turn, several sub-programs correspond to the joint programs of the relevant European association and upon completion of the Latvian residency sub-program, the graduate has the right to obtain a European speciality certificate (for example anesthesiology residency, urology, ophthalmology, vascular surgery).

Examples of the involvement of academic staff in scientific research at both national and international levels.

Residency lecturers - academic staff and qualified specialists are actively involved in scientific and research work, providing opportunities for students to participate in the research process. Scientific research activities are very extensive, so this chapter provides only a few of the best examples of individual activities.

***Vascular surgery**

An example of multidisciplinary research is 1998-2020. The research project **"Evaluation of**

preoperative coronary CT-FFRct in patients without cardiac history undergoing peripheral vascular surgery to reduce postoperative mortality and myocardial infarction". (Pre-op coronary CT-FFRCT evaluation of patients with no cardiac history who are undergoing peripheral vascular surgery may reduce the risk of post-op MI/death.). Project manager prof. **Dainis Krievins**. The project involves academic staff from vascular surgery, cardiology, radiology, cardiac surgery, anesthesiology, including lecturers, doctoral students, students. The results of the project have been reported in Latvia and at more than 15 leading professional conferences in Europe, the USA, New Zealand, Korea and Israel, receiving awards and recognition. Multiple publications have been created for this project in internationally cited and peer-reviewed publications. The project was implemented in cooperation with colleagues from the University of Latvia, P. Stradiņš KUS and the USA. The project has been developed with the support of the University of Latvia Foundation and the Latvian Science Council.

Krievins D, Zellans E, Latkovskis G, Eagle A, Star L, Kumsars I, Rumba R, Stradins P, Jegere S, Zarins CK. Pre-operative diagnosis of silent coronary ischemia using coronary CT-derived fractional flow reserve (FFRCT) may reduce postoperative cardiac complications and improve survival of patients undergoing peripheral vascular surgery. *European Journal of vascular and endovascular surgery*. 2020. 60: 411-420.

Krievins D, Zellans E, Latkovskis G, Jegere S, Kumsars I, Kaufmanis K, Erglis A, Zarins CK. Diagnosis and management of silent coronary ischemia in patients undergoing carotid endarterectomy. *Journal of Vascular Surgery*. 2020; 73 (2): 533-541. DOI: 10.1016 / j.vs.2020.06.045.

*** Infectious diseases**

Resident Alise The Accountant is the first author of a study on the prevalence of *Acinetobacter baumannii* in the neonatal intensive care unit. Project manager prof. U.Dumpis. *Control of Acinetobacter baumannii outbreak in the neonatal intensive care unit in Latvia: whole-genome sequencing powered investigation and closure of the ward.* (<https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC6532256/?report=reader>.) **Gramatniece A**, Silamikelis I, Zahare I, Urtans V, Zahare I, Dimina E, Saule M, Balode A, Radovica-Spālvina I, Clovin J, Fridmanis D, Dumpis U. *Antimicrob Resist Infect Control*. 2019 May 22; 8:84. doi: 10.1186 / s13756-019-0537-z. eCollection 2019. During her residency, Alise the Accountant has co-authored three other international publications, as well as actively participated in the National Research Program on COVID19.

***Cardiology**

A cross-sectional study of cardiovascular and other non-communicable disease risk factors in the Latvian population "within the framework of the ESF project" **Complex health promotion and disease prevention measures "from October 2018 to September 2020**. Led by prof **Andrejs Ērglis**. In the course of the research, knowledge about the epidemiological situation of cardiovascular diseases and their risk factors in Latvia was acquired.

Visual diagnostic strategies for patients with stable angina and moderate risk of coronary heart disease: a comparative study of the effectiveness of existing technologies (DISCHARGE) funded by the European Union's 7th Framework Program for the period 2014-2020. year prof. Under the leadership of **Andrejs Ērglis**, with the participation of prof. **Gustav Latkovsky**, Karl Streng, Vita Sharipo. In the course of the research, knowledge was gained about the choice of a modern and effective strategy for the diagnosis and treatment of cardiovascular diseases.

Latvian Register of Family Hypercholesterolaemia, Launched in 2015 under the leadership of prof. Gustav Latkovskis, the state research program involved residents Vitu Sharipo, who is now a

certified cardiologist. Currently, the project of fundamental and applied research of the Latvian Council of Science "Analysis of high cholesterol polygenic mechanisms with low-coverage whole-genome sequencing in patients with clinically diagnosed or probable familial hypercholesterolemia" has been started. Led by prof Gustav Latkovskis, which involves residents of cardiology at the University of Latvia: Daiņus Gilis, Georgij Nesterovičs and Elizabete Tērauda.

***Internal medicine**

LU professors of internal medicine, associate professors, assistant professors and lecturers Daina Andersone, Inese Folkmane, Kristīne Geldnere, Alvis Krams, Valdis Pīrāgs, Aldis Puķītis, Aiga Staka perform the functions of a Leading Researcher in many clinical and basic science studies;

LU internal medicine lecturers Natalija Fokina, Sintija Sauša, Dace Seisuma: are sub-researchers in several clinical trials;

LU residents Daina Kalniņa, Lelde Kuzmane, Andris Romašovs, Līva Šteina: are sub-researchers in several clinical trials.

***Anaesthesiology and reanimatology**

Miscuks, Aleksejs. Changes in amplitude of photoplethysmogram actualize 'mapping' to control the distribution of peripheral anaesthesia prior to hand surgery / Aleksejs Miscuks, Uldis Rubins, Iveta Golubovska // Acta Anaesthesiologica Scandinavica Vol. 59 (2015), Suppl. 121: 33rd Congress of the Scandinavian Society of Anaesthesiology and Intensive Care, Medicine, Reykjavik, Iceland, 10 June 2015, (2015), Meeting Abstract: O6-05, p.18. , URL: <http://onlinelibrary.wiley.com/doi/10.1111/aas.2015.59.issue-S121/issuetoc> ISSN 0001-5172.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

Evaluation of the cooperation of the teaching staff and the relations between the number of students and the teaching staff within the study program.

In the selection of sub-program managers, preference is given to the leading specialists of the specific speciality in the country, taking into account both clinical and academic skills and feedback from students.

A lecturer of one speciality conducts a study course not only for the residents of his / her speciality program but also for residents of other specialities. For example, the course rheumatology is intended for both residents of all internal medicine specialities and trauma and orthopaedic surgeons, as well as dermatologists, venereologists. The lecturers of the anaesthesiology resuscitation program lead a study course in intensive care and resuscitation for residents of almost all speciality programs. Therefore, the program "Medicine" not only unites doctors of all specialities but also determines the need for significant cooperation and communication between residents of different speciality programs.

In university clinics, which have a large number of residents from various sub-programs of the program "Medicine", the resident councils have been established on the initiative of students, in order to solve various issues related to residency. They can be organizational, social, financial, academic, etc. The responsible for the residency at the University of Latvia and at the medical institution then receive feedback on the study processes.

An important role is given to residents' practical work in the clinic's departments for the acquisition of the program, for the assurance of the clinic's work, as well as for the assistance, including psychological, when younger colleagues start their studies at the clinic. The most difficult period for first-year residents is the work in the emergency department, when they need to acquire skills to act quickly in critical situations, often unrelated to their direct specialty sub-program, and in such moments, senior students are that who stand side by side. Residents of the 5th study year of certain specialty programs (for example "Obstetrics and Gynecology") are involved in conducting discussions / seminars for residents of other specialties (more often - residents of Family medicine or for the 1st year residents of Obstetrics and gynecology). Residents of different specialties, different study years are studying in the specialized departments of the clinic at the same time, sharing their knowledge and experience. For example, in the department of Endocrinology may study internists, gastroenterologists, nephrologists, cardiologists, rheumatologists, venereologists, dermatologists, ophthalmologists, and endocrinologists. Residents of each specialty are there with their own set of knowledge and skills, in which they gain new experience by sharing with each other.

An important role is that the program of the first two study years of Internal specialties (endocrinology, gastroenterology, pneumonology, cardiology, nephrology, rheumatology, sports medicine, oncology chemotherapy) has a common module with Internal medicine courses. This provides the opportunities to recognize previously acquired courses as valid if the study program after the 2nd study year is changed. In turn, students from different specialty sub-programs, taking the same course, will evaluate it from the point of view of their specialty. Such a situation is a

certain challenge for the teaching staff as well, because in the very same field of medicine the future specialist has to saturate themselves in a subject

Each study sub-program is managed by the head of the program, who in most cases is the leading specialist in Latvia in the relevant field, often the head of a Latvian professional association or otherwise a nationally recognized specialist. It ensures the leadership of the entire program management and the consolidating and development-oriented cooperation of the involved teachers. The ratio of the number of students to the number of teachers is not more than 2: 1. This is due to the good cooperation with the basic clinical training bases - university hospitals, specialized medical institutions, regional medical institutions, separate private health centres and GP practices.

The successive formation of a hierarchy of residents of one speciality (junior, senior resident) in sub-programs with several residents and annual admission of residents to the speciality (for example, surgery, internal medicine, urology, anesthesiology-resuscitation, etc.) can be assessed as a positive practice. It improves the training process by complementing the training process carried out by teachers with mutual support in the process of acquiring knowledge. Involving residents in academic work already during the residency studies creates a favourable ground for the formation of the new academic generation.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	LU_Diplomi_un_diploma_pielikumi_ENG.doc	DIPLOMS_REZIDENTI__LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Statistics_engl.docx	Statistika_lv_1.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	Atbilstiba_valsts_izgl_standartam_engl-1.docx	Atbilstiba_valsts_izgl_standartam-1.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	1_pielikums_MEDICINA_ENG.docx	1_pielikums_MEDICINA_LAT.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	2_pielikums_kartejums_MEDICINE_ENG.pdf	2_pielikums_kartejums_MEDICINE_LAT.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3_pielikums_planojumi_MEDICINE_ENG_1.docx	3_pielikums_planojumi_MEDICINA_LAT_1.docx
Descriptions of the study courses/ modules	4_pielikums_studiju_kursi_MEDICINE_ENG.pdf	4_pielikums_studiju_kursi_MEDICINE_LAT.pdf
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Optometry (43722)

Study field	Health Care
ProcedureStudyProgram.Name	Optometry
Education classification code	43722
Type of the study programme	Academic bachelor study programme
Name of the study programme director	Gunta
Surname of the study programme director	Krūmiņa
E-mail of the study programme director	Gunta.Krumina@lu.lv
Title of the study programme director	Doktora grāds medicīniskajā fizikā
Phone of the study programme director	+37129491775
Goal of the study programme	<i>The aim of the Bachelor study programme Optometry is to prepare highly qualified and competitive assistants of vision care specialists for practical work in companies and the public sector – assistants in optical stores, assistants of optometrists and ophthalmologists, who would be able to provide high-quality vision care services in cooperation with health and vision care professionals, as well as manage health care companies and independently develop new vision-care-related approaches in the changing health care system, as well as to provide a set of knowledge, skills, and competences according to the knowledge, skills and competence defined for the Level 6 in the Latvian Qualification Framework.</i>
Tasks of the study programme	<i>In order for the student to acquire the knowledge, skills and competences required for a dispensing optician, assistant to optometrists and ophthalmologists, and prepare the student for further studies to become an optometrist. The study programme has the following objectives:</i> 1. to provide basic knowledge in key areas of health care in general; 2. to provide knowledge about the materials used in the field of vision care and the principles of operation of optical systems, to develop skills in the manufacture and application of optical systems; 3. to provide knowledge of the principles of the visual system – anatomy, physiology, perception – and its disorders, as well as to develop basic skills in the assessment and care of the visual system; 4. to provide knowledge and develop skills in the construction, principles of operation and application of visual system assessment devices in the field of vision care; 5. to provide knowledge and develop skills in the assessment of the effects of the visual system on external factors and measures for the protection of the visual system; 6. to provide knowledge about entrepreneurship and offer basic social skills in communication, independence and teamwork; 7. to develop the first skills of scientific research work, which will allow participating in research projects, to continue studies in master's degree; 8. to develop the skills necessary for the continuous continuation of education, updating knowledge and professional development.

Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. is familiar with the structure of the human eye and the anatomy, physiology, perception and processes of the eye in the normal and pathological state of the human eye and the processes affecting the formation of visual information and the perception and processing of the visual system; 2. is familiar with the principles of action of external and internal factors and their effects on the human body in general and the visual system in particular; 3. understands the application of different materials, tools and methods in the assessment and cognition of the visual process, incl. also in the evaluation of other functions of the body to the visual system and the perception of visual information; 4. is familiar with the stages of development of research projects, application of methods and establishment of entrepreneurship in health care and related normative regulations in place of practice of a vision specialist. <p>Skills:</p> <ol style="list-style-type: none"> 5. calculates the optical lens system, incl. parameters of the optical system of the eye, formation of images in optical systems; 6. recognizes and distinguish different materials used in vision correction (spectacles, contact lenses, intraocular lenses) and to describe the properties, types, designs of these materials, as well as to distinguish refractive defects of vision and visual system disorders, to perform methods of visual system evaluation, creation of visual system stimuli and application in the assessment of visual functions; 7. measures and evaluate the physical parameters of external conditions and their impact on the functionality of the visual system and the occurrence of possible visual disturbances; 8. performs physical, psychophysical, physiological measurements related to human and material research, their statistical processing using various methods for the development of laboratory work, practical work and scientific work, working creatively and engaging in group work and using means of communication. <p>Competences:</p> <ol style="list-style-type: none"> 9. recommends the best type of vision correction device to the patient and to train first-time contact lens wearers according to the vision correction prescribed by the optometrist, if necessary to make and adjust spectacle frames for the human face, as well as to take vision prevention measures, use vision protection and reduce external effects, to promoting the application of the principles of medical ethics; 10. independently and meaningfully reads articles in scientific periodicals on the studied topics, to manage academic writing and basic communication skills, to plan one's work and perform small scientific work under the supervision of a supervisor, as well as to work independently and take responsibility for individual learning necessary for continuous professional development. <p>The learning outcomes of the Bachelor study programme Optometry together with the results of the Professional master study programme Clinical Optometry have been developed and harmonized with requirements to knowledge, skills, and competences for the dispensing opticians and optometrists education system in the European Union regulated by the ECOO (European Council of Optometry and Optics).</p>
Final examination upon the completion of the study programme	Bachelor Exam and Bachelor's Thesis

Study programme forms

Full time studies - 3 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>3</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	<i>-</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 3 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	<i>3</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	<i>-</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time studies - 4 years - latvian

Study type and form	<i>Part time studies</i>
Duration in full years	<i>4</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	<i>-</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time studies - 4 years - english

Study type and form	<i>Part time studies</i>
Duration in full years	<i>4</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time extramural studies - 4 years - latvian

Study type and form	<i>Part time extramural studies</i>
Duration in full years	<i>4</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Part time extramural studies - 4 years - english

Study type and form	<i>Part time extramural studies</i>
Duration in full years	<i>4</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>120</i>
Admission requirements (in English)	<i>Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Bachelor's Degree in Health Sciences (Optometry)</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Some changes have been made to the parameters of the Bachelor's study programme "Optometry" (hereinafter – BSP Optometry), in order to improve the visibility of the study programme not only in Latvia but also abroad, as well as to provide for compliance with the requirements of the European Qualification in Optics and European Diploma in Optometry in respect to the content of the study programme.

1. The degree to be awarded by the study programme

- **Previous accreditation period:** Bachelor of Science Degree in Optometry
- **In the new accreditation period:** Bachelor's Degree in Health Sciences (Optometry). More detailed description see in **Annex OptoB 25**.

Justification: Since 2013, when study programmes in Latvia were divided into study fields, BSP Optometry has been a part of the Health Care field. Both dispensing opticians and optometrist's assistants work in the field of health care, and therefore the nature, content and results of the programme are related to the field of health sciences. The content of the study programme consists of a variety of subjects from different study fields, where more than half are either medical subjects or subjects related to optometry.

2. The aim of the study programme

- **In the previous accreditation period:** Bachelor's study programme Optometry aims to offer science-based third-level academic studies to complement them with basic professional elements of eye refraction.
- **In the new accreditation period:** The aim of the BSP Optometry is to prepare highly qualified and competitive assistants of vision care specialists for practical work in companies and the public sector – dispensing opticians, assistants of optometrists and ophthalmologists, who would be able to provide high-quality vision care services in cooperation with health and vision care professionals, as well as manage health care companies and independently develop new vision-care-related approaches in the changing health care system, as well as to provide a set of knowledge, skills, and competences according to the knowledge, skills and competence defined for the Level 6 in the Latvian Qualification Framework.

Justification: The aim of the study programme has been specified to be more relevant to the specific nature of the specialists to be prepared for the field of health care.

3. Objectives of the study programme

Justification: The objectives of the study programme have been reformulated, taking into account the latest requirements for the definition of the parameters of a study programme in the Government Regulations and the UL regulations, as well as the requirements of the European Council of Optometry and Optics (hereinafter – ECOO)[1] in European Qualification in Optics[2] and

European Diploma in Optometry[3] regarding the knowledge, skills and competences to be acquired.

4. Results of the study programme

Justification: The results of the study programme have been reformulated, taking into account the latest requirements for the specification of study programme parameters in the UL regulations, as well as the requirements of the Latvian dispensing optician's and optometrist's professional standards, as the bachelor's programme provides a theoretical basis for the optometrist's education, as well as prepares vision care specialists' assistants to the practical work. The results of the BSP Optometry study programme, together with the results of the Professional Master's study programme Clinical Optometry (hereinafter – PMSP Clinical Optometry), have been developed and coordinated based on the requirements of the ECOO “European Qualification in Optics” and “European Diploma in Optometry” for the acquired knowledge, skills and competences.

[1] <https://www.ecoo.info/> [available in English]

[2] <https://www.ecoo.info/wp-content/uploads/2016/10/EQO-Syllabus-070818.pdf> [available in English]

[3]

https://www.ecoo.info/wp-content/uploads/2016/10/20171020_Syllabus-and_Accreditation_self-assessment.pdf [available in English]

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The BSP Optometry corresponds to the purpose of the study field of Health Care to prepare competent health care professionals for the Latvian economy. The programme does not provide qualifications, but the knowledge, skills and competence that are relevant to the scope of optics companies – to provide high-quality service consulting the client on the choice of the spectacle frame and optical lenses, adjusting and repairing spectacles, performing training in contact lens usage and cleaning, supervising vision training for clients, and performing technical measurements according to the appointments and recommendations of a certified vision specialist. For many years, the large optics companies themselves trained their employees. As time changes and the range of types and materials for vision correction, as well as a number of visual disorders and their potential treatment options increases, companies have refused to prepare appropriate specialists themselves and have supported the development of the bachelor study programme, as well as offered practice places for future specialists – dispensing opticians.

The **aim** of the BSP Optometry is to prepare highly qualified and competitive assistants of vision care specialists for practical work in companies and the public sector – dispensing opticians, assistants of optometrists and ophthalmologists, who would be able to provide high-quality vision care services in cooperation with health and vision care professionals, as well as manage health

care companies and independently develop new vision-care-related approaches in the changing health care system, as well as to provide a set of knowledge, skills, and competences according to the knowledge, skills and competence defined for the Level 6 in the Latvian Qualification Framework.

The BSP Optometry has been implemented for more than 25 years (from 1993/1994) and there have been major changes in the content and implementation of the study programme over the years, as there have been major changes and development in optometry, optics business, and vision health care thanks to the development of the new technologies and their implementation in the vision care practices. In the past, the glasses were made by an optician manually, and there was only a small lens grinding machine. Present days, there is no more manual work, but all this is done by automatic grinding machines, where you enter the grinding parameters. The range of spectacle lenses and contact lenses (types, shapes, usability) has grown multiple times and each year lens manufacturers are trying to introduce increasingly individualized lenses that require specific knowledge and skills to incorporate and adapt them to the shape and features of the human face, as well as to the specificities of the person's work and hobbies. The number of diagnostic devices and techniques in vision care has also increased over the last 10 years and is becoming more and more automated. Thus, the study programme should prepare specialists who are able not only to understand the wide range of spectacle frames, spectacle lenses, contact lenses and contact lens care products and to use them in places of practice but also to create an environment where to work or offer employment to others by building their own businesses, as well as to provide high-quality vision care services and high-quality vision correction tools.

The title and aim of the study programme indicate that, during studies, the student will acquire knowledge, skills, and competences related to vision care (optometry). The plan of the study programme (see **ANNEX OptoB 1**) shows that optometry studies are multidisciplinary and combine a number of scientific fields, including medicine, physics, biology, chemistry, mathematics, etc.

The degree to be obtained upon graduating from the BSP Optometry is in the field of Health Sciences since the area in which the graduate will subsequently be employed involves vision care – optical stores, eye clinics and medical centres – which are part of the general health care system. At the same time, it should be stressed that optometry studies are multidisciplinary studies in which knowledge, skills and competences are acquired in different fields of science – in the physics sector (Physics for Optometrists, Geometrical Optics, Occupational and Physical Optics, Visual Optics, Optical Appliances), biology sector (Cell Pathology, Human Anatomy and Physiology, Neurophysiology, Anatomy and Physiology of the Eye), medical sector (Microbiology, General Pathology, Pharmacology for Optometrists, Introduction to Eye Diseases, Clinical Medicine for Optometrists), chemistry sector (Chemistry for Optometrists, Biochemistry of the Eye), as well as psychology sector (Sensation and Perception, Communication and Medical Ethics). Nor should it be forgotten that BSP Optometry forms the basis for PMSP Clinical Optometry to obtain the qualification in optometry, which allows the optometrist to work independently by making their own decisions and assuming responsibility.

The BSP Optometry has been assigned **objectives** that ensure the achievement of the aim of the optometry programme, as well as provide the development of the new specialist-dispensing optician during the studies as a specialist in their field with:

1. basic knowledge of the fundamental health care courses, including specific topics to be considered in relation to the scope of optics and vision assistant, as well as the possibility of post-graduate studies in another master's programme (biology, physics, etc.);
2. the specific knowledge, skills and competences of the field to be able to work in optical stores, eye clinics or medical centres as an assistant, making and adjusting vision correction

- tools to the anthropologic features of the human face and advising on more appropriate spectacle lenses and their care products;
3. basic knowledge in optometry to be prepared for post-graduate studies in the professional master's study programme and to start working as an assistant in a practice of a vision specialist, performing various measurements according to the instructions of the vision specialist;
 4. developed research skills that enable participation in research projects or other studies at the master's level.

The objectives of the BSP Optometry are designed as a basis for acquiring the education of the optometrist and vision science researcher so that students can continue post-graduate studies in the PMSP Clinical Optometry and have the basic knowledge about both optics and vision, its mechanisms, and processes, as well as about the factors that affect vision, and this knowledge can be applied to clinical practices.

Improving the study programme, the objectives were set related to the training of the new specialist that can work as an assistant in optical stores, of optometrists and ophthalmologists in accordance with the requirements of the labour market. Consequently, the content of all courses was reviewed and improved, new courses were created to meet the requirements of employers and the labour market trends, as well as to comply with the UL strategy for the provision of the study process and the requirements for scientific development. The content of the study courses was reviewed and adapted to ensure that the BSP Optometry, together with PMSP Clinical Optometry, qualify for the European accreditation of optometry study programmes, thereby enabling graduates to obtain not only the UL diploma but also the one of the European Council of Optometry and Optics – a diploma[1] that will enable the young people to move on in the European labour market without taking specific examinations of vision specialists.

The content of the courses of the study programme is regularly reviewed as the content of the study programme is also regulated by the European Qualification in Optics[2] and the European Diploma in Optometry[3], which lists the necessary knowledge, skills and competences to be learned and also the recommended level of ECTS (in the University of Latvia, the unit to measure the volume of the study course is 1 CP that corresponds to 1.5 ECTS).

The BSP Optometry represents the fundamental studies for a dispensing optician and basic studies for an optometrist. To become an optometrist, a highly qualified primary vision care professional, a total of 5 years is required (3 years in bachelor's studies and 2 years in professional master's studies). With a bachelor's degree, the graduate can work as a dispensing optician, optometrist's assistant or ophthalmologist's assistant in optical stores, health care clinics and medical centres. If the graduate has realised how much responsibility the vision care professional has and is willing to take it on, the post-graduate studies can be continued at the master's level to obtain both a Professional Master's degree in Clinical Optometry and a Qualification in Optometry. A two-degree system (3 + 2 years) is beneficial for the students who earn a bachelor's degree after 3 years of study and a Professional Master's degree and qualification in optometry 2 years later. This type of study system is recognized not only in Latvia but also in other European countries with different levels of optometrist training:

- refractionist who evaluates only the necessary spectacles;
- contact lens specialist who prescribes not only spectacles but also contact lenses;
- orthoptist or specialist working only in eye clinics and evaluating vision before strabismus surgery;
- functional vision specialist working primarily in eye clinics and performing primary vision evaluation, etc.

Finally, after the three-year studies, the graduates become a full-fledged and knowledgeable dispensing optician, who can work in three areas:

- as an optician who makes vision correction tools, adjusts them to the special features of the human face;
- as dispensing opticians and assistants in optical stores and eye clinics that are competent in selecting the spectacle frames and advising on the most suitable spectacle lenses in accordance to the spectacle frame, prescription and the person's needs.
- as an optometric or ophthalmic assistant, training patients in the contact lens fitting, removing, and cleaning, and helping the patient to perform vision training prepared by the optometrist, as well as to control the performance of a vision training programme.

The BSP Optometry is a multi-disciplinary study programme and therefore the admissions requirements are not limited to specific centralised examinations that should be completed at school. The acquisition requires standard examinations, which are taken by every graduate of the secondary school - the centralised examination in Latvian and the centralised examination in Math.

Our proposal is to introduce a new code 4372 for BSP Optometry because the programme is academic and not professional. Consequently, it is not related to the provision of medical services but is a fundamental basis for optometrist education and also vision science as a subsector of health sciences.

BSP Optometry has been implemented in different forms during the previous accreditation period – full-time, part-time, and part-time extramural, as well as the language of implementation was Latvian and English. Taking into account that the educational standards can be changed, as demonstrated by the previous period, we also want to keep all forms of study in the new phase of accreditation. In our country, health studies have been set to take place in the onsite form (PLK – full-time or NLK – part-time onsite), and accordingly there are no such conditions for students from abroad. Full-time studies shall be binding on applicants who apply immediately for secondary education training. Part-time studies, on the other hand, are binding on foreign stakeholders who already work in the field of optics but want quality education in the field of vision care. We also want to mention that we have launched a European accreditation of two study programmes (BSP Optometry and PMSP Clinical Optometry) in parallel with the accreditation of the study field “Health Care” in Latvia. In obtaining a quality mark for European study programmes, we believe that student flows in English groups will increase, due to only 5 study programmes have obtained the quality mark by ECOO[4] from 52 study programmes in Europe. Accordingly, it is necessary to accredit both full-time studies, which will mainly be attended by non-European Union citizens and part-time studies, in which citizens of the European Union will also be able to study. The cost-effectiveness of studies and the minimum number of students are described in Section 3.3.3.

After the COVID pandemic, students have expressed a desire to study in a similar way, where lectures can be listened to remotely and practical works are done onsite and learned not every day but by periods. Consequently, one year or half a year could also be learned more. Taking into account that part-time studies, where all materials are available in e-course, labs and exams are organised onsite, are similarly taking place at the moment. Consequently, we see that part-time studies should also be maintained during the next accreditation period. Accordingly, groups studying for their private funding shall only be opened in cases where a minimum number of students is collected who are able to cover teaching staff work.

[1] <https://www.ecoo.info/european-diploma/educational-institutions/> [available in English]

[2] <https://www.ecoo.info/wp-content/uploads/2016/10/EQO-Syllabus-070818.pdf> [available in English]

[3]

https://www.ecoo.info/wp-content/uploads/2016/10/20171020_Syllabus-and_Accreditation_self-assessment.pdf [available in English]

[4] <https://ecoo.info/ecoo-accreditation-agency/fully-and-partially-accredited-universities/> [available in English]

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

On the Latvian scale, the BSP Optometry of the University of Latvia is a unique study programme, because no other university has a similar study programme. The economic and social justification is based on the fact that as the field of vision service develops, trained specialists are also needed in Latvia, the knowledge of which corresponds to European Qualification in Optics[1] and European Diploma in Optometry[2]. The study programme is based on the content guidelines for accreditation of European study programmes. We have evaluated and compared the study programme to two well-recognised study programmes that prepare a dispensing optician (see **ANNEX OptoB 2**).

As the country's economic situation improves and people use optical services – getting their vision checked by optometrists and ophthalmologists, buying new and beautiful glasses or the contact lenses and care products – the need for optometrist's assistants has increased as companies expand, and new optical stores and private eye clinics are open. Optical companies recognise that in the coming years, if Latvia and the world will not face the economic crisis, there will definitely be a need for dispensing opticians, because companies are no longer prepared to train and invest heavily in training employees with different backgrounds but are prepared to cooperate and offer practice to undergraduate students, thus encouraging them to combine work with studies and gain experience in an optical company already during their studies.

Employers' survey analysis

A dispensing optician or optometrist's assistant is an optical specialist (staff) who advises on spectacle lenses, frames or contact lens care products based on recommendations prescribed by an optometrist. As a specialist, they may also make glasses or help the optometrist to train the patient in the use and care of contact lenses. In June 2017, a discussion was held with senior managers from "Pasaules Optika", "Optio", "Vision Express", "Optic Guru", "Metropole", and "Fielmann Optika" and their HR departments on cooperation in providing practice and job offers for undergraduate students. The companies are interested in taking BSP Optometry students on practice and then on placement, as they no longer need additional training in optical matters (lens materials, types, calculations, shapes, etc.) but need additional training in sales service operations and specific issues. This is therefore beneficial for both the company and the study programme, as the student enters the labour market already during their studies and, seeing the optician's activities and career opportunities, could decide more confidently to continue their studies in the PMSP Clinical Optometrist and become an optometrist. Admittedly, there are downsides to students combining work and studies, as less time is spent studying or students study late at night, on Saturdays and Sundays and are not as "efficient".

Following discussions with employers from "Optio", "Vision Express" and "Pasaules Optika", a new tradition has been introduced in the 1st year course "Introduction to Optometry" in the academic

year 2017/2018 – not only to have a vision assessment performed by the student of the PMSP Clinical Optometry but also to visit an optical store and observe how it works, how glasses are made and how a vision test is performed by an optometrist. Whether the students like the innovation will be evaluated over the next three years through placement diaries and course evaluations. Other companies such as Fielmann Optika, Metropole, Optikas Pakalpojumi and Italiana Optika have also expressed interest in offering such opportunities to undergraduate students, and soon discussions will take place on the possibilities of practice, practice places and on-site supervisors.

The questionnaire does not fully reflect the capacities of dispensing opticians and optometrists but rather summarises the overall graduates' capacity to enter the labour market immediately or with short on-site training if the company has its own narrow competencies that are not covered in the studies. A sample questionnaire can be found in **ANNEX OptoB 3**. Only the large optician chains – "Fielmann", "OC Vision", "Vision Express", "Optic Guru", and one small company "Grund Optika" responded. These are leading companies in the local optical sector, employing more than 90% of vision care professionals – dispensing opticians, optometrist assistants, opticians, and optometrists.

The data show that the majority of employees in the companies have a Bachelor's, Master's or professional Master's degree. Recruiting their staff, they do not require previous experience, as they give young professionals the opportunity to develop by practice. All companies have experienced difficulties in recruiting staff, mainly dispensing opticians and optometrists, as their shortage in Latvia is still high. One of the most frequent difficulties in recruiting staff is a required change of residence. Optical stores outside Riga and in remote regions of Latvia are particularly affected. A positive feature is that the employee can fit into the working rhythm, only in some companies special training is still being given on the specific products and specific service culture. The entrepreneurs recognise that the employees' theoretical knowledge and practical skills are at a high level, they are able to work and adapt to the new conditions. The serious concern identified by all entrepreneurs is the new employee's communication skills and ability to work in a team, as well as a lack of responsibility at the workplace.

To address communication and interpersonal skills, the employers have been asked to recommend what skills they expect and how they see these skills being developed during the studies. The following discussion acknowledged that interpersonal and communication practices are at the beginning of the job, around one to two years in. But after that, the new employees fit into the team, get along with their colleagues and eventually even become managers of the optical stores. Unfortunately, none of the entrepreneurs could suggest good solutions. The only suggestion was to support both optometrist assistants and future optometrists with practice. Unfortunately, increasing the study hours in communication and communication skills development does not bring results, because students can only gain experience in the field of optics through contact with clients and patients. In order to give students, the opportunity to learn more about optics and the working environment of vision professionals, in the 1st year within the two courses "Introduction to Optometry" and "Healthcare Business Management", students will have a short practice and the opportunity to familiarise themselves with the working environment. In the 2nd year, the new course "Communication and Medical Ethics" will analyse specific cases that students may encounter in the optical profession. At the end of their studies, students have a major placement in optical businesses where they apply their knowledge, skills and competences as dispensing opticians, optician's assistants, and optometrist's assistants.

Analysis of study programme evaluations

Graduates' surveys take place after graduation. This could be explained by students' greater awareness of anonymous e-questionnaires. The programme has worked extensively with students, demonstrating that their opinion is important for improving the programme and its content.

After completing their undergraduate studies, they can work as dispensing opticians, optometrists, or ophthalmologist's assistants, which is what the majority of graduates do (see **Table 3.1.3.1.**) Both the student survey on employment in optometry during their studies and the graduates' survey show that a large proportion work in the field of eye care. Therefore, the difference between a dispensing optician and an optometrist has been increasingly emphasised in the courses; furthermore, for third years now, the current bachelor's study programme offers practice in optical stores where students work as dispensing opticians, optician's assistants, and optometrist's assistants.

Table 3.1.3.1.

Graduates' survey data on employment after studies in optometry, vision care, other health care or other fields

Graduation Year	Completed Questionnaires	Areas of Activity				
		Optometrist	Optical Assistant	Other Specialist in Optics or Healthcare	Other	Healthcare
2013	37	25	2	2	8	78.4%
2014	19	11	0	0	8	57.9%
2015	18	11	0	1	6	66.7%
2016	19	14	0	1	4	78.9%
2017	14	9	1	2	2	85.7%
2018	18	8	4	0	6	66.7%
2019	21	2	9	2	8	61.9%
2020	15	4	5	1	5	60.0%
2021	15	2	11	0	2	86.7%
					Average	71.4%

In recent years, it has also been observed that the profession of the optometrist is becoming increasingly prestigious, with many optical companies offering jobs. Thus, about half or more of the BSP Optometry graduates continue their studies in the Professional Master's study programme Clinical Optometry to acquire the knowledge, skills, competences and qualifications in optometry. It should be noted that the position of dispensing optician, optician's assistant, and optometrist's assistant is also being strengthened in the labour market with the development of a professional standard for the first level of higher professional education "Dispensing Optometrist". Graduates with an academic Bachelor's degree have the opportunity to undertake the practice in this study programme. Accordingly, most of the courses are aligned and the student can obtain a qualification that the academic Bachelor's study programme does not offer.

The Bachelor graduates' survey results show that a small number of students want to work as optometrists already during their Bachelor studies. However, the decision of the Department of Optometry and Vision Science lecturers and the members of the Qualification Board of the Association of Optometrists and Opticians of Latvia remains unchanged – the vision examination service must be of high quality and the medical person must have a high sense of responsibility not to harm human health. It has therefore been decided that the Bachelor's study programme includes certain methods and instruments on vision assessment, but not the whole package of vision assessment service. This is to prevent the students from working as an optometrist, as the law does not yet allow it. The Cabinet Regulation No. 268 "Regulations regarding the competence of medical practitioners and students who acquire first or second level professional higher medical education programs in medical treatment and the amount of theoretical and practical knowledge of these

persons” 4.9. The optometrist (n 114) states: “An optometrist is a medical practitioner, a functional specialist who has obtained a second level professional higher education in the field of health care with a qualification in optometry and the duration of studies for an optometrist is five years.

In the run-up to the accreditation, an additional graduates’ survey was carried out about their employment after studies and their current employment field. The data presented in **Table 3.1.3.1.** shows that more than 70% of the graduates are working in vision care or health care stores, medical centres or clinics.

When assessing the graduate questionnaires, it is concluded that the majority of graduates after bachelor's studies continue to study at a higher level – not necessarily everyone chooses to continue their studies in the professional master's study programme (perhaps it was not a student's call to become optometrist), but continue in other master's study programmes, such as biology, geography, physics, and even mathematics. As well everyone, except young mothers, finds work on the labour market in a variety of specialities. Most – at least 3/4 remain in optic companies as dispensing opticians or start working as optometrists under the guidance of a mentor while studying at the PMSP Clinical Optometry.

[1] <https://www.ecoo.info/wp-content/uploads/2016/10/EQO-Syllabus-070818.pdf> [available in English]

[2]

https://www.ecoo.info/wp-content/uploads/2016/10/20171020_Syllabus-and_Accreditation_self-assessment.pdf [available in English]

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

During the accreditation period, BSP Optometry was realized in several study forms: full-time studies (Latvian and English groups), part-time onsite (some Latvian students), and part-time extramural (English groups). The dynamics of the number of students over the years of study during the accreditation period is shown in **ANNEX OptoB 4.**

The number of students is determined by the number of the allocated state-funded places. There were 80 state-funded places in 2016, however, the Ministry of Education and Science decided to cut the state-funded places by 15% in all study programmes. Consequently, only 68 state-funded places remained, which also affected the number of students, because the Department of Optometry and Vision Science could not afford to fund the missing state-funded places. In 2017, a major milestone for the study programme was the recovery of the coefficient, in line with the status of a health care programme. BSP Optometry was accredited in the direction of health care in 2013, but UL was not allocated the coefficient as a health care study programme but rather as a programme in Natural Sciences. Recovering the health care coefficient also made more funding available. The director of the study programme still has to prove the stability of the study programme: 100% of the state-funded places are filled each year and there is no big drop-out of

students. Unfortunately, the UL policy does not support health care study programs and their demand. To enable students to learn optometry, the Department of Optometry and Vision Science has created more funded places than the state-subsidized ones. However, there is a strict rule that as soon as a student has earned 1.5 ECTS debt per semester, the student must start paying for his/her studies.

On average, each year, there are **103±11** students at the BSP Optometry. A large proportion of students are in full-time studies in the Latvian group and the number of students from year to year is similar accounting for **85±8** students each year who study in all three years together (*the dynamics of the number of students by year of study is shown in **Figures 3.1.4.1.** and **3.1.4.2.***). The students paying for their studies are only the ones who have failed to meet their academic commitments and have at least one debt in the previous semester. In part-time extramural studies, only the foreign students are studying to acquire the UL diploma and choose the study programme at the University of Latvia as competitive and better-quality studies compared to those offered by other foreign universities. In the last three years, we have also launched full-time studies in English. On average, each year, there are **18±5** foreign students in English groups or approximately **17%**. The high number of students is mainly related to the cooperation of the Department of Optometry and Vision Science with Italian opticians and optometrists. There is an interest in this study programme and study opportunities not only from citizens of the European Union and countries of the European Economic Area but also from other countries, mainly the Middle East and Asia, as well as from former countries of the Soviet Union, where optometry is only in the development process. For the time being, the interest is not so big due to the lack of promotion in foreign networks. The biggest obstacles and difficulties to overcome to enrol students in the English groups are the long processing of documents at the Academic Information Centre and then the sorting out of all permits. As a result, the students arrive late. There are many leads, but there are only a few who pass the selection. Some candidates lack a corresponding previous diploma comparable to the level of the secondary school, others need a lot of time to arrive at Latvian embassies of other countries and acquire a visa. Of all leads who submit documents, about 30% later become the UL's students.

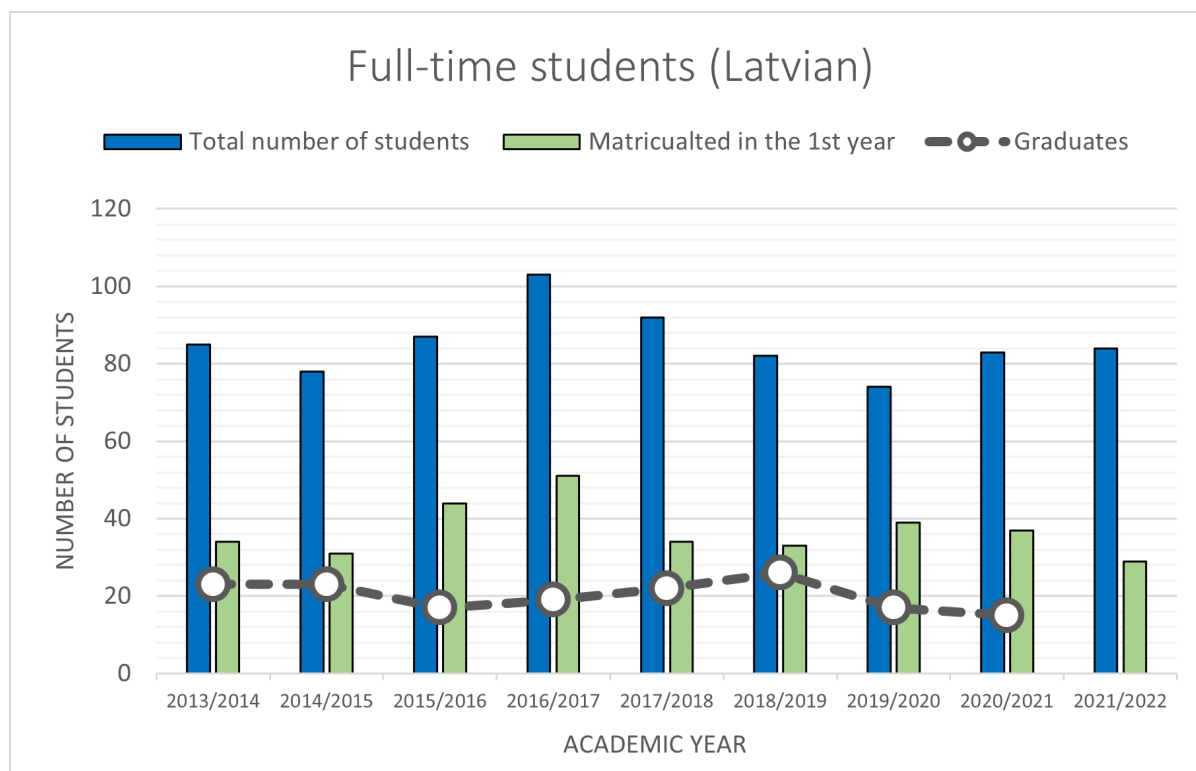


Figure 3.1.4.1. BSP Optometry student number dynamics across academic years in the groups of the Latvian groups (full-time studies).

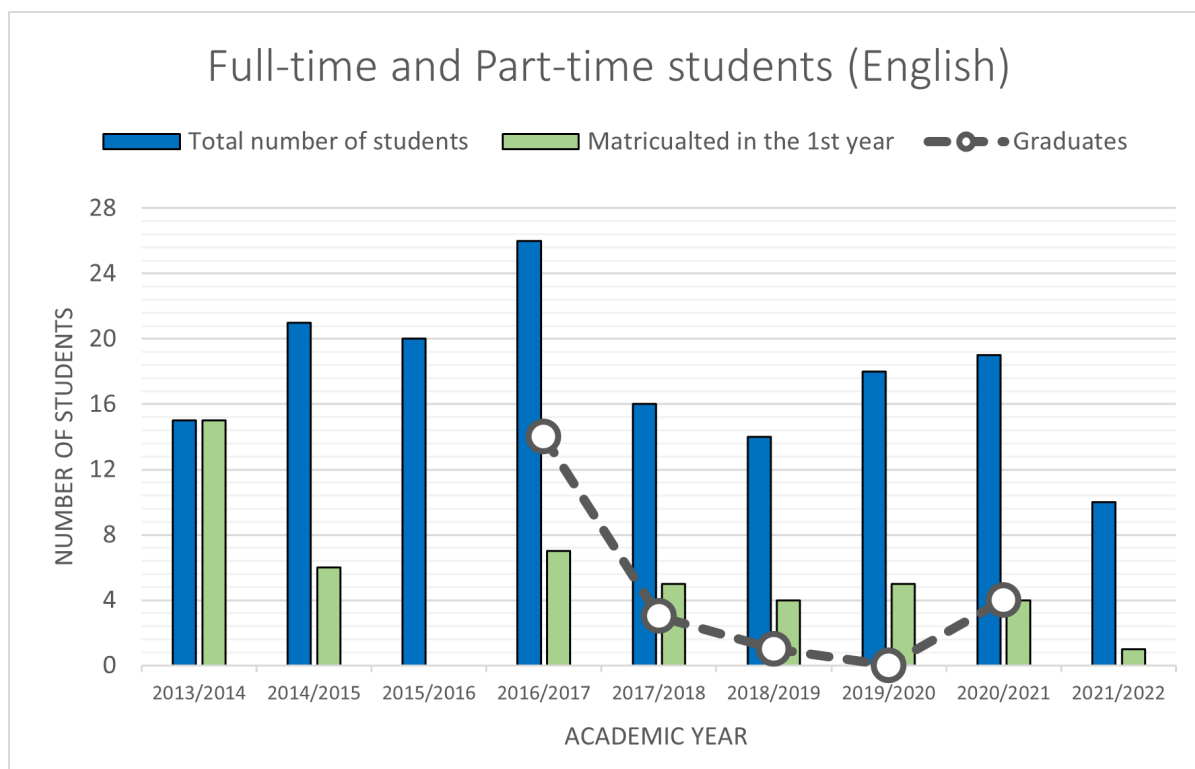


Figure 3.1.4.2. BSP Optometry student number dynamics over academic years in the English groups (full-time and part-time studies).

In order to attract more students from abroad and taking into account that the University of Latvia is one of 52 colleges and universities in Europe offering optometry studies at different levels[1, 2], the accreditation of the European Council of Optometry and Optics is also carried out in parallel with the Latvian accreditation of study programmes, by harmonising the content of the study programme with the content and implementation of the requirements of the European Diploma in Optometry[3]. Obtaining the accreditation of the ECOO, the study programme would ensure that graduates of the study programme would also receive a European Diploma in Optometry, which guarantees the acquisition of high standards of the profession, opening up opportunities for optometrists to work not only in Latvia but throughout Europe. To date, full accreditation of study programmes has been granted to optometrist training programmes in Olten (Switzerland), Kongsberg (Norway), Berlin (Germany), Utrecht (Netherlands), Stockholm (Sweden). Partial accreditation has been received by optometrist training programmes in Palacki University (Czech Republic) and the University of Metropolia (Finland). In all these universities, study programmes are bachelor's study programmes and are not implemented in English in any of these universities. Consequently, obtaining European accreditation would increase the popularity of the BSP Optometry and PMSP Clinical Optometry by attracting a wider range of students.

In the future, it is planned to enrol many more students in full-time studies, as this form of study is considered to be more successful in acquiring knowledge, skills and competences. Part-time studies are more for expatriate professionals who have stable jobs and cannot leave their country for work and family reasons. Therefore, we are actively working on improving the programme content and arranging the credits so that both the course content and the number of credits meet all the requirements for the European Diploma in Optometry and Optics. In parallel, we also work on improving the form of a part-time extramural study programme and, due to the Covid-19 emergency worldwide, the UL has also developed useful tools for distance learning, which already

allow us to create additional video lectures for distance learners as an additional tool to acquire knowledge, skills, and competences.

The student's willingness to go on student exchange programmes abroad does not show that high numbers. On average, over the last seven academic years, two students, or 2.3% (out of an average of 85 students over the last seven years), has chosen to study in a foreign cooperation programme. There is more cooperation with Spanish universities, but the requirement of language competence of the country concerned at the B1 level is a big challenge, which also discourages some students from going on study abroad programmes.

As the full-time study programmes in optometry are implemented also in English for four years now, our study programmes are becoming more and more popular and the number of ERASMUS mobility students arriving each year is increasing.

ANNEX OptoB 5 presents data on the choice of BSP Optometry students to study abroad, as well as the interest of international students in choosing BSP Optometry.

For the academic year 2021/2022, the Department of Optometry and Vision Science has active cooperation with several universities where students can choose to study under the ERASMUS+ mobility programme. The active cooperation agreements with the BSP Optometry are shown in **Table 3.1.4.1**. There is cooperation with the listed universities in the field of course delivery and practice. Only the UK has so far withdrawn from course cooperation, although previously such cooperation existed. At present only cooperation in the development of Bachelor theses is offered, i.e. students can travel to and from Latvia to gain experience in the development of final theses. One of the reasons for this could be that the UK is the only country where one can study in English, and this could also be a barrier to further talks on study cooperation, as we have an increasing number of international students from non-European countries studying on our degree programmes, which have not been accepted by the UK partners. It would not affect the programme dramatically if this cooperation stopped, as there are universities of other countries already interested in new cooperation agreements, such as the Netherlands, Italy, and Finland.

Table 3.1.4.1.

List of universities with which ERASMUS cooperation agreements were concluded during the accreditation period

No	University	Country	Type
1.	Cardiff University	United Kingdom	Practice
2.	Centro Universitario Internacional de Madrid	Spain	Studies
3.	Šiaulių Akademija	Lithuania	Studies
4.	Tallinn Health Care College	Estonia	Studies
5.	Universidad Complutense de Madrid	Spain	Studies
6.	Universidad de Alicante	Spain	Studies
7.	Universidad de Murcia	Spain	Studies
8.	Universidad de Valencia	Spain	Studies
9.	Universidad de Zaragoza	Spain	Studies
10.	Universidade do Minho	Portugal	Studies
11.	University of Patras	Greece	Studies

All these universities have cooperated in the acquisition and equating process. Only the United Kingdom has, for the time being, renounced cooperation in the study process, although there was such cooperation in the past. The United Kingdom is now offering cooperation only for practice improving research experience. One of the reasons could be that the United Kingdom offers studies in optometry in English as well as the University of Latvia. This could also be an obstacle to continuing negotiations on cooperation in studies, as foreign students from non-European countries who are not accepted by the United Kingdom are admitted for studies in Latvia. We think we will not lose much by not continuing this cooperation because there are other universities already interested in new cooperation agreements line in the Netherlands, Italy, and Finland.

Study courses acquired during mobility programmes, that has obtained a positive mark undergo equating process and are fully recognised without requiring the student to take additional examinations or tests. On the other hand, if the student has failed to obtain a positive assessment in one of the courses selected during mobility, the student is given the opportunity to pass the course in the BSP Optometry by establishing a suitable individual examination plan. The student is exempt from the additional fee for re-opening the study course and retains the State budget place, if any, during mobility.

[1] https://en.wikipedia.org/wiki/List_of_optometry_schools [available in English]

[2] <https://optical.org/en/education-and-cpd/education/what-to-study-and-where/> [available in English]

[3] <http://www.ecoo.info/european-diploma/> [available in English]

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The objectives of the study courses and the results to be achieved are consistent with the goal, objectives and results of the BSP Optometry. The contents of the study courses were reviewed so that there is no overlap in content, as has been the case in previous years. The course content of the study programme was further developed to match the European Qualification in Optics and European Diploma in Optometry, as well as specific normative regulation of the corresponding fields in Latvia (see **ANNEX OptoB 6**). In view of the proposed ECTS credit system, restructuring and the increase or reduction of CP took place in some study courses. Furthermore, in line with the Regulations of the UL study and continuing education programmes, in order to avoid more than 6 exams in one semester, the content of some study courses was merged into a single course, with very few courses remaining in the programme with a volume of 3 ECTS credit points. The exception is the study courses Civil Protection and Environmental Protection, both of which are allocated to 1.5 ECTS credit points according to Cabinet Regulation No. 716 of 05.12.2017, “Minimum requirements for the content of the compulsory civil protection course and the content of civil protection training for employees” and the legal act of the Republic of Latvia of 02.11.2006. “Environmental Protection Law”.

The linking of all BSP Optometry courses to programme objectives is represented in **Table 3.2.1.1. ANNEX OptoB 7** reflects the link between all courses and the results of the study programme – knowledge, skills and competences.

BSP Optometry programme objectives:

1. to provide basic knowledge in key areas of health care in general;
2. to provide knowledge about the materials used in the field of vision care and the principles of operation of optical systems, to develop skills in the manufacture and application of optical systems;
3. to provide knowledge of the principles of the visual system – anatomy, physiology, perception – and its disorders, as well as to develop basic skills in the assessment and care of the visual system;
4. to provide knowledge and develop skills in the construction, principles of operation and application of visual system assessment devices in the field of vision care;
5. to provide knowledge and develop skills in the assessment of the effects of the visual system on external factors and measures for the protection of the visual system;

6. to provide knowledge about entrepreneurship and offer basic social skills in communication, independence and teamwork;
7. to develop the first skills of scientific research work, which will allow participating in research projects, to continue studies in master's degree;
8. to develop the skills necessary for the continuous continuation of education, updating knowledge and professional development.

Table 3.2.1.1.

Linking BSP Optometry courses to the objectives of the study programme

Study Course	Objectives of the Study Programme							
	1.	2.	3.	4.	5.	6.	7.	8.
Anatomy and Physiology of the Eye			X					
Biochemistry of the Eye	X							
Eye Diseases and Pathologies	X		X		X			
Bachelor's Thesis		X	X	X	X	X	X	X
Bachelor Exam		X	X	X	X			
Binocular Vision			X	X				
Human Anatomy and Physiology	X							
Civil Protection	X							
Pharmacology for Optometrists	X				X			
Physics for Optometrists	X							
Geometrical Optics		X						
Introduction to Eye Diseases			X	X	X			
Introduction to Optometry			X		X			X
Clinical Medicine for Optometrists	X		X		X			
Contact Lenses		X		X				
Chemistry for Optometrists	X							
Latvian for Beginners*						x		
Mathematics for Optometry	X							
Microbiology	X				X			
Neurophysiology	X		X					
Ophthalmic Optics		X			X			
Optical Appliances		X						
Optometric Instruments				X				
Research Methods in Vision Science							X	

Practice		X		X	X	X		X
Vision and Ageing			X		X			
Visual Ergonomics					X			
Physiology of Vision			X					
Evaluation of Visual Functions				X				
Visual Optics		X			X			
Refractive Defects of the Eye			X	X				
Sensation and Perception			X					
Communication and Medical Ethics						X		
Statistics and Epidemiology	X							
Cell Pathology	X		X					
Healthcare Business Management						X		
Environment Protection	X							
Occupational and Physical Optics		X			X			
General Pathology	X							

**Course is intended only for students of English flow to provide basic knowledge in Latvian and cultural terms; it does not affect the overall achievement of the results of the programme.*

BSP Optometry has been transformed and adapted over 25 years to modern labour market trends, needs and requirements, as well as to the specificities and multi-disciplinary nature of the vision science industry. Not only teachers have participated in the development of study courses and course content, but also employers ("OC Vision", "Vision Express", "Optic Guru" managing specialists and staff) who are interested in preparing new specialists as new technologies enter optics and vision centres.

Each year during the autumn semester, discussions with practice providers and representatives of optics companies are organized to review the level of training of specialists prepared and previous year's practices. Meetings include discussions on the possible improvements of the study programme and the options for entrepreneurs to participate in developing or supporting the material base of the study programme, as well as discussions on the latest developments in the labour market. Discussions with employers highlight the basic knowledge and basic skills for dispensing opticians and optometrists, knowing that in today's modern technology world the optician manufactures spectacles with special automatic devices, knowing that there is a very wide range of optical appliances and dispensing opticians are required to be familiar with them, as well as knowing that the vision care specialists (optometrists and ophthalmologists) require assistants who perform measurements with specific equipment or follow a visual training programme prescribed by the vision care specialist. During the discussions, employers also identify the weakest points for students and graduates, i.e. conversation and communication skills in the first years. However, knowledge and skills have been evaluated as excellent.

The content of the study programme is based on the requirements of the European Qualification in Optics and European Diploma in Optometry, developed by European vision care professionals. The standard includes the necessary expertise, skills and competences for dispensing opticians and

optometrists (including ophthalmic opticians). The following documents list the knowledge and skills required and included in the study programmes, as well as the recommended amount of ECTS credit points:

- required knowledge and skills for dispensing opticians (*European Council of Optometry and Optics “The European Qualification in Optics”*, October 2017[1]);
- required knowledge and skills for optometrists (*European Council of Optometry and Opticians “The European Diploma in Optometry Syllabus, Learning Outcomes and Clinical /Practical Competencies”* October 2017[2]).

As can be observed in these documents, the ECTS credit points recommended for the dispensing optician’s knowledge and skills amounts to more than a third of the optometrist’s knowledge and skills. The BSP Optometry is composed of four sets (Fundamental Knowledge, Optics, Optometry and Medicine) consisting of compulsory study courses, limited choice courses (*for a full range of study courses, see ANNEX OptoB 1*), as well as free-choice courses, provided by the wide range of courses of the University of Latvia. Students are also allowed to choose a course from any other study programme, by obtaining the permission of the teacher’s advice. Study plans have been established according to the national education standard (see **ANNEX OptoB 10**):

1. **Compulsory courses** or basic knowledge section: 68 CP or 102 ECTS (Mathematics for Optometry, Physics for Optometrists, Chemistry for Optometrists, Healthcare Business Management, Statistics and Epidemiology, Pharmacology for Optometrists, Communication and Medical Ethics, etc.);
2. **Restricted elective courses** – 48 CP or 72 ECTS:
 - Optics 16 CP or 24 ECTS (Geometrical Optics, Occupational and Physical optics, Visual optics, Optical Appliances, etc.);
 - Optometry 16 CP or 24 ECTS (Refractive Anomalies of the Eye, Contact Lenses, Binocular Vision, Physiology of Vision, etc.);
 - Medicine 16 CP or 24 ECTS (Human Anatomy and Physiology, Neurophysiology, Microbiology, General Pathology, Introduction to Eye Diseases, etc.);
3. **Elective courses** – 4 CP or 6 ECTS (any course not related to BSP Optometry).

Mandatory courses cover the range of basic knowledge, skills and competences required for dispensing opticians, assistants to vision specialists, and optometrists. Restricted elective courses are set up in three sets: Optics, Optometry and Medicine, indicating which skills and competences are relevant to the dispensing opticians. This part is also aligned with the representatives of the optical business, taking into account their idea of what assistants they would prefer, as well as following the knowledge, skills and competences identified in the European Qualification in Optics and European Diploma in Optometry. The optics part of the restricted elective courses consists of courses that provide knowledge, skills and expertise in the optics business necessary for the ability to offer the customers visual appliances of different materials. The optometry part includes courses that are primarily related to the development of basic knowledge and skills of optometrists and to create a concept of what optometrists do in their practice, such as the role of optometrists in assessing visual functions. Finally, the general medicine part includes a range of courses that need to be acquired primarily when working in eye clinics or medical centres and meeting patients during their treatment process.

Since bachelor’s level studies also include the development of the first research thesis, the study programme includes courses such as Statistics and Epidemiology, Research Methods in Vision Science that prepare students for the development of research work, data analysis and defending and explaining the results of their research. The study plan also includes two mandatory study courses (Civil Protection and Environmental Protection), providing the minimum content, as defined

by regulation 716 of the Cabinet 05.12.2017. “Minimum requirements for the content of the mandatory civil protection course and for the training content of employees' civil protection” [3] and by the Environmental Protection Act of RL 02.11.2006 [4].

Several solutions have also been found to continuously improve the curriculum and increase students' interest and engagement. (1) Methodological seminars are organised once a semester at the Faculty of Physics, Mathematics and Optometry so that lecturers can share their experience on cooperation with students, as well as new methods and technologies applied in the course implementation. (2) The Programme Director meets with the Student Self-Government Board and the Faculty of Physics, Mathematics and Optometry (FMOF) administration once a month to discuss problems arising in all FMOF study programmes, including Optometry study programmes, as well as to discuss possible solutions or to share good practice examples. (3) The introduction of a tutor position for 1st-year students from the academic year 2016/2017 has also had a positive impact. (4) Change of lecturers for courses with low scores for three consecutive years when the lecturer is not willing to improve their lecturing style and ignores the recommendations of the course students or the Programme Director. (5) The introduction of e-courses, which enable students to access lecture presentations and also to work in the e-environment, submitting their homework, laboratory reports, practice reports, etc. (6) The revision and improvement of the course content within the study programme to correspond to the European Qualification in Optics and European Diploma in Optometry, as well as the inclusion of specific Vision Science- and Optometry-related examples in general courses such as Mathematics, Physics, Chemistry and Biology.

Graduates' surveys take place after graduation. This could be explained by students' greater awareness of anonymous e-questionnaires. The programme has worked extensively with students, demonstrating that their opinion is important for improving the programme and its content.

In terms of responses on the programme evaluation, students consider that the courses offered in the programme contain up-to-date information and that the methods are conducive to learning. The survey results also show that most programme graduates continue their studies in the Professional Master's Study Programme in Clinical Optometry, or work in optical stores as dispensing opticians, or in a sector where they can apply the acquired knowledge. However, it is recognised that the theoretical approach is predominant in the courses. The survey mentions that graduates cannot work as optometrists immediately after completing a bachelor's degree. The bachelor studies serve as the foundation, providing with theoretical knowledge and some orientation in methods, but not with the practical skills necessary for an optometrist. To start a professional career, qualifications should be obtained, such as the PMSP in Clinical Optometry fully provides.

During the accreditation period, graduate scores vary from year to year. The score depends on the given student group expectations of lecturers, the environment or the programme content, as well as external factors. A more detailed year-by-year programme summary of 2015-2021 (see **ANNEX OptoB 8**) shows that there are areas that should be given more attention in the future and that a good solution should be found. Attention should be paid not only to the obtained results (the average evaluation) but also to the standard deviation, which reflects how much the data is dispersed or how widely students' opinions differ. In these questionnaires, a correlation between the student's satisfaction with their grades and achievements during their studies, and their high grades, is often observed. On the other hand, students who did not do so well were always more ambitious, also loudly expressed their dissatisfaction with the course, while avoiding communication with the programme director. As it is known that people tend to offer criticism without offering solutions, every year students are also asked to write down possible solutions along with their bad evaluations, so that the study programme or a relevant course can be improved.

In respect of the scoring values of 5, 6 and 7 points, it should be noted that people generally avoid putting maximum scores in questionnaires. The most common rating is between 'somewhat agree' and 'mostly agree'. If the rating system is transformed into a 10-point scale, a rating of "good", or 7 points, would correspond to 4.9 on this seven-point scale. In the last two years, cooperation with students has become more active, since the Student Council also encourages the students to communicate their concerns early on to the programme director in order to find a solution together.

Some findings that should be taken into account when improving the study programme or factors affecting the study process are summarised in the table below. Students are satisfied with the premises, technical equipment and the UL Library resources; after moving to new premises in the UL House of Nature, Jelgavas street 1, in 2015, students now have the opportunity to study in one site during the day, and the classrooms and laboratories are very well equipped. The evaluation of the lecturers varies from year to year. As far as possible, there have been both discussions with lecturers about the changes needed to get a good course evaluation, and more radical steps taken, replacing some lecturers if the course content has not improved and teacher development has not occurred in three years. New lecturers have also been employed, as a large number of lecturers in specific courses were of retirement age. The new lecturers are guided to develop their professional capacity. The study methodologists and tutors have always been supportive, by helping students to solve their problems, both with documentation issues and with other unclear questions. Students have found it more difficult to get the Student Council's support. The reason is understandable because, until spring 2019, Optometry students had classes separately from the other programmes of the Faculty of Physics Mathematics and Optometry, which affected the students' opportunities to communicate with each other, making them feel more alienated. As of spring 2019, the other study programmes of the Faculty of Physics, Mathematics and Optometry are also located in Jelgavas street, just next door, thus, the distance is smaller than it used to be. Representatives from the Optometry programmes also participate in student self-government and in initiating various joint events. In general, students are satisfied with the study process, the courses, the e-environment. The situation with the opportunities to study abroad is more critical. It is hard to believe this data, however, only 2-3 students apply for the unlimited study places in the ERASMUS mobility programme each year. The rest do not apply afraid of losing their jobs or because of the language barrier.

The survey also shows that most students combine their studies with part-time jobs and some students – even with full-time jobs. This may raise the question of how studies can be combined with jobs. As the BSP Optometry is also implemented as part-time studies, chosen as well by international students, the students can have a full-time job on a daily basis, combining the work with twice a semester face-to-face lectures or face-to-face laboratory works and exams.

The **ANNEX OptoB 8** shows that only a few graduates report that during their studies they have gained work experience in their study field, or corresponding to their education. As students' idea of what an independent and qualified optometrist is vague, undergraduate students presume they should endeavour to work as optometrists. But this is not the case. That is why an additional survey was carried out with a prior explanation in which areas a bachelor student would be allowed to work, finally the data presented the true picture. Surveying a total of 69 current students proved that already in the spring semester of the 1st year 15% of the students have found a job in optical stores as consultants, 42% - in the 2nd year and 53% - in the 3rd year. Graduates are confused by obtaining the academic diploma in the field of Optometry. Despite their wish, they are not yet qualified to work as optometrists.

[1] <https://www.ecoo.info/wp-content/uploads/2016/10/EQO-Syllabus-070818.pdf> [available in English]

[2]

https://www.ecoo.info/wp-content/uploads/2016/10/20171020_Syllabus-and_Accreditation_self-assessment.pdf [available in English]

[3] <https://likumi.lv/ta/id/295896-minimalas-prasibas-obligata-civilas-aizsardzibas-kursa-saturam-un-nodarbinato-civilas-aizsardzibas-apmacibas-saturam> [available in English and Latvian]

[4] <https://likumi.lv/ta/id/147917-vides-aizsardzibas-likums> [available in English and Latvian]

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

When looking at the breakdown of study courses of the 2013 accreditation, the planning of BSP Optometry has been slightly changed. The 2013 accreditation and the implementation of the study programme outline three large sections: the compulsory, restricted elective and elective parts. In the new study programme, the mandatory elective courses are divided into three subsections: optics, optometry and medicine, dividing the study courses into three thematic groups. Students are required to take courses of 24 ECTS credit points at each of the three groups. The traditional training method – lectures, seminars, laboratory works and practice – dominate in all parts of the study programme. But in recent years, more and more teachers have learned and then introduced the forms and tools of student-centred education into their study courses.

The students are the centre, and the results of the study courses are achieved by collaboration between the students – working in pairs or groups, as well as the most prospective students are also involved in the training of other students in their laboratory works and practical works. Students are actively involved in performing interactive tests during classes to test their newly acquired knowledge and also to discuss different subjects. Those students who responded correctly also tell the other students why the answer in question is correct. The study process actively uses an e-environment in which students perform tasks in their time, as well as giving the student the opportunity to demonstrate their competencies and to obtain additional points at the end of the course by performing specific tasks related to the content of the course – analysis, essays, papers, compilations, etc. The availability of all the laboratories during the working days, allow the students to work in small groups of two, three, to prepare different study assignments, as well as improve

their skills, by teaching each other how to work properly. Students are pleased to take this opportunity by signing up on the schedule set up by the department, which is designed in a way that does not disrupt the study process. Teachers encourage students in carrying out additional tasks, help the students and do not refuse consultations even outside the classes and tutorial hours. For all assignments and tests students receive feedback – the wrong answers, comments on mistakes made, and the student is given the opportunity to show the best performance again if the student is convinced that for various reasons, he has not been able to show himself on the better side. In general courses such as Chemistry, Physics, Mathematics, etc., teachers have adapted the content of the course to the needs of modern dispensing opticians and optometrists. For example, Chemistry is not taught in a classical way, but the Chemistry course explores the substances of the contact lens solutions or materials that are applied in contact lens manufacturing. In mathematics, topics related to the calculation of material surfaces – surface integrals, as well as other practical applications in the field of vision science are discussed. In recent years, the study program director, in collaboration with course developers, has adapted the content of courses to the specific knowledge, skills and competencies of dispensing opticians and optometrists.

The lectures offer an overview of the basic problems of each subject (concepts, theories, classifications). Study courses apply both traditional lectures (introductory lectures, review lectures, problem-solving, visual lectures), interactive lessons (working in pairs and groups, project-development, discussions, role games, interactive tests), as well as laboratory and practical works. These methods are consistent with education theory and develop critical analytical thinking. Lectures widely apply computer presentations and internet resources. Course materials (presentations, video materials, additional literature sources) are also freely available electronically in an e-studies environment. The results of the students' independent work are presented in seminars with the following discussion and public differentiated assessment. In seminars, students gain experience in sharing their knowledge with others and participate in academic discussions.

Practical activities and tasks are essential for the development of the professional skills and competences of students in this study programme. Therefore, some study courses include the requirement for compulsory attendance. In cases where a student for objective reasons has not attended those classes or has not performed the practice, he always is given an additional opportunity to do so. Students are also provided with consultations outside of the lesson times. The students are also allowed to use the laboratories of the Department of Optometry and Vision Science during working hours if all the requirements are met. Students perform the practical works and submit the results to the teaching staff on an individual basis.

Starting from 2018 the study programme includes practice as a compulsory part of the study programme. This requirement has come from the UL Student Self-Government, which called for the introduction of practices in academic curricula to enable the students to familiarise themselves with the knowledge and skills of the relevant field of study to be more successful when entering the labour market. The knowledge, skills and competencies of the BSP Optometry have been established are to provide vision care and health care companies with qualified and trained specialists. Bachelor's studies also include the theoretical and practical basis for acquiring the optometrist profession in PMSP Clinical Optometry, where students acquire qualifications. In 2019, the standard for the profession of optometrist's assistant (dispensing optician) was developed. The content of the bachelor's study programme – knowledge, skills and competences – is aligned with the new professional standard. The introduction of practice in the study plan is a positive feature since the student has the opportunity to apply the knowledge and skills acquired in the study courses to a real situation in order to assess his or her competences. The aim of the practice is to develop the skills and competencies of the optometrist's assistant for working in health care companies as a consultant of optical appliances, manufacturer and as an optometrist's assistant in

the vision assessment process related to (1) adapting the optical appliances based on the needs, expectations and physiological parameters of the patient; (2) the ability to perform trading operations to ensure the circulation of visual aids and care products; (3) knowledge of the methods of manufacturing optical appliances; (4) the ability to perform measurements with specific devices based on the instructions by the vision specialist; (5) the skill to perform contact lens training for the patient.

In order for the student to complete the practice, the largest optics companies have concluded cooperation agreements. This enables students to choose from a wide range of optical shops to their most convenient, closest places of practice in Riga or another city in Latvia. The practice is realized in the final semester and lasts for 4 weeks. When heading to the place of practice, the student receives an introductory letter from the head of the practice, indicating what types of tasks previously agreed between UL and the head of the institutions practice should be performed. In practice, the student is introduced to the structure of the institution, the organisation of work and the issues in optometry solved by the institution. The day-to-day practice objectives should be addressed and undertaken based on pre-formed practice tasks, the progress and results of which will have to be described in the practice report. During practice, the student consults with the head of the institution's practice and the mentor. At the end of the practice, the student prepares a practice report (journal) consisting of four sections and confirmation of acquisition. Each section includes specialised skills, which are listed in the Practice Report (Journal). A statement of knowledge and skills are certified with a signature by the head of practice from the institution, and the head of practice certifies with a signature, the conformity of the traineeship with the requirements specified by the law (see **ANNEX OptoB 9**). Any section of practice may be acknowledged if the management of the institution of practice can confirm that the student has already acquired the skills and is able to apply the knowledge and skills in the relevant section of the practice. Condition — the student has to have worked in an optics or health care company not less than 20 hours a week for 6 months. In this case, the management of the institution can certify that the student is familiar with basic knowledge and manages basic skills to pass the course's practical exam. At the end of the practice, the students take a test, including a theoretical and practical examination, in which the student demonstrates the knowledge, skills and competence to be appropriate for the assistance of optical stores or vision specialists. The examination is evaluated by a mark in the 10-point system

The evaluation of student performance of the study programme is based on Cabinet of Ministers Regulation No. 240 "Regulations on the state academic standard of education" on 13.05.2014[1]. The study programme includes a number of principles:

- the principle of combining positive achievements: the acquired education is evaluated by summing up the positive results of the study course, which is incorporated into the study programme;
- the principle of minimum rating: it is necessary to obtain a positive assessment representing at least the minimum acquisition of the main parts of the programmes;
- the principle of transparency and clarity of requirements: in line with the aims and objectives of the programme as well as the aims and objectives of study courses, a set of essential requirements for the evaluation of the acquired education has been established;
- principle of the variety of test types applied in the evaluation: the evaluation of the acquisition of the programme is accomplished by different types of testing specified by the teacher in the study course;
- principle of conformity of assessment: the testing provides an opportunity to demonstrate the capacity, knowledge, skills and competences relevant to the bachelor's educational programme and the analysis of situations. The content to be included in the tests complies

with the content specified in the study course programmes and the requirements for knowledge, skills and competence.

The scope of the BSP Optometry, the distribution and plan of compulsory courses (Part A), restricted elective courses (Part B), and elective courses (Part C), as well as the number of contact hours, comply with the criteria set by the Cabinet of Ministers on 13th May 2014 Regulations No 240 "Regulations on the State Academic Education Standard" (see **ANNEX OptoB 10**). The planned learning outcomes, examination methods and assessment criteria are defined in all descriptions of the study courses (see **ANNEX OptoB 11**) available in the Information System of the University of Latvia Information System (LUIS) and UL e-learning environment. For the assessment of knowledge, skills and competence, the 10-point grading system is used in all study courses in accordance to study result criteria. Learning outcomes and assessment descriptions are used to formulate criteria in each study course.

Since the study programme is implemented in three different options, full-time, part-time onsite, part-time extramural, there is increased focus on organising the study process and evaluating the results to ensure equal opportunities for all students to achieve the results of the study programme. Study courses are conducted on-site (100% for the form of full-time studies, 75% for the form of part-time onsite studies and 25% for the part-time extramural studies) and by providing additional study materials using an e-study platform. Midterm evaluations can be organised both on-site, as well as through interactive environments, including e-study environments. In all options for the implementation of the study programme (full-time, part-time onsite, and part-time extramural), the final examinations, including the practical examination, are conducted in person. In the form of part-time studies, students who are of foreign nationalities arrive in Latvia for a predefined number of days (8-9 times throughout the study process, where the duration of the stay is from 6-10 days), to pass all examinations, acquire the opportunity to listen to theoretical courses of lectures on-site, and perform practical and laboratory works. For better outcomes of the courses in part-time study forms, the possibilities offered by the e-study environment are widely applied, including video lectures and seminars, various forms of tests and home works (such as descriptions of work done, task solutions, tests and feedback from the teacher to on mistakes made), as well as individual consultations.

The implementation of the study process takes into account the principles of student-centred teaching and learning through self-reflection and the involvement of students in the learning process. Students are involved in evaluating the quality of the study program. At the end of each study course, students complete questionnaires on the study course as a whole, as well as by assessing each of the teaching staff. Students also have the opportunity to comment and give recommendations on the course in question. The study process respects the diversity of students and their needs by offering different learning environments, e.g. applying specific simulations in the practical works. Teaching in the simulation environment is organised in small groups or individually so that teachers are able to adapt the teaching type to the learning capacity of the students concerned. The study process is designed so as to enable work/family life to be combined with studies. The Library of the UL House of Nature is available to students for 24 hours a day, including holidays, and there are various isolated workspaces available for independent studies in the House of Nature. Taking into account the variety of circumstances, different ways of implementing the study program are used, and different pedagogical methods are applied. During the training process, the student's propensity for self-sufficiency is encouraged, while at the same time ensuring the management and support of the teaching staff with counselling. Students have the possibility to apply for consultations with the teacher at a specified time, coordinating it in advance. Mutual respect is promoted between teaching staff and students.

At the beginning of the epidemiological safety regulations during the COVID-19 pandemic in 2020,

up to this date (February 2022), the study process has been partly organized remotely, while the practical works, laboratory works were carried out on-site and in small groups to control morbidity. At the same time, the COVID-19 situation for part-time studies developed new technological tools for learning – the possibility to realize lectures remotely, so that students did not have to travel from their home country spending their time and money. Both teaching staff, as well as the students, have learned new tools for carrying out different tests, homework, and more interactive lectures have been developed. It should be noted that remote learning also has its benefits:

- students tend to think more critically about what they write, knowing that the comments are permanent;
- students feel safer in the remote discussion than in the audience;
- it is easier for students to share different opinions or “out-the-box” ideas;
- when students write answers, they have the opportunity to delve into other students' answers and give themselves more nuanced and persuasive arguments;
- everyone has the opportunity to be heard.

Students' knowledge evaluation

The study programme for the evaluation of knowledge contains *mid-term tests*, the number and type of which are specified in each study course description: the assessment of learning (calculation tasks, tests using interactive approaches such as *Kahoot*, quizzes during classes, as well as quiz tools provided by e-studies), laboratory works and practical works that end in discussing individual results and “defending” concepts, papers, essays, presentations of individual and group work. Tests are applied to evaluate theoretical knowledge. Tests are usually designed to evaluate the general knowledge of facts (alternative and optional questions) and the ability to link issues and facts logically (process analysis, logical combinations of well-known facts). For each correct response, a certain number of points determined by the course teacher is given. Based on the sum of the collected points, the work of the students is evaluated. To demonstrate their knowledge and skills in many study courses students are required to write papers or course papers. At the end of study courses, *the final test* is organized – written or oral examination or paper presentation. Only those students who have met all the requirements specified in the course description are allowed to take the final examination.

Student proficiency testing is primarily carried out in written form and in the assessment of practical skills. The purpose of the tests is to determine the level at which the student has acquired theoretical knowledge and acquired the skills necessary in practice. In line with the specific nature of the study courses, the requirements for attending the practical works are determined. The final assessment (mark) of the course is cumulative, i.e. the assessment of the student's work throughout the semester, which forms a part of the final evaluation, and the results of the examination. The overall assessment of the acquisition of a study course consists of an overall assessment of mid-term evaluations, representing on average at least 50% of the total assessment and the assessment obtained in the examination. The final assessment takes into account all the tasks performed during the semester. Special attention is devoted to improving the results of studies: improving the forms of assessment of knowledge, skills and competences, improving the descriptions of study courses, evaluating the methods used in studies and evaluating systems, working to make study course materials available on the internet. Different new opportunities are available because of the introduction of the internet and other computer technologies in the study process, both for the acquisition, processing and storage of information and for operational communication.

Students are informed of the evaluation criteria, methods and requirements for getting credits at the beginning of each study course, in the first lesson/introductory lecture. The achievements of all

courses of study are assessed on the generally accepted 10-point scale in accordance with the laws and regulations of the LR and the UL Senate Decision No 211 on 29.06.2015, taking into account the following criteria: extent and quality of knowledge; skills; competence according to the intended results of studies. Exams and tests are organised individually. Students work individually or in groups of 2-4 participants in the laboratory and practical tasks in which reports and protocols are prepared and defended collectively or individually. A study course is considered to be successful if the score in the 10-point system is not lower than “4” (almost mediocre) or “tested”. Students take tests and examinations individually.

The acquisition of the study programme concludes with *the Bachelor's Exam* and *the Bachelor's Thesis*. The Bachelor's examination determines the level of student training and preparedness for higher-level studies in optometry, where a high level of theoretical knowledge is required by the European Qualification in Optics and European Diploma in Optometry. The bachelor's exam is a theoretical exam in optometry composed of 120 questions with no less than 5 choice answers. The optometry test covers the content of specific optometry tasks, including the following study courses: Geometrical and Physical Optics, Visual Optics, Optical Appliances, Optometric Instruments, Anatomy and Physiology of the Eye, Physiology of Vision, Refractive Anomalies of the Eye, Binocular Vision, Contact Lenses, Vision and Ageing. The percentage of questions for each study course is determined based on the number of credits for the courses:

1. Geometrical and Physical Optics – 12 questions
2. Visual Optics – 12 questions
3. Dispensing – 12 questions
4. Optometric Instruments – 12 issues
5. Anatomy and Physiology of the Eye – 12 questions
6. Physiology of Vision– 12 questions
7. Assessment of Visual Function – 12 questions
8. Binocular Vision – 12 questions
9. Contact Lenses – 12 questions
10. Vision and Ageing – 12 questions

Students have a chance to practice one month in advance before the day of the examination. All questions are available in the “Bachelor's Exam” course in an e-studies environment. 10% of all questions are hidden, not seen during the training test. A student who has correctly answered all the questions seen during the training and a maximum of 2 questions from hidden questions is eligible for the maximum score.

Bachelor's Thesis is the final phase of studies and the aim is to demonstrate the student's readiness to perform research in the field of vision science. The students independently develop, design and defend the Bachelor Thesis. In the course of work, the students systematically extend theoretical knowledge, carry out practical studies of optometric problems or vision science, collect and analyse results, and design the Bachelor Thesis in accordance with the rules established and approved by the UL. The student chooses a topic offered by the faculty. All topics of the bachelor's theses are confirmed at the meeting of the Department of Optometry and Vision Science. The development of the bachelor's thesis consists of two stages. During the first stage, the students learn the requirements of the bachelor's thesis, formulate the subject of the bachelor's thesis and the problem of the study, and write a hypothesis according to the intended research. According to the subject of the bachelor's thesis, the study methodology is selected in consultation with the thesis adviser. On the basis of analysis of scientific literature, the students individually develop a bachelor's thesis study project. During the second phase of the development of the bachelor's thesis, students carry out research, collect data, carry out data analysis and formulate conclusions.

The first phase of the bachelor's thesis is evaluated when submitting the thesis draft. The adviser and reviewer of the bachelor's thesis drafts provide recommendations and further development guidelines. As far as possible, there is also a pre-defence of the bachelor's thesis, which allows students to familiarise themselves with the process of defending the bachelor's thesis, to better learn the preparation and the oral presentation, and to obtain first references and questions about the subject of the bachelor's thesis. The final copy is submitted in accordance with the UL rules (not later than a week before the thesis is defended): the final copy is submitted to the LUIS system (pdf file) and a printed copy, hard-cover document is submitted to the faculty department. The students agree individually with the thesis adviser and the reviewer on the additional required number of printed documents. Bachelor Thesis is defended at the meeting of the Bachelor's final examination commission. The development, presentation and defending the bachelor's thesis enhances the skills of the student's research work, develops the skills of independent work and the ability to publicly defend the results of the study, justifying the focus of the study. For each student, up to 40 minutes are devoted to defending the work, where there are several sections: report from the secretary of the commission, presentation of the bachelor's thesis (12 min), answering the questions from the reviewer (8 min), answering the questions from the commission (2 min), the evaluation of the thesis reviewer (5 min), closing words (2 min). The evaluation of the Bachelor Thesis is composed of the assessment of the thesis adviser (30%), the thesis reviewer (30%) and the commission (40%). Students are informed in good time about the algorithm and criteria for the evaluation of the thesis. The advisers evaluate the process of drawing up the thesis, paying attention to the capacity of the student's independent work and time planning, as well as information on the publications of parts of the work, or the participation of the author in scientific conferences with oral or poster presentations. The thesis reviewer evaluates the content and correctness of the thesis, the relevance of the study, the shape of the thesis, the correctness of the analysis and conclusions of the results. The examination commission evaluates the student's ability to present the thesis, respect for academic style, the ability to answer questions and discuss the subject of his or her work.

The evaluation of the study process

Ensuring the quality of academic performance and research is the most important task of the academic staff of the Department of Optometry and Vision Science, which includes a series of interrelated factors. First of all, any the UL staff representative must be responsible for the compliance of his or her activities with the Law on Higher Education, the Law on Scientific Activities, the UL Constitution, the Cabinet regulations, the Faculty of Physics, Mathematics and Optometry, as well as Department of Optometry and Vision Science regulations. In addition, the quality assurance of the study process requires the responsibility of academic staff and advisers for continued promotion of academic qualifications, as evidenced by scientific publications and certificates of professional development obtained by teachers, and the implementation of feedback information following evaluation of the results of student and graduate surveys. As an additional tool for evaluating the quality of studies, it is to observe study courses. The use of learners' views in the development of the study process is critical to sustainable development. In order to obtain a student's opinion on the study programme as a whole, the courses carried out and the training forces implementing it, both the group surveys are conducted regularly and the individual discussion options are widely applied. Students' representatives participate in the work of the Council of Studies Programmes, as well as in the meetings of the Faculty of Physics, Mathematics and Optometry Council.

An important "tool" for monitoring and guaranteeing the quality of scientific activity is the established fields of research in the department, which are defined by the main scientific interests of academic colleagues, projects carried out in the department and the performance of doctoral

candidates, which are performed involving the students of the bachelor's and professional master's programmes. The results of these studies are actively discussed at the doctoral school of vision science, as well as at the scientific conferences of the University of Latvia. Doctoral candidates are also actively involved as advisers of bachelor's thesis, the implementation of individual study courses, and the management of the practice and laboratory work.

One of the fundamental principles of the study programme is democracy and dialogue with students. All students participate in the assessment of study courses. The assessment is a mandatory requirement for them to be able to continue their studies in the next semester. Accordingly, the student-teacher and the director of the study programme receive anonymous feedback from the students, thus, not affecting students' assessment at the next stages of their studies. Teachers listen to students' recommendations or discuss with the director of the study programme the necessary changes to the study course if it concerns funding or the necessary training. To ensure a link between students, teaching staff and the programme administration, the student self-government, which is actively involved in all these processes, also plays an important role. Students are informed of the evaluation criteria at the beginning of each study course. Students have the opportunity to challenge the assessments of the results of studies by submitting an appeal to the head of the study programme in accordance with the Regulations on Studies and Tests.

The Faculty of Physics, Mathematics and Optometry, as well as the Department of Optometry and Vision Science, hold methodical seminars in which teachers share their experience in student-centred training, the applications of e-environments and the use of various tools in the teaching process. All e-courses of the BSP Optometry are active for both full-time Latvian and English flow students, as well as part-time onsite and part-time extramural English, in which the faculty inserts the notes of lecture presentations, seminars, practical and laboratory works, as well as the reading materials that would be required for the student to read in order to complete the mid-term examinations and closing tests.

The preparation and discussion on the annual self-assessment reports organized at the Department of Optometry and Vision Science meetings, the board of study programmes, and the faculty council all contribute significantly to the quality management of the Department of Optometry and Vision Science work. A lot of important lessons the collective are received from the expert ratings of the UL Quality Assessment Commission, comments from the Academic Department and discussions in the UL Senate.

Every year students of the University of Latvia are invited to give their evaluation on study courses and lecturers' performance. Study programme directors have access to all the evaluations and the commentaries on the study courses, as well as the overall evaluation of the study programme performed by the graduates. The lecturers have the access to their delivered courses only.

For the first-year students, the first-year survey is carried out by the University of Latvia; however, in this case, the programme directors are not able to isolate the assessments and problems of a particular study programme. Nevertheless, by looking at the overall results, it is possible to examine the assessment summary of the faculty and thus assess the possible problems in the Optometry programme. In order to understand the problems of the first year BSP Optometry students, the course tutor and mentors get engaged. Their tasks are to communicate regularly with the first-year students and learn their problems, unclear issues and also help with resolving some of the issues immediately.

The key findings from the first year students' survey at the University of Latvia are also related to BSP Optometry students. The majority are satisfied with the teaching staff - lecturers are responsive and understanding. E-learning is increasingly making materials available to support

studying. Difficulties in finding information about the study process are that it is not easy to access on the UL portal. Most respondents agree that the premises are well equipped for the study process and well-equipped laboratories are available. Students agree with the statement that the Faculty premises have easy access to the Internet. The overall impression of the study content is positive and the study guides help students to get answers to unclear questions in the first semester. The LUIS environment is also understood by a large number of students; the students can get there the most important information about course grades and academic debts. All of the anonymous course and programme evaluation questionnaires are available in the LUIS system. Most students are satisfied with the wide collection of relevant sources in the UL Library, although some are dissatisfied that in specific courses all study literature is in English only. Most students in their first semester admit that it is harder to plan their time at the beginning of studying because it is different from their school days, but they also say that they have settled in and feel comfortable in their new and friendly environment. The majority of students say they have a good first impression of their studies and feel they have chosen the right programme. Students say that the knowledge they have acquired in secondary school is sufficient to start their studies and that they are able to study independently. Meanwhile, when analysing the answers about support measures for first-year students, the evaluations are not so positive. Only half of them have evaluated the course supervisor's activities as positive, the Student Council's support activities are rated as not very effective, and the activities of mentors and tutors are evaluated positively only in 35-40% of cases. Another interesting finding of the survey is that students are not very positive about the Aristotle Festival and the Pre-Study Rally events. Unfortunately, it is not clear why, but the possible answer lies in the fact that today's young people are not as active in extra activities as they are in interactive social environments, communicating more through smart devices.

Analysis of course evaluations

Starting from the academic year 2015/2016, the BSP Optometry has introduced compulsory course evaluation. This means that a student can not complete a semester early and register for the next semester without completing the anonymous course evaluation questionnaire in the LUIS. For previous years, until autumn 2015, a paper questionnaire was administered. As the degree programme was only taken over in 2015, the previously collected data are no longer available to the current Programme Director. However, in the future, a summary assessment will be made for all study courses from the academic year 2015/2016 onwards.

The anonymous questionnaire data show that the course lecturers rather than the course content play an important role. The content part was always rated higher by students, even if the lecturer's delivery manner and presentation of topics were not rated highly. From the academic year 2015/2016 there is also more cooperation with the Faculty Student Council and course leaders. In the anonymous questionnaires, students mainly point out the shortcomings of lecturers, while very few comments describe positive feedback about the highly rated courses and their lecturers. In this case, the Programme Director is only able to correct the problems but fails to highlight the good practice examples for other teaching staff. At the beginning of each semester, the Programme Director visits the student groups to present the analysis of the previous year's data and also to encourage the students to assume greater responsibility for completing the questionnaires in the future. If a course has a low score (below 5.5 points), students are asked to comment on the reason. If, on the other hand, the course is positively evaluated, then positive features should be indicated. This data should be available not only to the course lecturer but also to the Programme Director, who could invite the respective lecturer to share their positive experience during the methodological seminars.

Since the academic year 2016/2017, student involvement in course evaluation has improved, allowing for a more objective assessment of the courses and performing the necessary changes and

improvements. By seeing changes based on the recommendations in the LUIS assessment environment, students are much more open when discussing problems in the course or with the course tutor. This obviously helps the Programme Director to improve the study programme, to organise seminars for teaching staff to exchange experiences, and to evaluate the lecturers' performance, as it is not possible to attend as an observer every lecture. Problems in the courses are also discussed and solved during the semester, as there are 2-3 course leaders from each year group willing to identify the problems, and the course mentors promote the study process, both by supporting especially first-year students and by discussing the problems with the programme directors and tutors and finding solutions together.

The course ratings demonstrate that the specific courses directly related to Vision Science and Optometry have a higher rating. Meanwhile, students tend to rarely give the maximum score of "7 points" because it is part of human nature to aspire to be better. In this case, students want to have less homework, more supplementary materials and books in the Latvian language. However, the current state is affected by the narrow scope of vision science and the small number of respective students. Book publishing in Latvian depends on sales. Therefore, the academic literature for the specific courses – the textbooks – are exclusively in English. However, students are given the opportunity to participate in face-to-face lectures, where the lecturer provides explanations and demonstrations, assigns tasks to students, and delivers seminars in Latvian.

The overall data on course scores from the academic year 2015/2016 onwards (see **ANNEX OptoB 12**), demonstrates a gradual increasing trend in the overall average score. In the case of some specific courses, this increase is due to changing the teaching staff. The reasons have been varied: lecturers' retirement, some lecturers being replaced because of the lack of progress for three years and justified complaints from students, some lecturers have reduced their workload and younger colleagues have been employed. A comparison of the average scores using a ten-point scale is included at the end of the Table. Since the maximum score in the anonymous evaluation system set up by the University of Latvia is 7, the current scores may appear low. However, transforming them into a 10-point scale, the overall average score for all courses from 2015 onwards is 8 points and then increases slightly each year, reaching almost 9 points in autumn 2019.

The overall conclusion drawn from the data collected is that the study programme is moving in a positive direction, though, there is still room for improvement to achieve a stable 9-point rating in the future. Future programme development plans include: (1) improving e-courses - scanning and uploading relevant materials, book chapters into the e-course so that students can use remote learning as much as possible; (2) organising methodological seminars and discussions for course lecturers; (3) having regular meetings with course supervisors to review the overall situation in the course and to identify problems that could be fixed during the semester rather than postponed for the next academic year.

[1] <https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitiba-standartu> [available only in Latvian]

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for

students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

In the Regulations of the Cabinet of Ministers, the requirements for academic education do not set the minimum requirements for the scope of the practice, as well as for its mandatory inclusion in the study programme. However, in 2017, the UL Student Self-Government set out several conditions and requirements for the development of the university study programmes. One of the requirements was to ensure a practice of at least 3 ECTS in the academic study programmes. In the BSP Optometry, the practice was included in the spring semester of 2017/2018, when bachelor's students practised in optical companies for the first time. In the first year, the students assessed this course very negatively in anonymous surveys. The main arguments were that most of the third-year students already work in optical stores. Therefore, they evaluated this practice as useless. That dissatisfaction was taken into account, but the practice was not removed from the study programme. The practice requirements were modified and the possibility for partial practice recognition was included if a student could submit an official confirmation letter from the employer approving a work experience of a student as a dispensing optician for at least 6 months with the 0.5 (part-time) workload. Since the practice consists of four parts, the student can apply this practice recognition to any of the practice parts if they can be approved by the employer providing acquired skills. The exam of practice cannot be recognised and must be taken by all students.

The establishment of practice and learning outcomes (knowledge, skills, and competences) are developed not only in relation to the results of the study programme but also in the framework of the dispensing optician's (optometrist's assistant) professional standard approved in October 2019. The practice is based on the requirement that students must acquire academic or another type of practice in all bachelor study programmes in the scope of at least 3 ECTS as approved by the UL Senate Decision No 102 on 24th April 2017. The practice can be acquired either at the University of Latvia or at another institution. The documentation for the practice is prepared in accordance with "Procedures for Organising Practice for UL Students" (UL Order No 1/41, 25.11.2013) and the dispensing optician's professional standard (approved on 16th October 2019, Protocol No 7[1]).

The aim of the practice is to train, improve, and strengthen the skills and competences of the dispensing optician for work in health care companies as a vision correction consultant and optician, and assistant in the vision assessment process, as well as to develop and improve research skills to prepare students for the development of bachelor's thesis. **Table 3.2.4.1.** demonstrates the linking of practice objectives to learning outcomes of the study programme:

1. to select an appropriate vision correction tool (spectacle lenses, contact lenses, frames, etc.) and/or other care products used in vision health (contact lens care products, sunglasses, etc.) based on the recommendations and specifications of the vision specialist;
2. to carry out marketing operations for visual correction products and their care products;
3. to know the methods of making the vision correction tools;
4. to be able to perform measurements with optometric devices based on instructions given by the optometrist;
5. to be able to carry out the patient training in contact lens use;
6. to develop an awareness of possible directions of scientific research and their development possibilities.

Table 3.2.4.1.

Linking practice objectives to the learning outcomes of the BSP Optometry.

Number of Study Programme Result		Objectives of Practice					
		1.	2.	3.	4.	5.	6.
Knowledge	1.				X	X	X
	2.	X				X	X
	3.	X	X	X			X
	4.		X			X	X
Skills	5.	X			X		X
	6.	X	X	X	X	X	X
	7.	X					X
	8.	X	X	X	X	X	X
Competence	9.	X	X	X	X	X	
	10.	X		X		X	X

In order to achieve the objectives of the study programme, the practice consists of four sections:

- dispensing opticians – selects an appropriate vision correction product, vision health care products and performs commercial operations to ensure the circulation of visual aids and their care products;
- optician's assistant – knows the methods of making the vision correction products;
- optometrist's assistant – can perform technical measurements with optometric devices following instructions from optometrist and train patients in contact lens use;
- researcher's assistant – develops awareness of possible directions of scientific research and their development possibilities.

Each section of practice has the minimum required hours (the practice of dispensing optician – 80 hours, the practice of optician's assistant – 32 hours, the practice of optometrist's assistant – 40 hours, the practice of researcher's assistant – 8 hours), in which the student must achieve the objectives defined for practice:

1. to perform the tasks assigned for dispensing optician practice by the practice reader;
2. to perform the tasks assigned for optometrist's assistant by the practice reader;
3. to perform the tasks assigned for optician's assistant by the practice reader;
4. to prepare practice report – *portfolio* – as defined by the European Qualification in Optics[2];
5. to perform the tasks assigned for researcher's assistant by the practice reader;
6. to prepare reports for each practice section;
7. to prepare for the final examination.

The practice place for sections “dispensing optician”, “optician's assistant” and “optometrist's assistant” can be any institution outside the Department of Optometry and Vision Science of the Faculty of Physics, Mathematics and Optometry where the knowledge and skills acquired in the bachelor's study programme can be applied practising in the field of dispensing optician, optician's

assistant, and optometrist's assistant. The practice section "researcher assistant" can take place at the University of Latvia and an institution outside the University of Latvia with research groups that promote, present, and publish study results. The overall duration of the practice is 4 weeks (160 hours) and its amount is 6 ECTS.

Each student has a cover letter for the place of practice (see **ANNEX OptoB 13** for the list of cooperation agreements on the provision of a place of practice), indicating the practice tasks that are previously coordinated between the University of Latvia and the practice supervisor at the institution. In the practice place, the student gets acquainted with the structure of the institution, the organisation of work and the issue of the optometric field of the institution. The student undertakes the predefined day-to-day practice tasks at the institution and presents the results in the practice report. During practice, the student consults with the practice supervisor at the institution and the practice reader. In the event of a conflict, the student should refer to the director of the study programme or the practice reader.

The student has the right to offer another place of practice. The main lecturer of the course decides its relevance to the requirements of the study programme. In such case, a tripartite agreement between the University of Latvia, place of practice and student is concluded, where duties and responsibilities of all parts are included. Students in part-time onsite and part-time extramural studies are primary using tripartite agreements. However, each case is considered individually, offering additional practising hours if required either in the laboratories of the Department of Optometry and Vision Science, Student Ambulance, or companies with whom a bilateral practice agreement has been concluded.

At the end of the practice, the student should prepare a practice report (diary) consisting of four statements for four practice section. Each section has its own specialised skills that are listed in the practice report (diary). A statement of knowledge and skills are certified with a signature by the practice supervisor at the institution, while the practice reader certifies with a signature that the practice report corresponds to the requirements specified in the Practice Regulation (see **ANNEX OptoB 9**).

Any section of practice can be recognized if a student could submit an official confirmation letter from the employer approving that the student has acquired learning outcomes defined for the practice. The requirement is that the minimum work experience of a student at an optical store or health care institution is not less than 20 h a week for 6 months. In this way, the institution certifies that the student is familiar with basic knowledge and manages basic skills to pass the final examination of this course. The students receive a statement of experience, load, and assessment of the student's activity from the institution to be submitted to the director of the study programme.

The final mark of practice is composed of a theoretical and practical examination at the end of the semester. The exam is taken by students who have submitted practice reports for all sections. The practical examination is graded by a commission approved by the director of the BSP Optometry, which is established from the teaching staff of the Department of Optometry and Vision Science (at least 3 persons). During the examination, the student applies an appropriate vision correction tool and/or vision health care product based on the recommendations and assignments of the vision specialist. When assessing a practical examination (on a 10-point grading scale), the commission takes into account the following factors:

- the extent to which knowledge acquired during studies has been used;
- the extent to which knowledge acquired during the practice has been used;
- the description and oral or written comments from the supervisor of the practice;
- the student performance;

- the student's answers to questions from members of the commission.

The practice assessment mark is entered in the Examination Protocol. Practice reports are stored at the Department of Optometry and Vision Science.

The Department of Optometry and Vision Science works to meet all requirements for clinical practice for students in English groups:

- in the full-time study programme, the clinical practice is organized in English, as well as the students work together with the students from Latvian groups in order to expand the opportunities to acquire practical skills;
- optical companies offer practice in the optical stores in the centre of Riga with a lot of foreign customers; thus, the student has the opportunity to have practice in English;
- in the part-time extramural study program, clinical practice (including introductory part) is provided during the students' visit in Riga (1-2 times per semester).

If students (both in Latvian and English groups) have difficulty finding a suitable practice place, the practice reader assists the student with the provision of the practice place by contacting the companies with which bilateral cooperation agreements have been concluded, especially informing the practice place about the preferred language of communication. For the study course "Practice", students (especially students in the English groups) can use the opportunities of ERASMUS+ practice either by finding a practice place independently or with the help of lecturers of the Department of Optometry and Vision Science. The only requirement for such practice abroad is that all study requirements are met and there are no academic debts. For example, in the spring semester of 2019, Aija Tolstoja, a full-time (Latvian) student, completed Practice at a Norwegian optic company. Elna Romani, Maria Rizzieri and Filippo Algheri, part-time (English) students, had Practice at the optics companies in Italy. There is a possibility that the practice for part-time extramural students (English group) is realized in Latvian optics companies. Although the COVID-19 pandemic has limited the scope for such practices, different solutions are being sought to take into account the epidemiological requirements of each country, so that the optometric practice abroad can continue.

[1] <https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-121.pdf> [available only in Latvian]

[2] <https://www.ecoo.info/wp-content/uploads/2016/10/Part-IV-EQO-Portfolio-of-Practical-Experience-and-Portfolio-Guidance-October-2018.pdf> [available in English]

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The students of the BSP Optometry work on their first scientific work at the end of their studies, developing it under the strict supervision of the supervisor. The main task of the supervisor is to adapt the topic to the student's knowledge, skills, and abilities. The topics are not only scientific but also related to the clinical practice in optometry. The Department of Optometry and Vision Science has developed a number of vision research-related directions, such as developing and studying colour vision tests, research on binocular vision, research on visual ergonomics, etc., where students have the opportunity to engage in and develop bachelor's thesis. In recent years, three major projects have taken place in the department, where the students were involved to carry out specific tasks and, accordingly, to develop their bachelor's thesis. Most striking examples are the visual screening project with 33 bachelor's theses; the vision overload project – 34 bachelor's theses; the visual ergonomics project – 16 bachelor's theses. The mission of the Department of Optometry and Vision Science is to seek new talents in science and attract them to serious studies. As a result, part of the foundation obtained from the projects are supporting the development of bachelor's theses. The most striking example is a contract study project with a private company LightSpace Technologies, which supported the study of image perception on the volumetric screen. Within the scope of the project, 6 bachelor's theses were supported. Large optical companies such as OC Vision and Optic Guru have offered specific research topics for our students, e.g., visual function assessment in testing spectacle lenses and contact lenses, testing new equipment and comparing results with standard equipment or tests.

233 bachelor's theses have been developed in the BSP Optometry during the reference period (from 2013 to 2021), where 26 bachelor's theses were in English. During the period of 2013-2021, the topics of the bachelor's theses can be divided into several research fields where students were involved:

A) Research on vision function and visual perception of school-age children, testing new techniques in the framework of a visual screening project (36 theses):

Examples:

- Visual search skills for school-age children (2014)
- Changes of visual acuity and amplitude of accommodation in school-age children during the day (2014)
- Reading distance for school-age children (2014)
- Visual functions for primary-school children with reading difficulties (2014)
- Parents' knowledge about amblyopia development risks (2021)
- Distribution of visual error in school-age children (2021)

B) Studies on changes in visual parameters due to visual fatigue, development and approbation of specific tests for the assessment of visual fatigue, visual load and fatigue, the impact of digital advertising on vision (38 theses):

Examples:

- The effect of visual fatigue on clinical evaluation of vergence (2015)
- Fatigue assessment using colour dimensionality test (2015)
- Word perception and recognition depending on fatigue (2015)
- Effect of physical activities on reaction time in athletes (2016)
- Visual capacity impact on dynamic parameters of accommodation (2017)
- Impact of various factors on subjective glare (2020)

C) Studies on visual ergonomics testing of new equipment that is obtained within the

visual ergonomics project and later used in the development of future studies (18 theses):

Examples:

- Accommodative response in various contrast conditions (2018)
- Calibration of the eccentric photorefractor "PowerRef 3" (2018)
- Impact of external factors on tear osmolarity (2018)
- Tear osmolarity in different occupations (2019)
- Effect of macular pigment optical density on chromatic resolution (2019)
- Impact of background adaptation on computerized colour sorting and FM-100 test results (2021)

D) Studies of image perception on volumetric display (14 theses):

Examples:

- Visual search task performance on volumetric display (2018)
- Depth perception on volumetric display (2018)
- Visual search performance of radiologists for the volumetric display (2019)
- Eye movement in relation to stimuli position on volumetric display (2021)
- Analyses of medical images on volumetric display (2021)
- 2D and 3D image perception differences on volumetric display (2021)

E) Applications of spectacle lenses and their optics, research of their effects, as well as the use of contact lenses and research of contact lens care products (29 theses):

Examples:

- Comparison of antimicrobial activity of contact lens care solution cases (2014)
- Influence of the thermal treatment on spectacle lens coatings (2016)
- Influence of grey tinted lenses on visual functions (2017)
- The impact of spectacle lenses on retinal straylight (2018)
- The influence of contact lenses on tear film stability (2019)
- Structural changes in corneal epithelium for soft contact lens users (2021)

F) Investigation of physiological processes of vision and evaluation of the influence of various parameters on physiological parameters of vision (49 theses):

Examples:

- Ambient illumination and computer display luminance effects on visual functions (2014)
- Effect of artificial light effects on accommodative lag (2015)
- Pupil reaction change to impulse stimuli during the day (2016)
- Influence of visual acuity on shooting results (2017)
- Correlation between gender and corneal thickness (2019)
- Changes in corneal biomechanics in patients with keratoconus (2021)

G) Colour vision research, visual perception studies and binocular vision assessment (29 theses):

Examples:

- Determination of colour saturation threshold using pseudoisochromatic plates of KAMS colour vision test (2014)
- Vergence response in repetitive measurements (2015)
- Determination of chromatic sensitivity threshold using computerized FM-100 test (2016)

- Analysis of colour arrangement tests results using quantitative methods (2017)
- Applications of colour ensembles in red-green opponent mechanism research (2019)
- Effect of age on Farnsworth D15 test results (2020)

H) Testing of various new equipment and techniques (20 theses):

Examples:

- Approbation of computerized colour vision test (2014)
- The usage of mobile visualising devices in visual perception research (2016)
- A new stereotest for the evaluation of crossed and uncrossed disparity (2017)
- Measuring the retinal thickness with Shack-Hartmann aberrometry *in vivo* (2018)
- Assessment of corneal parameters using optical coherence tomography (2019)
- Application of remote visual acuity assessment (2021)

The topics of bachelor's thesis are, above all, offered by the academic staff of the Department of Optometry and Vision Science. The specificity of topics is determined by a number of factors, such as the development of new techniques in vision research, visual perception research within a project, and topics offered by doctoral students who are prepared to be supervisors of bachelor's thesis and develop their own research together with bachelor students. In English groups, especially in part-time extramural studies, the students choose clinical topics that can be developed at their workplaces, in an optical store abroad.

The average score of bachelor's theses over the period 2013-2021 was 7.7 points (*the distribution of all gradings, see **Figure 3.2.6.1.***), where dominates grades from 7 to 8 points.

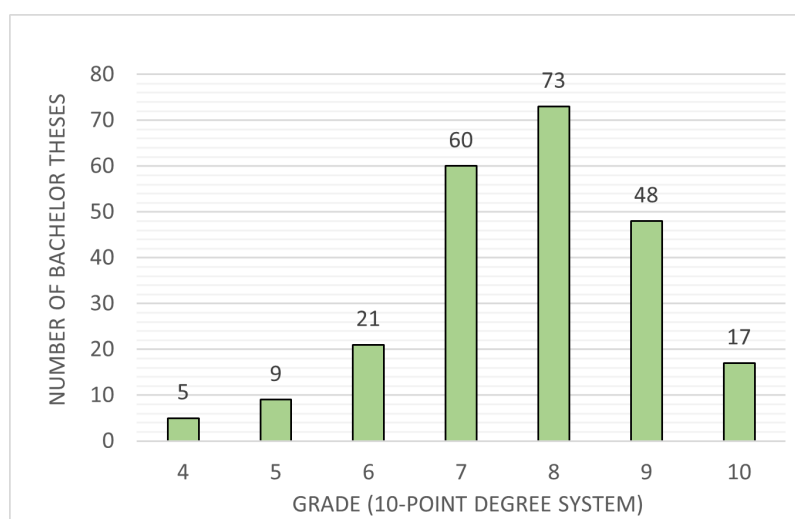


Figure 3.2.6.1. Distribution of the gradings for theses that were defended by students in the bachelor's study programme between 2013 and 2021. The analysis was conducted on 233 theses.

During the reporting period, the grading that corresponds to “very good” and higher (between 8 and 10) was given to 59.2% of bachelor's thesis. Since bachelor's thesis is the first scientific work in the study process, which is developed in close cooperation with the research supervisor and they do not include new, unexplored topics, the commission and reviewers rarely assess theses with the higher mark “with distinction” or 10 (7.3% of 233 theses). During the reporting period, 17 students of the study programme had obtained the grade 10 for their bachelor's theses and the acknowledgement of the rector of the University of Latvia. The list of bachelor's theses, evaluated as outstanding and awarded with the acknowledgement of the rector of the University of Latvia are summarized in **ANNEX OptoB 4**.

During the reporting period, we focused on the quality of the master's theses. In order to improve the quality, the following steps were performed:

- requirements were established for the development of final theses in Latvian and English (including the development of Bachelor's and Master's theses) in accordance to the requirements of the Department of Optometry and Vision Science (requirements were based on the generally accepted requirements of the University "Requirements for the development and defence of the final theses (bachelor's, master's, doctoral dissertation, and qualification work) at the University of Latvia", approved by the University of Latvia on 3rd February 2012, No 1/38);
- the content of the courses "Research Methods in Vision Science" and "Apply statistic and statistical treatment methods of data" were reviewed to emphasise the key points in the development of research works, to introduce the requirements for the written and oral presentation of the study, as well as data analyses;
- the submission of the draft of the Bachelor's theses was introduced that allowed students to make substantial content corrections and identification of mistakes and errors, that was noticed by the reviewer, before final submission;
- the pre-defence was introduced to enable students to present their master's thesis, practice in answering questions using arguments and justifying their opinion, as well as see the strengths and weaknesses of their research;
- students were invited to present their bachelor's theses at the annual Scientific Conferences of the University of Latvia and seminars and conferences organized by the Association of Optometrists and Opticians of Latvia, as well as other related conferences, not only in Latvia but also abroad (e.g., *VisPEP*, *DOC*, etc.) in order to improve their presentation skills.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

Study base

The BSP Optometry and PMSP Clinical Optometry are implemented at the Department of Optometry and Vision Science of The Faculty of Physics, Mathematics, and Optometry at the University of Latvia, the House of Nature, Jelgavas Street 1. The implementation of the BSP Optometry (content, teaching staff, study plans, study forms and promotion) are the responsibility of the programme director, who is directly subordinate to the Head of the Department of Optometry and Vision Science. The director of the BSP Optometry is professor Gunta Krūmiņa. The study methodologist helps to plan and organize the study process, as well as manages student affairs, providing students with all the necessary services in the study process.

Since 2015, the Department of Optometry and Vision Science is located at the Academic Centre of the University of Latvia on Jelgavas Street 1. Therefore, it is possible to use the extensive offer of

the Academic Centre for the needs of the study programme. Auditoriums are shared with students of all faculties located at the House of Nature. One UL employee is responsible for all auditoriums at the House of Nature planning the premises upon request of the study programmes, as well for seminars, practical classes, and exams. For the implementation of both study programmes, there are 23 auditoriums, 5 computer classes, 45 student study laboratories, and 69 research laboratories in biology, geography, geology, chemistry, biochemistry, physiology, etc. at the House of Nature. The auditoriums have a variety of capacities: 9 small ones with capacity up to 30 seats, 10 medium-size to 50 seats, and 4 large auditoriums up to 300 seats. If necessary, the study process can also use auditoriums at the House of Science on Jelgavas Street 3, located next to the House of Nature.

All auditoriums have whiteboards and/or blackboards, projectors, laptops, and Internet access to allow the readers to deliver lectures without using their own computers. The e-studies platform can be used to demonstrate presentation. Interactive whiteboards are also available for some auditoriums.

There are five computer classes in the House of Nature with a capacity of 15-20 workstations. The computer classes have all the necessary computer programmes not only for the implementation of the study programmes in Optometry but also for other study programmes of the University of Latvia, e.g. statistical programmes (SPSS, RStudio, etc.), image analysing programmes (ParaView, ImageJ, etc.), programming languages (Visual Studio, Java, etc.), standard office programs (MS Excel, Word, Access, Outlook, etc.), drawing programmes, etc.

In support of specific studies, practices and research processes, the Department of Optometry and Vision Science has several modern laboratories (e.g., Refraction Laboratory, Eye Movement Laboratory, Vision Ergonomics Laboratory, Colour Vision Research Laboratory, Neurophysiological Process Research Laboratory), Spectacle Laboratory, and Students Ambulance. To control the occupation of the laboratories, students use a lab occupation schedule for skill development and research purposes.

Free wireless Internet is available for students throughout the Academic Centre of the University of Latvia (the House of Nature and the House of Science). UL offers students a free opportunity to use several IT programmes including Microsoft Office 365, SPSS MathWorks, MatLab, etc. software for a private computer for a period of study. The students can also use computers available in the libraries of the House of Nature and the House of Science.

The PMSP Clinical Optometry has collaboration with other foreign universities that provide optometry studies, as well as with larger Latvian and global optics companies such as OC Vision, Vision Express, Essilor, Hoya, Alcon, etc. The foreign universities offer our students experience in another environment, while foreign students can get to know the opportunities of our study programme, both the modern study environment and well-equipped laboratories. Good collaboration is developed with optics companies that provide students with practice places. The companies help to provide the materials needed in the study process, such as catalogues, spectacle lenses and frames, contact lenses and their solutions that allow students to achieve predefined study objectives and skills. OC Vision regularly offers students new equipment for the development of master's theses.

The Department of Optometry and Vision Science researchers offer regularly study topics and a possibility to share the results at the Scientific Conference of the University of Latvia and international conferences organised for students and young scientists, such as *Development in Optics and Communications - DOC* (in Riga), *Open Readings* (in Vilnius).

Information and methodological provision

The methodological support of the University of Latvia for the implementation of the study

programme is extensive and prepared according to the specifics of different study programmes. In addition to traditional information resources – library books – access is provided to more than 170 000 subscribed e-resources in various fields of study and science. For the implementation of study courses, the opportunities offered by the e-learning environment of the University of Latvia are used - the uploading of lecture materials, the use of online tests to supplement and assess students' knowledge. Each lecturer is obliged to create an appropriate e-course in both Latvian and English. Remote training uses a variety of tools for the acquisition of knowledge, skills and competencies, such as video lectures, tests, online submission of papers and tasks and online feedback, opportunities to obtain study materials, which is essential for students outside Latvia, and access to books from the UL library. E-environment enables quick and easy communication between student and teaching staff and vice versa. E- environment gives the student access to study materials, the possibility to keep track of their progress and course completion, the lecturer access to the latest books and publications anytime and anywhere.

The UL Library is included in the Library Register (BLB1000) of the Ministry of Culture of the Republic of Latvia; on 22 June 2017 it received the Library Accreditation Certificate and was granted the status of a library of national importance for five years. The basic principle of the Library's activity is the accessibility of its services to every user, ensuring the same range and quality of services in all departments. The variety of services offered, the layout of the library's premises and its opening hours will continue to be closely coordinated with users' information needs.

The opening hours of the 8 sectoral libraries of the University Library are adapted to the convenience of students. The opening hours for library customers are from 9:00 to 21:00 on weekdays, and from 9:00 to 18:00 in some sectoral libraries. On Saturdays, the hours are from 9:00 to 17:00. The libraries of the Houses of Nature and Science are open 7 days a week, 24 hours a day. The four sectoral libraries are open all year round, including during the summer. The sectoral libraries ensure all services that promote independent studies. Services are provided in accordance with UL Library Terms of Use, approved on 1 February 2017 with UL Rector's Order No. 1/39. According to the Terms of Use, the services may be used by UL students, teaching staff, personnel, other libraries, students from other universities, as well as any residents. UL Library provides free basic services and paid services.

Free of charge basic services

- Electronic ordering/reservation/extension of the use of information resources from state significance union catalogue and receipt of information resources for on-site use in the library reading room or for using at home.

The service is available to users registered at UL Library by using Union Catalogue on any mobile device from any place with internet access.

- Delivery of information resources

When ordering resources in Union Catalogue from any library, the UL academic personnel, researchers and doctoral students have the option to indicate the most convenient place to receive the reserved information resource – the sectoral library. This option is available for other users, by ordering information resources only from the Repository.

- Self-service

All sectoral libraries offer self-service scanning services, 5 sectoral libraries offer self-service devices for receiving/submitting the books or extending the period of use of books. With the help of devices, the user can independently receive and hand-in information resources or extend the period of use. The UL students, academic and general personnel can receive laptops at the Library of the

House of Sciences by using the laptop usage self-service device with 36 laptops.

- Use of open access reading rooms, computers, and internet

It is possible to use a collection of reference literature and periodicals, stationary and portable computers (both the UL Libraries and users' personal) in the reading rooms, as well as Internet connection, including WI-FI, which is operating in all UL buildings. Reading rooms serve not only as a place for studies and research for the students but also as a place to meet and spend their free time.

- Night subscription, booking of information resources in advance

For the convenience of users, the "Night Subscription" service is offered, the aim of which is to provide users – students, lecturers and employees of the University of Latvia with the opportunity to borrow a certain on-site information resource from the library in the time period from the closure of the library until the opening hour or to book it in advance for a certain number of hours. The service is free of charge, but, if the information resource is not returned on time, a contractual penalty is applied for the delay of the period of the loan in accordance with the price list of paid services of the UL Library.

- Supply of information resources in the summer

This offer allows users to receive required information resources twice a week at the most convenient sectoral library (Library at Kalpaka Boulevard, Library at Raiņa Boulevard, Library of Natural Sciences, Library of the House of Science) from 4 sectoral libraries, which are closed during the summer.

- Inquiries and consultations

One of the main functions of the library is providing information to the users – consulting, providing information, user training and support in research.

The main consultant of the UL Library (the Library at Aspazijas Boulevard) provides the official and general information services of the Library. The users can also receive individual consultations and information in the library, by e-mail: info-bibl@lu.lv, by phone: 28623551, using Skype – address: LU Bibliotēkas consultants. Consultations are also provided by any employee of the sectoral library staff at the library or by phone, or by using Skype. The consultant of the Library and staff of branch libraries provide bibliographic, thematic, factual, addressive, specific and other information and consultations to the students, academic, scientific and general staff of the University of Latvia. In case of any questions, the users may also use the options available in the UL Library portal: "Ask the librarian", "Frequently asked questions", "Submit your feedback".

- Training for users

The knowledge and skills to work independently, to find, evaluate and use quality information resources and e-learning tools are essential to raising the level of learning. To improve users' skills and abilities, the UL Library has established a training system.

The Library has developed 3 training scenarios which are used by the Library staff to provide training "Electronic Collections for Your Successful Studies", "E-resources for Mobile Studies", "E-resources in Industry".

Paid services

The list of UL Library paid services and price list is approved by the UL Rector's Order of 07.03.2016 No. 1/111.

- Compilation of a list of information resources

The service provides information support to every user. Specialists of UL Library compile a list of information resources on the topic required for the user as soon as possible, for example, during the process of developing a term paper or other type of work. The user can order the list by electronically filling in the electronic application form, where the user can indicate the required chronological coverage, languages, types of information resources (books, magazine articles, electronic resources, etc.), etc.

- SBA, SSBA services

The UL Library offers its users to order information resources that are not available at the UL libraries from other libraries and document repositories in Latvia by using interlibrary lending service, and from abroad by using international interlibrary lending service, as well as receive electronic copies of scientific articles in printed form or by e-mail.

Library collection

The collection of the UL Library is created in accordance with the study and research fields of the University, requirements of study programmes, thus providing information for all study levels of the University of Latvia – bachelor's, master's, doctoral, as well as scientific research areas. When replenishing the collection with information resources, the purchase of e-resources has been set as a priority. Acquisition of new resources to the collection is carried out in accordance with the centrally allocated funding of the University of Latvia, which is approved annually by the order of the University of Latvia. The granted funding is used to purchase necessary books, to pay for a subscription of sectoral databases and subscription of periodicals. The UL Library ensures the acquisition of information resources, based on orders of academic personnel, proposals from the student council or employees of the Library, which are submitted to LUIS and approved by the Dean of the Faculty or the Executive Director. Anyone, who is interested, can also recommend the purchase of a specific publication by submitting a proposal to the employee of the Library verbally or in writing. If the proposal is supported by the Dean/Executive Director of the particular faculty, the Library purchases the proposed publication.

In 2021, there are 1.7 million information resources available for the users of the Library. In accordance with the UL study and research infrastructure, the collection of the UL Library is located in 8 sectoral libraries and the Repository. The UL Library collection, with an information resource matching UL BSP Optometry and PMSP Clinical Optometry, includes **1094** copies of printed editions by 1st January 2022, of which 978 copies are in the library of the House of Nature, 88 copies are in the library of the House of Science and two are on the Repository. All copies of printed editions required for the study programmes in Optometry are purchased from additional funding obtained by the Department of Optometry and Vision Science. The available stocks at the libraries at the Houses of Nature and Science are shown in **Table 3.3.1.1.**

Table 3.3.1.1.

Literature available in the library (printed publications) for the implementation of the BSP Optometry

Total in the collection of the Library of the University of Latvia on 01.01.2022. existing printed publications

Study programmes	Printed editions (copies)				Language				
	Total	Books	Periodicals, other types of publications	Other types of expenditure	Latvian	English	Russian	Germany	Other
BSP Optometry & PMSP Clinical Optometry	1094	1007	59	28	55	995	20	10	2
Total in the study direction in the collection of the Library of the University of Latvia: 31 046 copies									

The Library together with the UL IT service offers the UL e-resources repository. The Library, authors of publications, UL departments or representatives of UL editions regularly upload electronic versions of their publications, digitised information resources of cultural and historical value, theses and dissertations of UL faculty members and their abstracts to the UL e-resources repository in order to ensure the collection, preservation, free and permanent online access to the scientific achievements of the UL. The LU e-resources repository[1] was established in 2011.

In line with the UL Strategic Plan, the UL Library is increasing the number of e-resources and developing remote access to e-resources in order to enable users to use resources remotely. The number of databases is being targeted within the funding allocated to the Library. Each year, the usability of subscribed databases is analysed and users are surveyed on the need to purchase new databases. The e-resource list from A to Z is available in the Library section of the UL portal. More information on e-resources is available on the UL Library website "E-resources from A to Z"[2]. The UL offers the opportunity to use subscribed electronic information resources (databases, e-book platforms) outside the UL computer network by logging in with a LUIS username and password.

Subscribed e-resources, including materials for BSP Optometry

EBSCO Academic Search Complete – a multi-sectoral scientific information resource where information from more than 12 500 full-texts, including 7 300 science-reviewed journals, is available. Resources are available in sectors such as optometry, optics (related to ophthalmology), medicine (related to ophthalmology), biology (related to ophthalmology), pharmacy, nutrition science, etc. **Emerald eJournals Premier** – a full-text multi-sectoral database containing information in sectors such as optometry, medicine (related to ophthalmology), general medicine, nursing, pharmacy, nutrition science, etc. **Oxford Journals** – collection gives access to more than 280 authoritative and leading journals issued in collaboration with the world's most important scientific organisations. The database consists of full-text journals with high citation index scores in different science sectors: optometry, medicine (related to ophthalmology), life sciences (related to ophthalmology), physics (related to ophthalmology), medical treatment, nutrition science, etc. **Letonika** – a directory and translation system whose main purpose is to provide systematised, encyclopaedic reference and translation information. Letonika offers to search for and work with information found in 11 encyclopaedia and other reference resources, 13 dictionaries (translating, interpretative, terminology), as well as collections with 10,000 images, audio recordings, etc. **LETA – News, Archives and Nozare.lv** – offers the possibility to search for operationally published news, photos, videos, press releases, articles from the Latvian press, statistics, and other information. **ProQuest Dissertations & Theses Global** – the largest worldwide database of dissertations and theses, contains more than 2.3 million theses in different sectors: natural and medical sciences (related to ophthalmology), humanities and social. **SAGE Journals Online** – the

full-text magazine database of the publishing company SAGE, which offers articles from more than 500 journals. The database represents a variety of sciences – life and biomedical, medical treatment, optometry, medicine (related to ophthalmology), pharmacy, nutrition science, etc. **SAGE Research Methods** – a library of study methods containing more than 1,000 books, reference editions, journal articles and other resources in a variety of industries, including optometry, medicine (related to ophthalmology), medical treatment, etc. SAGE Research Methods is an important online tool for researchers. There are two of them available in UL – SAGE Research Methods – Books and Reference and SAGE Research Methods Cases. **ScienceDirect** – the multi-sectoral database of the publishing company Elsevier, which includes sectors such as optometry, medicine (related to ophthalmology), medical treatment, nature sciences (related to ophthalmology) and technical sciences, etc. The database contains information about several thousand journals and books issued by Elsevier. The full texts of approximately 2,650 journals are available. **Scopus** – a database of bibliography and quoting information from the publishing company Elsevier, which contains records of more than 21,000 journals, 86,000 e-books and 6.8 million conference materials, as well as 27 million patents. The database includes sectors such as optometry, medicine (related to ophthalmology), medicine, nutrition science, etc. **SpringerLink** – the full-text journal database of the company Springer Nature, which offers access to more than 6 million articles from more than 3,400 journals, covering the fields of science related to ophthalmology, humanities, and social sciences. **Web of Science** – database contains the most significant scientific information about more than 12,000 journals, offering bibliography and citation information, summaries, and other information. Areas such as optometry, medicine (related to ophthalmology), medical treatment, radiography, nursing, pharmaceutical, nutrition science, etc., are included. **ClinicalKey** – ļoti plaša medicīnisko un veselības aprūpes žurnālu klāsts, online grāmatas un citi uzzīņas materiāli.

E-books available in the UL Library, including materials for BSP Optometry

ProQuest Ebook Academic Complete – an e-book platform with 1094 editions of e-books purchased or subscribed by the UL Library on request of the study programmes in Optometry from the world's largest publishers (e.g., McGraw-Hill Education, Bloomsbury Publishing, Princeton University Press, Emerald Publishing Limited, IOS Press, Indiana University Press, etc.).

Free-access resources containing materials for BSP Optometry

ArXiv.org, BMC, Bookboon, Bookyards, BioOne Complete, Cogent OA, Directory of Open Access Books, Directory of Open Access Journals (DOAJ), EuDML, Eurostat Data, FreeBooks4Doctors, F1000 Research, Google Scholar, Herbert Publications, HighWire Press, IEEE Open, Journals for Free, KARGER Open Access, Library Publishing Media, MDPI, Online College Classes, Optipedia, Open Access Research Database (OARD), Periodika.lv, PLoS – Public Library of Science, ScienceOpen, Science Books Online, SpringerOpen, Wiley Open Access, WorldWideScience, Zenodo.

Material and technical base

The laboratory equipment of the Department of Optometry and Vision Science is designed to meet the needs of practical works and practices, with regular replenishment and refurbishment of equipment – optometric tools, vision tests, visual function assessment stations, modern eye structure assessment equipment (biomicroscope with filming and imaging capabilities, WAM system, OCT, autorefractometer, osmolarity measuring equipment, retinal pigment density measuring equipment, indirect binocular ophthalmoscopy simulator, straylight measuring instrument, various colour vision assessment tests, etc.). For detailed information on the material and technical basis of both study programmes in Optometry is presented in **ANNEX OptoB 15**.

A total of six vision examination stations are fully equipped, which students can also use outside

the planned classes for training clinical skills required by the study process, working on laboratory and scientific works. The renewal of laboratory equipment is based on funding from the Department of Optometry and Vision Science, base funding of the scientific staff and funding from EU, ERDF foundations, UL foundation and UL projects. At present, the increase in the material-technical base is so extensive that it supports not only the whole study process but also research projects in the fields of optometry and visual science.

[1] <http://dspace.lu.lv> [available in Latvian and partly in English]

[2] <https://www.biblioteka.lu.lv/resursi/e-resursi-no-a-lidz-z/> [available in Latvian and English]

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

Since the Department of Optometry and Vision Science is responsible for the implementation of two study programmes in optometry, the financial base is combined and not separately distributed to the relevant study programme. The State-funded budget places (68 bachelor's and 12 master's) and the additional funding obtained from the students that pay for their studies provide basic functions of the study programmes – environment (including all auditoriums proportional to the size of the department, 100% of all rooms for academic and administrative staff and laboratories of the Department of the Optometry and Vision Science), as well as salaries of the teaching staff. In various projects (continuing education, research projects, development projects, etc.), additional resources are obtained that provide the opportunity to renew the laboratory equipment (the optometric instruments and small equipment), as well as to purchase new books for the organisation of the study process.

The calculation of the cost for the BSP Optometry (see **ANNEX OptoB 16**) is based on the available State funding for one budget place (4,890 EUR) that is formed from base funding of 1,630 EUR, level coefficient 1 and study field coefficient 3, and is based on the methodology for calculating the cost of study programmes developed by the Studies Department of the University of Latvia. However, this calculator does not reflect the real situation, because the same premises, purchased books and technologies are used for both study programmes in optometry and all study forms. While the English groups are too small, we combine the first- and second-year students in each study programme, combine practical classes with Latvian groups in the professional master's study

program, as well as implement some study topics in English for both Latvian and English groups. As readers have a higher fee for teaching in English, the tuition fee is also different for Latvian and English groups. Calculating the total costs of all study forms for the academic year 2020/2021, the teaching expenses (including vacations, taxes) were about 312,000 EUR, infrastructure expenses – 33,000 EUR and other expenses – about 12,000 EUR. After all internal fees defined by the University of Latvia and the Faculty of Physics Mathematics and Optometry, there remains about 253,000 EUR per year from the State-funded budget places, about 90,000 EUR per year from students, who pay for their studies, and about 15,000-20,000 EUR per year from other projects for infrastructure improvement and purchase of books as the available funding of the Department of Optometry and Vision Science

We have calculated the minimum number of students required for the effective implementation of the study programme in Latvian groups in part-time and part-time extramural and English groups so that the tuition fee fully covers at least the salaries of the involved academic staff, as well as the 1st Year and 2nd Year students' groups can be combined. However, these calculations are variable, as everything is determined by the size of the group of students and a reasonable tuition fee that is in relation to the cost of the study programme and does not exceed the tuition fees of other countries where optometry studies can be available in English. In the Latvian group of BSP Optometry, the minimum number of part-time students should be 6-8 students per study year, and the minimum number of students of part-time extramural students is 4-5 students. In the English group of BSP Optometry, the minimum number of full-time students should be 8-10 students per study year, the minimum number of part-time students is 6-8 students and the minimum number of part-time extramural students is 4-5 students. Tuition fees at the University of Latvia are determined by a separate directive for each academic year, taking into account the cost of the study place, including all costs of the study process, tuition fees for similar programmes at other universities and potential students' interest in the study programme.

The study costs of the Latvian groups are balanced with the income, varying according to the courses of the limited choice part, as well as combining groups of students in these study courses. Part of the expenses is also covered by the income from the students that pay for their studies at the PMSP Clinical Optometry, as well as from various study development projects.

If we calculate according to the methodology developed by the University of Latvia, the average cost per student is 3,444 EUR per year in the BSP Optometry in both language groups. Estimates are made for 68 state-funded budget places and 8 “budget places” guaranteed by the Department of Optometry and Vision Science. There are also paid study places in the study programme. But they have not been popular in recent years because there are a lot of other study programmes with state-funded budget places in Latvia that students can choose from. In addition to the costs of teaching staff, the cost calculation also includes general staff costs – 31.3% of academic staff (EUR 711 per student per year), infrastructure expenditure (EUR 250 per student per year), renovation of the technical base, services (EUR 303 per student per year).

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and

the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Primarily, BSP Optometry is composed based on the European and Latvian requirements, regarding the structure of the study programme, the breakdown of courses, the content requested and the number of credits required. In the knowledge of what is required to be included in the course content (as defined by the European Qualification in Optics and the European Diploma in Optometry guidelines), the teaching staff of appropriate competence is involved in the development of the course content.

The principal responsibility of the head of the Department of Optometry and Vision Science is to attract competent readers to the study programmes. The qualification is evaluated to ensure that the reader has appropriate competences to deliver the course and to help students to reach course results. If it is not possible to provide the content of a single course with a single reader, the course can be delivered by several readers. In cooperation with other faculties, the study programme involves competent readers for general courses. The qualification requirements of all readers are regulated by both the Law on Higher Education and the internal standards of the University of Latvia. Most readers are elected, and their academic positions are in line with previous achievements: obtained degrees and previous scientific, teaching, and professional experience.

Other readers may be selected for the realisation of the study programme in English groups. Most importantly, the reader of the study course must have adequate competence in the field and an appropriate level of academic English – B2, as well as the willingness to cooperate with the director of the study programme and students.

Various forms and support mechanisms are used to increase the qualifications of the teaching staff in order to improve the academic skills of the elected reader within six years: experience exchange in other universities, participation in the international academic and scientific conferences and seminars, and experience not only in didactics but also in scientific work.

BSP Optometry meets the minimum or recommended requirements for the weighted average credit point proportion of the courses to academic qualifications. The following are planned in the study programme: professors (17%), associate professors (11%), assistant professors (49%), lecturers (15%), and assistants, readers (8%). Most study courses are delivered by assistant professors, lecturers, and other readers. The readers are involved in the delivery of specific study courses and where specific expertise is required or to train the new generation. The guest readers are involved in the delivery of specific study courses and where specific expertise is required or to train the new generation, e.g. a guest lecturer from the University of Manchester (the United Kingdom) was invited to deliver the course “Research Methods in Vision Science” in 2021/2022 Autumn semester).

Two optometry study programmes are provided at the Department of Optometry and Vision Science of the Faculty of Physics, Mathematics and Optometry, the University of Latvia. Consequently, the majority of employees are involved in the provision of the study process. However, most of the readers of the department are also involved in scientific work. 18 out of 28 employees of the Department of Optometry and Vision Science deliver specific courses and supervise and review scientific works. The readers of the Department of Optometry and Vision Science work in parallel with the study process in science and in achieving project results. Every reader introduces his/her experience, study results, and methods into the study courses ensuring the continuous acquisition of the latest knowledge and skills for students. Students also participated

in the achievement of the results of research projects by collaborating with the readers of the Department of Optometry and Vision Science.

The achievement of each reader over the last six years is presented in the CV (see **ANNEX** (zip file) **Optometry - Teaching Staff CVs**) of each reader attached to the study field report and here. Each reader has shown both participation in projects and conferences presented and published articles.

The Department of Optometry and Vision Science is linked to vision studies and all previous and current projects are developed in close cooperation between readers and scientific staff of the department. Major projects involving students of optometry study programmes:

- The Development of Vision Screening and Training Device (LIDA and UL Commercialization project No KC-PI-2020/10)
 - duration: 01.04.2020. -30.06.2022.
 - financing: 302 288.- EUR
 - involved: 6 readers, 18 bachelor and master students and 2 doctoral students
- The Evaluation of the Volumetric Display 3D image's Effect on Human Vision Systems (Contract research project No ZD2019/20807, customer "LightSpace Technologies")
 - duration: 01.04.2019. -31.03.2021.
 - financing: 154 880.- EUR
 - involved: 2 readers, 8 bachelor and master students and 2 doctoral students
- The Development of Environment for Vision Ergonomics Research (UL Foundation project No 2184):
 - duration: 01.04.2017. -31.03.2019.
 - financing: 56 805.- EUR
 - involved: 8 readers, 28 bachelor and master students and 2 doctoral students
- Studies of the Physiology of Vision and Visual Perception and the Development of Method for the Assessment of Parameters (UL project No AAP 2015/B003; ZD2014/AZ77):
 - duration: 01.01.2016-31.12.2019.
 - financing: 182 076.- EUR
 - involved: 8 readers, 83 bachelor and master students and 3 doctoral students
- Studies of the Physiology of Visual Overload and the Development of Methodology for the Diagnostics of Visual Stress (ESF project 2013/0021/1DP/1.1.2.0/13/APIA/VIAA/0001):
 - duration: 01.10.2013-31.12.2015.
 - financing: 496 432.- EUR
 - involved: 8 readers, 24 bachelor and master students and 2 doctoral students
- Study of the Disorders of Visual Function and Perception in School-Aged Children and the Development of Diagnostic Methodology (ERDF project 2011/0004/2DP/2.1.1.1.0/10/APIA/VIAA/027):
 - duration: 01.04.2011 -31.12.2013.
 - financing: 399 524.- EUR
 - involved: 6 readers, 69 bachelor and master students and 1 doctoral student

Readers and students, along with their supervisors participate at the local and international conferences. The larger-scale conferences are the annual international LU Scientific Conference, which hosts a section of Vision Science where 2/3 employees of the Department of Optometry and Vision Science and 15-20 students participate each year. The readers participated in the organisation of several conferences, masterclasses, and seminars. Let's plot a few examples:

- An ambitious event took place on 5th-9th July 2019 at the Nature House of the University of Latvia – 25th *Symposium of the International Colour Vision Society*, in which many readers and

students of the Department of Optometry and Vision Science participated as volunteers in order to ensure the event at a high level.

- On 30th November-1st December 2018, in cooperation with the Lithuanian Association of Neuroscientists in Vilnius, a joint conference was held in Lithuania “10th Conference of the Lithuanian Neuroscience Association and 2nd International Symposium on Visual Physiology, Environment and Perception (VisPEP 2018)” that involved a large number of participants from the University of Latvia (bachelors, professional masters, doctoral students, and employees of the department). More than half of them participated in the conference both with oral presentations and posters.
- On 5th October 2018, a joint event was organised by the University of Latvia, the Association of Optometrists and Opticians of Latvia (LOOA) and the Latvian Ergonomists' Association “Ergonomics at work – a challenge in health promotion”. During the event, both conferences and three masterclasses were organised, the participants of which were students and professionals. The leaders of the masterclasses were readers of the Department of Optometry and Vision Science.
- Together with the Association of Optometrists and Opticians of Latvia and sponsors, the Department of Optometry and Vision Science was actively involved as an organizer in an ambitious Latvian-wide event called “Contact lens users' health week”. The event took place from 23rd to 29th October, the conference took place on 26th October 2017. There were 5 guest lecturers who presented topics on contact lenses and vision health care.
- On 6th to 8th October 2016, the readers of the Department of Optometry and Vision Science organised the first international conference for vision specialists and researchers “International Symposium on Visual Physiology, Environment and Perception (VisPEP 2016)” with more than 100 participants from 16 countries; the presenters were readers and students of the Department of Optometry and Vision Science.

Some examples from readers' publications in Web of Science and Scopus databases. You can see the full list for each reader on the CV that is attached to the accreditation documents of the study field:

- **Pladere, T., Luguzis, A.,** Zabels, R., Smukulis, R., Barkovska, V., Krauze, L., Konosonoka, V., **Svede, A., & Krumina, G.** (2021). When virtual and real words coexist: Visualization and visual system affect spatial performance in augmented reality. *Journal of Vision*, 21(8), pp.1-18. DOI: 10.1167/jov.21.8.17
- Ali, Q., Heldal, I., Helgesen, C.G., **Krumina, G.**, Costescu, C., Kovari, A., Katona, J., & Thill, S. (2021). Current challenges supporting school-aged children with vision problems: A rapid review. *Applied Sciences*, 11, art. no. 9673, pp.1-23. DOI: 10.3390/app11209673
- **Kassaliete, E.,** Gordeja, A., **Panke, K., Petrova, A., & Krumina, G.** (2021). Accommodative response in various design soft contact lens wearers. *Proceedings of the Estonian Academy of Sciences*, 70(4S), pp.333-340.doi: 10.3176/proc.2021.4S.04
- Liduma, S., **Luguzis, A., & Krumina, G.** (2020). The impact of irregular corneal shape parameters on visual acuity and contrast sensitivity. *BMC Ophthalmology*, 20(1), art. no. 466, pp.1-10. DOI: 10.1186/s12886-020-01737-x
- **Pladere, T., Delesa-Velina, M.,** Andriksone, V., Pitura, R., **Panke, K., & Krumina, G.** (2019). Visual search performance and strategy for three-dimensional visualization systems: Impact of radiologist experience. *Applied Sciences (Switzerland)*, 9(22), art. no. 4929. DOI: 10.3390/APP9224929
- **Panke, K., Pladere, T., Velina, M., Svede, A., & Krumina, G.** (2019). Objective user visual experience evaluation when working with the virtual pixel-based 3D system and real voxel-based 3D system. *Photonics*, 6(4), art. no. 106. DOI: 10.3390/photonics6040106

- **Krumina, G.**, Skilters, J., Gulbe, A., & Lyakhovetskii, V. (2018). Effect of handedness on mental rotation. *Lecture Notes in Computer Science* (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10871 LNAI, pp.729-733. DOI: 10.1007/978-3-319-91376-6_69
- **Laicāne, I.**, Škilters, J., Lyakhovetskii, V., Zimaša, E., & **Krumiņa, G.** (2017). Perception of biological motion in central and peripheral visual fields. *Proceedings of the Latvian Academy of Sciences, Section B: Natural, Exact, and Applied Sciences*, 71(5), pp.320-326. DOI: 10.1515/prolas-2017-0056
- **Ikaunieks, G.**, **Panke, K.**, Segliņa, M., **Švede, A.**, & **Krumiņa, G.** (2017). Accommodative amplitude in school-age children. *Proceedings of the Latvian Academy of Sciences, Section B: Natural, Exact, and Applied Sciences*, 71(5), pp.387-391. DOI: 10.1515/prolas-2017-0065
- **Karitans, V.**, Lesina, N., **Kassaliete, E.**, **Svede, A.**, **Laicane, I.**, Ekimane, L., Ozolins, M., & **Krumina, G.** (2017). Measuring the refractive state of an eye based on the intensity of the retinal reflex. *Journal of Modern Optics*, 64(17), pp.1751-1761. DOI: 10.1080/09500340.2017.1314028
- Serdjukova, J., Ekimane, L., Valeinis, J., Skilters, J., & **Krumina, G.** (2017). How strong and weak readers perform on the Developmental Eye Movement test (DEM): norms for Latvian school-aged children. *Reading and Writing*, 30(2), pp.233-252. DOI: 10.1007/s11145-016-9671-7
- **Kassaliete, E.**, Lacis, I., **Fomins, S.**, & **Krumina, G.** (2015). Reading and coherent motion perception in school-age children. *Annals of Dyslexia*, 65(2), pp.69-83. DOI: 10.1007/s11881-015-0099-6
- **Švede, A.**, Treija, E., Jaschinski, W., & **Krūmiņa, G.** (2015). Monocular versus binocular calibrations in evaluating fixation disparity with a video-based eye-tracker. *Perception*, 44(8-9), pp.1110-1128. DOI: 10.1177/0301006615596886
- **Fomins, S.**, **Trukša, R.**, & **Krumina, G.** (2014). Algorithms for sciascopy measurement automatization. *Proceedings of SPIE – The International Society for Optical Engineering*, 9421, art. no. 94210N. DOI: 10.1117/12.2083950

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

BSP Optometry courses are not only delivered by the Department of Optometry and Vision Science academic staff members. Approximately 50% of the courses are delivered by lecturers from other UL faculties and departments. The current study plan for the academic year 2020/2021 and the lecturers involved (see **ANNEX OptoB 17**) indicates that 32 lecturers are involved in the implementation of the content of the full-time and part-time Bachelor's study programmes both in Latvian and English languages. Of these, 25 or 78% have a doctoral degree and each lecturer is competent in the relevant study course. Some study courses are taught by two or more lecturers, as the implementation of the course content requires more extensive knowledge, skills and competences, which can be provided by several lecturers that share their work.

The content and credits of the BSP Optometry are based on the requirements of the European Diploma in Optometry. Therefore, the first step was the development of the structure of the study programme, followed by the development of the course content, involving competent lecturers that based on successive cooperation helped to find the most appropriate form. When the study course contents were established, the heads of faculties or departments were approached and qualified

lecturers were selected that were willing to collaborate with the BSP Optometry Director and students. It is only through joint efforts and interest in designing the course content to meet the requirements and implementing it with new, engaging methods of course delivery, as well as listening to student evaluations, that this team of lecturers has developed over the years. All lecturers have found a way to relate the general courses to the knowledge, skills and competences required of an optometric assistant and optometrist, including many examples from optometry.

At the beginning of the previous accreditation period (see **Table 3.4.2.1.**), a higher number of professors from other faculties were involved in the implementation of the study programme, however, the number of professors has decreased over time due to retirement. During these years a generational change has taken place and a new generation of teachers, lecturers and assistants has come in, with a greater proportion compared to the previous years. Their competence is equally adequate to ensure the achievement of the overall results of the study programme. The quality of each lecturer's performance is evaluated by all students, who are encouraged to write not only criticism but also positive comments, contributing to the programme director's analysis of the composition of lecturers or the changes needed. This feedback also allows organizing substantive methodological courses focused on the best teaching practices so that lecturers can share their experiences and learn from each other.

3.4.2.1.tabula

Participation of lecturers in the implementation of study courses from the academic year 2013/2014 to the academic year 2020/2021.

	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
<i>Professors</i>	7	6	6	7	7	5	3	3
<i>Associate Professors</i>	2	3	3	3	5	3	5	7
<i>Assistant Professors, Researchers</i>	9	9	10	11	14	14	14	14
<i>Lecturers</i>	1	2	2	6	5	7	7	5
<i>Assistants</i>				1	1	4	2	2
<i>Readers</i>	4	3	3	2	2	1	2	1
TOTAL	23	23	24	30	34	34	33	32

Along with the study process lesson, hospitation is also organized. Two randomly selected lecturers-experts of other study courses from the Department of Optometry and Vision Science to evaluate open lessons delivered by other lecturers and discuss with the lecturer their strengths and weaknesses after the lecture. All reports are then made available to the programme director and the head of department to assess the overall picture and to discuss necessary improvements based on data from both the hospitation and the anonymous evaluation of the students.

See **ANNEX OptoB 17** for a summary of all participating lecturers by the academic years. The course evaluations by academic year are summarised and presented in **ANNEX OptoB 12**.

3.4.3. Information on the number of the scientific publications of the academic staff

members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

In the development and improvement of the study programme, the student's proposals are taken into account both by using the evaluations of study courses and by speaking in person with the representatives of the student groups. The issue is addressed if students are frustrated with pursuing a study course or have serious problems with the lecturer of the course. The director of the study programme listens to both the opinion of the students and the lecturer of the course. Then, changes are made in the course content and implementation type, or the course is supplemented with new teaching methods. If the above measures do not make a positive change over three years and the problems persist, a new course lecturer is being sought. The lecturer was replaced for such courses as "Optics I" (later "Geometrical Optics") and "Research Methods in Vision Science" in the academic year 2017/2018 because there were no changes in the delivery of these courses and the suggestions of the students and the director of the study programme were not taken into account. In the academic year 2017/2010, the reader included an analysis of interim tests and a discussion of errors at tests, taking into account student suggestions.

The cooperation of faculty members is strongly supported by anonymous evaluations of the content of the study courses and teaching methods. Every lecturer has the opportunity to get acquainted only with the evaluation results for his/her course and to discuss the problems with the director of the study programme to find the best solution. If students have indicated that the content is overlapping in some courses, then a compromise is found with relevant lecturers: what and how will

be presented in each course to avoid unnecessary overlapping of information but students can get multifaceted insight into one topic. In case of content overlapping, the content of the courses was updated by the lecturer in cooperation with the director of the study programme.

The BSP Optometry has a small total number of students, as the budget places are only 68. In the academic year 2020/2021, as well as in Latvian and English, 102 students studied, 22 of whom are paid, students. In this academic year, a total of 56 study courses of a total of 384 ECTS were carried out, excluding the development of a bachelor's theses. Due to the small number of English groups, lectures for the first- and second-year students were combined. A total of 22 lecturers were involved in the implementation of the study programme. Thus, the proportion of the number of the students and the teaching staff within the study programme was approximately 1: 3. If calculated against the number of ECTS to be realised, the ratio of readers against ECTS is 1:12, which shows that one reader leads a 12 ECTS course on average in the academic year. This ratio does not demonstrate anything because it is known that the same lecturer can have two or more courses in one academic year. The most important thing is not the above-mentioned ratio, but the effectiveness of the study programme in relation to the allocated funding. The structure of BSP Optometry in Latvian groups covers all costs related to the study process – both infrastructure and salaries, improvement of the technical base and purchase of new books. For the time being, implementation of the BSP Optometry in English groups requires combining study courses not only for the first- and second-year students but also combining some courses and lectures with the Latvian groups and delivering them in English, which is also a mandatory requirement at the University of Latvia. As part of a single study programme, at least 6 ECTS should allow the student to complete the specific course in English. We worked a lot on the cost estimation for the study programme in English groups, the tuition fee was increased to cover expenses for small groups of students. But it is already becoming an obstacle in attracting new students. Therefore, in the future, we will work more on advertising the study programme for English groups and on the student attraction system after European accreditation.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	Annex_OptoB_18_BSP_Optometrija_Diploma_paraugs.docx	OptoB_18.pielikums_BSP_Optometrija_Diploma_paraugs.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	Annex_OptoB_19_Par_BSP_Optometrija_AIP_atzinums_2022.docx	OptoB_19.pielikums_BSP_Optometrija_AIP_atzinums_2022.edoc
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Annex_OptoB_4_BSP_Optometrija_Studentu_skaita_statistika.docx	OptoB_4.pielikums_BSP_Optometrija_Studentu_skaita_statistika.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	Annex_OptoB_10_BSP_Optometrija_Atbalstiba_valsts_izglitiba_standartam.docx	OptoB_10.pielikums_BSP_Optometrija_Atbalstiba_valsts_izglitiba_standartam.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	Annex_OptoB_6_BSP_Optometrija_Atbalstiba_nozares_regulejumiem.docx	OptoB_6.pielikums_BSP_Optometrija_Atbalstiba_nozares_regulejumiem.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Annex_OptoB_7_BSP_Optometrija_Studiju_kursu_kartejums.docx	OptoB_7.pielikums_BSP_Optometrija_Studiju_kursu_kartejums.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	Annex_OptoB_1_BSP_Optometrija_Studiju_plani.docx	OptoB_1.pielikums_BSP_Optometrija_Studiju_plani.docx
Descriptions of the study courses/ modules	Annex_OptoB_11_BSP_Optometrija_Kursu_apraksti.docx	OptoB_11.pielikums_BSP_Optometrija_Kursu_apraksti.docx
Description of the organisation of the internship of the students (if applicable)	Annex_OptoB_9_BSP_Optometrija_Prakses_nolikums_2022.docx	OptoB_9.pielikums_BSP_Optometrija_Prakses_nolikums_2022.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	Annex_OptoB_24_BSP_Optometrija_Apliecinajums_AL_55p_1d_3p.docx	OptoB_24.pielikums_BSP_Optometrija_Apliecinajums_AL_55p_1d_3p.pdf

Nutrition Science (45722)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Nutrition Science</i>
Education classification code	<i>45722</i>
Type of the study programme	<i>Academic master study programme</i>
Name of the study programme director	<i>Ida</i>
Surname of the study programme director	<i>Jākobsone</i>
E-mail of the study programme director	<i>ida.jakobsone@lu.lv</i>
Title of the study programme director	<i>Dr.ķīm</i>
Phone of the study programme director	<i>+37129458258</i>
Goal of the study programme	<i>To prepare qualified nutritionists who have acquired in-depth theoretical and methodological knowledge, research skills and are able to independently conduct research in the field of nutrition, food, biochemistry, food chemistry and toxicology, who are able to analyze, critically evaluate and generate new ideas and alternative approaches to nutrition health promotion and prevention of nutrition-related diseases in order to achieve the goals of the World Health Organization, the European Union and Latvia's nutrition policy.</i>
Tasks of the study programme	<p><i>1. The task of the program with A-module courses is to give master students the opportunity to acquire basic knowledge in nutrition, food science, health science and theoretical and methodological knowledge in scientific research work.</i></p> <p><i>2. The task of the program with the elective courses of Part B is to provide opportunities for master students with different previously acquired knowledge to acquire the necessary preliminary knowledge (compensatory courses in the 1st semester) to ensure full acquisition of the A basic courses, and courses that ensure a deeper acquisition of basic subjects by creating an understanding of individual fields of science, the interrelationships in solving medical problems, which the master student chooses according to professional interests and in relation to the chosen topic of the master's thesis.</i></p>

Results of the study programme	<p>Knowledge</p> <ol style="list-style-type: none"> 1. Able to show in-depth theoretical knowledge and understanding of current issues in public health, health care and nutrition 2. Understands the multidisciplinary of nutrition science: the theoretical foundations and main findings of the natural sciences, food and beverage technology sciences and health sciences, which are the basis for creative thinking and research in nutrition sciences 3. Knows data processing methods, terminology, possibilities of use in various studies. Knows the methods of planning epidemiological studies, the functioning of the health care system, the sources of health data and the basic principles of various studies to be performed. <p>Skills</p> <ol style="list-style-type: none"> 4. Able to independently carry out research work in nutrition, using theory, methods and problem-solving skills; to compile scientific literature, to process research results and questionnaire data, to process statistical data; to analyze and interpret the results of the master's thesis research; 5. is able to explain and discuss current issues of nutrition with arguments, both with specialists and non-specialists 6. Is able to recommend a scientifically based balanced diet to different groups of people 7. Able to independently, using the theoretical knowledge acquired in the natural sciences, analyze and evaluate the latest trends in food production and food health aspect 8. Carry out epidemiological and sociological research, identify and assess risks related to diet and eating habits, perform their analysis and offer proposals for improvement 9. is able to independently promote the improvement of his / her competencies; to innovate in the field of nutrition; To continue academic education in doctoral studies <p>Competence</p> <ol style="list-style-type: none"> 10. Able to independently formulate and critically analyze complex scientific and professional nutrition problems and contribute to the creation of new knowledge, development of research methods by integrating the knowledge of various branches and sub-branches of science (natural sciences, food sciences, health sciences) 11. Demonstrate understanding and responsibility for the potential impact of nutrition research results on the environment and society 12. Substantiating and solving practical issues of nutrition science and research problems related to nutrition and health, nutrition and physical activity 13. To plan and manage research in nutrition, promoting the competitiveness of master's degree graduates in the field of nutrition
Final examination upon the completion of the study programme	Master's Thesis

Study programme forms

Full time studies - 2 years - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>2</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>80</i>
Admission requirements (in English)	<i>Second-level professional higher education (or equivalent higher education) in medicine or dentistry; a bachelor's degree (or equivalent higher education) or a master's degree in natural sciences, health sciences, pharmacy, food chemistry, food science and food science, sports pedagogy and health education, veterinary medicine and other related fields. General admission conditions are indicated at www.lu.lv.</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master's degree in health sciences in nutrition sciences</i>
Qualification to be obtained (in english)	<i>_</i>

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

During the accreditation period, the following changes in parameters have been made in the Joint Master's study programme Nutrition Science (hereinafter SP Nutrition Science - the study goal, tasks and results have been clarified, changes in admission requirements have been made, as well as several changes have been made to improve the study program. SP Nutrition outcomes are defined as knowledge, skills and competence.

In the new accreditation period:

1. The aim of the study program

The aim is to prepare qualified nutritionists who have acquired in-depth theoretical and methodological knowledge, research skills and are able to independently conduct research in the fields of nutrition, food, biochemistry, food chemistry and toxicology, who are able to analyze, critically evaluate and generate new ideas and alternative approaches. in nutrition to promote public health and prevent nutrition-related diseases in order to achieve the goals of the World Health Organization, the European Union and Latvia's nutrition policy.

Justification: The aim of the study program is more specific and more appropriate to the specifics of the specialists to be trained in the field of health care.

2. Results of the study program

Justification: The results of the study program have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The achievement of the goal and study results set by SP Nutrition Science ensures the implementation of the tasks set in the courses included in the programme, that the students matriculated in the program (with a wide range of previously acquired education) are worthy of

receiving diplomas UL, LLU, RSU) study program has the appropriate name SP Nutrition Science

The aim of the SP Nutrition Science is to prepare qualified nutritionists who have acquired in-depth theoretical and methodological knowledge, research skills and are able to independently conduct research in the fields of nutrition, food, biochemistry, food chemistry and toxicology, who are able to analyze, critically evaluate and generate new ideas and alternatives. approaches in nutrition to promote public health and prevent nutrition-related diseases in order to achieve the goals of the World Health Organization, the European Union and Latvia's nutrition policy.

SP Nutrition Science is a unique and the only academic master's study program in nutrition in Latvia, which provides continuing education opportunities for specialists with higher professional education in medicine or dentistry, bachelor's or master's degree in biology, chemistry, environmental sciences, nursing, public health, health care, physiotherapy, etc., pharmacy, biochemistry, food technology, sports pedagogy, etc. related industries. SP NutritionScience prepares competitive specialists for the development of public health, who know the theory of nutrition and are able to use it in scientific research and practical solution of nutrition issues in accordance with EU and WHO and Latvian strategic trends, and who are able to independently formulate and critically analyze food science.

Transcript of the Nutrition Science Program Code 45722 (found in the Regulations of the Cabinet of Ministers "On the Classification of Education in Latvia")

45 - Academic education (master's degree) after obtaining a bachelor's or professional bachelor's degree. Duration of full-time studies one to two years. The total duration of full-time studies is at least five years.

722 - (Column 5 of Annex 2 to the Cabinet Regulation) indicates the group of educational programs where 722- Medical services.

KMSP Nutrition Science corresponds to the goal of the study field Health Care to prepare competent health care specialists for the Latvian economy.

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

By mastering the study courses included in sp Nutrition Science, the master students of the program achieve the goal set for the program and the specified study results.

SP Nutrition Science as an academic master's study program during its 14 years of existence, thanks to the understanding of the academic staff and specialists of the higher education institutions (UL, RSU, LLU) involved in the implementation of the program about nutrition, the preventive role of nutrition in maintaining human health, long-term benefits, has given master students the opportunity to develop 303 master's theses on issues related to nutrition, to participate in the implementation of EU co-financed projects, to prepare 3 international conferences "Nutrition and Health" with the participation of foreign scientists: in 2012 with 80 reports, in 2016 with 99 research reports and 2020 with 92 reports on research by 252 authors, of which ~ 40% were reports from students, doctoral students, and masters of our program. The final result of these conferences: scientific articles in Section B of LAS News were published in the period from 2013 to 2018 in 5 special issues of LAS news on the topic of the conference **[1]**; thus, with our research results, we enter the international circulation, because the articles are available in the SCOPUS and

Web of Science databases.

In view of the above, there is reason to believe that the achievement of the goal and study results of the program is ensured by the implementation of the tasks set in the program, that students matriculated in the program (with a wide range of previous education) obtaining a master's degree in Nutrition, that the joint (UL, LLU, RSU) study program has the appropriate name SP Nutrition Science.

Opportunities for professional activity after graduation of the program: to provide consultations on healthy eating throughout a person's life; to get involved in the development and implementation of health education programs; to participate in the development and implementation of state food, nutrition and health policy; to develop new and healthy food products in food production companies; to carry out scientific research activities in the field of nutrition, to study for a doctorate. It is determined by the organization of the study process, where lecturers and scientists from various fields of science and universities are involved in the implementation of the program; it is possible to carry out interdisciplinary research, for example, in a field of health care (medicine), food science or natural sciences.

SP Nutrition Science has been developed based on the analysis of international study programs in nutrition; the specifics of the programme, in comparison with foreign study programme, are the connection of its theoretical basis and argumentation with the specific problems and situation of Latvia; The Latvian programme is strategically designed as an integrated study program, covering physiological and biochemical aspects, the latest advances in clinical nutrition, the interaction between medicine and nutrition, food and nutrition policy, and food and food production safety. Acquisition of the program provides knowledge about the activity of the human body at the cellular, tissue and organ level, provides an understanding of the biochemical processes in the body, changes in the body in case of diseases, factors affecting human health and their prevention.

The study plan of the joint (LU, LLU, RSU) academic Master's study program Nutrition Science (KMSP Nutrition Science) provides an opportunity to prepare competitive specialists with multidisciplinary knowledge and skills who are able to use them in scientific research and practical solution of nutrition issues in line with the key strategic trends in nutrition of the World Health Organization. This is evidenced by the lecturers' scientific research activities and the involvement of Master students in the implementation of research projects, reports at the International Conferences "Nutrition and Health" in 2016 and 2020, as well as the Master's theses developed in accordance with current events. For example, solutions to the problems caused by Covid-19, women's health issues, the strengthening of immunity and the development of nutritious foods for the future, etc. See Appendices (scientific projects developed and implemented by the teaching staff; publications prepared and master's theses developed in the academic year 2021/22). For example, "The spectrum of fatty acids in the diet of pregnant women in Latvia"; "Relationship between dental health and eating habits"; "Eating habits and physical activity in junior school age children"; "Covid-19 and obesity: impact of overweight on disease severity"; "Metabolic activity of the gut microbiota"; "Potential for use of earth worm powder in Food", etc., etc.

During the reporting period 157 master's students have graduated from the joint KMSP Nutrition. The knowledge, skills and competencies acquired during the studies on food, nutrition and health issues are used in daily work, working:

- as health care professionals (nurses, doctors-therapists, gastroenterologists, dentists, cosmetologists, etc.) (~ 35);
- as nutritionists (~ 22);
- as sports teachers and fitness trainers (~ 18);
- as pharmacists (~ 13);

- as technologists of different types of food (cooks, confectioners, food production and marketing managers, etc.) (~ 21);
- as specialists of public administration institutions (~ 6);
- or linking his / her activity with scientific and pedagogical work, with doctoral studies in medicine and pharmacy, food science and natural sciences. The dissertation has been defended by 6 graduates of the program, and ~ 12 are continuing their doctoral studies.

[1]http://archive.lza.lv/index.php?option=com_content&task=view&id=3454&Itemid=47 available only in Latvian

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

+The first 30 students of SP Nutrition Science started their studies in 2006/2007. in the 1st semester of the academic year in full-time full-time studies. 2013/2014 The 8th group of students started their studies in the academic year. Today, 303 masters have graduated from the program, currently (2019/2020 academic year) 41 students are studying in the 1st and 2nd year. In accordance with Article 4.1 of the Interuniversity Cooperation Agreement co-operation higher education institutions (UL, LLU, RSU) each matriculate 10 students by concluding a study agreement Student matriculation takes place in accordance with the matriculation regulations. The number of students in higher education institutions is indicated in Table 3.1.4.1 and the dynamics of the number of students at the University of Latvia is shown in Figure 3.1.4.1 and [4. annex_Uzturzin_Statistika_par_studejosajiem_Eng.docx](#)

Table 3.1.4.1

Statistics of the number of students of the joint master's SP Nutrition Science in the reporting period of UL, LLU and RSU

Study year	1st study year matriculated				Graduates [1]			
	UL	LLU	RSU	In Total	UL	LLU	RSU	In Total
2013./2014.	10	9	14	33	7	4	12	22
2014./2015.	15	10	10	35	5	7	10	22
2015./2016.	10	10	10	30	6	7	8	21
2016./2017.	10	9	8	27	9	7	12	28
2017./2018.	10	10	10	30	7	9	8	24

2018./2019.	10	10	10	30	8	3	4	15
2019./2020.	10	10	10	30	9	3	9	21
2020./2021.	10	10	10	30	-	-	-	-

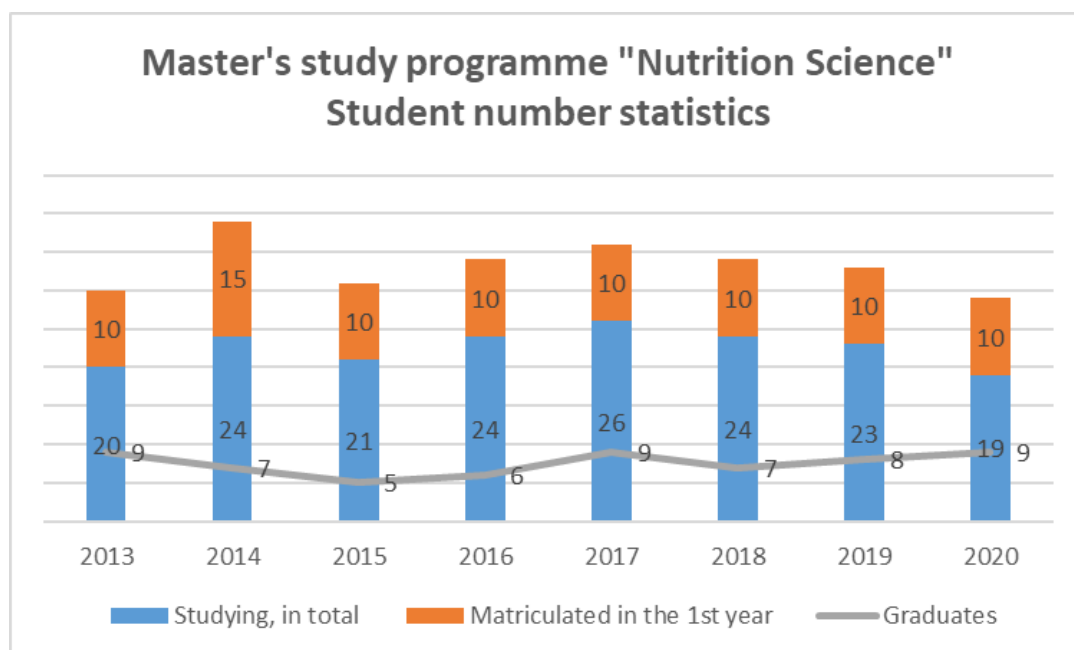


Fig. 3.1.4.1. Dynamics of the number of students in the joint master's study program (UL)

390 master students were matriculated in the study program from 2008 to 2020 and 303 have graduated from the program (77.7%); during the implementation of the program from 2008 to 2020, an average of 22.3% have dropped out of studies; from 2014-2020 25.24%; 18.9% for 2008-2013; On average, the number of graduates in the reporting period from 2014 to 2020 has decreased by 2 (6.35%) master students, compared to the period from 2008 to 2013. There is a tendency - a decrease in the number of graduates; The main reasons are the changes in the number of students: the number of master students who have weak prior knowledge in natural sciences is increasing and students (practically all) work for pay in addition to their studies.

[1] The number of graduates is influenced by former master students who have been on study leave in previous years

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

KMSP Nutrition Science is implemented in accordance with the procedures specified in higher education institutions (UL, LLU, RSU), which are specified in the "Regulations of study programs and further education programs of Latvian higher education institutions" (eg UL Senate decision No. 102 of 24.04.2017). The KMSP "Nutrition Science" program has been developed in accordance with international and national industry development documents, as well as the strategies of the participating universities. Accordingly, the aim of the study program and the expected learning

outcomes have been formulated, involving industry representatives, potential students and representatives of the participating universities in this process. The content of the study program courses has been developed in accordance with the goal set for the program and the planned study results. The higher education institutions agree on the requirements for the implementation and final examinations of the joint study program. When creating the design of the study program, it is ensured that the parts of the joint study program together form a uniform and consecutive joint study programme. In accordance with the cooperation agreement concluded on November 29, 2004, starting from the 2006/2007 academic year, higher education institutions (UL, LLU, RSU) in accordance with their competencies ensure the acquisition of the study courses included in the study program in the following amount: UL - 43 CP; LLU- 13 CP; RSU - 21 CP (the number of CP in each academic year is influenced by the choice of limited choice courses and the number of graduates). From 2007/2008. to 2020/2021 324 graduates have received a master's degree in health sciences.

The knowledge, skills and competences to be acquired as a result of the acquisition of the program are defined and described in accordance with the levels of higher education in the Latvian Qualifications Framework, which is applicable to the corresponding level of the European Qualifications Framework.

An important role in the implementation of the joint study program is given to the promotion of students' interaction and cooperation with the academic staff, providing it through various methods of discussions, scientific conferences, etc. The study process mainly envisages methods in which the permanent activity of master students is important, as well as methods that promote students' communication in the performance of study tasks, solving nutrition and health problems, modeling study situations. Within the framework of the joint master's study program, methods are provided that encourage students' active participation, critical thinking in the development of the course and master's theses. In order to promote the development of students' research competence, students in successive courses have the opportunity to analyze and in-depth study the problems of interest to them in the field.

The joint master's study program provides an explanation of the evaluation criteria for receiving evaluations. The e-learning environment (Moodle) is used in the study process and to promote independent studies. Students have access to professional support and feedback from the supervisor and other faculty members of the program during the study process.

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

SP Nutrition Science course content includes topics, the acquisition of which is implemented in accordance with the study plan for full-time studies; when implementing the tasks set for the courses, ensures the achievement of the goal set for the course and the planned study results.

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Distribution of study courses included in the program A courses (the acquisition of which enables master students to acquire basic knowledge in nutrition, food science, health science and theoretical and methodological knowledge in scientific research), B courses (optional courses that enable master students with different prior knowledge to acquire the necessary prior knowledge) A courses, and courses providing in-depth study of core subjects) as well as Part C courses.

A logical sequence of acquisition is provided for the acquisition of the courses included in the program in accordance with the lesson plan. For example, the acquisition of the course “Theoretical Foundations of Food Chemistry” provides the knowledge and understanding required for the topics covered in the course “Food Chemistry”, while the knowledge and skills acquired in the course “Food Chemistry” are required for the courses “Human Biochemistry and Molecular Biology”. regulation of functions in the human body ”; knowledge and understanding of the course “Human Anatomy” is essential for successful acquisition of medical and health care courses.

SP Nutrition Science is not a separate practice. The practical application of the acquired knowledge is strengthened in the course sections, for example, laboratory work (for example, the course Nutrition of Foodstuffs, Regulation of Physiological Functions in the Human Body, etc.), practical classes in the clinic (for example, the course Medical Nutrition in Acute Illness, Medical Nutrition practical aspects of therapy, etc.) as well as the acquired theoretical knowledge and knowledge are practically strengthened by students developing course and master's theses and performing their work on a daily basis (~ 50% of students) related to the field of health care.

The above ensures the implementation of the goal and tasks set by SP Nutrition Science and the achievement of study results, and provides students with knowledge and understanding, skills and competencies in the field of nutrition corresponding to the 7th level of the Latvian Qualifications Framework, as evidenced by 303 master's theses developed and defended in 14 years of SP Nutrition Science works.

The content of the courses included in the study programme is topical and corresponds to the needs of the industry, the labor market and scientific trends. The content of the courses is constantly updated, as they are implemented by university lecturers, whose research work and academic work is related to the course topics, and industry professionals who practically solve issues related to the course topics on a daily basis.

For instance:

- * Part of the course “Nutrition Policy and Nutrition Science” was taught for 11 years by Dr. Inga Šmate, Director of the Center for Disease Prevention and Control, now Santa Liņa, Director of the Public Health Department of the Ministry of Health. Part of the course Nutrition is taught by Dr. Lolita Vija Neimane, who is a co-author of the popular book “Nutrition Training” in Latvia;

- * the courses “Medical nutrition in the treatment of acute diseases” and “Medical nutrition in the treatment of chronic diseases” are implemented by the attending physicians (Dr. Kristine Geldnere, Professor Aldis Puķītis), whose research work is related to the topics of the course;

- * courses “Food Technology and New and Functional Foods” and optional courses are implemented by the Faculty of Food Technology of the Latvia University of Agriculture, Prof. Inga Ciproviča with her colleagues, etc.

Updating of course content in accordance with the development trends of nutrition science is promoted and ensured by lecturers' research activities and purposeful involvement of master students in research work (EU co-financed and LSR projects), the results of which are regularly reported in scientific conferences and scientific articles are prepared. lecturers, master students, graduates and industry professionals have organized 3 international conferences (2012, 2016, 2020) with the aim to provide an opportunity for Latvian scientists, nutrition students and nutrition and health professionals to get acquainted with the research of their colleagues and their results. , in turn, for the invited guest lecturers - to mark the international context of the most important topics and current issues of nutrition. Outcome of conferences - acquired knowledge and publications (~ 70) in international databases SCOPUS and Web of Science.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

The aim and mission of SP Nutrition Science is to prepare nutrition specialists who have acquired in-depth theoretical and methodological knowledge, research skills and are able to independently conduct scientific research in the field of nutrition, contribute to the creation of new knowledge, participate in the development and implementation of health education programs, participate in national food, nutrition and in the development and implementation of health policy, contributing to the development of Latvian society and economy. In order to provide research-based and innovative studies that would contribute to the development of public health and well-being, both students and academics involved in the study process share their competencies with the public (for example, participation in Researchers' Nights - 2018, 2019). and collaboration with experts in other disciplines in conferences and research). The goal of nutrition science is fully in line with other fields of science in Latvia and with the common goals of the direction of health care and with the set development directions: to promote and develop scientific capacity; lecturers of higher education institutions (UL, LLU, RSU) involved in the implementation of the program in co-operation with scientists of Latvian research institutes and scientists practicing in clinics shall prepare and implement research co-operation projects; organizes international conferences (2012, 2016, 2020 - International Conference "Nutrition and Health"); prepares publications available, for example, on the Web of Science, SCOPUS databases, etc .; promotes the transfer of knowledge and the creation of new intellectual values for use in the development of public health and well-being; participates in the creation of international scientific networks; promotes further education of SP Nutrition Science graduates in doctoral studies to ensure the renewal of scientific and academic staff in nutrition (see Table 3.2.1.1.)

Table 3.2.2.1

Relationship between the research groups of the higher education institutions (UL, LLU, RSU) and the Latvian Scientific Institutes and their research with the sub-branch of the field of health sciences - nutrition science

Research groups of university faculties and research institutes	Research specialization; issues addressed in the field of science (examples)
UL BF Department of Physiology	The effect of diet and exercise on physiological processes in the human body; determination of the composition and somatotyping of human body tissues.
UL BF Department of Microbiology	Effects of probiotics and prebiotics on the composition of human microbiotics
UL Institute of Microbiology and Biotechnology	Development of new food raw materials using biotechnological methods
UL CF In the direction of food chemistry and chromatography	Selection of biologically active compounds in food and their raw materials by modern physico-chemical analysis methods.
UL MF Department of Pharmacology	Evaluation of the anti-inflammatory effect of fractions of non-microbiotic cell-free biologically active compounds by analyzing the expression of the transcriptional nuclear factor kappaB in LPS-stimulated human monocyte THP cells.
RSU Faculty of Public Health and Social Welfare Department of Sports and Nutrition	Latvian nutrition policy in providing pregnant women with a balanced diet; studies on the effects of biologically active food ingredients (eg vitamin D .; omega-3 fatty acids, J2, etc.) on the health of pregnant women.
RSU Biochemistry Laboratory	Studies of various food raw materials, nutrition and oxidative stress.
LLU Faculty of Food Technology	Novel and functional foods; development of food products for certain food groups; probiotics, prebiotic supplements.
RAKUS Gastroenterology Center	Nutrition risk factor for chronic and acute diseases; nutritional therapy

PSKUS Cardiology Center and Gastroenterology Center	Nutrition Therapy (Clinical Trials)
Institute of Agrarian Economics Stende Research Center	Growing and supplying food to consumers with improved nutritional value.

The research directions of the academic staff involved in the implementation of the study program are related to the topics of the courses taught by them.

The main research directions of the lecturers of the University of Latvia are related to the study of chemical contamination of food products and quality control with modern physicochemical research methods, development of gas and liquid chromatography methodologies for analysis and separation of various natural objects, physical and chemical analysis of various waters development of microanalytical methods.

The academic staff involved in the study program participates in LSC (basic and applied research projects of the Latvian Science Council), MES, ESF (European Social Fund co-financed project), ERDF (European Regional Development Fund), EEA (European Economic Area and Norwegian Financial Mechanism research programs), National Research Program projects, Contract projects with entrepreneurs, FP7 (7th Framework Program projects), ERASMUS + projects and development of higher education (LLU, UL, RSU) scientific projects, etc. During the reporting period, the academic staff has participated in the development of 93 projects, prepared 230 publications and presented 370 reports on its research at conferences.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

In accordance with the internal regulations of the University of Latvia, SP Nutrition Science has been updated from 2018 to 2020 in the study plan and study course descriptions included in the study program (adaptation of the form and content of study course descriptions to uniform requirements); teaching and learning that incorporates innovative teaching methods, a supportive and inspiring learning environment and individuality; the study process based on the study results, ensuring the study content corresponding to the aim of the study process and the planned study results, its structure and the interactivity of the study process, choosing appropriate teaching methods; and evaluation of student teaching content [7. annex_Uzturzin_kursa apraksti_Eng.docx](#)

When formulating the results of the study course, the aim of the study programme, tasks and study results are taken into account (the knowledge, skills and competence acquired in the course, what the student is able to do after mastering the study course). The results of the course are verifiable, understandable, concrete. In order to make sure and ensure that the study results formulated in the study courses and study program are interrelated and achievable, the mapping of study results is

performed. Mapping of study results shows that the study courses are included in the study program and ensure the achievement of the study program goals, allow to make sure that the study results are achieved gradually and logically, that the results are interrelated, that the results correspond to the study program goals and results

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Various teaching-learning methods are used to achieve study results (acquisition of courses): lectures, seminars, independent work (acquisition and analysis of scientific literature), presentations of scientific literature analysis, reports, student discussions during seminars, exchange of experience and discussion between students, because matriculated master students before studies at SP Nutrition Science have acquired knowledge in various health care bachelor's programs.

Acquisition of study courses is assessed on a 10-point scale in accordance with the laws and regulations of the Republic of Latvia and the Senate of the University of Latvia on 29.06.2015. Decision No. 211 [1] (with amendments 02.07.2018, Senate Decision No. 235), based on the criteria: the amount and quality of the acquired knowledge, acquired skills, acquired competence in accordance with the planned study results. The course is considered to have been successfully completed if the assessment (determined in accordance with the study results criteria that correspond to the study results formulated in the course) is not lower than "4" (almost average). There are two types of examinations in the study courses: intermediate examinations (tests, practical work, preparation and presentation of reports, etc., according to the specifics of the course), the total assessment of which is not less than 50% of the total assessment; final examination of the course - an examination, the assessment of which is not less than 10% of the total assessment, in writing or orally. Compulsory attendance of laboratory work is required in the courses of the nutrition science program; If for some reason (for example, the courses "Nutrition of Children and Adolescents", "Basic Principles of Nutrition Regulation for Women at Different Periods of Life, etc.), lectures and seminars are delayed, students must prepare a literature review on the delayed topic.

When evaluating the study results, the Cabinet of Ministers of the Republic of Latvia 13.05.2014 are observed. the evaluation principles specified in Regulations No. 240 "Regulations on the State Academic Education Standard" [2]: the principle of openness, the principle of review of evaluation, the principle of obligatory evaluation, the principle of diversity of the type of examination and the principle of compliance. The elaboration, defense and evaluation of the course paper and master's thesis envisaged in the study plan of the nutrition science program are performed in accordance with the Order of the University of Latvia "Requirements for the elaboration of final theses at the University of Latvia" No. 1/38; 02/03/2012 basic criteria that have been agreed with the partner universities - LLU, RSU. Ensuring the implementation of the study program and the quality of the study process has been identified as one of the most important tasks of the academic and support staff of KPMS Nutrition. Quality assurance of the study process, first of all, includes activities related to the professional development of the academic staff and their involvement in scientific research. Secondly, such tools are used for quality assurance as following the performance of students, personal contact of the academic staff involved in the implementation of the program with students during their studies. An essential element of the quality of the study process is the independent listening of students' views both during the meeting, consulting the master students, and cooperating during the development of the course work and the master's thesis. Thirdly, the students' opinion both about the study program in general and about the specific lecturers is obtained by conducting regular questionnaires, as well as by analyzing the obtained results and discussing the thoughts of the master students with the lecturers. The opinion of experts, employers and graduates of study programs is also analyzed for the evaluation of the study

process. Quality assurance in the study program will also be ensured by regular meetings and discussions of the academic staff in the Council of the “Nutrition” study program. The annual processes of preparation and discussion of the program self-evaluation reports during the period from 20013/2014 make a significant contribution to the development of quality. until 2019/2020 academic year.

Various teaching-learning methods are used to achieve study results (acquisition of courses): lectures, seminars, independent work (acquisition and analysis of scientific literature), presentations of scientific literature analysis, reports, student discussions during seminars, exchange of experience and discussion between students, because in the program matriculated master students before studies at KMSP Nutrition have acquired knowledge in various health care bachelor's prog

[1]

https://www.lu.lv/fileadmin/user_upload/LU.LV/www.lu.lv/Dokumenti/Dokumenti_EN/3/nr_211_parbaudijumu_organizesana_eng.pdf

[2] <https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitiba-standartu> available only in Latvian

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

During the reporting period (from 2014 to 2020), the master students have solved problems in their final theses, which cover a wide range of issues to be solved for Nutrition. Out of 157 master's theses developed:

* 48 works (31%) are devoted to the topic "Nutrition - a risk factor for chronic and acute diseases", "Nutritional therapy" (eg "Metabolic syndrome for medical staff"; "Relationship between metabolic syndrome and sleep duration", "Possible nutrient deficiencies and changes in anthropometric parameters in children with food allergies");

* 28 works (18%) are dedicated to the topic "Providing the population with a complete diet"; "Eating and eating habits" (e.g. "Vegan eating habits and bone density", "Assessing the risk of malnutrition in the elderly in home care", "Increased body mass index and the course of pregnancy", "Effects of apple fiber on the lipid profile of people over 60 years of age ", "Assessment of eating habits in children aged 6 to 12 years and their relation to dental caries and bone density indicators ");

* 22 works (14%) are dedicated to the topic "Evaluation of Nutritional Value and Biologically Active Compounds in Food and Its Raw Materials" (for example, "Evaluation of Fiber in Wheat and Rye Whole Grain Bread", Evaluation of the effect of nitrates on the antioxidant content of lettuce ").

*19 works (12%) are dedicated to the topic "Nutrition and physical activity"; "Athlete's nutrition" (eg "Dietary habits and insulin resistance rates in children aged 9-10", "Evaluation of the nutrition of cheerleading dancers during training and performance", "Physical performance and metabolism during high-intensity training", "Dietary habits, Evaluation of physical activity and intensity of peace metabolism in a group of young people ", " Evaluation of nutrition for bodybuilders in the preparation and pre-competition period ", " Effect of protein and fat diet for professional half marathon and marathon runners before the competition ")

*16 works (10%) are dedicated to the topic "Novel and functional food"; "Development of food for certain consumer groups" (for example, "Use of galactooligosaccharides in bread production", "Dietary products enriched with vitamin D3", "Research of galactooligosaccharides", "Research of probiotic nutrients");

*11 works (9%) are devoted to the topic "Public Health and Nutrition Policy" (for example, "Impact of School Curricula on Fruit and Vegetable Consumption", effectiveness of the program ", " Salt consumption in the diet of the Latvian population and factors affecting it ")

*7 works (4.5%) are dedicated to the topic "Nutritional supplements" (for example, "Evaluation of knowledge, attitudes and practices of pharmaceutical specialists and consultants working in pharmacies about nutritional supplements", "Trends in the use of nutritional supplements among Latvian athletes")

*6 works (4%) "Contamination of food and its raw materials" (for example "Food colors related to pseudoallergic reactions, their use in food", "Incidence of aminoglycoside class antibiotics in honey available in Latvia")

The master's theses developed by the master students give the final examination commission confidence that the courses included in the program provide an opportunity to prepare qualified nutrition specialists whose knowledge, skills and competencies correspond to the 7th level of the Latvian Qualifications Introductory Framework. in accordance with the main strategic tendencies of Latvia, which stipulate that it is necessary to reduce the morbidity and mortality from non-communicable diseases by reducing the negative impact of risk factors on human health, to promote good health and ensure disease prevention. The specifics of the program, in comparison with foreign study programs, are the connection of its theoretical basis and argumentation with the specific problems and situation in Latvia.

The acquired knowledge, skills and competence provide opportunities for professional activity after graduation of the program: to provide consultations on healthy nutrition throughout a person's life;

to get involved in the development and implementation of health education programs; to participate in the development and implementation of state food, nutrition and health policy; to develop new and healthy food products in food production companies; to carry out scientific research activities in the field of nutrition, to study for a doctorate. It is determined by the organization of the study process, where lecturers and scientists from various fields of science and universities are involved in the implementation of the program; it is possible to carry out interdisciplinary research, for example, in a field of health care (medicine), food science or natural sciences.

The Master's thesis is evaluated on a 10-point scale in accordance with the laws and regulations of the Republic of Latvia, guided by the following criteria: the amount and quality of acquired knowledge, acquired skills, acquired competence in accordance with the planned study results. Master's thesis is considered to have been successfully completed if the assessment (determined in accordance with the study results criteria that correspond to the study results formulated in the course) is not lower than “4” (almost average).

When evaluating study results, the evaluation principles specified in the Cabinet of Ministers of the Republic of Latvia Regulations No. 240 (from 13.05.2014) “Regulations on the State Academic Education Standard”: openness principle, evaluation review principle, compulsory evaluation principle, examination diversity principle and compliance principle. The elaboration, defense and evaluation of the Master's thesis envisaged in the study plan of the nutrition science program is performed in accordance with the Order of the University of Latvia “Requirements for the elaboration of final theses at the University of Latvia” No. 1/38; 02/03/2012 basic criteria that have been agreed with the partner universities (LLU, RSU).

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

Materials and technical base

SP Nutrition Science is implemented in all higher education institutions (UL, LLU, RSU) using the material and technical base of the higher education institutions participating in the program (auditoriums and laboratories with equipment in higher education institutions) in accordance with the study plan and Cooperation Agreement .

UL material and technical support

3 faculties of the University of Latvia are involved in the implementation of SP Nutrition Science- BF, CF, FM. The study process mainly takes place in the House of Nature of the University of Latvia (since 2015) and in the House of Sciences of the University of Latvia (since 2019). A projector and laptop for presentations are available in all auditoriums; in large audiences - sound equipment and recording capabilities. Wireless internet coverage is available throughout the building. Study

courses and elaboration of master's theses, in which practical work is planned, are implemented in BF, CF and FM laboratories, which are equipped with the necessary research equipment and data processing programs. Study courses and practical work are also implemented in medical institutions and research institutes, for example, the University of Latvia has appropriate premises and analytical equipment for physical, chemical and microbiological research. LU CF has equipment for determination of biologically active compounds and micro and macroelements in biological samples, food raw materials and food, for example:

*AESH-device: Waters 2690 Alliance (Column: Atlantis HILIC Silica, 2.1x150, packed with 3 µm adsorbent particle size; thermostat + 20°C),

*AESH-device: Liquid Chromatograph LC201D (Column: Waters Spherisorb, packed with 5 µm, ODS2 (4.6 × 150 mm), Detector: Diode array UV / visible light SPD-M20A, measured at 284 nm, Mobile phase degassing: DGU-20A3, thermostat 30 °C ± 0,1 °C, CTO-10ASVP)

* AESH-device: LC - 20AD (sample injection system: Auto Sampler SIL - 20A; diode array detector SPD - M20A; column thermostat CTO - 10ASvP; reversed phase KROMASIL 100 C18 (4.5 × 150 mm, 5 µm) column)

* Flame atomic absorption spectrophotometer AAnalyst 200, PerkinElmer, with background correction for deuterium, for the determination of Ca, Mg, Cu, Zn, etc.

UL BF has a collection of Latvian microorganisms and the necessary laboratory equipment, which provides opportunities to conduct research related to the human microbiota, as well as the necessary equipment of materials and equipment for research related to nutrition and physiological processes.

UL FM has equipment for evaluation of analgesic result in laboratory animals in vitro; cell damage analysis equipment; for the acquisition of anatomy courses - parts of the body, such as the upper extremity with arteries, veins and nerves, etc.

The study process involves: hospitals, for example, PSKUS, BKUS Gailezers; Riga City Hospital No. 1 scientific research institutes, for example: UL Institute of Microbiology and Biotechnology; Institute of Organic Synthesis; Latvian Scientific Institute of Food Safety, Animal Health and the Environment BIOR under the Ministry of Agriculture; VM Center for Disease Prevention and Control and VM Public Health Policy Planning Department, etc.

Methodological and informative provision of the UL

The University of Latvia Library is an accredited library of national significance and is one of the main structural units of the University of Latvia, which provides study and research activities with the necessary information resources, as well as provides a wide range of services.

The amount of information resources required for studies is supplemented every year. The purchase of internationally recognized teaching materials in English is significantly increasing. An important role is to improve the range of e-books, which allows anyone interested to partially replace paper books. Every user has access to an electronic joint catalog, with the help of which the necessary information resources are searched and reserved remotely. Interlibrary loan and international interlibrary loan services are available to students. The UL Library consists of three databases: the database of publications and history of UL scientists, the database of dissertations developed and defended by the University of Latvia, the database of final theses of the University of Latvia.

Significant international databases are available and used in the field of health care studies. In total, SP Nutrition Science students can use more than 22 databases to search for information,

Britannica online, Cambridge Journals Online (CJO), EBSCO Academic Search Complete, EBSCO eBook Academic Collection, EBSCO Health Source - Consumer Edition, EBSCO Health Source: Nursing / Academic Edition, EBSCO MasterFILE Premier, EBSCO MEDLINE, Emerald, ISI Web of Knowledge / Web of Science, Latvia, OECD iLibrary, Oxford Reference Online: Premium Collection, Project MUSE (database available at LU Faculty of Social Sciences, Lomonosova Street 1a), ProQuest Dissertations & Theses, SAGE Journals Online, Science Direct, Scopus, UpToDate.

In addition to electronic books, printed medical books are also purchased. Most of the books purchased during the academic year are compulsory basic study literature from the study programs of the University of Latvia MF. Table 3.3.1.1 summarizes the information on the number of printed publications available in the UL library SP Nutrition Science

Table 3.3.1.1

Literature available in the Library of the University of Latvia SP Nutrition Science.

UL study field "Health Care" Total printed editions in the LU Library collection as of 01.12.2020									
Printed Editions (Copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
<i>Nutrition Science</i>	161	159	0	2	129	29	2	1	0

Total number of items in the study field in the collection of the UL Library: 30101 copies

In the computer classes of the University of Latvia, students acquire skills to work with the electronic joint catalog and databases: information search, selection, grouping, evaluation. Training takes place in groups and individually. They are managed by professional specialists of the University of Latvia Library. The collection of the University of Latvia Library, its equipment and services ensure the achievement of study results and create a positive study environment.

RSU material and technical support

For the implementation of RSU SP Nutrition Science, a study kitchen is available, which is equipped with the most modern professional kitchen equipment of recent years, which allows to provide practical skills in the study courses included in the study process. The Biochemistry Scientific Laboratory of the RSU Institute of Occupational Safety and Environmental Health cooperates in the field of scientific and medical research in the field of biochemistry, as well as in the development of new methods and technologies. The Biochemistry Scientific Laboratory is a certified laboratory that is involved in the national comparative interlaboratory quality system and is part of the international (Labquality Oy, Finland) external quality control system. Eduroam WiFi secure wireless network is available in all RSU buildings. RSU students also have access to free-access computers, which provide access to student systems and Internet resources.

Laboratories of the Faculty of Food Technology are used for the implementation of LLU SP Nutrition Science (mainly master's theses). All auditoriums have an internet connection and equipment available for lectures. The following laboratories and technical support are available for the training of students and development of scientific works: Food Process Laboratory, Food Packaging Laboratory, Sensory Evaluation Laboratory, Microbiology Laboratory, Biotechnology Laboratory, pilot plants: milk, meat, fruit and vegetable processing and bread making. Laboratories and production facilities are provided with modern equipment, small-scale technological equipment for food development and quality testing. Students can use both analytical equipment (chromatographs, mass spectrometers, viscometers, equipment for determining the structural parameters of food, fat, protein, fiber, including soluble fiber analyzers, flour analyzers, milk analyzers) and technological equipment (driers of various constructions: spray, convection), microwave, high-pressure equipment, spray dryer with particle microencapsulation, autoclaves (including back-pressure), flow pack packaging equipment, technological equipment for meat production (thermal chambers, cutters, etc.), technological equipment for milk processing (cheese, butter, condensed milk products), membrane equipment (module): for the implementation of ultrafiltration, reverse osmosis, nanofiltration and microfiltration), technological equipment for grain processing (mills, ovens, extruders), equipment complex for the simulation process of the gastrointestinal tract (in vitro studies) interactive data processing system for sensory testing of foodstuffs.

The range of printed and electronic information resources offered in all university libraries is available to students of SP Nutrition Science. The RSU Library subscribes to the PEN database, which provides access to evidence-based research in the field of nutrition and food. It was developed in collaboration with associations of nutritionists and nutritionists in Canada, the United Kingdom and Australia. LLU offers access to SCIVal, CRC Press e-books (editions of Taylors & Francis group).

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

SP Nutrition financial security (UL section). Since the beginning of the implementation of the program in 2006, the implementation of the program has been financially ensured with the state budget funds in accordance with the master's level of the study program. LU receives funding from

the Ministry of Education and Science; LLU- from the Ministry of Agriculture; RSU- no VM. The state budget grant for a study place is determined for each year in accordance with the annual agreement between the Ministry of Education and Science and the University of Latvia. Funding for the Master's study program is determined by the basic funding of the study place, the level of the study program and the cost coefficient for the thematic area of education. 2019 The budget grant for the study place for nutrition was 6833 euros ($1518.44 \times 1.5 \times 3$). In the financial year 2019:

- For the implementation of the LU program received

* from the Ministry of Education and Science - 81,996 euros (6833×12 study places);

* from LLU and RSU - 59,559 euros (in accordance with the Cooperation Agreement, the received funding is redistributed between higher education institutions, it is determined by the contribution of the teaching staff of each higher education institution in the implementation of the program in each financial year);

* the total budget funding of the University of Latvia for the implementation of the program is 141,556 euros.

- In the financial year 2019, the teaching staff of the University of Latvia implements 62.53% of the total CP in the study plan, which corresponds to the number of 25.63 students (in 2019, an average of 41 master students study in the program);
- LU funding per budget place in the financial year 2019: $141\,556 : 25.63 = 5523$ euros

In order to ensure the profitability of KMSP Nutrition Science the minimum number of students is 10

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Since the beginning of the KMSP Nutrition Science (2006), the teaching staff of higher education institutions (LU, RSU, LLU), specialists with active scientific activity who work in elected academic positions in their higher education institutions, whose selection and recruitment takes place in accordance with the existing regulations acts on academic and administrative positions, in accordance with announced competitions and appropriate electoral procedures. In each of the higher education institutions (UL, LLU, RSU) the teaching staff of the cooperating higher education institutions is credited as a guest lecturer, whose course (or part of the course) SP Nutrition Science is part of the teaching load of his students at his higher education institution. Each higher education institution provides its lecturers with opportunities for growth and professional development, in accordance with the Cabinet of Ministers of Latvia 11.09.2018. Regulations No. 662 on the Education and Professional Qualifications Required for Teachers.

For example, the Department of Academic of the University of Latvia offers lecturers courses in the didactics of higher education institutions, improvement of the competence of curators, formulation and evaluation of study results, improvement of English language skills, etc. Starting with the transition to the distance learning process, the IT departments of higher education institutions offered consultations on the acquisition of digital skills., as a result in 2020 the distance learning process is started and continues successfully. In order for lecturers and students to strengthen their understanding and confidence in the multidisciplinary nature of nutrition, its preventive role in strengthening health, the lecturers of the program prepare scientific cooperation projects involving master students, which include research from field to spoon-clinical research and organize international research. In 2012, 2016, 2020, three international conferences "Nutrition and Health" were organized. research, the result of conferences - scientific publications in international databases.

The qualifications of teaching staff comply with the Law on Higher Education Institutions and the laws and regulations of the University of Latvia that determine the qualifications of lecturers in academic master's study programmes:

1. Cabinet of Ministers Regulation No.49 *Regulations on scientific sectors and sub-sectors in Latvia* (23.01.2018).
2. Law on Higher Education Institutions (02.11.1995)

According to the results of KMSP Nutrition, which provide competencies corresponding to the 7th level of the European Qualifications Framework, which provide multidisciplinary knowledge and skills, the ability to operate and the ability to conduct interdisciplinary research. The implementation process of KMSP Nutrition Science is quite complicated, for example, both the program director and the lecturers in charge of higher education institutions must simultaneously ensure the normative acts in Latvia in the field of higher education and observe the regulations and decisions regulating the study process of each higher education institution always coincides; Students and lecturers also have to face some inconveniences, even when starting the distance learning process - they have to acquire digital skills on different platforms, because each university works in its own digital system. The program council, those responsible for the implementation of the program, co-operate with each other, co-operate with study methodologists, with the deans of the responsible faculties and the academic departments of their universities (UL, LLU, RSU), study services, and provide academic and psychological support to students and lecturers. and solving learning problems.

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The composition of the teaching staff in accordance with the list of teaching staff involved in the implementation of SP Nutrition Science is given in Table 3.4.2.1

3.4.2.1

Composition of the teaching staff according to the list of teaching staff involved in the implementation of the "Nutrition Science" programme

Academic staff	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018/2019	2019./2020.
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Professors	11 (25%)	9 (20,5%)	8 (18,2%)	7 (15,9%)	6 (13,6%)	6 (13,6%)	7 (18,4%)
Associate professors	11 (25%)	12 (27,3%)	12 (27,3%)	12 (27,3%)	12 (27,3%)	12(27,3%)	15 (39,5%)
Professors asistant	8 (18,2%)	7 (15,9%)	7 (15,9%)	7 (15,9%)	6 (13,6%)	6 (13,6%)	5 (13,2%)
Together with a doctoral degree	30 (68,2)	28 (63,7%)	27 (61,4%)	26 (59,1%)	24 (54,6%)	24(54,6%)	7 (71,1%)
Lecturers and Teacher	14 (31,8%)	16 (36,4%)	17 (38,6%)	18 (40,9%)	18 (40,9%)	18(40,9%)	11 (28,9%)
In Total	44	44	44	44	44	44	37

* due to the high percentage of lecturers, all elective courses included in the program and the process of teacher renewal used in the calculations

If the calculations include the B courses chosen by the students in each academic year, then there is a change in the percentage of the teaching staff, for example:

Composition of the teaching staff in the academic year 2013/2014. : 27% are professors, 28% associate professors, 20% docents, 25% lecturers; Doctors of Science - 75%, of which Professors and Associate Professors 55%

2019./2020.akad.g. teaching staff involved in the implementation of the study program: professors 20%, associate professors 43%, profesors asistant 8%, lecturers 29%; doctors of sciences 71%, of which professors and associate professors 63%

Termination of employment with nine lecturers, including 5 professors, 2 profesors asistant and 2 lecturers, instead of which the study courses are implemented by lecturers with knowledge, skills and research and professional competencies corresponding to the topic of the course. For example, prof. Part of the course "Regulation of physiological functions in the human body" led by Juris Imants Aivars is led by assoc.ptof. Līga Plakane, who also implements the course "Nutritional Psychology and Neurotic Eating Disorders" led by Prof. Jānis Sīpols; the course "Nutrition and Physical Activity" was previously led by Prof. Inta Māra Rubana, now the graduate of the Nutrition Science Program Māra Grundmane in cooperation with Signi Rinkuli, Alisa Kindzuli (also the graduates of the program); Inga Šmati is replaced by Santa Līviņa, Director of the Public Health Department of the Ministry of Health, etc. in the course "Nutrition Policy".

The teaching staff has improved their qualification and during the reporting period they have been elected to higher positions, for example, profesors asistant Māris Bukovskis, Laila Meija, Gundars Selga and others. now holds the position of associate professor, as a result of which the number of professors and associate professors has increased from 55% to 63%.

2019./2020. academic year. The program was implemented by the teaching staff of the higher education institution (UL, LLU, RSU) and industry professionals, in total 37, consisting of 21 (54%) teaching staff who started the implementation of the program in 2006. Within the framework of the program, the process of teacher renewal is taking place; teaching staff and professionals in the field of nutrition, as well as graduates of the nutrition program are attracted to the implementation of the program; Involvement of graduates will ensure the improvement of the content of the program,

avoid duplication of topics included in the courses, as their acquired knowledge, skills and competencies while studying the program will allow more objective, critical and reasonable evaluation of the program and plan to a particular person.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The implementation of the joint academic master's study program takes place in cooperation with the teaching staff involved in the program:

*In the direct study process , jointly implementing the courses or parts of courses included in one module (for example: in the course “Food supplements” at the University of Latvia and food additives at the University of Latvia; in the course “Novel foods” (LLU) and “Genetically modified organisms” (LU), in the course “Medical nutrition in the treatment of chronic diseases (UL and RSU)”, etc

*In scientific research work, implementing jointly prepared research projects; for example, SP Nutrition Science graduates and academic staff participated in the ERDF Operational Program “Entrepreneurship and Innovation” 2.1.1.1. activities in the co-financed project “Evaluation of the Potential of Indigenous Cereal Species and Acquisition of Varieties for Use in the Production of Special Dietary Foods” (No.2DP / 2.1.1.1.0 / 10 / APIA / VIAA / 083) and in the ESF co-financed

project “Establishment of a New Scientific Group for Multidisciplinary Research on the evaluation of local selection material of cereals according to the indicators characterizing its dietary potential and possibilities of its use in the prevention of chronic intestinal diseases ”(No. 2013/0072 / 1DP / 1.1.1.2 / 13 / APIA / VIAA / 032) as scientific staff - researchers, scientific assistants and leading researchers. Cooperation in the implementation of these projects has shown that the graduates of the study programme and the teaching staff involved in the implementation of the program are knowledgeable and have the appropriate skills to successfully conduct research in a relatively complex interdisciplinary project involving product biochemical and nutritional evaluation;

* By jointly organizing the international conference “Nutrition and Health” (2012, 2016, 2020) to ensure the compliance of the “Nutrition Science” program with the knowledge, skills and competencies of the 7th level of the Latvian Qualifications Framework (LQF), higher education institutions (UL, LLU, RSU) teaching staff 2017/2018. During the academic year, after the 2nd International Conference “Nutrition and Health” (October 5-7, 2016), on the basis of 52 reports and 47 poster reports, in which 352 research papers were presented, 35 Scientific Papers were prepared. published in the Bulletin of the Latvian Academy of Sciences, Part B (Proceeding of the Latvian Academy of Science, Volume 71, 2017, Number 6 (401-527 pages; 20 articles) and Volume 72, 2018, Number 2 (43-130 pages; 15 articles)) . This gives us (lecturers involved in the implementation of the program and scientists in Latvia) the opportunity to systematically and purposefully solve the current issues and problems of science, to use the program course in updating and to discuss it with a wider range of Latvian stakeholders, and at the international level with the database [www.degruyteropen .com](http://www.degruyteropen.com) and Web of Science, and through Scopus to create interest in scientists from other countries in research in nutrition in Latvia;

*Co-organizing Scientists' Nights. EU Scientists 'Night 2019 “Science for the Future” - cooperation of current master students with representatives of SIA “On plate” (graduates of the program and industry specialists), during which visitors to Scientists' Night had the opportunity to receive scientifically based explanations the importance of physical activity for a healthy life, regarding the research in nutrition science carried out by specialists in Latvian science and sports science; EU Scientists' Night - 2018. Lecturers and students of the “Nutrition Science” program from our 3 higher education institutions (UL, LLU, RSU) in accordance with the EU setting (Scientists' Night - 2018 is dedicated to the cultural heritage of each country) jointly organized the Scientists' Night "Ethnic and traditional dishes in modern Latvia". Visitors of the Scientists 'Night (the total number of which was ~ 600) were provided with an opportunity to taste our ethnic food - "Bukstiņbiezputru" and our co-operation partner Latvian Bakers' Association Rye Breads, as well as "Milzu" rye flakes obtained with innovative technologies (SIA "Milzu"). , cranberry candies (Z / S Gundegas) and apples grown in Dobeles (Dobele Fruit Growing Institute) and from the results of the research included in the reports of the lecturers of the program (UL LLU, RSU) and partners , about their impact on health, as well as had the opportunity to evaluate their diet at nutritionists with bioimpedance weight measurements.

Each higher education institution implements a certain module of KMSP Nutrition science study courses (according to the concluded cooperation agreement) see the 3.4.5.1. table.

Division of modules of KMSP science study courses among higher education institutions

3.4.5.1. table

Programme module	Responsible university
A1 Nutrition and Nutrition Policy	RSU

A2 Food and Nutritional Chemistry	UL
A3 Basics of food production	LLU
A4 Human physiology and nutrition	UL
A5 Nutrition during human life	RSU
A6 Clinical Nutrition	UL
A7 Public Health and Epidemiology	UL

Unified Teacher Selection, Evaluation and Development Policy

The selection criteria, evaluation procedures, methods and indicators for the teaching staff to be involved in the KMSP Nutrition Science program, as well as the development planning process take place in accordance with the Law on Higher Education Institutions and the University Cooperation Agreement.

Uniform staff standards are considered essential to ensure high-quality and innovative implementation of the study program. The provision of the academic staff involved in the study program is focused on innovations in the field of nutrition; ensuring the connection between theory and practice, ensuring the competitiveness and quality of study results. The policy of selection, evaluation and development of the teaching staff is determined in accordance with the laws of the Republic of Latvia, the principles of personnel management and internal laws of the participating universities (as far as they do not contradict each other), the specifics of the KMSP Nutrition Science program practice. The selection of teaching staff in accordance with the pre-defined criteria is planned and evaluated by the RDP according to the proposals put forward by all participating universities.

The ratio of the number of students and teaching staff within the study program. Taking into account (in the financial year 2019) the contribution of the academic staff of the University of Latvia 61.75 (62.53% of the total amount of the program, see the table in the introductory part 8.4) in the implementation of the "Nutrition Science" program (19 courses (2 CP on average)), 8 master's theses and 8 term papers were completed, 19 lecturers from the University of Latvia, number of students in the financial year 2019 - 41) and assuming that the program is implemented by 19 associate professors (a small percentage of lecturers and assistant professors is compensated by the professors' contribution), it can be assumed that 19 associate professors contribute each year (1791 hours) is 41:19 or per lecturer is 2.16 or about 2 students. Assuming that the same amount of work is done by 2.24 full-time associate professors, then there are 18.3 students per lecturer.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11_annex_NutritionSc_diploma_Eng_BSP_MSP-2.docx	11_pielikums_Uzturzinatne_Diploma_paraugs_un_pielikums_latv_val_BSP_MSP_2020-6.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	13. annex_Uzturzin_AIP_apliecinajums_Eng.docx	13. pielikums_Uzturzin_AIP_apliecinajums_LV.docx
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)	6.annex_Uzturzin_atbilstiba_Augstskolu_likumam_Eng.docx	6.pielikums_Uzturzin_atbilstiba_Augstskolu_likumam_LV.docx
Statistics on the students in the reporting period	4. annex_Uzturzin_Statistika_par_studejosajiem_Eng.docx	4. pielikums_Uzturzin_Statistika_par_studejosajiem_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	10.annex_Uzturzin_atbilstiba_valsts_izglitiba_standartam_Eng.docx	10.pielikums_Uzturzin_atbilstiba_valsts_izglitiba_standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8_annex_Uzturzin_studiju_kursu_kartejums_Eng.docx	8.pielikums_Uzturzin_studiju_kursu_kartejums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1. annex_Uzturzin_studiju_plans_Eng.docx	1. pielikums_Uzturzin_studiju_plans_LV (1).docx
Descriptions of the study courses/ modules	7. annex_Uzturzin_kursa_apraksti_Eng.docx	7. pielikums_Uzturzin_kursa_apraksti_LV.docx
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	14. annex_Uzturzin_apliecin_AL_55_p_Eng.docx	14. pielikums_Uzturzin_apliecin_AL_55_p_.jpg

Nursing (42723)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Nursing</i>
Education classification code	<i>42723</i>
Type of the study programme	<i>Professional bachelor study programme</i>
Name of the study programme director	<i>Ina</i>
Surname of the study programme director	<i>Mežiņa - Mamajeva</i>
E-mail of the study programme director	<i>ina.mezina-mamajeva@lu.lv</i>
Title of the study programme director	<i>Mg.sc.sal., Mg. paed.</i>
Phone of the study programme director	<i>+37129439391</i>
Goal of the study programme	<i>To educate specialists in the nursing profession, who perform patient care, participate in medical treatment, manage patient care work, engage in patient education on health issues, perform professional education work, by providing a scientific basis for professional activity and promoting the development of student personality</i>
Tasks of the study programme	<ol style="list-style-type: none"> <i>1. To provide competence in patient care, planning, organization and management of nursing work, promotion and maintenance of public, family and individual health.</i> <i>2. To develop the knowledge, skills and competences defined for the principal specialty and to promote the development of an independent and creative personality.</i> <i>3. To analyse changes in the health care in the society of Latvia and to prepare professional nurses for work in different health care sectors.</i> <i>4. To provide the nurses with educational competencies by educating patients, their family members, participants of the caregiver team, and the community.</i> <i>5. To develop the ability to ensure and promote patient compliance in the care process, to evaluate and document the participation of patients in health promotion and maintenance measures.</i> <i>6. To promote the competitiveness of the graduates of the programme in the labour market and to demonstrate the importance of lifelong learning in professional and academic careers.</i>

Results of the study programme	<p><i>Knowledge:</i></p> <ol style="list-style-type: none"> <i>1. The student understands the theories of nursing science, the care process, diagnosis and classification of care, person-centred care and documentation thereof;</i> <i>2. Knows the mechanisms of disease development, diagnostic criteria and principles of medical treatment;</i> <i>3. Knows the quality criteria of maternal and child health care, describes the biological, medical, psychological and social aspects of the ageing problem of elderly people;</i> <i>4. Identifies health, psychosocial and economic risks in the individual environment and family of a person</i> <p><i>Skills:</i></p> <ol style="list-style-type: none"> <i>5. The student performs the assessment of patient's condition, determines the diagnoses of care, plans and implements the patient care process and continuity thereof, provides patient-centred care for the patients of all age groups, implements infection control and prevention measures for safe patient care;</i> <i>6. Uses the principles of therapeutic communication in practice and understands the patient as an individual/ personality, evaluates the health condition of an acutely and critically ill patient, determines care diagnoses and plans care for patients in the areas of general medicine and surgery, in patients with mental health disorders, Ensures correct and safe use and/ or administration of medications to adult patients of different age groups;</i> <i>7. Implements primary health care and home care for persons of all age groups, Understands the teaching methods suitable for the education of patients and educates other members of health and social care team, Plans and implements health promotion and disease prevention, Assists individuals, families and groups in leading a healthy lifestyle and taking care of their health;</i> <p><i>Competence</i></p> <ol style="list-style-type: none"> <i>8. The student uses research methodology, norms of professional ethics and legal liability in implementing evidence-based care, Provides emergency medical care to individuals of all ages in critical and emergency situations, Uses critical thinking in the process of obtaining and interpreting information in order to find out the learning needs of an individual, to create, implement and evaluate the educational plan;</i> <i>9. Demonstrates personal, interpersonal and intercultural skills that ensure active and effective participation of an individual in work and public life, Analyses the quality of care in order to improve the professional practice of a general care nurse, Communicates in their professional field and co-operates with representatives of other professions in the health care sector, Creates and maintains a positive image of the nursing profession.</i>
Final examination upon the completion of the study programme	<p><i>State examination</i></p> <p><i>Bachelor's thesis</i></p>

Study programme forms

Full time studies - 4 years - latvian

Study type and form	Full time studies
Duration in full years	4

Duration in month	0
Language	latvian
Amount (CP)	160
Admission requirements (in English)	Secondary education
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	Professional bachelor's degree in health care
Qualification to be obtained (in english)	Nurse (general care nurse)

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 4 years - english

Study type and form	Full time studies
Duration in full years	4
Duration in month	0
Language	english
Amount (CP)	160
Admission requirements (in English)	Secondary education Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	Professional bachelor's degree in health care
Qualification to be obtained (in english)	Nurse (general care nurse)

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Since the previous accreditation of the field of study, the definitions of parameters - study goal, tasks and results for professional bachelor study programme Nursing (further PBSP Nursing) have been specified, changes in admission requirements, which are intended to improve the recognizability of the study programme not only in Latvia but also abroad. The outcomes of PBSP Nursing are defined as knowledge, skills and competence.

In the new accreditation period:

1. Aim of the study programme

The aim is to educate specialists in the nursing profession, who perform patient care, participate in medical treatment, manage patient care work, engage in patient education on health issues, perform professional education work, by providing a scientific basis for professional activity and promoting the development of student personality

Justification:

Justification: The aim of the study program is more specific and more appropriate to the specifics of the general care nurses being trained in the field of health care.

2. Results of the study programme

Justification: The results of the study programme have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia, as well as are binding with the requirements of the general care nurses standard.

3. Changes in the requirements set at the beginning of the study programme

Justification: Changes in PBSP Nursing admission requirements are justified both from the point of view of PBSP Nursing development, the labor market situation and the development of the nursing profession in Latvia.

4. Language of implementation - Latvian and English

Justification:

Taking into account the interest shown in the studies at PBSP Nursing, as well as being aware of the possibilities, PBSP Nursing is also planned in the English version.

Improving the recognizability of the study programme, as well as differentiating between the study programmes offered by other (foreign) universities.

5. Qualification to be acquired

Justification:

The development of the nurse profession has been significantly influenced by the changes that have been introduced in health care systems over the years. Thus, for example, in the pursuit of a patient-centered integrated healthcare system, the role of nurses has changed significantly, requiring additional competencies such as the ability to diagnose independently when patient care is needed, the ability to self-advise and the quality of patient care, evaluate and analyze it. It is equally important in the development of nurses' competence to prevent the fragmentation of the profession into several basic specialties. Changes in the competencies of nurses in 2013 were set out in Directive 2013/55 / EC amending Directive 2005/36 / EC3 and included in the professional standard for nurses (general care nurses).

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

PBSP Nursing corresponds to the goal of the study field Health Care to prepare competent health care specialists for the Latvian economy.

The objective of PBSP Nursing - to educate specialists in the nursing profession, who perform patient care, participate in medical treatment, manage patient care work, engage in patient education on health issues, perform professional education work, by providing a scientific basis for professional activity and promoting the development of student personality. The PBSP Nursing Plan (see [1.annex_ NurseB_Study Plan_Eng.docx](#)) shows that nursing studies are multidisciplinary studies and combine several branches of science, including psychology, education theory, management, etc. PBSP Nursing provides education of a general care nurse that complies with the requirements of the Directive 2005/36/EEC of the European Union Parliament and of the Council on the recognition of professional qualifications and the Law of the Republic of Latvia On the Regulated Professions and the Recognition of Professional Qualifications.

Tasks of PBSP Nursing:

1. To provide competence in patient care, planning, organization and management of nursing work, promotion and maintenance of public, family and individual health.
2. To analyse changes in the health care in the society of Latvia and to prepare professional nurses for work in different health care sectors.
3. To provide the nurses with educational competencies by educating patients, their family members, participants of the caregiver team, and the community.
4. To develop the ability to ensure and promote patient compliance in the care process, to evaluate and document the participation of patients in health promotion and maintenance measures.
5. To develop the knowledge, skills and competences defined for the principal specialty and to promote the development of an independent and creative personality.
6. To promote the competitiveness of the graduates of the programme in the labour market and to demonstrate the importance of lifelong learning in professional and academic careers.

In accordance with the requirements of the EC Directive on the education of nurses responsible for

general care, the theoretical training makes up 1/3 of the study time of PBSP Nursing, while 2/3 is allocated for clinical training provided at health care institutions. In clinical training, students are part of the medical team of the respective institution and, in direct contact with a healthy or sick person and/ or general public, they learn how to organise, implement and evaluate the necessary patient care based on the knowledge and skills they have acquired. Students learn not only how to work in a team, but also how to lead a team and organize patient care, as well as how to implement health education for the individuals and the society. Clinical training accounts for at least one half of the total study duration. PBSP Nursing has updated study content in accordance with the Directive, access to resources of all academic fields and modernized infrastructure within the framework of EU structural fund programmes. During the reporting period, the tasks of PBSP Nursing were supplemented to improve the programme in accordance with the development trends of the industry, recommendations of the Latvian Nurses Association, cooperation partners - hospitals and students, consequently leading to the improvement of the content of all study courses, as well as the development of new study courses to meet modern requirements of employees and the specific nature of the labour market, as well as the strategy of LU. In 2013, Directive 2005/36/EC updated and identified new competencies, which were included into PBSP Nursing:

- the competence of independently diagnosing whether patient care is required by using current theoretical and clinical knowledge, and to plan, organise and implement patient care on the basis of knowledge and skills;
- the competence of productive co-operation with other health care practitioners, including involvement in practical training of health care workers;
- the competence of assisting individuals, families and groups in leading a healthy lifestyle and taking care of their health;
- the competence of carrying out emergency life-saving measures independently and taking measures in the event of crises and disasters;
- the competence of providing independent advice, giving instructions and supporting people in need of care and their carers;
- the competence of independent provision and evaluation of patient care quality;
- the competence of comprehensive communication in their professional field and co-operation with representatives of other professions in the health care sector;
- the competence of analysing the quality of care in order to improve personal skills in professional practice of a general care nurse;

The division of study results has been established in accordance with the Law on Higher Education Institutions [1].

PBSP Nursing enrolment conditions comply with the objective and tasks of the study programme. Admission requirements are adequate to achieve the learning outcomes and students are admitted in accordance with the approved procedures and criteria. Students have the opportunity to apply for recognition of study courses, if they have completed study courses at another higher education institution or within another study programme, and the content and amount of credits of the course corresponds to the courses of PBSP Nursing.

PBSP Nursing Code 42723 parameters are linked in accordance with Cabinet Regulation No. 322 "Regulations on the Classification of Education in Latvia", where the first part 42 of the Code indicates that the type of SP Nursing education program is professional higher education (fifth level professional qualification and professional bachelor's degree). after obtaining general or vocational secondary education. The duration of studies in full-time studies is four years, but the second part of the code 723 indicates that SP Nursing, the thematic area of education - Health care, but the group of educational programs - Nursing. The wording of the SP Nursing goal indicates that

students are provided with knowledge, skills and competence in accordance with the 5th qualification level in the field of health care. The defined tasks of the study program are aimed at achieving the defined goals and ensuring the study results. The expected results of the study program are formulated on the basis of the knowledge, skills and competence defined in the Latvian Qualifications Framework for the 5th professional qualification level (5th CPC) (corresponds to the 6th Latvian Qualifications Framework level (6LQF)) and the professional standard Nurse (General Care Nurses).). The awarded qualification envisages the acquisition of the necessary knowledge, skills and competencies provided by SP Nursing. A competent nurse (general care nurse) is able to independently obtain, select and analyze information and use it, make decisions and solve problems in the relevant field of science or profession, demonstrate an understanding of professional ethics, assess the environmental and social impact of their professional activities and participate in relevant professional activities. development.

[1]<https://likumi.lv/ta/en/en/id/37967>

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

PBSP Nursing is sustainable. Statistical data show that the number of nurses in Latvia has been insufficient for a long time, while during the reporting period - the last 10 years:

- The number of registered working nurses has decreased by about 21%, i.e. by 2,319 nurses;
- The number of nurses per 10,000 inhabitants has decreased by 12% (49.3% in 2007, 43.9% in 2017) ;
- The number of nurses per 100,000 inhabitants is by 42% lower than the EU average;
- The number of nurses registered for the first time has decreased sharply;
- Approximately 5,000 nurses have resigned from work in hospitals;
- out of 250 graduates per year, only about 60 nurses start working at state and municipal medical institutions;
- about 40% of working nurses are of pre-retirement or retirement age;
- The largest number of physicians and nurses works in Riga, however, the number of nurses practicing in the Riga and Pieriga region is 1.1 and 1.2 per practicing physician, respectively, which is below the national average (1.3);
- Less than half of all 18,950 people, who have received education in nursing work as nurses (44.7%): out of 18,950 nurses, only 66% (12,479 nurses) have the right to practice, while only 67% of all nurses with the right to practice nursing work as nurses (8,474 nurses).

Employers point out that most graduates have good theoretical and practical training, as, in most cases, graduates were able to perform their work duties immediately, in some cases a brief training was required before they could perform their duties independently. The fact that the study programme is being constantly improved by following the development trends of the sector and the recommendations of the Latvian Nurses' Association, the Latvian Medical Association, cooperation partners - hospitals - and students is evaluated positively. The development of the study programme and environment by providing the necessary technical solutions in the manner, where due to the impact of Covid-19 - reduced student access to patients, - the quality of student education is not significantly affected is evaluated as a positive aspect.

The skills and competencies acquired in the program not only allow the graduate to fully meet the requirements of the professional standard, but also to work competitively in their profession

internationally, using the acquired knowledge as a full-fledged reference point for further education, see [5. Annex_NurseB_Compliance with the professional standard_Eng.docx](#)

PBSP Nursing is sustainable not only for Latvian but also for Foreign students, as the study program is designed in accordance with the requirements of Directive 2013/55 / EC and the professional qualification obtained in Latvia is recognized in other European Union member states. Every year, two to five graduates integrate into the European labor market, and since 2020, the demand for foreign students to study PBSP Nursing has increased.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

In 2020/2021 academic year, the number of students in PBSP Nursing amounted to 184 students. Statistical data on students during the reporting period are presented in Annex [4.annex_NurseB_Statistics_Eng.docx](#). The comparison of the data of the academic years 2013 and 2021 (see Figure 3.1.4.1.), it can be concluded that the number of students has increased during the reporting period.

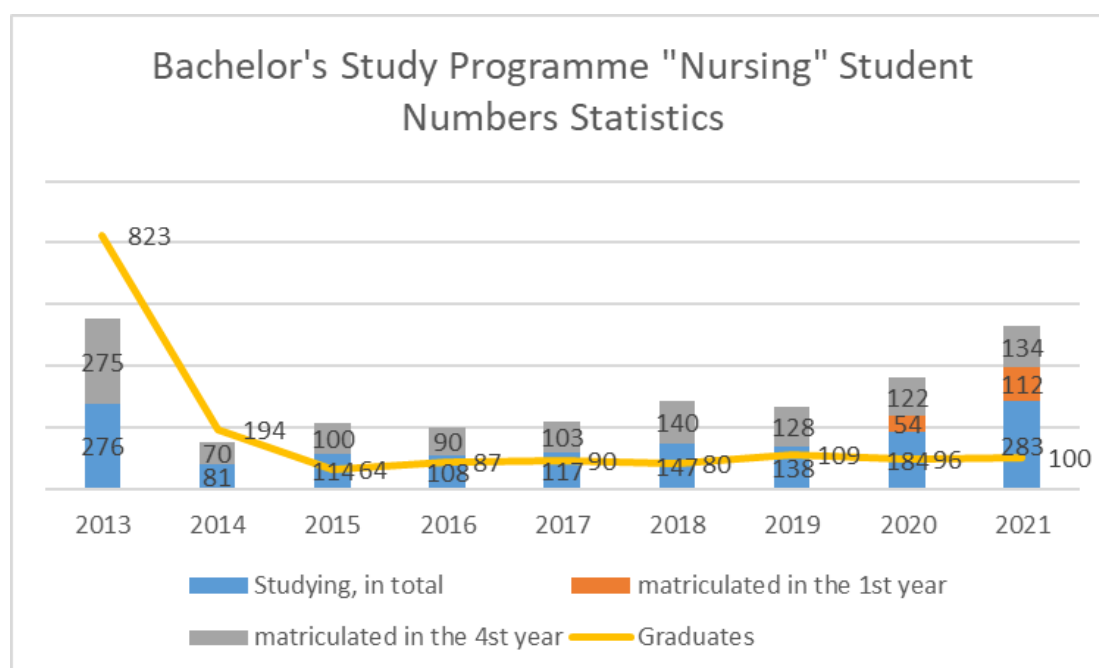


Figure 3.1.4.1. Dynamics of student numbers on PBSP Nursing.

The number of students in 2013/2014 was influenced by the fact that LU PBSP Nursing participated in the procurement for the education of students organised by the Ministry of Health. Procurement identification No. VM2013/20ESF Re-implementation of the Study Process for the Acquisition of Basic Nursing Specialties in 2013 and 2014, by determining

- basic specialty of internal care nurse – 90 people;
- basic specialty of paediatric care nurse – 50 people;
- basic specialty of anaesthesia, intensive and emergency care nurse – 60 people.

From 2015 until 2019, close cooperation was maintained with LU Medical Colleges and College

graduates continued their studies on LU PBSP Nursing programme. Meanwhile, in 2020, in accordance with the Cabinet of Ministers Order No. 537, adopted on 29 October 2019, The conceptual report "On the future development of the nursing profession", the enrolment is open starting from first study year. In 2020/2021 academic year, we planned and successfully enrolled 52 first-year students. The proportion of students expelled during the accreditation period from 2013 to 2021 averages at 15% of the total number of PBSP Nursing students. However, it should be noted that most exmatriculated students have resumed their studies and are studying or have successfully graduated the study programme.

The main reasons for student exmatriculation for students:

- for the failure to perform the requirements of the study programme on time, which manifests both as insufficient knowledge of students, as well as late attendance or absenteeism from classes.
- at student own initiative, due to work, financial and, in rare cases, health problems

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The expected outcomes of the studies are reflected in the descriptions of study courses, (see [7. annex_MāsuB_kursu apraksti LV ENG.docx](#)) which are available in e-studies section on the website of the University of Latvia, as well as at the beginning of the course the lecturers inform the students about the expected results and evaluation criteria. Descriptions of study courses, internships and bachelor's theses have been developed in accordance with the requirements of regulatory enactments. The content of the study courses is updated regularly at the beginning of the academic year, taking into account the survey of students and the recommendations of employers. Study courses and internships are mutually complementary and subordinate to the objective of the study programme and the achievement of expected results. During the reporting period, the PBSP Nursing has been adapted to the current trends, needs and requirements of the labour market and specific nature of the sector. The development of the nursing profession has

been significantly affected by the changes in health care systems that have been introduced over the years. Thus, for instance, in the pursuit of a patient-centred, integrated health care system, the role of nurses has changed significantly, requiring additional competences such as the ability to independently diagnose whether and when patient care is needed, the ability to independently consult the patient and ability to ensure high quality of patient care, to evaluate and to analyse it. Changes in the competence requirements for nurses were set out in Directive 2013/55/EC amending Directive 2005/36/EC[1] in 2013 and they are also included in the Latvian professional standard for nurses (general care nurses). Not only lecturers but also employers (leading specialists of Riga East Clinical University Hospital, Pauls Stradiņš Clinical University Hospital and Riga 1st Hospital), who are interested in the training of new specialists, have participated in the development of the study programme, study courses and course content. The objective and content of the study programme are regularly analysed within professional associations: Latvian Nurses' Association (hereinafter LMa) and the Latvian Medical Association (LĀB). Some of LMa members are also real employers and their opinion is especially taken into account, when working on the improvement and enhancement of the content of the programme, especially as regards the organisation of internships, for instance Riga East Clinical University Hospital (RAKUS), where most students also do their internships. As far as possible, students use inbound and outbound mobility opportunities and the skills and knowledge acquired during mobility is recognised. Students, employer and graduate survey results are used to improve the quality of studies.

Following the development trends of the labour market and taking into account the recommendations and feedback of employers and students, improvements have been made to PBSP Nursing during the reporting period, for instance:

- the course “Medical Ethics and Rights” has been created and included in the study plan in order to successfully build relationships with patients and colleagues, observe the principles of medical ethics, as well as plan and implement the professional activities in accordance with the requirements established by medical law and medical ethics;
- due to Erasmus + staff mobility to the University of Latvia, the number of lecture hours in a foreign language held within the study process have been increasing;
- students participate in the annual International Medical Conference of the University of Latvia, which is held in English;
- students use information from international databases, such as ClinicalKey, during their study process;
- Seminars, which are mainly focusing on the development and testing of research tools, as well as processing of research results have been introduced in the course “Bachelor's Thesis”;
- skills training in simulation environments is emphasized during seminars and workshops;
- a high-quality Part B specialisation module – general care nursing specialisation module, has been developed by uniting seven modules.

PBSP Nursing provides nursing education that complies with the requirements of the Law of the Republic of Latvia on Regulated Professions and Recognition of Professional Qualifications, the professional standard of Nurses (General Care Nurses) and prepares a nurse, who performs patient care, participates in medical treatment, manages patient care work, is involved in patient education on health issues, performs vocational education work. The education of a general care nurse generally consists of theoretical knowledge, skills and a (professional) attitude worthy of a nurse.

PBSP Nursing consists of mandatory study courses, limited elective study courses (see [1.annex_NurseB_Study Plan_Eng.docx](#)), as well as freely elective courses are available in the programme, which are provided from the range of LU courses or, a student can choose a course from any other study programme in accordance with LU regulations. In the freely elective part of PBSP Nursing,

foreign language (English, Italian, Norwegian) is relevant for students, furthermore, students often choose Russian for doctors in order to improve their Russian language skills and be able to communicate in a language that patients can understand.

During the reporting period, two mandatory study courses Civil Defence and Environmental Protection were also included into the PBSP Nursing study plan, the respective minimum content of the courses is ensured as determined by Cabinet Regulation No. 716 of 5 December 2017 Minimum Requirements for the Content of the Mandatory Course in Civil Protection and the Content of Training of Employees in Civil Protection[2] and the Law on Environmental Protection, adopted on 2 November 2006[3].

In negotiations with employers, as well as with the Latvian Medical Association, and by reviewing publicly available information, the total shortage of physicians, nurses and other health care professionals at Latvian hospitals and the Emergency Medical Service amounted to more than 1,000 people in 2019.

PBSP Nursing was developed on the basis of 20 November 2001 Cabinet Regulation No. 481 *Regulations regarding the State Standard for Second Level Professional Higher Education*, which govern the compulsory content of the bachelor's study programme. The Bachelor's programme has been adapted and complies with the Cabinet Regulation No. 512, adopted on 26 August 2014, *Regulations regarding the State Standard for Second Level Professional Higher Education*. The results of the study courses are coordinated with the results to be achieved within the study programme by using the mapping of study results, (see [8.annex_NurseB_Mapping study courses_Eng.docx](#)).

The regulations of the study programme of the University of Latvia provide that there must be no more than 6 exams in one semester, therefore there are study courses that must be combined within one study course. The courses of *Civil Defence* and *Environmental Protection* are exceptions - they are 1.5 ECTS courses according to the Cabinet Regulation No. 716, adopted on 5 December 2017, *Minimum Requirements for the Content of the Mandatory Course in Civil Protection and the Content of Training of Employees in Civil Protection and Environmental Protection Law*, adopted on 2 November 2006. The study courses are interrelated and successive - from the easiest to the most difficult, and from basic to in-depth knowledge and skills to achieve specific results, for instance, the nursing profession is dominated by transversal competencies that are applicable in all areas of care, for instance, in the care of internal medicine, surgical and outpatient clients. The connection of all PBSP Nursing courses with the tasks of the programme is demonstrated in Table 3.2.1.1., while Annex ([8.annex_NurseB_Mapping study courses_Eng.docx](#)) reflects the connection of all courses with the outcomes of the study programme - knowledge, skills and competence.

3.2.1.1. Table

Links of PBSP Nursing Courses to Programme Tasks

Study Course	Tasks of the study programme					
	1.	2.	1.	4.	1.	6.
Anatomy and physiology	X	X				
English for nursing		X				

Care for patients with mental health and developmental disorders		X	X			
Bachelor Thesis						X
Civil protection		X				
Diagnosis and clinical care	X	X			X	
Geriatric patient care and home care	X		X			
Pharmacology	X	X			X	
Basics of biochemistry	X	X				
Hygiene / environmental medicine		X	X			
Environment protection		X	X			
Education in nursing practice		X	X	X		
Infectious diseases and patient care	X	X				
Care of intensive care patients	X	X			X	
Newborn, infant and maternal care	X	X	X			
Basics of clinical care	X	X				
Clinical pharmacology and medical care		X			X	
Clinical practice I	X	X			X	
Clinical practice II	X	X			X	
Clinical practice III	X	X			X	
Transcultural care in Nursing			X	X		
Course work in health promotion	X			X		
Care planning and documentation	X	X				
Record keeping and correspondence	X	X				
Leadership and management in nursing practice	X		X			X
Philosophy of the nursing profession	X	X				X
Theory of Nursing I		X	X		X	

Medical Latin		X				
Medical ethics and Law		X	X		X	
Medical history		X	X			
Microbiology, virology and parasitology	X					
Emergency help to restore vital functions	X	X				
Oncology and palliative care	X	X				
Patient care in surgery	X	X				
General medicine and patient care	X	X				
Pedagogical work project				X		X
Methodology of Research in nursing			X		X	
Propaedeutics	X	X				
Communication and presentation skills in nursing		X	X	X		
Public health and medical statistics	X	X				
Specialty Ensuring practice	X	X	X	X	X	
Entrepreneurship			X			
State exam in nursing						X
Healthy child care and pediatrics	X	X				
General psychology	X				X	X
General pathology		X				

[1] <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0034>

[2] <https://likumi.lv/ta/en/en/id/295896>

[3] <https://likumi.lv/ta/en/en/id/147917>

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study

programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

The acquisition of PBSP Nursing is possible in the form of full-time intramural studies (8 semesters), similar for Latvian and foreign language students. Acquisition of the study programme is implemented at lectures, seminars, practical sessions, internships, independent work classes, consultations with scientific supervisors. When consulting students and receiving assignments from them, instructors also use the functionality of Moodle online study environment. Both traditional lectures (introductory lectures, review lectures, problem lectures, visual lectures) and interactive classes (pair and group work, project development, discussions, role plays, interactive tests) as well as laboratories and practical work are used in the acquisition of various study courses. These methods are subordinate to learning didactics and develop critical analytical thinking. Computer presentations and Internet resources are widely used during lectures. Course lecture materials (presentations, video materials, additional literature sources) are also freely available in electronic form in the e-learning environment. The results of the independent work of students are presented in seminars with subsequent discussion and public differentiated assessments. Individual work in the library, which is provided with the latest theoretical literature and access to scientific databases from around the world. During the seminars, students gain experience of sharing their knowledge and participating in academic discussions. During practical classes, lecturers increasingly use various simulators and real visual aids that are available for the needs of the study programme, which allow to prepare students for practical classes in clinics better or, in some cases, even replace practical classes in clinics, for instance, clinical skills required for nursing practices starting from simple manipulations (punctures, injections, probing, artificial respiration, etc.) and up to complex surgical procedures are precisely acquired in a simulated environment. These practical simulations improve clinical skills, teach teamwork and strengthen the communication skills and self-confidence of the students, promote learning by doing through being involved in practice to the fullest, provide a safe environment for mistakes, develop professional and transversal competencies and improve professional qualifications, which prove vital in a situation, where students have to deal with real patients. For instance, a simulation of a clinical case – an interactive presentation of a patient's clinical case by using multimedia with the purpose of primary acquisition of medical knowledge, or another example – use of a high-precision manikin with a realistic representation of human anatomy to acquire complex clinical skills. The groups of students are small and the training is personalized. The training approach integrates both individual as well as team training. Employers are involved in the implementation and improvement of study courses (they are invited to conduct individual seminar classes, often classes are organised as experience

exchange visits at workplaces, etc.). In order to promote the development of student research competences, the students are given an opportunity to analyse problems in successive courses and conduct in-depth studies of the sectoral problems that the students are interested in. Students have access to a modern study environment in the House of Sciences with the possibility to use the book storage of the library and electronic resources, as well as a laptop rental point at the university premises.

In the study process, lecturers use methods, examination forms and rating criteria that comply with the study objective and the planned study outcomes. The final assessment of the knowledge of PBSP Nursing students is made at the end of the semester, based on the results of all stages: practical work, seminars, independent work, midterm examinations, tests and exam. All assessments of intermediate and final examinations of study courses are recorded and available to students in the e-learning environment with substantiation of the mark awarded. Students receive support and feedback from lecturers in the study process. The evaluation criteria for the receipt of final marks have been made public in advance. Rating gives students an opportunity to show the extent to which they have achieved the expected learning outcomes.

The evaluation of the performance of students on the study programme is based on the Cabinet Regulation No. 240 (Riga, 13 May 2014) *Regulations on the State Academic Education Standard*. Several principles are observed within the study programme:

- The principle of summing up the positive achievements - the acquired education is evaluated by summing up the positive study achievements in the study course, which is incorporated in the description of the study course programme;
- The principle of mandatory assessment - obtaining a positive assessment regarding the acquisition of the mandatory content included in the main parts of the programme is required;
- The principle of openness and clarity of requirements — in accordance with the defined objectives and tasks of the programme, as well as the objectives and tasks of the study courses, a set of basic requirements for the assessment of study results has been determined;
- The principle of diversity of the types of tests used in the assessment — different types of tests, which the lecturer has indicated in the study course, are used in the assessment of the study programme acquisition;
- The principle of appropriateness of the assessment - the test paper provides an opportunity to confirm the conformity of abilities, knowledge, skills and capacities by completing the tasks and analysing situations that conform to the level of bachelor's education programme. The scope of content included in tests matches the content specified in the course programmes and the defined knowledge, skill and competence requirements.

Student evaluation forms

The main forms of evaluation of the knowledge acquired within the study programme are *intermediate tests*, the number and type of which is specified in each study course description: tests, reports, essays, presentations of individual and group works. Tests are used to assess theoretical knowledge. The final phase of all study courses involves a *final test* - a written or oral exam, a test or a defence of a paper. Only the students, who have fulfilled all the requirements specified in the study course and indicated by the lecturer in the course description, shall be allowed to pass the final test. The evaluation of students knowledge is mainly carried out in written form combined with the assessment of skills. The aim of the tests is to determine the level at which the student has acquired theoretical knowledge and acquired skills to use them for the resolution of practical tasks. In accordance with the specific nature of the study course, the attendance

requirements for practical sessions have been determined. The final assessment of the study course is formed cumulatively, i.e., by evaluating the student's work during the entire semester, which forms a share of the final assessment mark, and the examination paper. The total assessment of the acquisition of the study course material consists of the total assessment of intermediate tests, which, on average, makes up at least 50% of the total assessment, and the assessment obtained for the examination/ test. Students are informed about the evaluation criteria, methods and requirements for obtaining credit points at the beginning of each study course - during the first session/ introductory lecture. The achievements of all study courses are evaluated against the generally accepted 10-point scale in accordance with the regulatory enactments of the Republic of Latvia and the Decision No. 211 of the Senate of the University of Latvia, adopted on 29 June 2015, based on the following criteria: the amount and quality of knowledge acquired; acquired skills; the acquired competence in accordance with the planned study results. Exams, tests and assessments shall be settled individually. The study course is considered to have been successfully completed, if the evaluation in the 10-point system is no lower than "4" (almost average) or "passed". Students shall take tests, exams and other assessments individually.

Forms of study work evaluation

At the beginning of the study course, the student receives information about the requirements for obtaining credit points, intermediate examinations and the schedule of classes during the semester. The workload of students for the acquisition of the study programme amounts to 40 academic hours of work for one credit point. The achievements of studies are evaluated against the 10-point scale in accordance with Cabinet Regulation No. 240, adopted on 13 May 2014, on the basis of the following criteria: the amount and quality of knowledge acquired; acquired skills; the acquired competence in accordance with the planned study results. The lowest assessment of study courses, which is still considered positive, is 4 points (almost average). The highest assessment is 10 points (with distinction). In order for students to achieve the planned study outcomes within the scheduled time, the consultation times with lecturers have been scheduled. The evaluation of intermediate results during the course of studies provides an overview of the achievement of the study outcomes within the study programme. During the semester, various forms of evaluation are used: written tests, multiple-choice question tests in the e-learning environment (Moodle), colloquia, tests, seminars, essays and the exam. The proportion of intermediate examinations in the total assessment shall be up to 50%. At the end of the study course, an examination is held, which ensures no more than 50% of the final assessment. Students can follow the evaluation of course mid-term examinations individually by logging in their LU student e-learning website profiles. Lecture materials, seminar topics and presentations, lecture plan for individual student-centred study work organisation are available in the Moodle environment.

The acquisition of PBSP Nursing is completed by means of the defence of a Bachelor's thesis and a state examination. The evaluation of the Bachelor's thesis is performed in a closed final examination commission session after hearings of all theses scheduled for the session. The assessment is communicated to the students at the end of the session. The following criteria are taken into account in the evaluation of a Bachelor's thesis: 1) Quality of the content of the Bachelor's thesis and compliance with the methodological instructions; 2) the content of the presentation and answers to the questions of commission members and the reviewer; 3) the assessment and remarks included in the review. The overall evaluation of the work is formed by summarizing the marks awarded by each member of the commission. The Chairman of the Commission shall have the casting vote in the event of a dispute.

Taking the state examination shall be permitted, if all the tests and evaluations of the study period have been successfully passed and the Bachelor's thesis has been developed, drawn up, promptly submitted and defended in accordance with the requirements (Regulation on the elaboration and

defence of final theses at the University of Latvia).

The state examination is a test, during which the knowledge, skills and competences acquired during studies are assessed for the compliance with the requirements of the general nursing profession in an integrated manner.

The use of students' opinions on the improvement of the study process is critical to ensure sustainable development. In order to obtain the opinion of students about the study programme as a whole, the courses implemented within the programme and the teaching staff implementing these, both group surveys and individual conversation opportunities are widely used. Student representatives participate in the work of the Health Care Study Direction Council, as well as in the meetings of the Council of the Faculty of Medicine.

Student-centered education envisages adaptation not only of studies, but also of the entire study environment needs of different students, therefore the availability of higher education is an important part of student-centered education, PBSP Availability of nursing in the reporting period from 26 budget places to 400 budget places now, studies are also available for students with special needs and students from different social groups, providing minimum scholarships , for example. The Rūši family scholarship, scholarships of health care institutions, such as Traumatology Orthopedic Hospitals, Vidzeme Hospitals, as well as the library and its resources are convenient for students, available, including 24-hour access to the library.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

An integral and essential part of the PBSP Nursing study process is the effective implementation of the study process in real clinical conditions - **internship**. **The aim of the internship** is to strengthen and expand the students' theoretical knowledge with the skills necessary for the performance of the basic tasks and responsibilities of the professional activity of a nurse (general nurse) and which are determined by the standard of the profession of a nurse (general nurse).

General tasks of the practice:

1. to assess the patient's condition, recognises nursing diagnosis, planing and implement the patient care process and its continuity;
2. implement infection control and prevention measures for safe patient care;
3. apply the principles of therapeutic communication in practice and understand the patient as an individual / personality;
4. to ensure the correct and safe use and / or administration of medicines to adult patients of different ages;
5. plan and implement health promotion and disease prevention;
6. to help individuals, families and groups to lead a healthy lifestyle and take care of their health;

7. to acquire skills to document, interpret and educate patients and their family members or legal representatives;
8. to develop professional ethics and communication skills;
9. to provide knowledge and understanding of the regulatory enactments regulating the professional activities of nurses (general nurses);
10. to form an idea and skills for the development of scientific work in health care.

During the internship, students acquire or improve their knowledge, skills and competence in accordance with the internship regulations (see [9.annex_NurseB_practice_regulations_Eng.docx](#)) and the description of the study course. Students are briefed before the internship and each student receives an internship programme. Upon being referred to the site of internship, the student receives a cover letter from the internship supervisor with an indication regarding the type of tasks to be performed at the internship institution, which have been previously mutually agreed between the LU and the internship supervisor of the institution. When performing daily work duties at an internship institution, it is necessary to solve and master the pre-formulated internship tasks, and the course and the results of the implementation thereof must be described in the internship report. During the internship, the student consults with the internship supervisor of the institution and the referring internship supervisor. In the event of conflict situations, the student must contact the director of the study programme or the supervisor of the internship. The organisation of the internship is appropriate to its objectives and tasks, descriptions of the internship courses are available. At the end of the internship, the student must prepare an internship report (hour record sheet, diary). The internship supervisor of the institution shall certify the acquired knowledge and skills by their signature, while the referring head of the internship shall certify the compliance of the internship report with the requirements specified in the regulation.

The internship shall be divided into 3 parts:

1. Basics of clinical care (internship);
2. Clinical internship (I, II, III) - work with patients under the supervision of the lecturer;
3. Internship by specialty.

The internship includes 20 CP from the professional specialization courses, which are implemented in the clinical environment in cooperation with the internship supervisors.

Medical institutions and the University of Latvia have concluded agreements on the implementation of training and internships. It should be emphasized that early implementation of training at the bed of a patient is an undoubted strength of the study process. The internships of LU students are conducted at health care institutions supervised by the Ministry of Health, as well as in municipal and private health care institutions.

Communication of English-speaking students with patients is provided in various ways, for example, some patients speak a language understood by students, both streams are studied simultaneously by students who help each other with translation, and students do not understand unclear concepts. Graduate students are allowed to do internships in their home countries, communicating with patients in their mother tongue.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

PBSP Nursing students develop a bachelor's thesis at the end of their studies. The topics of PBSP Nursing bachelor's theses are approved based on the topicality of the theme or topicality in health care and compliance with the principal specialty. The objective of the Bachelor's thesis (12 CT) is to develop and demonstrate the ability of the student to apply their knowledge and competence in a task that is related to professional studies, meets the needs of their working life and is developed by professional practice.

The topics of bachelor's theses are related to the priority research directions of the Medical and Health Sciences sector: Epidemiological and other research in the sector of public health, health care, its organization and policy development, including the use of innovative ICT solutions to expand the re-use of data stored in e-Health systems:

- Studies of metabolic diseases, including adiposity and deficiencies, in different age groups of the population;
- Population screening studies, including in the area of oncology and preventive medicine;
- Pilot studies on public health measures;
- Research into the potential for the reduction of cardiovascular mortality;
- Population studies with an extensive collection of biological material and a multidisciplinary approach to analysis;
- Research on the development and improvement of population screening technologies;
- Research on the balance between ethics, patients' rights and societal risks;
- Research on the provision of health care services related to structural demographic change, including primary and secondary health care levels, financing thereof, investment absorption and action policy transfer;
- Nutrition research: research into the spread of chronic diseases - a healthy, balanced diet and lifelong physical activity.

The quality of Bachelor's theses is also confirmed by the excellent evaluations of the theses and the rector's letters of commendation, the numerical summary of which is provided in Table 3.2.6.1. The topics of the bachelor's theses defended during the reporting period are indicated in Annex .

3.2.6.1. Table

Outstanding evaluation of PBSP Nursing student papers and rector's letters of commendation

Year	2013	2014	2015	2016	2017	2018	2019	2020	Total
Number of outstanding Bachelor's theses of PBSP Nursing students	27	13	2	5	5	5	3	1	61

During the reporting period, we focused on the quality of the master's theses. In order to improve the quality, the following steps were performed:

1. requirements were established for the development of final theses (including the development of Bachelor's and Master's theses) (requirements were based on the generally accepted requirements of the University "Requirements for the development and defence of the final theses (bachelor's, master's, doctoral dissertation, and qualification work) at the University of Latvia", approved by the

University of Latvia on 3rd February 2012, No 1/38);

2. the content of the courses “Methodology of Research in Nursing” and “Public health and medical statistics” were reviewed to emphasise the key points in the development of research works, to introduce the requirements for the written and oral presentation of the study, as well as data analyses;

3. the pre-defence was introduced to enable students to present their master's thesis, practice in answering questions using arguments and justifying their opinion, as well as see the strengths and weaknesses of their research;

4. students were invited to present their bachelor's theses at the annual Scientific Conferences of the University of Latvia in order to improve their presentation skills.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The resources of the study programme consists of the provision of financial resources (funding source - state budget grants, tuition fee, costs of study programme), infrastructure and material and technical provision, as well as methodological and informative provisions.

Material and technical provisions of PBSP Nursing consists of classrooms, study laboratories and departments and internship sites. The characteristics of material and technical provisions in the reporting period can be divided into several stages, but it should be clearly emphasized that the opening of the House of Sciences (2018), has marked a considerable improvement in material and technical provisions, which have become more in line with modern development trends. The study process takes place in modern auditoriums equipped with multimedia devices, interactive whiteboards and Internet access, which ensures high-quality of audio and visual lectures. Students have access to study laboratories that are equipped with the required presentation equipment, Wi-Fi connection in all rooms, individual and group study rooms with electrical contacts. The practical classes of PBSP Nursing students are conducted in learning laboratories and departments of the Faculty of Medicine (MF). In the anatomy training rooms (each with 16 workstations for students), both native preparation (corpse) and modern visual aids are used for anatomy training - plastinised human bodies and organs are made to order of LU MF from „Gubener Plastinate” GmbH according to the method of prof. G. von Hagens. The superficial muscles, nerves and arteries of the body are exposed, some deep layer muscles (forearm - muscles of the anterior and posterior group, lower extremity - femoral canal, popliteal fossa, site of exit of the sciatic nerve and its branching sites) are also exposed in the upper and lower extremities. The head is dissected coronal plane, exposing the cranial cavity, the brain and meninges, as well as the nasal and oral cavities. The abdominal wall is open so that the complex of all internal organs and the posterior wall of the abdominal cavity is visible. The structures of the plastinised body remain unchanged even at the microscopic level. During the reporting period, the lower extremity of a woman was acquired for the implementation

of anatomy courses, the upper extremity - with arteries, veins and nerves, a set of male internal and external genitals, a woman's pelvis and perineum consisting of 5 parts, a woman's pelvis with ligaments, blood vessels, nerves, perineum, organs, a hand of high quality, a classic unisex torso with open neck and back, artificial bone skull model consisting of 6 parts, spinal cord model, skeletal model with ligaments, artificial bone skull model with one side of the model being transparent, while the other side supplemented with brain and vertebrae, anatomical preparation of a head (half) and preparation of a head (full).

Laboratories 326 and 327 are used for practical classes at the **Department of Pathology**, each laboratory has 30 individual workstations for students, equipped with Leica microscopes for each student and lecturer (DM500, Leica Microsystems, DM750, Leica Microsystems). Within the framework of laboratory work, students with Spirograph perform assessment of lung ventilation functions, as well as allergy tests, etc. The team of microbiology lecturers is seated at the premises of the Hospital of Traumatology and Orthopaedics (TOS) (60 sq.m and 48 sq.m large premises), which include an auditorium, a study room and a laboratory with 10 training stations for students with binocular microscopes. The laboratory uses clinical microbiological material of patients from the Microbiology Laboratory of the Hospital, which is grown in Petri dishes. The obtained material is stained in the required colours and, after the determination of the microbiological diagnosis, the materials are used in the teaching process. The Centre of Social Paediatrics is situated at the House of Sciences, where it is developed in a wide, renovated premises, where students learn social medicine and basic skills of Montessori education. The students are trained to use multi-sensory therapy in work with children with special needs, as well as autistic and hyperactive children at the centre.

At the Faculty of Biology (BF) of LU, the students of PBSP Nursing study human physiology in modern and well equipped auditoriums and laboratories, where physiological examination and research equipment of cardiovascular, blood biochemistry, respiratory, metabolic, nervous muscle and sensory system functions is used for the practical work of students - metabometer, "Finopress", plethysmograph, laser dopplerograph, pneumograph, spirometer, mechano-electric converter, perimeter, audiometer, bioelectrical impedance analyser and other equipment.

Clinical departments are located at the University Hospitals of Riga, sectoral hospitals and municipal hospitals, these premises are used for lectures and practical classes: PSKUS (212.0 sq.m.) is home to the **Department of Internal Medicine** (Building 23). Courses in propaedeutics and internal patient care are implemented at PSKUS using the auditoriums and clinical basis of the hospital, which provides MF with new premises at Block 10 of PSKUS, thus gaining a significant quality upgrade to the study materials and technical base. **The Department of Paediatrics** and the study rooms are located at BKUS, at the clinic Gaiļezers and - to ensure high quality training on the study courses of paediatric patient care, the resource of study rooms has been supplemented with two study rooms at Torņakalna clinic of BKUS. **The Department of Oncology** and the study room is located at the Oncology Centre of Latvia (LOC) clinic of RAKUS. **The Department of Surgery is** located at the Gaiļezers clinic of RAKUS, while the study rooms are also located at the Bīķernieki clinic and at LOC clinic. New and modern visual aids and models are used during the study process to train students in performance of chest drainage and to train practical skills in suturing. This department implements the course of surgical patient care.

The training bases for the acquisition of clinical study courses are also located at Latvian Centre of Infectious Diseases and the Centre of Tuberculosis and Lung Diseases of RAKUS. Training bases for the acquisition of clinical studies and patient care courses are also located in other major Latvian hospitals - Riga City Maternity Hospital (33.14 sq.m.), Rīga Psychiatry and Narcology Centre (RPN), and others.

"Patient Care Laboratory" has been established and equipped during the reporting period for the needs of **PBSP Nursing** and SP Medicine students. An intravenous injection arm model is situated at the patient care laboratory. Injection Arm - Intravenous injection arm model allows students to practice intravenous injections, blood sampling, as well as to learn proper intravenous insertion of a system, an arm manikin with multiple-vein system, manikin for i/m injections, manikin for i/v injections, Catheterisation Simulator, Male (3B Scientific) - The simulator consists of the lower abdomen of a man and allows students to feel the resistance of the mucosa while inserting a catheter. In the event of proper catheterization, artificial urine appears when a catheter is inserted into the bladder. This enables to learn catheterisation skills. Catheterisation and enema insertion training manikin has been acquired, a new-born manikin for patient care practice, New-born Patient Care Baby (Laerdal) manikin and Nursing Kid Vitalslim (Laerdal) manikin - Newborn child manikin with the possibility to perform intensive therapy and resuscitation - for the acquisition of CRP algorithm, to gain practical skills in sessions on respiratory system, cardiovascular system, as well as in other training activities related to respiratory, cardiovascular, gastrointestinal pathology (such as infectious diseases). Students are given a clinical task, during which a clinical finding must be evaluated (various clinical conditions have been programmed for the manikin, such as inspiratory or expiratory dyspnoea, airway noise, various auscultation findings, etc.) and a treatment plan must be drawn up. By using the manikin, the students can acquire practical skills in nasogastric tube insertion, bladder catheterization, performance of intravenous injections, intubation. In 2020, a SimMan 3G simulator was purchased to provide a variety of patient scenarios, thus helping students prepare for real-world situations.

The training facilities and equipment are fully in line with the objectives and tasks of PBSP Nursing. The students of PBSP Nursing students have their internships at medical institutions and general practitioner practices, agreements have been concluded with all medical institutions. Students complete their internship diaries and a report on the experience gained during the internship.

According to the data of 1 December 2020, 143 printed publications (see Table 3.3.1.1.), with 99.0% books and 1% - other publications are available for PBSP Nursing students in the collection of the Library of the University of Latvia. 64% of the printed publications available for PBSP Nursing students in the collection of the LU Library are in Latvian, 36% in English. In total, there are 30,101 copies of printed publications in LU Library for the provision of the Health Care study direction.

3.3.1.1. Table

Literature available in the library for the implementation of PBSP Nursing programmes

UL study direction Health Care									
Total in the collection of the UL Library as of 01.12.2020. existing printed publications									
Printed Editions (Copies)					Language				
Study programme	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
Nursing	143	142	0	1	92	51	0	0	0

Total for the study direction in the collection of the Library of the UL: 30101 copies

In the study process and in the development of final theses, the students use the resources of LU Library in person, as well as they use multiple library resource databases, e.g. **ClinicalKey** (Medical database), Dawsonera (e-books), ProQuest (e-books). **ClinicalKey** - Elsevier electronic medical

information resource. It covers 52 specialisations and is designed for student training, research, and clinical practice. It contains a variety of information resources: more than 650 full-text journals, more than 1,150 full-text books, and 1,400 reports containing brief information and recommendations on diseases. It also includes 800 FirstConsult summaries, 5,000 practical guides, more than 3.4 million images, tables, charts, more than 40,000 ProceduresConsult materials, and more. It is possible to use a collection of reference literature and periodicals, stationary and portable computers (both LU Libraries and users' personal) in the reading rooms, as well as Internet connection, including WI-FI, which is in operation in all LU buildings. Reading rooms serve not only as a place for studies and research for the students, but also as a place to meet and spend their free time. For the convenience of users, the "Night Subscription" service is offered, the aim of which is to provide users - students, lecturers and employees of the University of Latvia with the opportunity to borrow a certain on-site information resource from the library in the time period from the closure of the library until the opening hour or to book it in advance for a certain number of hours. The service is free of charge, but, if the information resource is not returned on time, a contractual penalty is applied for the delay of the period of the loan in accordance with the price list of paid services of the LU Library.

The library collection is generally suitable for the implementation of studies in PBSP Nursing and for scientific research, and it is supplemented every year with the most up-to-date information resources in accordance with the information needs of the academic staff and students. Further information on the electronic resources and databases available to students as well as the statistics of use thereof can be found in Section 7.3 of the report.

In order to estimate the amount of funds required for financial provision, a cost calculation of PBSP Nursing needs is performed in accordance with the methodology developed by the University of Latvia, using information on the structure and costs of the programme, teaching staff and the number of students. The provision of funds required by the LU PBSP Nursing involves state budget funding in the form of subsidies from the Ministry of Education and Science and tuition fees.

Based on the PBSP Nursing cost calculation in accordance with the methodology developed by the University of Latvia, the main cost items are faculty remuneration - 34%, services, property - 15%, general staff - 11%, other costs - 8%, infrastructure costs - 7% and indirect costs - 26%. The budget subsidy for one study place of PBSP Nursing is EUR 4,890 EUR, which consists of the base funding of 1,630 EUR, the level coefficient 1.0 and the study area coefficient of 3.0. The tuition fee at the University of Latvia is determined by a separate order for each academic year, taking into account the prime cost of the study place, including all costs of the study process (see above). During the reporting period, the number of budget places on PBSP Nursing has significantly increased and 233 budget places were scheduled for 1 September 2021.

The data on information resources provided in the table are equivalent for the bachelor's and master's levels of the study programmes, they are not separated, because everyone can use any information resource offered by the LU Library.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The funds available in PBSP Nursing are determined by the state budget financing (grant) and income from tuition fees provided for the specific field of study programme. The amount of state budget funding for a particular academic year is determined in accordance with the agreement between the Ministry of Education and Science and the University of Latvia. The amount of funding is affected by:

- the number of study places financed from the state budget in the study program,
- base costs of the study place in the given year,
- level of the study program,
- cost ratio for the thematic area of education.

Tuition fees for each program at the University of Latvia are determined annually based on the planned cost of the study place (which includes all projected costs - remuneration of teaching staff, material and technical support, infrastructure maintenance and administration costs), tuition fees offered by other universities. The tuition fee for a specific student for each academic year is determined for the entire study period.

PBSP Nursing cost calculation is performed taking into account the study program cost calculation methodology developed by the Department of Studies of the University of Latvia. The cost of one student per year is 1800 EUR. Calculations have been made for 25 students and the organization of optimal practice in the amount of 8 academic hours in university hospitals. In a pandemic situation, the internship is often only possible for 4 academic hours, but this means that you have to pay for 2 student days, which adds to the cost.

As lecturers have a higher fee for teaching in English, the tuition fee is also different for Latvian and English groups, respectively, when teaching in the English stream, lecturers have a coefficient of 1.5

In order to ensure the profitability of PBSP Nursing, the minimum number of students in Latvian is 25, but in English - 10

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the

learning outcomes.

The qualifications of lecturers complies with the Law on Higher Education Institutions and the regulatory enactments of the University of Latvia, which determine the qualification of lecturers in the professional bachelor's study programme:

- Cabinet Regulation No. 49 *Regulation on Latvian Science Sectors and Sub-sectors* (23 January 2018).
- Law on Higher Education Institutions (2 November 1995)

In order to ensure high-quality implementation of the study programme, several criteria have been used for the selection of *PBSP Nursing lecturers*. The mandatory selection criteria for lecturers are:

1. Compliance of the qualification of the teaching staff with the requirements specified in the laws and regulations;
2. The professional qualification of the lecturer complies with the content of the study course and they possess the required work experience;
3. Adequate knowledge of the state language and foreign languages.

PBSP Nursing lecturers fully comply with the requirements specified in regulatory enactments. The qualification of the teaching staff is confirmed by their competence in the field of professional activity and scientific research, which also complies with the study programme and the content of the taught courses. The application of the selection criteria ensures that lecturers, who have both experience in educational work and active professional activity, are involved in the implementation of the study programme, which ensures the achievement of the objectives of the study programme.

Other readers may be selected for the realisation of the study programme in English groups. Most importantly, the reader of the study course must have adequate competence in the field and an appropriate level of academic English, as well as the willingness to cooperate with the director of the study programme and students.

In-service training of lecturers is implemented in the following ways :

1. At least once a year, lecturers participate in the in the Nursing Section of the International Scientific Conference on Medicine organised by LU MF, where the lecturers of *PBSP Nursing*, industry professionals, lecturers and students from various Latvian and foreign universities participate with reports,
2. Lecturers participate in international scientific conferences, conferences and seminars organized by industry professionals.
3. Lecturers participate in continuing education courses for additional English language training, leadership skills and digital skills courses, which are conducted within the framework of the project "Renewal of Academic Staff and Improvement of Competences at the University of Latvia" of the specific support objective 8.2.2.

3.4.1.1. Table. Further training of the lecturers of PBSP Nursing

**Lecturer of the
programme**

Participation in courses for the improvement of qualification:

Bakša – Zveja Evija	Expert training on quality assessment guidelines, methodologies and e-platform for the accreditation and licensing process Improving patient safety and quality of services in Latvia
Bārzdīņš Juris	Baltic Institute of Corporate Governance, Board Member Education.
Gulbe Dagnija	Higher education didactics: modern theories and practice Professional development education Development of academic staff competencies in the area of leadership Topical issues in emergency medical care Extended cardiovascular resuscitation in adults: pre-hospital stage Etiquette and communication skills in real and virtual environments
Erts Renārs	Data Science Conference, course Why R? In Austria. Development of online learning and digitalisation of learning content. LU, Latvia. Innovations to improve the quality of the learning process. LU, Latvia. Izglītība VAR (Education CAN), Education Leaders Forum. In Liepāja, Latvia The R User Conference, practical course useR! Munich, Germany.
Ivanovs Igors	Higher education didactics: modern theories and practice Professional development education
Jansone Baiba	Methodology for formulating and evaluating study results Improvement of professional English language skills of the academic staff for work in the study environment - level C1 TRANSGENIC BREEDING PROJECT MANAGEMENT: THEORY AND APPLICATION Public speaking, basics of speech art and presentation (at the level of advanced skills) for collaboration with industry and audience
Folkmanis Valdis	English for Professional Purposes (Medicine II) Continuing Education
Kužniece Ingrīda	Skills development programme: Innovations to improve the learning process. LU, Latvia. Skills development programme: Development of online learning and digitalisation of learning content. LU, Latvia. Online course: Challenges of generations X, Y, Z AND A for employers, parents and educators. LU, Latvia. NDP, ESF Training LAB, skills development programme: Development of academic staff competencies in the area of leadership. In Latvia.
Mežinska Signe	Higher education didactics: modern theories and practice Professional development education
Mežiņa – Mamajeva Ina	Higher education didactics: modern theories and practice Professional development education Methodology for formulating and evaluating study results

Olsena Solvita	English for Professional Purposes (Medicine II) Continuing Education
Rostoka Evita	Improvement of professional English language skills of the academic staff for work in the study environment - level B2
Strazda Gunta	Improvement of professional English language skills of the academic staff for work in the study environment - level C1 Data analysis and reporting with MS Excel for beginners (level 1)
Stāka Aiga	English for Professional Purposes (Medicine II) Continuing Education
Šantare Daiga	Baltic course in clinical nutrition International Workshop on Helicobacter & Microbiota in Inflammation & Cancer

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

There are two groups of lecturers at the University of Latvia: lecturers, who have elected academic positions, and lecturers, who are attracted for the implementation of particular study courses. During the reporting period, the composition of the principal staff of the PBSP Nursing has been stable, see annex 11 of the NurseB

3.4.2. 1. table

Participation of lecturers in the implementation of SP Nursing study courses 2020/2021 academic year

Position of lecturers	Number of MF lecturers	Number of invited lecturers	Total lecturers	Lecturers%
professors	4	1	5	13.15%
associate professors	7	2	9	23.70%
assistant professors	10	0	10	26.31%
lecturers	8	3	11	28.94%
hour lecturers.	3	0	3	7.90%

During the reporting period, as the number of students increased, the need for lecturers has increased, see Table 3.4.2.2.

3.4.2.2. Table

Lecturers newly attracted to PBSP Nursing during the reporting period

Name, surname	Position	Scientific degree
Bārzdiņš Juris	associate professors	Dr.oec
Erts Renārs	assistant professors	Dr.phys.
Olsena Solvita	associate professors	Dr.iur.
Kužniece Ingrīda	lecturers	Doctor's degree
Kurklete Anete	lecturers	Mg. sc.sal

38 lecturers are involved in the implementation of PBSP Nursing, of which 32 (84.22%) lecturers are lecturers of the Faculty of Medicine, but 6 (15.78%) lecturers are attracted from other faculties. Some study courses are led by two or more lecturers, because the implementation of the course content requires more knowledge, skills and competence, which can be provided by several lecturers by dividing the work to be done among themselves. The lecturers of PBSP Nursing represent several branches of science - doctoral degrees have been obtained in medicine, biology, education, chemistry and economics, which is a huge advantage arising from the opportunities for multidisciplinary co-operation at the University of Latvia, while master's degrees have been received in nursing or education.

During the reporting period, several lecturers have developed academic careers, for example, two (2) associate professors: Baiba Jansone, Valdis Folkmanis, have become professors, but three (3) assistant professors Igors Ivanovs, Signe Mežinska and Aleksejs Miščuks have been elected associate professors, while Sergejs Zadorožnijs, Zane Dzirkale and Iveta Līduma have been elected as assistant professors.

The quality of each lecturer's teaching is assessed by students, who can write not only criticism, but also the positive, which then helps the director of the study program to analyze the composition of lecturers or necessary changes or methodological courses, as well as lecturers can share their experience. In parallel with the study process, lecturers are inspected every semester, when two lecturers are randomly appointed - experts evaluate the open lesson and after that discuss the advantages and disadvantages of the lectured lecturer. All reports are then made available to the director of the study program to assess the overall situation based on data obtained from both the observation and the anonymous assessment of the students in the course.

During the reporting period, the lecturers have completed further studies via the LU study environment Moodle programme courses, English language courses, digital skills courses, university didactics courses and professional courses.

3.4.3. Information on the number of the scientific publications of the academic staff

members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The lecturers of PBSP Nursing represent several branches of science, the interaction and co-operation of lecturers takes place during various events organised by the University of Latvia: staff meetings, scientific conferences and courses of further education. During the reporting period, the lecturers of PBSP Nursing meet at the annual meeting at the end of the academic year after graduation to discuss the progress of the year, discuss the requirements for obtaining credit points for study courses, to discuss the addition of the latest library literature, as well as to update course content in the context of nursing education reform.

The lecturers of PBSP Nursing meet at the end of the autumn semester meeting to evaluate the opinions expressed by students in the LUIS survey on the quality of course and programme content, and to discuss the improvement of course content and coordinate the topics of bachelor's theses based on students' proposals. The improvement of the study programme is implemented in co-operation by all parties, with consideration of students' proposals - both by reviewing the evaluations of the study courses and by talking face-to-face with the parents or representatives. The composition of lecturers on PBSP Nursing includes professionals with extensive experience in academic work, which ensures the students of PBSP Nursing with acquisition of knowledge that conforms to the topicalities of the health care sector and regulated profession, which is demonstrated both by the Bachelor's theses supervised by the lecturers, where students have received "excellent" rating, as well as publications of the lecturers in domestic and international

cited journals in the time period from 2019 to 2021. The full list of publications can be seen in the annex and each lecturer can see their CV attached to the accreditation documents.

The proportion of students and lecturers cannot be precisely calculated, due to part-time involvement of lecturers in PBSP Nursing. The numerical ratio of lecturers to students is 1:12.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_NurseB_diploma_Eng.docx	11. pielikums_MāsuB_diploms_ar_pielikumu_LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_NurseB_Statistics_Eng.docx	4.pielikums_MāsuB_studentu skaita statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	10.ANNEX_NurseB_Compliance with the state education standard_Eng.docx	10.pielikums_MāsuB_atbilstība izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	5. Annex_NurseB_Compliance with the professional standard_Eng.docx	5.pielikums_MāsuB_atbilstība profesijas standartam_LV.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)	6.annex_NurseB_Compliance with the industry-specific regulations_Eng.docx	6.pielikums_MāsuB_atbilstība atbilstošās nozares specifiskajam normatīvajam regulējumam_LV.docx
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_NurseB_Mapping study courses_Eng.docx	8.pielikums_MāsuBs-_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_NurseB_Study Plan_Eng.docx	1.pielikums_MāsuB_studiju plāns_LV (2).docx
Descriptions of the study courses/ modules	7. annex_MāsuB_kursu apraksti LV ENG.docx	7. pielikums_MāsuB_kursu apraksti LV.docx
Description of the organisation of the internship of the students (if applicable)	9.annex_NurseB_practice_regulations_Eng.docx	9.pielikums_MāsuB_prakses nolikums_LV.docx
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Nurse Studies (45723)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Nurse Studies</i>
Education classification code	<i>45723</i>
Type of the study programme	<i>Academic master study programme</i>
Name of the study programme director	<i>Igors</i>
Surname of the study programme director	<i>Ivanovs</i>
E-mail of the study programme director	<i>igors.ivanovs@lu.lv</i>
Title of the study programme director	<i>Dr.med</i>
Phone of the study programme director	<i>+37129184455</i>
Goal of the study programme	<i>to provide students with a body of theoretical and practical knowledge in the field of health sciences in nursing and related fields of science, developing scientific research skills in students and promoting professional development and intellectual potential</i>
Tasks of the study programme	<i>1. analyse changes in health care and develop nursing management skills in different areas of health care; 2. provide knowledge for innovative, professional and scientifically sound decision-making on health systems and health policies. 3. develop evidence-based approaches to health care practices.</i>
Results of the study programme	<i>Knowledge: 1. understand the importance of research in nursing and health care; 2. characterise the research methods and the organisation of the research work; 3. provide knowledge in the management and organisation of health care work, health economics and management; Skills: 4. plan and organise health care work in hospitals; 5. manage and organise nursing education ; 6. develop and conduct scientific research in accordance with the objectives set; Competencies: 7. analyse research findings based on nursing practice and draw conclusions; 8. analyse health care management processes and introduce appropriate changes in nursing practice; 9. develop and use research and analytical skills, as well as pedagogical and communication skills</i>
Final examination upon the completion of the study programme	<i>Master's Thesis</i>

Study programme forms

Full time studies - 2 years - latvian

Study type and form	<i>Full time studies</i>
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Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	80
Admission requirements (in English)	<i>Bachelor's degree in nursing or second level professional higher education with the qualification "Nurse"</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master's degree of Health Sciences in Nursing</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

The following changes have been introduced to MSP Nursing during the accreditation period:

- The course "Philosophical Problems in the Humanities" has been replaced by "Philosophy and Cognitive Science";
- The course "Philosophy and Cognitive Science" has been updated to reflect contemporary innovations;
- Internship study course "Pedagogical Practice for Nurses" has been introduced;
- The course "Pedagogical Practice for Nurses" allows students to get acquainted with the work of a teacher and to choose or develop a teaching career.

Since the previous accreditation of the study field, changes have been made to the parameters of the Master's study programme in Nursing - study programme goal, objectives and learning outcomes, which does not affect the essence of the parameters but clarifies the wording.

In the new accreditation period:

1. Aim of the study programme

The aim is to provide students with a body of theoretical and practical knowledge in the field of health sciences in nursing and related fields of science, developing scientific research skills in students and promoting professional development and intellectual potential.

Justification:

Justification: The aim of the study program is more specific and more appropriate to the specifics of the specialists to be trained in the field of health care.

2. Results of the study programme

Justification: The results of the study programme have been reformulated, taking into account the requirements of the latest study program parameter formulation in the regulations of the University of Latvia

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The MSP Nursing aims at providing students with theoretical and practical knowledge in the field of Health Sciences in Nursing and related disciplines, developing research skills and fostering professional development and intellectual potential. MSP Nursing fully corresponds to the study field "Health Care". Nursing students study subjects related to patient care and patient health.

The content of MSP Nursing ensures the acquisition of knowledge, skills and competencies necessary for the performance of professional activities in accordance with the knowledge, skills and competencies of level 7 of the Latvian Framework for Classification of Education (Cabinet Regulation No. 512 of 26.08.2014, Paragraph 21). Learning outcomes of the Master's study programme in Nursing:

Knowledge:

1. understand the importance of research in nursing and health care;
2. characterise the research methods and the organisation of the research work;
3. provide knowledge in the management and organisation of health care work, health economics and management;

Skills:

4. plan and organise health care work in hospitals
5. manage and organise nursing education
6. develop and conduct scientific research in accordance with the objectives set;

Competencies:

7. analyse research findings based on nursing practice and draw conclusions;
8. analyse health care management processes and introduce appropriate changes in nursing practice;
9. develop and use research and analytical skills, as well as pedagogical and communication skills

The learning outcomes are structured into knowledge, skills and competences in accordance with the European Association for Quality Assurance in Higher Education (ENQA) Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015) and the Law on Higher Education Institutions of the Republic of Latvia, 1995/2018.

The MSP Nursing admission requirements state the *previous education*: a Bachelor of Health Sciences degree in Nursing or second level professional higher education with qualification "Nurse". The matriculation rules are approved by the UL Senate and a Rector's Ordinance which sets the matriculation rules for each specific year. The following *formula for calculating the competition marks*: weighted average mark ($60 \times 10 = 600$) + total (or average) final examination mark ($40 \times 10 = 400$); In the MSP Nursing, persons are matriculated for full-time studies: the competitive assessment has a formula based on the weighted average mark ($60 \times 10 = 600$) + total (or average) mark of the final examinations ($40 \times 10 = 400$);

The admission requirements are in line with the aims and objectives of the study programme. The admission requirements are appropriate to the achievement of the learning outcomes and students are admitted in accordance with the approved procedures and criteria.

Students have the opportunity to have their study courses recognised if they have completed study courses at another higher education institution or study programme, the content, results and credits of which are equivalent to MSP Nursing.

The goals and learning outcomes of MSP Nursing are closely related to the aims and learning outcomes of the study courses, and the courses of study are intertwined.

During the reporting period, the course contents were reviewed to ensure that there was no overlap in content, to emphasise timely innovations in nursing and to implement lessons learned from the TUNING CALOHEE evaluation framework. The TUNING CALOHEE model has been developed in the framework of several related research projects to describe and assess the competencies to be acquired in nursing studies in accordance with the Qualification Reference Framework for nursing education[1], based on the requirements set by the European Union (QF for EHEA[2] and EQF LLL[3]) for nursing education. The Qualifications Framework contains *descriptors* or sub-competencies to be achieved in the studies, which are summarised in five competence groups or 'dimensions'. Each dimension is a constructive building block of education, describing a significant area of competence. Each of the five dimensions of nursing competence, as defined by the EQF, consists of three elements: knowledge, skills and competence (autonomy and responsibility). The changes in the competency elements characterise the progressivity of the learning outcomes; moreover, the standardised competency indicators developed within Tuning allow for the comparison and review of nursing study programmes.

The links between the MSP Nursing courses and the programme objectives are presented in Table 3.1.2.1., while Annex demonstrates the links between all courses and the programme outcomes - knowledge, skills and competences.

MSP Nursing programme objectives:

1. analyse changes in health care and develop nursing management skills in different areas of health care;
2. provide knowledge for innovative, professional and scientifically sound decision-making on health systems and health policies.
3. develop evidence-based approaches to health care practices.

Table 3.1.2.1.

Mapping of MSP Nursing courses against the objectives of the study programme

Study Course	Tasks of the study programme		
	1.	2.	3.
Ethics of Nursing Practice	X		
Nursing Theory	X		
Menagement of Health Care			X
Methodology of Research in Nursing			X
Nursing Leadership	X	X	
Health Economics	X		X

Philosophy and Cognitive Sciences		X	
Nursing Education Management	X		X
Communication in Leadership	X	X	
Resources in Nursing	X	X	
Organization, economics, and policy of health system		X	
English for Nursing			X
Pedagogical practice for nurses	X		X
Health Care Social Aspects	X		
Psychology of Management	X		
Medical statistics	X		
SPSS practical use	X		
Qualitative methods in nursing research	X		X
Medical Pedagogy		X	
Business Etiquette in Health Care Management		X	
Psychology of Religion			X
Visual Perception: Methodologies, Frameworks		X	
Master's Thesis	X	X	X

Based on the objectives of the MSP Nursing program, as well as the knowledge, skills and competencies that nurses acquire through this program, it can be seen that the duration and scope of the program is reasonable. At the end of the program, students present a research master's thesis. Appropriate time is required to develop this work and master the program. The study courses are aimed at promoting scientific thinking and improving the skills of nurses, which is in line with the tasks of the programme.

MSP The title, aim and content of Nursing correspond to the branch of medical and health sciences of health and sports science to the sub-branch of health care science in accordance with the Cabinet of Ministers regulations no. 49 Regulations on Latvian Science Sectors and Sub-Sectors [4].

[1] Tuning Guidelines and Reference Points for the Design and Delivery of Degree Programmes in Nursing

<https://www.calohee.eu/wp-content/uploads/2018/11/4.1-Assessment-Reference-Frameworks-for-Ci>

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

During the reporting period, the programme cooperated with Inese Budzila, Health Care Director at RAKUS, and Anita Šancs, Chief Nurse at Riga 1st Hospital, on opportunities for nurse managers in the labour market. The approach developed by the UL was used for the employer survey. Employers indicated that graduates mostly had overall, graduates' ability to use computers, find and process information, make and justify decisions, adapt to new conditions (changing work environment), work independently, determine work methods and deadlines, and work as part of a team is rated as very good. Graduates are assessed as having a responsible attitude to work, good communication skills, both oral and written.

MSP Nursing graduates are in demand in the labor market, as data show that more than 90% of graduates are employed. Upon completion of MSP Nursing, graduates have greater career opportunities and also greater opportunities to receive the highest salary, for example, RAKUS employees with a master's degree receive an additional salary supplement. Market research shows that nurses with a master's degree are more likely to hold senior positions in healthcare facilities, such as nurses or head nurses. This shows that learning the program improves the situation of both social and economic graduates.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The number of students has been relatively stable over the reference period 2013-2020, especially in the last five years (see Figure 3.1.4.1.).

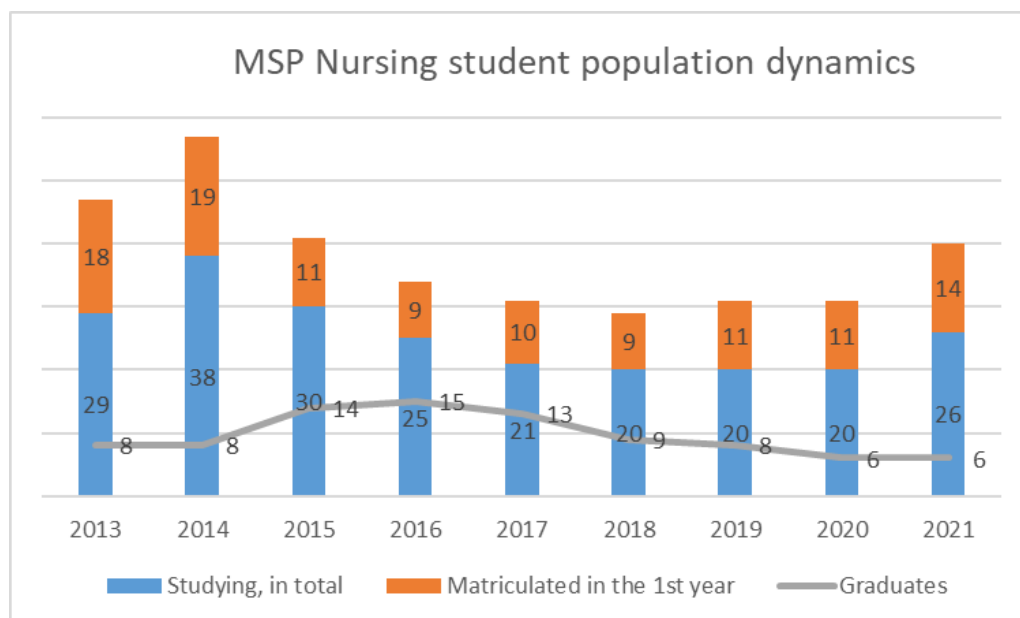


Fig. 3.1.4.1. MSP Nursing student population dynamics

The number of students is influenced by the number of state-funded budget places, so the number of state-funded budget places and the number of students in the Master's degree programme in Nursing are evenly matched (see Annex). During the accreditation period 2013-2020, the number of students who have been expelled has fluctuated (see Annex 94), but it should be noted that some of the exmatriculated students have resumed their studies and successfully graduated from the programme. The main reason for dropouts is personal - finances, work, family, health.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

MSP Nursing provides in-depth knowledge in the management and organisation of health care work, promotes the professional development and intellectual potential of nurses, provides for the

acquisition of skills in the management of education in the sector and ensures pedagogical processes at universities.

The uniqueness of MSP Nursing is based on its interdisciplinarity, as it pools in several groups of disciplines - medical and life sciences, social and legal sciences, as well as the sciences. MSP Nursing provides in-depth training in the competence to analyse health care management processes and to make appropriate changes in nursing practice. The programme is delivered in collaboration with the health care sector, jointly identifying solutions to industry problems and developing data-driven decision-making in the health care system, which has been identified by *the OECD* as one of the five recommendations for strengthening it. Upon obtaining a Master's degree in Nursing, according to the X level of the Latvian Qualifications Framework (LQF), graduates can independently formulate and critically analyse complex scientific and professional problems, justify decisions, and, if necessary, perform additional analysis, can integrate knowledge from different fields, contribute to the creation of new knowledge, research or the development of professional methods, demonstrate understanding and ethical responsibility for the potential impact of scientific and professional activities on the environment and society, can apply theory, methods and problem-solving skills to independently perform research or artistic activities or highly skilled professional functions, can explain and sustain a reasoned argumentation on complex or systemic aspects of the relevant scientific discipline or professional field with both professionals and non-professionals, can independently advance the development and specialisation of their own competencies, can take responsibility for group performance and perform its analysis, can undertake entrepreneurship, develop innovations in the relevant scientific discipline or profession, perform work, research, can independently formulate and critically analyse complex scientific and professional problems, justify decisions, and, if necessary, perform additional analysis, can integrate knowledge from different fields, contribute to the creation of new knowledge, research or the development of professional methods, demonstrate understanding and ethical responsibility for the potential impact of scientific and professional activities on the environment and society or on further education under complex and unpredictable conditions and, where necessary, can introduce modifications using new approaches, and can demonstrate advanced or extended knowledge and understanding, some of which is in line with the latest findings in the relevant scientific discipline or professional field and which provides the basis for creative thinking or research, including working at the interface between different disciplines.

For MSP Nursing students, special emphasis is placed on interdisciplinary analysis of philosophical debates in contexts that are relevant to the professional practice of medicine and that systematically and historically address the basic processes of human knowledge acquisition, perception, its social and logical dimensions, the basic concepts of philosophy from a cognitive science perspective, demonstrating the ability to practise professional, ethical, legal and regulatory standards, recognising and responding to moral/ethical dilemmas and issues in everyday practice and in the public space. MSP Nursing students, in line with labour market trends and based on employers' recommendations, since the academic year 2017/2018 have a study course "Pedagogical Practice for Nurses", which enables students to improve their pedagogical competence, develop experience in using the potential of organised learning, provide insight into the provision of education in nursing in accordance with the principles of the European Higher Education Area, enabling nurses to choose to work in pedagogy and educational leadership and demonstrate an advanced understanding of the different roles, responsibilities and functions of the nurse, as well as the ability to assess and, if necessary, adapt to respond effectively to the needs of the population/patients within the scope of their professional practice and responsibilities. During the reporting period, if students did not take the courses Civil Protection, which is compulsory under the Law on Civil Protection and Disaster Management (Article 23) and Environmental Protection, which is compulsory under the Law on Environmental Protection (Article 42) during their

undergraduate studies, they are required to take them in addition. The study plan is given in [1.anex_MāsuM_study plans_Eng.docx](#)

When developing a master's thesis, students are based on current problems in health care and medicine. Before starting work, students conduct research on problems in the industry where they work or work as lecturers. Then, on the basis of these data, the writing of a scientific paper begins. Therefore, scientific works are often focused on solving current problems. MSP Nursing lecturers and supervisors of master's theses are medical practitioners who work in health care for a long time, participate in international conferences and publish in magazines, therefore the content of study courses is regularly updated in accordance with modern trends in the industry and market.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

MSP Nursing has extensive experience in both academic lecturing and research, as evidenced by publications in local and internationally cited journals and involvement in research projects. In terms of research developments, there are a number of current trends in the field of Health Care Studies, including:

- open science to the wider public, which includes the concept of knowledge transfer, access to scientific information and the pursuit of "open science for open innovation";
- a results-oriented environment
- interdisciplinary, inter-institutional and international cooperation
- open access to research infrastructure.

All MSP Nursing teaching staff are actively involved in research or scientific projects. Lecturers work on several research topics and publish articles in indexed journals with a high impact factor. Overall, it can be concluded that the research activity of MSP Nursing lecturers is high. For example:

- International research project AwAKE (Aler(n)gerechten, Arbeitsklima in Krenkenhaus): Age-related working conditions in hospitals - active phase of the study (asoc. prof. L.Civjāne) 2019
- **Public health research:** health care organisation and evaluation of the effectiveness of public health interventions (Associate Professor Juris Bārzdiņš);
- International research project "5 Stars partnership LbD", Nordplus Horizontal NPHZ-2013/10097 2013-2015 cooperation with Finland, Denmark.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study

process.

The program is implemented in full-time full-time studies (4 semesters), in Latvian. The study program consists of two parts: Part A - compulsory, Part B - compulsory elective, Part C - free elective. The content of the program is constantly improved, taking into account the LU academic development strategy, RIS3 strategy, European higher education trends, opportunities for lecturers and students.

Studies use a variety of methods to acquire and consolidate knowledge. Professionals from different institutions are invited to lecture on individual courses in order to promote coherence between theory and practice. Practical assignments, seminars, individual, pair and group work, discussions and project development, study excursions to sectoral organisations are widely used. Employers are involved in the implementation and improvement of study courses (they are invited to conduct separate seminars, often the lessons are organized as work experience visits, etc.). In order to promote the development of students' research competence, students in successive courses have an opportunity to analyse and deepen their research on the issues of interest in the given field.. Senior students are involved in peer teaching-learning. Seminars in the courses foster students' speaking, presentation and discussion skills. Student-centred methods dominate the study process in order to achieve the learning outcomes of acquiring and consolidating knowledge, skills and competencies. The study process uses methods that promote students' communication in the performance of study tasks, solving real problems in the field, modelling situations. The physical environment of studies is also gradually changing: classrooms can be easily converted for group work, individual work, students can use digital technologies. Lecturers mostly use methods that encourage students' active participation, critical thinking and reflection. The e-learning environment is used to support the learning process and independent study. An e-learning environment (Moodle) has been created for each study course, where students have access to lesson materials, assignment descriptions, additional study materials related to the course topics, as well as study assignments (tests, forums, seminars, conferences, etc.). All interim and final assessment grades of the study courses are recorded, justified and made available to students in the e-learning environment.

The student-centred approach is followed in updating the study programmes and the respective study courses, paying special attention to meaningful formulation of learning outcomes, thus promoting dialogue between lecturers and students on study content, forms of organisation and methods. Correctly formulated learning outcomes, in turn, contribute to students' understanding and ownership of their own learning, self-assessment and understanding of the assessment received. In the study process, lecturers use methods, forms of examination and assessment criteria that are appropriate to the aim of the study course and the planned learning outcomes. Students receive support and feedback from lecturers during the study process. The assessment criteria for the award of marks are made public in advance. Assessment provides students with the opportunity to demonstrate the extent to which they have achieved the planned learning outcomes. The principles of student-centred learning encourage student mobility (recognition of learning outcomes), students engage in research and social activities in the community initiated by academic staff, and thus gain meaningful experience in applying what they have learned in their studies to practice. Through the internal quality assurance policy, study programmes are implemented in such a way that students are encouraged to actively participate in the development

of the study process. Policies and procedures are in place for the submission of student proposals and complaints and for the handling of student appeals. The results of student surveys are evaluated and taken into account in the development of the study process. Students are eager to express their proposals for the improvement of study programmes and process in discussions with lecturers and programme directors. The design of the Master's study programme in Nursing has been slightly modified, taking into account the distribution of study courses in the 2013 accreditation. The implementation of the study programme is outlined into three major sections - nursing, management and pedagogy. While in 2013 the traditional method of teaching - lectures, seminars, practical classes - was dominant in all parts of the study programme, during the accreditation period more and more lecturers introduced student-centred forms and tools of education into their courses. At the heart of everything we now have the student, where course outcomes are achieved by students working collaboratively with each other - in pairs or group work. The e-learning environment is actively used in the teaching process, where students complete assignments according to their time constraints, and the student is given an opportunity to demonstrate their competencies and gain extra points towards their final grade by completing specific course-related work - analysis, essays, reports, summaries, etc.

Lecturers encourage and involve students in extra work, and also help and advise outside of class time and set tutorial hours. Students are given feedback on all test papers - wrong answers, comments on mistakes made, and are given the opportunity to re-sit if the student is convinced that for various reasons they have not been able to perform at their best.

Various study courses are taught through traditional lectures (introductory lectures, review lectures, problem-based lectures, visual lectures), as well as interactive activities (pair and group work, project work, discussions, role-plays, interactive tests), and laboratories and practical work. These methods are in line with the didactics of learning and develop critical-analytical thinking. Computer presentations and Internet resources are widely used in lectures. Course lecture material (presentations, videos, additional reading material) is also freely available in electronic form in the e-learning environment. The results of students' independent work are presented in seminars followed by discussion and public differentiated assessment. The seminars give students the experience of sharing their knowledge with others and of participating in academic discussions.

Starting with 2018, the study programme also includes an internship as part of the compulsory courses. This request came from the Student Council of the University of Latvia, which called for the introduction of internships also in academic study programmes, to give the student the opportunity to enter the labour market with the knowledge, skills and competences of the respective field of study. The introduction of internships in the study plan is a positive feature as it gives the student an opportunity to apply the knowledge and skills acquired in the study courses to a real situation to assess their competencies.

The evaluation of the performance of the students of the study programme is based on the Cabinet of Ministers' Regulation No.240 of 13.05.2014 "Regulations on the State Standard of Academic Education"[\[1\]](#). The study programme follows several principles:

- the principle of aggregation of positive achievements - the acquired education is assessed by aggregating the positive achievements in the course of study, this is embedded in the course description;
- the principle of compulsory assessment - a passing grade is required for the mandatory content of the core parts of the programmes;
- the principle of transparency and clarity of requirements - a set of core requirements for the assessment of learning outcomes is defined in line with the aims and objectives of the programme, as well as the aims and objectives of the study courses;

- the principle of diversity of the types of assessment used in the evaluation – different types of assessment are used in the evaluation of the acquisition of the programme, which the lecturer has indicated in the study course;
- the principle of relevance of assessment - the assessment provides an opportunity to demonstrate the relevance of abilities, knowledge, skills and competencies to the Bachelor's programme through tasks and situational analyses. The content of the examinations shall be consistent with the content of the course programmes and with the specified knowledge, skills and competence requirements.

Forms of student assessment

The main forms of assessment of the knowledge acquired in the study programme are *interim assessments*, the number and type of which are specified in each course description: tests (problem solving, tests during classes, as well as e-learning tools for creating tests), culminating in an individual discussion of the results obtained and a "defence" of the concepts learned in the tasks, reports, essays, individual and group presentations. Tests are used to assess theoretical knowledge.

All courses conclude with a *final examination* - written or oral examination, a test or a thesis defence. Only students who have fulfilled all the requirements of the course, as specified by the teaching staff in the course description, are allowed to take the final examination.

The assessment of students' knowledge is mainly in writing with a focus on practical skills. The purpose of the tests is to determine the level at which the student has acquired the theoretical knowledge and acquired the skills to apply it to practical tasks. According to the specifics of the study course, requirements for attendance at practical classes are laid down. The final assessment of the course is cumulative, i.e. an assessment of the student's work throughout the semester, which forms part of the final grade, and performance at the examination. The overall assessment of the completion of the study course shall consist of the overall grade through the interim assessments, which shall average at least 50% of the overall grade, and the grade obtained at the examination. All assignments completed during the semester are taken into account in the final assessment. Particular attention is paid to the improvement of the forms of assessment of learning outcomes - knowledge, skills and competencies, the improvement of course descriptions, the reconsideration of the methods used in studies and the assessment system, and the work to make study course materials available in the Internet environment. New opportunities are opened up by the introduction of the Internet and other computer technologies in the study process for the acquisition, processing and storage of information, as well as for rapid communication.

Students are informed about the assessment criteria, methods and requirements for obtaining credits at the beginning of each study course - in the first/introductory lecture. The completion of the study course is assessed on a 10-point scale in accordance with the legislation of the Republic of Latvia and the UL Senate decision No. 211 of 29.06.2015. based on the following criteria: the volume and quality of the knowledge acquired; skills acquired; the acquired competence according to the anticipated learning outcomes. Examinations, tests and quizzes are taken individually.

A study course shall be considered successfully completed if the grade in the 10-point system is not lower than "4" (near average) or „pass". Students shall take tests, examinations and other tests individually.

The study programme is completed with a *Master's thesis*, which is the final stage of the study and its aim is to confirm the student's readiness to conduct research in the field of nursing. The student independently develops, designs and defends the Master's thesis. In the course of the thesis, the student systematises and extends theoretical knowledge, carries out research on health care problems, summarises and analyses the results, and presents the master's thesis in accordance

with the unified rules developed and approved by the University of Latvia.

The Master's thesis consists of two stages. In the first stage of thesis development, the student familiarises themselves with the requirements of the Master's thesis, formulates the topic and research problem of the Master's thesis, and proposes a research question and/or hypothesis according to the planned research. In consultation with the supervisor, the research methodology is selected according to the topic of the master's thesis. Based on the analysis of the scientific literature, the student individually develops a research project for the master's thesis. In the second stage of the Master's thesis development, the student carries out the research, collects research data, analyses it and formulates conclusions. The student is assessed on the development of the Master's thesis. A pre-defence of the Master's thesis is also organised, which allows the student to become familiar with the process of defending the Master's thesis, to better handle the preparation and presentation of the oral presentation.

The Master's thesis is submitted in accordance with the rules of the University of Latvia (no later than one week before the thesis defence): a hard copy in the LUIS system (pdf file) and 1 printed, hard-bound document to the faculty administrative assistant. The student individually agrees with the supervisor and the reviewer on the number of additional printed documents required.

The Master's thesis is defended at a meeting of the Thesis Defence Board. The development, presentation and defence of the Master's thesis strengthen the student's research skills and the ability to publicly defend the results of the research, justifying the relevance of the same. Each student has up to 30 minutes to defend their thesis, which includes several sections: presentation of the thesis, answers to the reviewer's questions, answers to the Board's questions, evaluation by the supervisor, evaluation by the reviewer. Students are informed in good time about the assessment criteria for the Master's thesis.

The supervisor assesses the thesis development process, paying attention to the student's independent work and time-planning abilities, as well as information on publications of parts of the thesis or the author's participation in scientific conferences with oral or poster presentations. The reviewer assesses the content and correctness of the written work, the relevance of the research to the title of the work, the form of the description of the work, the correctness of the analysis of the findings and the conclusions. The Board assesses the student's ability to present the Master's thesis, academic style, ability to answer questions and discuss the topic of the thesis.

Forms of assessment of study work

Ensuring the quality of teaching and research is the most important task of the academic team and involves a number of interrelated factors. At the beginning of the course, the student receives information on credit requirements, interim assessments and the timetable of classes during the semester. The student's workload for the study programme is equivalent to 40 academic hours of work per credit. The completion of the study course is assessed on a 10-point scale in accordance with the Cabinet Regulation No. 240 of 13.05.2014. based on the following criteria: the volume and quality of the knowledge acquired; skills acquired; the acquired competence according to the planned learning outcomes. The lowest grade in study courses, which is still considered positive, is 4 points (almost average). The highest rating is 10 points (excellent). Teaching staff schedule tutorials to ensure that students achieve the intended learning outcomes in the time available. The interim assessments provide an overview of the achievement of the learning outcomes of the study programme. During the semester, various forms of assessment are used: written tests, multiple-choice tests in e-learning environment (Moodle), colloquia, seminars, essays and an examination. Interim assessments account for up to 50% of the overall assessment. The course is concluded with an examination, which contributes no more than 50% of the final grade. Students can keep track of their interim grades individually in their profiles on the UL e-studies website. The Moodle

environment provides lecture materials, seminar topics and presentations, lecture plans for individual student-centred organisation of study work. The tests give students an opportunity to fully demonstrate their analytical, creative and research skills, the knowledge they have acquired and their skills to apply scientific knowledge in practice. The variety of methods is based on the combination of theoretical knowledge and practical skills required of a student, as well as the academic freedom of the lecturer allowed by law.

The Cabinet Regulations on Requirements for Academic Education do not specify the minimum requirements for the internship volume, or for its mandatory inclusion in the study programme. However, in 2017, the UL Student Council put forward a number of conditions and requirements for the development of the University's study programmes. One of the requirements was to provide internships of at least 2 CP in academic study programmes. The MSP Nursing internship was included in the spring semester of the academic year 2017/2018. The design of the internship and the knowledge, skills and competencies to be achieved have been developed in relation to the study programme outcomes. The internship is regulated by the requirements regarding the completion of an academic or other internship in the amount of at least 2 credit points at the University of Latvia or outside the University of Latvia as incorporated in the UL Senate Decision No 102 of 24.04.2017 on Regulation on Study Programmes and Continuing Education Programmes.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

Not applicable

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

MSP Nursing students complete a Master's thesis at the end of their studies. The themes of the Master's theses are approved by the MSP Nursing, based on the topicality of the topic or the relevance to health care. The aim of the Master's thesis (30 ECTS) is to teach the student to independently conduct scientific research on a chosen topic. The main task of the supervisor is to

adapt the topic to the student's knowledge, skills and competence; the topics of the master's theses are not only scientific but also related to health care and nursing practice. Several research areas related to public health and health care management have been developed at the FM, where students have the opportunity to get involved and develop their master's thesis. In MSP Nursing, 81 Master's theses have been developed during the reporting period (2013-2020). The themes of the Master's theses are related to the priority research areas of the Medical and Health Science sector: Epidemiological and other research in public health, health care, its organisation and policy development, including the application of innovative ICT solutions to expand the re-use of data stored in eHealth systems. The average grade of the Master's theses for the period 2013-2020 was 7.7. During the reporting period, seven (7) MSP Nursing students' theses were awarded 10 points and also received the UL Rector's Certificate of Appreciation, e.g. in the academic year 2013/2014 the Master's thesis "Preliminary assessment of the quality of life in severe and moderate haemophilia patients" and the Master's thesis "Efficient patient flow management and resource utilization in an NBS health care facility" or in 2019/2020, the Master's thesis "Standardisation of patient transfer from the cardiac surgery room to the paediatric intensive care unit". The Master's thesis topics are summatively listed in Annex [pielikums_MSP Māszinības aizstāvēto maģistra darbu saraksts.docx](#)

During the reporting period, great attention was paid to the development of research papers:

- in addition to the requirements of the University of Latvia "Requirements for the development and defence of final theses (bachelor's theses, master's theses, diploma theses and qualification theses) at the University of Latvia", approved by the Order of the University of Latvia No 1/38 of 03.02.2012), the requirements for the development of master's thesis have been established in accordance with the requirements of the MSP Nursing;
- aligned research and statistics course content to highlight for students the most important nuances in research design;
- the introduction of the pre-defence, which allows students to test the presentation of their Master's thesis, their ability to answer questions and argue their point of view, and to see the strengths and weaknesses of their research;
- students are invited to present their Master's thesis and completed research at the scientific conference of the University of Latvia and at seminars and conferences organised by the Latvian Nurses Association, as well as at other relevant conferences not only in Latvia, but also abroad) in order to improve their presentation skills.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the information provided in Chapter of this report, Resources and Support of the Study Field, the resources of the study programme consist of financial resources, infrastructure and material and technical support, as well as methodological and information provision.

All classrooms have a projector and laptop for presentations, and whiteboards. Interactive whiteboards are also available in some classrooms. Sound equipment and recording facilities are also available in the large lecture theatres on the ground floor of the House of Science. The House of Science was due to be commissioned in 2019. The indoor space totals to 2,018 m² and includes 15 lecture theatres, 8 seminar rooms, 78 science and teaching laboratories. Wireless network coverage is provided throughout the building. The Houses of Nature and Science have cafeterias, a Science Library, individual work cubicles. The buildings are accessible for people with reduced mobility - there are several lifts, and sanitary facilities have been provided.

Information and methodological support

The methodological support of the University of Latvia for the implementation of the study programme is extensive and prepared according to the specifics of different study programmes. In addition to traditional information resources - library books - access is provided to more than 170 000 subscribed e-resources in various fields of study and science. For the implementation of study courses, the opportunities offered by the e-learning environment of the University of Latvia are used - the uploading of lecture materials, the use of online tests to supplement and assess students' knowledge. Each lecturer is obliged to create an appropriate e-course in both Latvian and English. Remote training uses a variety of tools for the acquisition of knowledge, skills and competencies, such as video lectures, tests, online submission of papers and tasks and online feedback, opportunities to obtain study materials, which is essential for students outside Latvia, and access to books from the UL library. E-environment enables quick and easy communication between student and teaching staff and vice versa. E-environment gives the student access to study materials, the possibility to keep track of their progress and course completion, the lecturer access to the latest books and publications anytime and anywhere.

The UL Library is included in the Library Register (BLB1000) of the Ministry of Culture of the Republic of Latvia; on 22 June 2017 it received the Library Accreditation Certificate and was granted the status of a library of national importance for five years. The basic principle of the Library's activity is the accessibility of its services to every user, ensuring the same range and quality of services in all departments. The variety of services offered, the layout of the library's premises and its opening hours will continue to be closely coordinated with users' information needs.

The opening hours of the 8 branch libraries of the University Library are adapted to the convenience of students. The opening hours for library customers are from 9.00 to 21.00 on weekdays, and from 9.00 to 18.00 in some branch libraries. On Saturdays, the hours are from 9.00 to 17.00. The Libraries of the houses of Science and Nature are open 7 days a week, 24 hours a day. The four branch libraries are open all year round, including during the summer. The branch libraries provide all the services needed to facilitate independent study. The services are provided in accordance with the Rules of Use of the UL Library, approved on 1 February 2017 by Order No 1/39 of the UL Rector. The UL Library provides free basic services and paid services.

Free basic library services

- *Electronic ordering/reservation/renewal of information resources in the national library catalogue and obtaining information resources for use on site in the library reading room or to take home.*

The service is available to users registered with the UL Library via the Union Catalogue from any mobile device and from any location with internet access.

- *Delivery of information resources*

Academic staff, researchers and doctoral students of the University of Latvia, when ordering

information resources from any library, can specify the most convenient place to receive the reserved information resource - the branch library. For other users, this option is available only when ordering information resources from the Repository.

- *Self-service*

All branch libraries offer a self-service scanning service, and 5 branch libraries have self-service facilities for checking out/returning/renewing books. The facilities allow users to check out and return information resources or renew them independently. A self-service computer wall with 36 laptops is also available to users in the House of Science Library.

- *Use of free-access reading rooms, computers and the internet*

In the reading rooms you can use the collection of reference literature and periodicals, stationary and portable computers (both those of the University Library and the users' personal computers), Internet connection, including WI-FI, which is available in all buildings of the University. Reading rooms are not only a place for students to study and research, but also to meet and spend their free time.

- *Night subscription, advance booking of information resources*

For the convenience of users, the service "Night subscription" is offered, the aim of which is to provide users - students, faculty members and staff of the University of Latvia - with the opportunity to borrow a particular information resource to be used on site from the moment of library closure until the moment of library opening or to reserve it in advance for certain hours. The service is free of charge, but if the information resource is not returned on time, a late fee will be charged in accordance with the UL Library's Fee Schedule.

- *Summer delivery of information resources*

This offer allows users to get the information resources they need from 4 branch libraries that are closed during the summer period twice a week at the most convenient branch library (Kalpaka Boulevard Library, Raina Boulevard Library, Natural Sciences Library and House of Science Library).

- *Enquiries and consultancy*

One of the main areas of the library's work is information services for users - consultations, reference, user training and research support.

The main reference consultant of the University Library (at the Library in Aspazijas bulvāris) provides the official and general information service of the Library. Users can receive individual consultations and information in the library, by e-mail: info-bibl@lu.lv, by phone: 28623551, via Skype - address: UL Library Consultant. Consultations are also provided by any member of the library staff on site at the library or by phone, e-mail, Skype. The Library Consultant and the staff of the branch libraries provide bibliographical, subject, factual, address, clarification, and other reference and consultancy services to the students, academic, scientific and general staff of the UL. In case of any uncertainties, users can also use the options available in the Library section of the UL portal: 'Ask a librarian', 'Frequently asked questions', 'Express your opinion'.

- *User training*

The knowledge and skills to work independently, to find, evaluate and use quality information resources and e-learning tools are essential to raise the level of learning. To improve users' skills and abilities, the UL Library has established a training system.

The Library has developed 3 training scenarios which are used by the Library staff to provide training "Electronic Collections for Your Successful Studies", "E-resources for Mobile Studies", "E-

resources in Industry".

Paid services

The list and price list of the UL Library's paid services was approved by the Order of the UL Rector No.1/111 of 07.03.2016.

- *Compiling a list of information resources*

The service provides information support to every user. The UL specialists prepare a list of information resources on the topic of interest to the user in the shortest possible time, for example, to assist in studies or preparing a thesis. The user can order the list by filling in the electronic application form, where it is possible to specify the desired chronological coverage, languages, types of information resources (books, journal articles, electronic resources, etc.), etc.

- *IL, ILL service*

The UL Library offers its users to order information resources not available in UL libraries from other libraries and document repositories in Latvia through the Interlibrary Loan service and worldwide through the International Interlibrary Loan service, as well as to receive electronic copies of scientific articles in print and by e-mail.

Library collection

The collection of the UL Library is formed in accordance with the directions of the University's study and scientific work and the requirements of study programmes, thus providing information for all levels of UL studies - bachelor, master, doctoral, as well as scientific research areas. The acquisition of e-resources is a priority in the process of adding information resources to the collection. The new acquisitions are made in accordance with the centrally allocated funding of the UL, which is approved annually by a UL decree. The allocated funds are used by the departments to support the study process, to purchase the necessary books, to pay for the databases subscribed to by the sector and to subscribe to periodicals. The Library shall purchase information resources^[1] on the basis of orders from the academic staff of the University, proposals from the students' self-government or proposals from the Library staff, which shall be entered in LUIS and approved by the Dean of the Faculty or the Executive Director. Anyone interested may also suggest a particular title for the collection by submitting their proposal orally or in writing to the Library staff. If the proposal is approved by the Dean/CEO of the faculty concerned, the Library will purchase the title recommended by the interested party using the e-resources repository. The Library, authors of publications, UL departments or representatives of UL editions regularly upload electronic versions of their publications, digitised information resources of cultural and historical value, theses and dissertations of UL faculty members and their abstracts to the UL e-resources repository in order to ensure the collection, preservation, free and permanent online access to the scientific achievements of the UL. The LU e-resources repository^[2] was established in 2011.

In line with the UL Strategic Plan, the UL Library is increasing the share of e-resources and developing remote access to e-resources in order to enable users to use resources remotely. The number of databases is being targeted within the funding allocated to the Library. Each year, the usability of subscribed databases is analysed and users are surveyed on the need to purchase new databases. The e-resource list from A to Z is available in the Library section of the UL portal. More information on e-resources is available on the UL Library website "E-resources from A to Z" The UL offers the opportunity to use subscribed electronic information resources (databases, e-book platforms) outside the UL computer network by logging in with a LUIS username and password. The number of print titles available in the UL Library for MSP Nursing is displayed in Table 3.3.1.1.

Table 3.3.1.1.

UL study direction Health Care

Total in the collection of the UL Library as of 01.12.2020. existing printed publications

Printed Editions (Copies)					Language				
Study programme	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
	In stock	Total	Total	Total					
Nursing	143	142	0	1	92	51	0	0	0

Total for the study direction in the collection of the Library of the UL: 30101 copies

During the study process and in the preparation of final theses, students use the resources of the University's libraries in person, as well as the many databases of library resources, e.g. **ClinicalKey** (Medical Database), Dawsonera (e-books), ProQuest (e-books). **ClinicalKey** - Elsevier's electronic medical information resource. It covers 52 specialties and is designed for student learning, research and clinical practice, containing different types of information resources: more than 650 full-text journals, more than 1150 full-text books, 1400 reports containing concise information and recommendations on diseases. Likewise, there are included 800 FirstConsult summaries, 5000 practical guidelines, more than 3.4 million images, tables, charts, more than 40 000 ProceduresConsult materials, etc.

The library collection is generally adequate for the implementation of MSP Nursing studies and the development of scientific research and is updated annually with the most up-to-date information resources according to the information needs of academic staff and students.

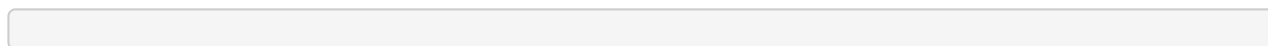
3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on

each language, type and form of the study programme implementation).

Tuition fees for each programme at the University of Latvia are determined annually on the basis of the projected cost of the study place (which includes all projected costs - remuneration of teaching staff, material and technical support, infrastructure maintenance and administration costs), the projected number of students and the market situation - tuition fees offered by other higher education institutions. The tuition fee for a given student is set for the entire period of study for each academic year. In order to assess the amount of funds required for financial support, MSP Nursing carries out a costing calculation according to a methodology developed by the University of Latvia, using information on the structure and costs of the programme and teaching staff and the number of students. To provide the necessary funds for the conduct of studies, MSP Nursing shall use the state budget subsidy from the Ministry of Education and Science and tuition fees

The calculation of the cost of MSP Nursing has been performed taking into account the available state grants and the methodology for calculating the cost of study programs developed by the Academic Department of the University of Latvia. The cost of one student per year is 1800 EUR. Calculations have been made for 10 paid students and 2 state-subsidized budget places. In addition to the costs of teaching staff, the cost calculation also includes general staff costs in the amount of 31.3% of the academic staff (441 EUR per student per year), infrastructure expenses (315 EUR per student per year), renovation of material and technical base, services (47 EUR per student per year), totaling 2603 EUR per year per student. In order to ensure the profitability of MSP Nursing, the minimum number of students is 10.



3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

In order to ensure quality implementation of the study programme, several criteria are used for the selection of MSP Nursing teaching staff, primarily as defined by the Law on Higher Education Institutions. It is important that the study courses are taught by qualified specialists in the specific field of study, who use modern approaches in their work.

During the reporting period, the core faculty of the MSP Nursing study programme is stable, as reflected in Tables 3.4.1.1. and 3.4.1.2. The MSP Nursing study programme is implemented by two (2) professors, five (5) associate professors, three (3) assistant professors and six (6) lecturers

Table 3.4.1.1.

List of lecturers in MSP Nursing

Name, surname	Position	Scientific degree	Taught study courses
Bārzdīņš Juris	associate professor	Dr.oec	Organization, economics, and policy of health system Management of Health Care Health Economics
Civjāne Liliāna	associate professor	Dr.	Methodology of Research in Nursing
Erts Renārs	assistant professor	Dr.phys.	Medical statistics SPSS practical use Resources in Nursing
Folkmanis Valdis	professor	Dr.med.	Health Care Social Aspects
Ivanovs Igors	associate professor	Dr.med.	Master's Thesis
Mežinska Signe	associate professor	Dr.sc.soc.	Ethics of Nursing Practice Qualitative methods in nursing research Methodology of Research in Nursing
Olsena Solvita	associate professor	Dr.iur.	Nursing Leadership
Puķīte Margarita	assistant professor	Dr. paed	Nursing Education Management Medical Pedagogy
Bakša – Zveja Evija	lecturer	Mg. paed	Nursing Theory
Briede Daiga	lecturer	Mg.sc.sal.	Resources in Nursing
Gulbe Dagnija	lecturer	Mg.sc.sal.	Communication in Leadership Business Etiquette in Health Care Management
Mežiņa – Mamajeva Ina	lecturer	Mg.sc.sal. Mg. paed	Nursing Leadership Nursing Education Management
Vīksna Laura	lecturer	Mg.sc.sal.	Psychology of Management Psychology of Religion

3.4.1.2. table

List of MSP Nursing lecturers invited from other faculties

Name, surname	Position	Scientific degree	Taught study courses
Baranova Sanita	assistant professor	Dr. paed	Pedagogical practice for nurses Nursing Education Management
Beļicka Līga	lecturer	Mg. philol.	English for Nursing
Šķilters Jurgis	professor	Dr.Phil	Philosophy and Cognitive Sciences Visual Perception: Methodologies, Frameworks

The qualifications of teaching staff comply with the Law on Higher Education Institutions and the laws and regulations of the University of Latvia that determine the qualifications of lecturers in academic master's study programmes:

1. Cabinet of Ministers Regulation No.49 *Regulations on scientific sectors and sub-sectors in Latvia* (23.01.2018).
2. Law on Higher Education Institutions (02.11.1995)

In order to ensure the quality and innovative implementation of the study programme, several criteria are used for the selection of teaching staff for MSP Nursing. The mandatory criteria for the selection of teaching staff are:

1. compliance of the qualification of the teaching staff with the requirements specified in regulatory enactments;;
2. research area/interests relevant to the study programme/course, relevant publications and work experience;
3. adequate knowledge of the official language and foreign languages.

The qualifications of lecturers are confirmed by their competence in scientific research and professional activity, which is also relevant to the study programme and the content of the courses taught. The application of selection criteria ensures that the implementation of the study programme involves teaching staff who have both pedagogical work experience in student training and active scientific and professional activity, which ensures the achievement of the study programme goal - to prepare new specialists in the field of pharmacy.

In-service training and upskilling of teaching staff take place in the following ways:

- At least once a year, the teaching staff participates in the international conference in the field of medicine organised by the UL Faculty of Medicine, which has a section on basic medical sciences, including pharmacy. Teaching staff and professors from various Latvian and foreign universities participate in the section with reports,
- teaching staff participate in international scientific conferences, Erasmus plus mobility, local and international research projects,
- teaching staff participate in the work of non-governmental organizations, state and European Union institutions,
- participate in continuing education courses for additional English language training, leadership skills and digital skills within the framework of the project "Academic staff renewal and capacity building at the University of Latvia" of the specific support objective 8.2.2.

To improve the qualification of teaching staff, the University uses various forms and support

mechanisms, so that the elected lecturer could improve their teaching skills within six years, could have internships at other universities, could participate in international academic and scientific conferences and seminars, and gain experience not only in university pedagogy, but also in scientific work. Examples of professional development for *MSP Nursing* lecturers are given in Table 3.4.1.3.

Table 3.4.1.3.

Further training for lecturers of the MSP Nursing program

Lecturer of the program	Participation in in-service training courses
Bakša – Zveja Evija	Expert training on quality assessment guidelines, methodologies and e-platforms for the accreditation and licensing process Improving patient safety and quality of services in Latvia Latvian Nurses Association Leadership in nursing practice - for new impressions and ideas AIC Expert Training on Quality Assessment Guidelines, Methodologies and e-Platforms for Accreditation and Licensing Process VSIA BKUS Adult Non-formal Education Center Training of Mentors of Medical Practitioners
Baranova Sanita	„How to influence the 21st century. student understanding and actions? ” Master Training webinar cycle for LU curators "Development of academic staff competencies in the field of leadership", study project "Renewal of academic staff and improvement of competencies at the University of Latvia" "Right by my side", Erasmus + Learning Mobility Project for Youth Workers, Montecatini, Italy Public Speaking, Basics of Speech Art and Presentation (at the level of advanced skills) for cooperation with industry and audience ", study project“ Renewal of Academic Staff and Improvement of Competences at the University of Latvia "The Role of Learning Outcomes in Quality Assurance", International Continuing Professional Development Seminar, Dr. Declan Kennedy, Academic Information Center "Practical aspects of study field quality assessment", Academic Information Center "Preparation for the development of a competency-based approach to learning", LU continuing education program
Bārzdīņš Juris	Baltic Institute of Corporate Governance, Board Member Education.

Gulbe Dagnija	Higher education didactics: modern theories and practice Professional development education Development of academic staff competencies in the field of leadership Topical issues in emergency medical care Extended cardiovascular resuscitation in adults: prenatal stage Etiquette and communication skills in real and virtual environments
Erts Renārs	Data Science Conference, Course Why R? In Austria. Development of online learning and digitization of learning content. LU, Latvia. Innovations to improve the quality of the learning process. LU, Latvia. Education VAR, Education Leaders Forum. In Liepaja, Latvia The R User Conference, practical course useR! Munich, Germany.
Ivanovs Igors	Higher education didactics: modern theories and practice Professional development education
Folkmanis Valdis	English for Professional Purposes (Medicine II) Continuing Education
Mežinska Signe	Higher education didactics: modern theories and practice Professional development education
Mežiņa – Mamajeva Ina	Higher education didactics: modern theories and practice Professional development education Methodology for formulating and evaluating study results Public Speaking, Basics of Speech Art and Presentation (at the level of advanced skills) for cooperation with industry and audience ", study project" Renewal of Academic Staff and Improvement of Competences at the University of Latvia How to influence the 21st century. student understanding and actions? " Master Training webinar cycle for LU curators English for Academic and Administrative Staff Continuing Education
Olsena Solvita	English for Professional Purposes (Medicine II) Continuing Education

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

During the reporting period, the MSP Nursing teaching staff is stable, with several lecturers having progressed in their academic careers. The faculty is highly experienced in both academic lecturing and research, as evidenced by publications in local and internationally cited journals, supervised Master's theses, PhD theses, and involvement in research projects.

The faculty of MSP Nursing has extensive experience in both academic lecturing and research, as evidenced by publications in local and internationally cited journals and involvement in research projects.

All MSP Nursing teaching staff are actively involved in research or scientific projects. Lecturers work on several research topics and publish articles in indexed journals with a high impact factor. Overall, it can be concluded that the research activity of MSP Nursing lecturers is high.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

The lecturers of MSP Nursing represent several branches of science, the interaction and co-operation of lecturers takes place during various events organised by the University of Latvia: staff meetings, scientific conferences and courses of further education. During the reporting period, the

lecturers of MSP Nursing and PBSP Nursing meet at the annual meeting at the end of the academic year after graduation to discuss the progress of the year, discuss the requirements for obtaining credit points for study courses, to discuss the addition of the latest library literature, as well as to update course content in the context of nursing education reform.

The lecturers of MSP Nursing meet at the end of the autumn semester meeting to evaluate the opinions expressed by students in the LUIS survey on the quality of course and programme content, and to discuss the improvement of course content and coordinate the topics of master 's theses based on students' proposals.

The improvement of the study programme is implemented in co-operation by all parties, with consideration of students' proposals – for example, at the end of the semester students make proposals on the days on which face-to-face classes are planned, for example, during the pandemic they expressed their opinion on full-time or distance studies.

The proportion of students and lecturers cannot be precisely calculated, due to part-time involvement of lecturers in MSP Nursing. The numerical ratio of lecturers to students is 1:3.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11.annex_MāsuM_Diploma_Eng.docx	11.pielikums_MāsuM_Diploma_pielikums_LV.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	13.annex_AIP_55_2_option_Eng.docx	13.pielikumsMasuM_AIP_atzinums_LV.pdf
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_MāsuM_statistics_Eng.docx	4.pielikums_MāsuM__studentu skaita statistika_LV.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	10.Annex_MāsuM_to the national academic education standard_Eng (2).docx	10.pielikums_MāsuM_atbilstiba valsts akadēmiskās izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annex_MāsuM_studiju kursu kartējums_Eng.docx	8.pielikums_MāsuM_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.anex_MāsuM_study plans_Eng.docx	1.pielikums_MāsuM_studiju plāns_LV.docx
Descriptions of the study courses/ modules	7.annex_MāsuM_studiju_kursi _ENG.odt	7.pielikums_MāsuM_kursi_apraksti_LV.odt
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	14.annex_MāsuM__apliecinajums_AL_55_Eng.docx	14.pielikums_MāsuM_apliecin_AL_55_p_LV.jpg

Sports Science (45813)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Sports Science</i>
Education classification code	<i>45813</i>
Type of the study programme	<i>Academic master study programme</i>
Name of the study programme director	<i>Līga</i>
Surname of the study programme director	<i>Plakane</i>
E-mail of the study programme director	<i>liga.plakane@lu.lv</i>
Title of the study programme director	<i>Dr.biol.</i>
Phone of the study programme director	<i>+37126528853</i>
Goal of the study programme	<i>To provide students with the opportunity to research, analyse and develop the physical, mental, emotional and social benefits of sport and physical activity that improve health and quality of life for all individuals, from children and young people to seniors, from patients with serious pathologies to professional high-performance athletes, thus fostering the intellectual potential in academically trained professionals and promoting the transfer of research-based interdisciplinary knowledge to topics of societal relevance in sports science.</i>
Tasks of the study programme	<i>1. To prepare students for academic careers in sports research centres, sports agencies and associations, sports federations, sport and exercise medicine research centres, sports medicine and rehabilitation centres, sports universities.</i> <i>2. To provide graduates with the academic experience necessary for their future careers in research institutions and for business development.</i> <i>3. To ensure continuity in sports science development by preparing graduates with background knowledge for doctoral studies in sports science, natural sciences, social sciences or other related doctoral level studies.</i>

Results of the study programme	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Understand the interactive regulatory mechanisms between different physiological systems and exercise, and their theoretical basis; 2. Describe and analyse in depth the biomechanical regularities of body movements and explain the role of mental processes in the development of physical abilities; 3. Emphasise the importance of physical activity in promoting and maintaining health in modern society and for individuals of all ages; 4. Explain the interdisciplinary specialisation in sport - innovative topics in sport and public health, current issues in the interaction between sport and other areas of societal relevance, such as social, ethical, political, business and technology spheres; <p>Skills:</p> <ol style="list-style-type: none"> 5. Demonstrate general and specific skills for working in modern sports science laboratories using a scientific approach to the research process, involving critical analysis and interpretation of data; 6. Demonstrate the ability to independently design and conduct research projects in sports science as well as work and collaborate in interdisciplinary research teams; <p>Competence:</p> <ol style="list-style-type: none"> 7. Integrate theoretical and practical knowledge of the importance of regular physical activity and proper nutrition for good physical condition, using general theoretical principles of sport and exercise nutrition and evaluating the development of nutritional concepts; 8. Develop and formulate evidence-based and research-based recommendations for amateur sport - personalized exercise, nutrition, and training programmes, injury risk prevention; 9. Create conditions for the transfer of theoretical and practical knowledge in the development of new functional food products, innovative measuring devices, computer software and mobile applications.
Final examination upon the completion of the study programme	Master's thesis

Study programme forms

Full time studies - 2 years - latvian

Study type and form	Full time studies
Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	80
Admission requirements (in English)	Bachelor or Master Degree in Natural Sciences, Health Sciences, Education Sciences, Humanities, Social Sciences, Engeneering, Environmental Sciences or second level professional higher education (or equivalent higher education) in medicine

Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master`s Degree in Health and Sports Science</i>
Qualification to be obtained (in english)	–

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 2 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	<i>2</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>80</i>
Admission requirements (in English)	<i>Bachelor or Master Degree in Natural Sciences, Health Sciences, Education Sciences, Humanities, Social Sciences, Engeneering, Environmental Sciences or second level professional higher education (or equivalent higher education) in medicine Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master`s Degree in Health and Sports Science</i>
Qualification to be obtained (in english)	–

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

The Academic Master's study programme Sports Science (hereinafter - MSP Sports Science) was licensed on June 21, 2019, and no changes have been made to the study programme parameters.

During the licensing process of the study programme, experts indicated the five following recommendations:

1. When admitting applicants with bachelor's degrees from other sciences, it is recommended to inform them about job opportunities in the field of sports after graduation from the programme.

The recommendation is implemented every year in the entrance meetings of students. They are informed about the study programme, its purpose and planned study courses, the possibilities of developing a master's thesis, as well as academic and professional career opportunities upon graduation from the study programme - work in sports research centres, sports agencies and sports federations, sports medicine and rehabilitation centres, as well as universities, continuing doctoral studies and research; qualified work as a sports teacher and coach in sports clubs and centres, if the professional qualification has been obtained previously or in the future.

2. In the 1st semester, it would be desirable to include optional courses (part B or C) and provide for more basic sports courses for students without prior education in sports. Students with higher education in sports, on the other hand, could be offered to choose other study courses.

The recommendation is implemented by including part C selection course in the 3rd semester. However, in the 1st semester, all courses are in Part A, with the aim to acquire the necessary knowledge for further studies in exercise and sports biology, movement biomechanics, sports psychology, epidemiology, as well as innovation and business.

3. The study programme should also include various sports-related optional study courses also with practical sports activities, including study courses, which are the most up-to-date fitness equipment, technologies, software, fitness tests, etc.c.

The most up-to-date sports technologies, software, tests and physiological, biochemical and psychological methods and devices for assessing working capacity are taught to students in most study courses. Equipment is used directly during physical activity. Practical sports activities are offered by the UL Sports Centre both in general physical fitness, individual sports and team sports games.

4. It is desirable to start the development of the Master's thesis in the 3rd semester in order to avoid a situation in which the student does not promise the study programme within 4 semesters, because he or she is not able to perform the master's thesis.

This recommendation has been fully implemented since the 1st year of admission. In the study

programme Sports Science, despite the fact that part A course "Master's thesis in Sports Science" is included in the 4th-semester plan, the choice of the topic of the Master's thesis takes place already in the 1st, 2nd semester, but in the 2nd-semester students acquire research methods, research ethics in sports science, preparing their research application to the Ethics Commission. In the 3rd semester, he or she learns methods of processing and analysis of scientific data and performs the creation and approbation of the master's thesis protocol design. In the 4th semester, in successive stages, the theoretical justification, methods, results of the topic shall be reported, finally defended to the examination commission.

5. If the planned number of students is not enrolled in the programme, then it is desirable to review the possibilities of reducing costs and improving profitability, including reducing contact hours to the requirements of the state academic education standard.

An analysis of the feasibility of the recommendation has been carried out. In order to reduce the cost price of the study programme, the study process can be organised in some courses (Epidemiology, Philosophy and Cognitive Sciences, Business Management, Visual Perception: Methodology, Frameworks) concurrently with students of other study programmes. The cost of studies can also be reduced by teaching several Part B courses every other year.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

The compliance of the academic MSP Sports Science with the study field Health Care is related to the interdisciplinarity of the study programme, which is aimed at diversifying research-based knowledge to improve health and quality of life for all individuals, from children and adolescence to seniors, from patients with serious pathologies to professionals. Sports and exercise science typically value quality of health promotion and disease prevention. Graduates of this study programme use their knowledge about physical activity and exercise to support health, improve performance, and prevent disease. MSP Sports science corresponds to the study field Health Care, because about 60% of the total amount of credit points of the study programme is made up of courses in the fields of Medicine and Health sciences, 20% consists of Social sciences courses, and 20% - Natural sciences courses.

According to the Latvian education classification, the code of the study programme is 45813 and graduates of the study programme will be awarded a Master's degree in Health and Sports Sciences (Annex 1_SpoSci_MSP).

Students of the study programme will acquire knowledge, skills and competence corresponding to the 7th level of the Latvian Qualification Framework (LQF) and the European Qualifications Framework (EQF) defined in the Cabinet of Ministers' Regulation No 322 of 13 June 2017 "Regulations on the Latvian Classification of Education" (*the source is available only in Latvian* [1]).

As MSP Sports Science is intended for less than 250 full-time students, the decision of the Council of

Higher Education has been received (Annex 2_SpoSci_MSP).

According to the Regulations on the State Academic Education Standard (*the source is available only in Latvian* [2]), the study programme has a study programme of 80 KP and the duration of studies is 2 years (4 semesters) (Annex 4_SpoSci_MSP).

Admission requirements for MSP Sports Science correspond to the aim and tasks of the study program:

1. To prepare students for academic careers in sports research centres, sports agencies and associations, sports federations, sport and exercise medicine research centres, sports medicine and rehabilitation centres, sports universities.
2. To provide graduates with the academic experience necessary for their future careers in research institutions and for business development.
3. To ensure continuity in sports science development by preparing graduates with background knowledge for doctoral studies in sports science, natural sciences, social sciences

Admission requirements are appropriate for the interdisciplinarity of the program, so MSP Sports Science matriculates individuals with a Bachelor or Master Degree in Natural Sciences, Health Sciences, Education Sciences, Humanities, Social Sciences, Engineering, Environmental Sciences or second level professional higher education (or equivalent higher education) in medicine. An entrance examination is applied, in which applicants provide information on:

- 1) the applicant's motivation for choosing the study programme, the intended research direction;
- 2) the topicality of the Master's research theme and its relevance to current research directions in Health and Sports Sciences;
- 3) the applicant's experience in research - methods used and results obtained in the preparation of the Bachelor's thesis;
- 4) the applicant's perception of the field of Health and Sports Sciences, its current trends, innovative solutions; personal experience;
- 5) paper presentations at scientific conferences;
- 6) traineeships at universities and research institutions abroad;
- 7) preliminary work on the Master's thesis.

The courses of the study program are developed in accordance with the principles of gradation and succession. To ensure this, the courses included in the 1st semester of the study program according to their goal and results provide the knowledge necessary for further studies on the mechanisms of regulation of the body's adaptation to physical activity, regularities of biomechanics of human movements and the role of mental processes in developing physical abilities. A further task of the program is to acquire knowledge and skills about research methods that allow for the correct assessment of changes in human biomechanical, neuromuscular, physiological, biochemical, psychic processes and functions caused by physical activity.

Healthcare and within it Sports science is not only an interdisciplinary field of science, but also an international and currently rapidly growing field of science in the world, so it is useful to implement this program in English as well.

[1] <https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitiba-klasifikaciju> (the source is available only in Latvian)

[2] <https://likumi.lv/doc.php?id=266187> (the source is available only in Latvian)

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

The position of the MSP Sports Science in the Latvian education market is determined by the demand for education to prepare competitive and highly qualified specialists at the Master's level who are ready for both academic and professional work. One of the tools for developing the skills and competences required on the labour market is interdisciplinary higher education and the implementation of interdisciplinary study programmes at higher education institutions. Interdisciplinarity is the basis for the sustainable development of science, which means that the sustainability and competitiveness of science are directly related to interdisciplinarity. Disciplinary convergence is a positive process for problem-oriented solutions. Sports Science and Cognitive Science are good examples of this. MSP Sports Science graduates have a wide range of professional opportunities, such as academic career in Latvian universities and research institutes, for example, sports laboratory staff in the Physical Performance Testing Laboratories, qualified staff in sports clubs and centres, physical education teacher and coach if graduates get a previous or subsequent professional qualification.

Qualified specialists can collaborate with other disciplines: food technologists (development of new functional foods), engineers (new measurement devices), computer scientists.

The Ministry of Education and Science (MES) developed Priority Directions in Science 2018-2021 including Challenges in Sports Science (*the source is available only in Latvian* [1]). There is a need to focus research resources on sports training methodology and athletes' functional capacities in the context of health sciences. Building the knowledge base is a necessary step of scientific research, on which basis training methodologies are developed to improve the physical and mental performance of athletes, children and young people, as well as physically active adults. Health care and medical monitoring of athletes and children with increased physical demands play a key role in the development of their physical abilities, optimisation of the training process, prevention of overload and injury, recovery after high physical stress and athletic development in general, therefore, in-depth research in functional diagnostics and physical properties research can contribute to the efficiency of the training and coaching process and improve the performance of athletes in competition. The physical performance of high-class athletes has reached such a high level in terms of improving strength, endurance, speed, flexibility and agility that additional untapped reserves of the body's capabilities must be sought to improve athletic performance. To this end, research is being carried out throughout the world to increase the capacity of the athlete's body and to ensure that this capacity is realised. The results of such research can be used not only in high-performance sport, but also in children's and youth sport, and in grassroots sport.

Public Health Framework 2021-2027.

In order to improve the health of the Latvian population, in the next 7 years it is planned to work in several directions, both by promoting individual responsibility for their own health and by strengthening the Health Care System, providing accessible and quality health care services, as well as digital solutions. On 25.02.2021, at the meeting of State Secretaries, the Ministry of Health, together with industry and other ministries, announced a medium-term policy planning document Public Health Framework for 2021-2027 (*the source is available only in Latvian* [2]).

The MSP Sports Science is supported by the Latvian Physiological Society, the Latvian Olympic Committee, the Traumatology and Orthopaedics Hospital. Several municipalities in Latvia, whose

cities have established modern comprehensive sports centres and new and modern laboratories equipped for the determination of physical performance (e.g. Sigulda, Mārupe), have expressed their support for the implementation of the Master's degree programme at the University of Latvia. Currently, physiotherapists and sports staff from Sigulda Sports Centre, as well as the Latvian Olympic Team and the National Rehabilitation Centre "Vaivari" are among MSP students. Cooperation agreements have been concluded with several sports federations - Latvian Football Federation, Football School METTA, Latvian Floorball Union, Latvian Swimming Federation (Annex 9_SpoSci_MSP).

[1] <https://www.izm.gov.lv/lv/media/4858/download> (the source is available only in Latvian)

[2] <http://tap.mk.gov.lv/lv/mk/tap/?pid=40498718> (the source is available only in Latvian)

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

The MSP Sports Science was licensed on 21 June 2019. The first intake took place in the autumn semester of the academic year 2019/2020. 7 students (1 of them studying in a state-funded place) were matriculated and signed a study contract, starting full-time studies. In semester 1, 1 student withdrew from studies and 1 took a study break, unable to combine studies with paid work. In semester 2, in March 2020, with the onset of the Covid-19 pandemic and the shift to remote instruction and learning, another student took a study break, unable to combine family responsibilities, work in the health care system and home-based studies. 4 students successfully completed the first year and started the 2nd year of study, successfully completing and defending their Master's theses.

In the academic year 2020/2021, 16 applications were received and 11 students started their studies, 1 of whom in a state-funded place. The first 4 weeks of studies were conducted in offline mode, but due to the deterioration of the epidemiological situation in the country, implementing the established epidemiological safety measures, from the 5th week studies shifted online. All 11 students successfully completed the 2nd semester. In semester 3, 10 students proceeded their studies, one of them took a study break because he refused the epidemiological requirements to be vaccinated. In the middle of the semester, another student took a study break because he couldn't reconcile his job at the Children's Clinical University Hospital affected by the pandemic with his studies.

In 2021/2022, 12 applications were received and 9 students signed a study contract, 1 of whom was granted a state-funded place.

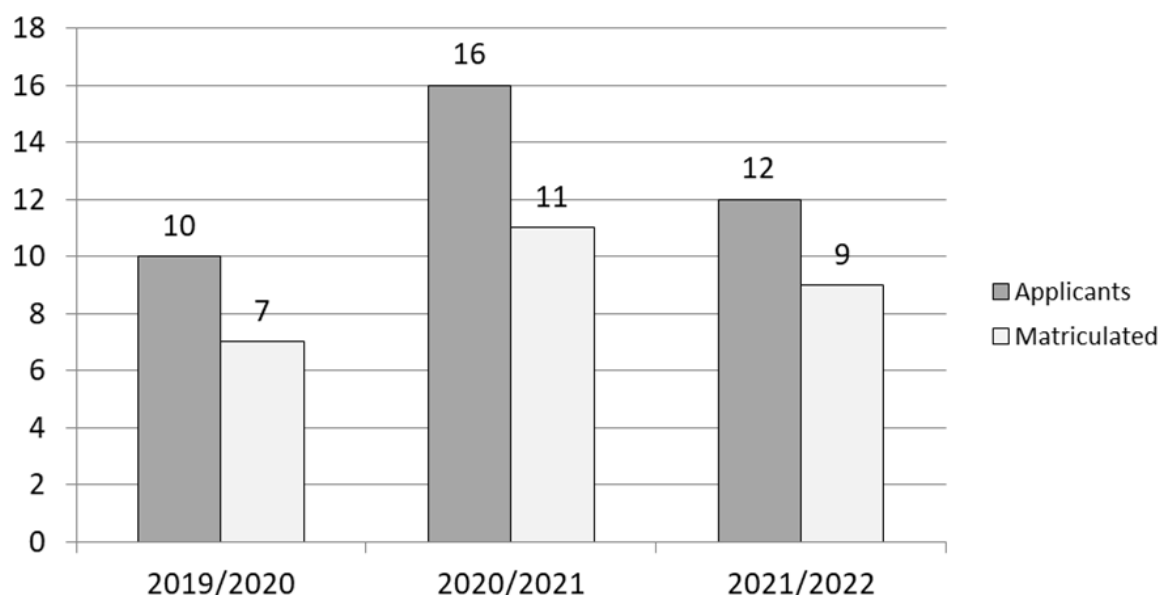


Figure 3.1.4.1. MSP Sports Science students' number dynamics

The increase in the number of students enrolled in the MSP Sports Science already in the 2nd year of enrolment (see Figure 3.1.4.1. and Annex 3_SpoSci_MSP) can be explained by the wider availability and promotion of information on the purpose, outcomes and implementation of the Master's degree programme. In addition, the University of Latvia (UL) is one of the first universities in the Baltics to offer high-level professional athletes the opportunity to pursue higher education by combining their studies with a professional career in sports, i.e. a **dual-career** option. Currently, two high-class athletes and members of the Latvian Olympic Team are students of the MSP Sports Science.

However, the decrease in the number of students in the 3rd intake year is caused by distance learning implemented due to the COVID 19 pandemic, when the important practical and laboratory work as well as the research with human participants cannot be carried out. This reason was also pointed out by students and applicants in the admission interviews.

The results of the interviews show that the number of students in Sports Science could increase if the number of state-funded places increased. This reason was given by non-contracted applicants as they were unable to pay the tuition fee immediately after completing their Bachelor studies.

The MSP Sports Science is taught in the first three years of study in Latvian. From the academic year 2022/2023, admission is also open for English-speaking applicants. The previously planned enrolment in the programme with English as the language of instruction was not implemented due to the COVID 19 pandemic and the restrictions and vaccination certificate requirements for foreigners.

To date, MSP Sports Science in English has not been implemented, therefore such analysis cannot yet be carried out for the dynamics of the number of students in the English group.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

The MSP course volumes: compulsory courses (Part A) 32 credits, restricted elective courses (Part B) 26 credits, free elective courses (Part C) 2 credits, Master's thesis 20 credits.

The programme offers three possible areas of specialisation: biomechanics and neuroscience, exercise physiology and biochemistry, sport psychology and public health (see Table 3.2.1.1., see Annex 6_SpoSci_MSP).

The 1st semester includes compulsory (Part A) courses of 20 credits, with the overall aim to acquire the basic knowledge necessary for further studies in the physiology of sport, exercise and adaptation mechanisms, biomechanics of movement, physiology of neuromuscular functions, sports psychology and epidemiology, as well as innovation and entrepreneurship. In view of the matriculation requirements for the MSP Sports Science, the courses included in the 1st semester align the specific knowledge of the graduates of different Bachelor programmes and ensure their competence for further studies. One of the programme objectives is to provide students with the knowledge on different research methods and research skills that can be further used to test various intervention effects on physical health and performance. For international students who study the programme in English, a Latvian course of 2 credits is offered in the 1st semester.

The 2nd semester includes compulsory (Part A) courses of 8 credits aimed at gaining research methods and introducing students to specialisation in one of the MSP Sports Science areas - i) biomechanics and neuroscience; ii) sport exercise physiology and biochemistry; iii) sport psychology and public health, followed by the elective (Part B) courses of 12 credits in the selected area. These courses provide students an in-depth knowledge of the selected field and its practical application. The Part B courses of 12 credits may be chosen beyond one specific programme area (module), not exceeding the number of credits specified in the University Regulations.

In the 3rd semester, the compulsory (Part A) courses of 4 credits include studying academic writing principles, associated with the choice of the Master's research topic, as well as a course in innovative methods. The Part B courses of 14 credits may be chosen beyond one specific programme area (module), not exceeding the amount of credits specified in the University Regulations. In addition, in this semester, students may choose any free elective course of 2 credits from the restricted elective courses offered by any other Master's degree programme in Health Care by registering for it in the UL Information System.

The 4th semester – preparation of the Master's thesis - 20 credits. The Master's thesis is developed at the end of the study programme meeting the standards of a scientific work to be published in an international peer-reviewed journal.

In accordance with the requirements of the Law on Environmental Protection and the Law on Civil Protection and Disaster Management, if a student has not completed the above requirements within a lower-level study programme, he/she shall complete them in addition to the Master's study programme and receive a respective grade.

Table 3.2.1.1.

MSc Sports Science Planning

1. semester			Objective: to level the playing field
A Part - 20 CP			
Sport and Exercise Biology 6 kp			
Biomechanics of Human Motion 4 CP			
Philosophy and Cognitive Sciences 2 CP			
Personality and Differential Psychology in Sport 4 CP			
Epidemiology -I 2 CP			
Business Management 2 CP			
2. semester			Aim: acquisition of research methods, initiation for specialization in one of the directions (modules) of the sports science program
A Part - 8CP			
Research Ethics in Sport Science 2 CP			
Preparation of Projects and Publications 2 CP			
Visual Perception: Methodologies, Frameworks 4 CP			
B Part - 12 CP			
Biomehānika un neirozinātne	Sporta slodžu fizioloģija un biokīmija	Sporta psiholoģija un sabiedrības veselība	
Motor Control Systems 6 CP	Methods of Cardiorespiratory Functions 4 CP	Psychological Measurement in Sport 4 CP	
Neurobiology 4 CP	Research Methods in Sports Biochemistry 4 CP	Epidemiology II 2 CP	
Anthropometry 4CP			
3. semester			Aim: acquisition of in-depth knowledge and practical application of the acquired knowledge
A Part - 4 CP			
Preparation of Projects and Publications 4 CP			
B Part - 14 CP			
Biomechanics and neuroscience - 12 kp	Exercise physiology and biochemistry -12kp	Sport psychology and public health - 12 kp	
Business Intelligence Methods 4 CP	Adaptation to Endurance and Resistance Training 4 CP	Personāla attīstīšanas metodes / The Development Methods of Team and Individuals 2 CP	
Multivariate Analysis 4CP	Sports Medicine 4CP	Veselības psiholoģija sportā 4 kp	
Training periodization and monitoring 2 kp			
Sports Nutrition 2 CP			
C Part - 2 CP			
4. semester			
Master's thesis development -II - 20 CP			

Summary:

A Part - 32CP

B Part - 26 kp

C Part - 2 CP

Master's Thesis- 20 CP

In all courses, knowledge, skills and competences correspond to the LQF level 7 defined in the Cabinet of Ministers' Regulation No. 322 of 13 June 2017 "Regulations on the Latvian Classification of Education" (the source is available only in Latvian [1]). For each UL study programme and course, learning outcomes are formulated as a set of knowledge, skills and competences.

To map the study programme, an Excel spreadsheet was used. After the study programme aim, objectives and learning outcomes were formulated as the knowledge, skills and competences to be acquired and expected, and it was determined which study courses with content corresponding to the study programme aim, objectives and outcomes were required, new study courses were developed or study courses already taught within the UL study programmes were selected.

The interrelationship and relevance of the information contained in the MSP Sports Science courses to the programme aim and learning outcomes are summarised in Annex 5_SpoSci_MSP. For each study course, the course aim and objectives, its learning outcomes as a set of knowledge, skills and competences are formulated corresponding to the LQF level 7 defined in the Cabinet of Ministers' Regulation No 322 of 13 June 2017 "Regulations on the Latvian Classification of Education". The MSP Sport Science course descriptions are attached as an Annex 7_SpoSci_MSP to the report. The courses have been developed in accordance with the step-by-step approach and continuity principles. To ensure this, the intended course outcomes mapping has been carried out within the study programme, enabling the educators to better understand/see the continuity of the courses and their content interrelation. The mapping has resulted in the refined formulation of the programme and course learning outcomes, as well as the elimination of duplicate content, in some cases by supplementing the course content.

According to the mapping, it can be concluded that the first semester courses, in terms of their purpose and achievable results, provide the knowledge necessary for further studies on the mechanisms regulating adaptation to physical exertion, biomechanics of human movement and the role of mental processes in the development of physical abilities. The further aim of the programme is to acquire knowledge and skills in research methods that allow the correct assessment of biomechanical, neuromuscular, physiological, biochemical and psychological changes and functions induced by physical exercise. The outcomes of the following courses are related to in-depth knowledge acquisition and its practical application to develop research-based, reasoned recommendations for both high-performance athletes and amateurs supporting healthy lifestyles, as well as to assess the potential risk factors of overload or inappropriate load.

Different specialisation areas allow students to study one of the following modules in depth: i) biomechanics and neuroscience; ii) exercise physiology and biochemistry; iii) sports psychology and public health.

In anticipation of the first graduate evaluation, a seminar was organised for the academic staff, each staff member making short presentations of the planned and achieved course results. This helps to improve the content of a course in relation to the other courses and to the programme aim, objectives and outcomes, to identify gaps in the programme and to define further improvement measures.

Since the licensing of the MSP Sports Science, the following changes have been made to Part B:

1. The original study course "The development Methods of Employee" was replaced with "Development Methods of Team and Individuals" of 2 credits, updating the course content according to the specific topics and practical application in the field of Sports Science;

2. The title "Health Psychology in Sports" of a 4-credit course (previously "Health Psychology") has been specified;

3. The following courses have been removed from Part B: "Developmental Psychology", as its content partly duplicated other Sports Psychology courses, "Databases and Information Systems Fundamentals", partly incorporating the course topics into other on-going courses;

4. A 2-credit Part C course has been added to the programme.

In order to obtain feedback from the parties involved in the Master's higher level study process and related to its performance, regular surveys are organised at the UL (UL Order No 1/334 of 22 August 2016 "Procedure for organising regular surveys to evaluate the study process at the UL" - the source is available only in Latvian):

- student course experience survey at the end of each semester, including a survey on final papers;

- final year students survey;

- dropout and potential dropout survey;

- alumni survey;

- employer survey.

The results of the student surveys are available to the course lecturers as well as to the programme director.

The final year student survey is conducted at the end of the last semester. Graduate surveys were carried out for the first time at the end of the academic year 2020/2021, anticipating the first graduation in the programme.

Courses are evaluated according to 11 criteria, rating course content and quality of delivery on a scale of 0-7:

1. The course content corresponded to the course description

2. The course content did not duplicate another course

3. The course topics were presented in a clear manner

4. The teaching methods used by the tutor facilitated learning the course

5. The recommended literature and materials were easily accessible and useful

6. The materials available in the e-course were helpful in learning the course, if no e-course available, the answer option "Don't know, can't say" should be ticked

7. The midterm examinations contributed to learning the course

8. The teacher was available for consultation

9. I achieved the learning outcomes recorded in the course description

10. I would like to take another course from this teacher

11. The explanations given by the teacher about the test results are sufficient

The content of the courses is rated 6.3 to 7 (on a 7-point scale), with mostly positive comments: "The lectures were interesting and well prepared; I liked that the lecturer stuck to the study plan; he presented the material very clearly; in the course "Biomechanics of Human Motion", the theory was always complemented with interesting video examples, research results or stories of experience, and - in each lesson - quizzes were prepared to consolidate the knowledge. Very valuable!"

The assessment of the course learning outcomes achieved ranges from 5.3-6.8, which reflects the need for teaching staff to critically evaluate the outcomes expected and achieved in their courses.

The survey shows that students liked the type of mid-term examinations organised during the semester, but in those courses where they were not implemented, they pointed out the need for them. "It was great - especially the practical tasks in the lectures! I think the curriculum was well designed - we did tests and lab work throughout the semester, as well as preparing presentations - this helped to consolidate knowledge and prepare for the final exam".

Students praised their lecturers for enthusiasm and openness to discussion and consultation: "The lecturer is open to questions both related and unrelated to the topic of study. The topics discussed in the course allowed to look at things, events and people's actions from a different point of view."

The surveys also highlight areas for improvement. Some students point out that there is some overlap in the content of the courses "Business Management" and "Basic Skills for Innovation Activities". It should be noted that the evaluations of this innovation course differ extremely; alongside with the evaluation "the course was well thought out and packed with valuable information; the course was interesting as there were many guest speakers with personal stories", some students rate it as "too incomprehensible and complicated to learn without prior knowledge". Obviously, in the future a single course should be developed within Part A, with theoretical knowledge of business, and innovation solutions offered in the course second part.

The survey results are analysed and discussed within the study programme, Faculty Councils and the study area, as well as reflected in the annual self-assessment reports.

A survey on students' evaluation of distance learning methods was conducted at the end of 2020. Students' main recommendations were as follows:

1. Although the current rules do not make it compulsory, there is a call from the students to make recordings of classes and lectures, as the circumstances indicated by the students, which may arise and occur during remote classes, tend to interfere with proper follow-up of the class (which is different from the face-to-face situation);

2. Students themselves suggest small tests during or after the lesson as a tool to test their knowledge, which at the same time encourages students to follow the lesson more closely (even if it is recorded) (this was well demonstrated in the course Biomechanics of Human Movement, where both the recording and occasional small tests were conducted);

3. Tests should be done in e-studies instead of MTeams, as technical problems occur too often;

4. To schedule small breaks during lectures (e.g. 5 minute break after 40-45 minutes of lecture) - students highlight immobility and concentration problems when sitting at the computer for long periods.

In the spring semester 2020 and autumn semester 2021/2022, these recommendations have been taken into account and student feedback is positive about the different test types and the use of technology in distance learning.

Graduates of the MSP Sports Science 2020/2021 appreciated both the study environment and the study process with a rating from 5.7 to 6.8 points. The most appreciated aspects were the knowledgeable and supportive teaching staff (6.8), the study organisation (6.3), the opportunities offered by LUIS and the e-learning environment (6.3). The lowest scores were given to the extra-curricular activities offered by the University and the support from the Student Council and self-government (5.7). The average score for learning outcomes is 6.3 (ranging from 5.8 to 6.8). The most positive scores were given for the good theoretical and practical knowledge acquired during the studies, the ability to make complex decisions by critically evaluating information, and the preparation for the labour market with 6.5 points. The lowest score (5.8) was given to the question "I improved my communication skills during my studies".

The questions "My current job is relevant to my education (responsibilities, skills)" and "I started to plan my professional development and career during my studies" at the end of the alumni survey scored 6.8 points.

Among the critical aspects, the students' recommendation to merge the Part A courses "Business Management" and "Basic Skills for Innovation Activities" into a single course is noteworthy. At present, Part A includes a single course, but in the future there are plans to create one extended course involving industry professionals and experts in innovation and sports technology start-ups in Latvia and Europe.

[1] <https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitiba-klasifikaciju> (the source is available only in Latvian)

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

Academic staff qualifications are demonstrated by their participation in research projects, publication of research results in internationally cited journals, participation in exchange programmes and international conferences. The aim of the MSP Sports Science is to provide students with the opportunity to research, analyse and develop the beneficial aspects of sport and physical activity, facilitating the transfer of research-based interdisciplinary knowledge on sport science topics of relevance to society. The results of the students' research are included first in the programmes of the annual scientific conferences of the Faculty of Sport and Physical Education, as well as in the sectoral conferences. Students are motivated and prepared for publication of research results in international and national scientific journals. For this purpose, the study course "Preparation of Projects and Publications" is successfully implemented (asoc.prof. I.Krams). The Laboratory of Perception and Cognitive Systems headed by Prof. Šķilters is particularly commendable for the cooperation of faculty members and students in scientific research. The research of the 2nd year Master's student M.Vilciņa with the Latvian Olympic team athletes was presented at the 79th International Conference of the University of Latvia, as well as an oral presentation "*Dynamics of emotions in high-profile sport: Measuring Latvian Olympic team 2020*" at the leading cognitive science world forum *Annual meeting of the Society for Affective Science (SAS)* in April 2021.

Conferences organised

Sports science academics and researchers organise annual satellite conferences within the UL International Scientific Conference.

- **02.2020 - "Sports Science and Public Health"** conference. Plenary lectures were given by Prof. Andrejs Ērglis "Physical activity as an intervention and contribution to the heart health of the nation" and Prof. Šķilters "Biological movement perception research as an example of interdisciplinary research". The conference was organised in 3 sessions: Sports Physiology and Medicine, Public Health: Psychological and Nutritional Aspects and Public Health: Psychological and Nutritional Aspects. 15 papers were presented at the conference.
- **On 19.02.2021** the 79th International Scientific Conference "**Sport for Health Sustainability**" was held. More than 70 sports professionals, students and scientists, university professors, as well as foreign guests from Latvia, Romania, Italy, Croatia, Belgium, Russia and Kazakhstan shared the latest research in sports and health science and gathered ideas that could contribute to the development of sport and healthy lifestyles. **Emīls Sundjukovs** (Researcher, Faculty of Computer Science, University of Latvia) on Digital Technologies for Public Physical Well-being and Research Participation; **Jānis Skabārdis** (FC "Metta") on Physical Activity Exercise Monitoring with GPS; **Raimonds Ciems** (*Hawk-Eye Innovations*) - Optical Athlete Tagging as Part of a Sustainable Future; Prof. **Laura Capranica** (University of Rome, Italy) on Dual Career Support Opportunities for High Performance Student Athletes in the *More than Gold* Project and others. **22 research papers were presented at the 2021 Conference.**

The programme-related research projects of the teaching staff are listed in Table 3.2.2.1.

Table 3.2.2.1.

The programme-related research projects of the teaching staff

Name, surname	Research projects
Aleksandrs Koļesovs	<ul style="list-style-type: none"> · 2020. Clinical, biochemical, immunogenetic paradigms of COVID-19 infection and their correlation with socio-demographic, etiological, pathogenetic, diagnostic, therapeutic and prognostic factors to be included in the guidelines, NRP Nr. VPP-COVID-2020/1-0023, executor. · 2020. Perceived support in the academic field in the prediction of students' affiliation with Latvia and emigration intentions (UL FEPA), project manager. · 2014-2019. Man and technology, quality of education (UL FEPA Organizational and technical support of scientific activity of the Scientific Institute of Pedagogy), senior researcher. · 2017. NRP "Biomedicine" subproject 5.7.1. Development of innovative strategies for the regulation and modulation of the infectious process (RSU), executor (data analysis).
Jurgis Šķilters	<ul style="list-style-type: none"> · 2017. senior researcher at UL FBME and SIA RIX Technologies research project "Cognitive and behavioural aspects of human-computer interaction in the development of electronic services and electronic learning materials"; project No: ESP-16/19. · 2017. senior researcher at SIA Tilde un UL collaborating project ("Practical orientation studies"; project application Nr.1.1.1.1/16/A/215) "Neural networks for the treatment of flexive natural languages". · 2016. Member of the research group of the NATO Strategic Communications Centre of Excellence research project "Humour as strategic communication tool: analysis and methodology".
Zbignevs Marcinkevičs	<ul style="list-style-type: none"> · 2017-2018 Optical non-invasive hybrid method for early diagnosis and therapy management of sepsis (Industrial studies), ERAF, researcher. · 2016-2017 Atomic physics, optical technologies and medical physics, FB, researcher. · 31.08.2018.-31.08.2021. Photoplethysmography imaging for chronic pain assessment, LZP-2018/1-0188, leading executor. · 2020-2022 ERAF LIA project: "Multimodal optical technology for monitoring microcirculation of human circulation", KC-PI-2020/50, senior researcher.

Signe Bāliņa	<ul style="list-style-type: none"> · Since 2016, UL effective cooperation study "Cognitive and behavioral aspects of human-computer interaction in the development of electronic services and electronic learning materials", project manager. · Since 2016. Project "Information and Communication Technology Competence Centre" implemented by IT Competence Centre (Contract Nr. 1.2.1.1/16/A/007), project manager; project Nr. 1.3 "The use of the capabilities paradigm in the management of business support processes for small and medium-sized enterprises", senior researcher; project Nr. 2.1 "Semantic annotation of text data in case of application of web-related datasets", senior researcher. · 2014-2016. Project "Information and Communication Technology Competence Centre" implemented by IT Competence Centre, project ID. Nr. KC/2.1.2.1.1/10/01/001, project Nr. 2.3."Using mobile interface capabilities in the learning process", senior researcher.
Ingvars Birznieks	<ul style="list-style-type: none"> · 2020-2022 The role of spike patterning in shaping human perception of tactile stimuli. ARC Discovery Project grant. · 2017-2019 Sensory mechanisms underlying human dexterity in object manipulation. 2016 ARC discovery project grant. App ID: DP170100064.
Liliāna Civjāne	<ul style="list-style-type: none"> · 2020. Project "Phase 12 of the survey of problem drug users, including an assessment of the impact of the emergency situation due to COVID-19 on drug habits and risk behaviour", Centre for Disease Prevention Control project, researcher. · 2020-2023. Fostering institutional transformation of R&I policies in European Universities (FIT FORTHEM)". HORIZON 2020 project. Position in the project - Head of WP5.3 : "Living Labs for societally embedded co-creation of knowledge". · 2020. COVID Life - Life with COVID-19: Assessment of overcoming the coronavirus crisis in Latvia and proposals for future societal resilience. Position in the project – researcher in working group WP3: Well-being in relationships: the psychological impact of COVID-19 on individuals and families. Position in the project – researcher. · 2018-2021. Ethically and socially responsible management of research biobanks in Latvia: analysis of opinions of society, donors and scientists. Latvian Council of Science project, researcher. · 2014 – 2016 DACH (Germany– Austria - Sweden) project "Novel PM metrics: Short-term fluctuations, in vitro toxicity and acute health effects in the elderly – a comprehensive interdisciplinary panel study". Environmental group, at Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany, project management), Heinrich Heine University, Düsseldorf, Germany, researcher.

Evita Rostoka	<ul style="list-style-type: none"> · 2021-2023. ERAF postdoctoral project "Determination of markers of development of complications of type 1 diabetes associated with B lymphocytes", project manager. · 2017-2020. ERAF project "Determination of genetic, epigenetic and clinical markers of multiple sclerosis associated with proteasomes", researcher. · 2016-2018. ERANET RUS programm; project "Study of the new post-replicative modification of DNA by Poly(ADP-ribose) polymerases and its implication for anticancer therapy", researcher. · 2014-2017. National Research programme "Biomedicine 2014", researcher. · 2013-2016. Latvian Council of Science project "Search for new therapeutics for the treatment of diabetic complications between antioxidants and DNA reparation stimulating agents", researcher.
Līga Ozoliņa-Molla	<ul style="list-style-type: none"> · 07/2019 – 06/2022 project of European Universities' alliance „Fostering Outreach within European Regions, Transnational Higher Education and Mobility: labs for education, research and innovation”, leader of project activity „Food Science”. · 01/05/2016-31/03/2021 Assessment of metabolic malignant obesity risk and potential for its reduction in the population of young people (LU ZD2016/AZ110); senior researcher. · 11/2019-08/2020 Physical activity and general health status of children: lifestyle as a gut metagenome modifying factor; Effective cooperation project of UL (LU: AAP2019/B239); senior researcher. · 2018 Physical activity and general health of children; UL Effective cooperation project; project Nr. 1-22-2677; UL reg.Nr. AAP2017/B143; senior researcher. · 01/05/2016-31/12/2017 Assessment of the risk of cancerous adiposity of the metabolic rate and the possibility of its reduction in the young population (UL ZD2016/AZ110); senior researcher, project activity manager. · 01/10/2015-30/06/2016 Mobility of students and academic personnel of Life Sciences between Latvia and Norway (EEZ/NFI/S/2015/031); project coordinator. · 01/10/2015-30/06/2016 European Economic Area and Norwegian Financial Mechanism Research Programme - "Research and scholarship" activities (EEZ/NFI/S/2015/031) project coordinator.
Indriķis Krams	<ul style="list-style-type: none"> · 01/12/2020-01/12/2021 Relationship between haematological parameters of birds, blood microbiome, bloodparasitic infections and fitness under ecological trap conditions, LZP project Nr. LZP-2020/2-0271, senior researcher, executor. · 2020. Project "The impact of the COVID-19 epidemic on the health care system and public health in Latvia; strengthening the preparedness of the health sector for future epidemics", executor.

Kārlis Purmalis	<ul style="list-style-type: none"> · 2017-2018 Project "Improvement of short-term labour market forecasting methodology, including supplementation with preparation of short-term forecasts by skill and development of guidelines for users of methodology" Contract No. Nr. NVA 2016/25_ESF/1.1-11.6/2 ESF project "Improvement of the labour market forecasting system", Nr. 7.1.2/16I/001, senior researcher, project manager. · 2016-2018 National Research Programme 2016.project "Exploring opportunities for reducing gastric cancer mortality", executor (cost-effectiveness calculation activities) · 2016-2018 Project "Biomarker research in the field of oncology, infectious diseases and preventive medicine", economic calculation activity manager.
Signe Mežinska	<ul style="list-style-type: none"> · 2021-2024. Researcher and consortium member in the H2020 project ROSiE "Responsible Open Science in Europe", researcher. · 2018-2021. Latvian Council of Science project "Ethically and socially responsible governance of research biobanks in Latvia: analysis of opinions of public, donors and researchers", senior researcher. · 2018-2021. H2020 project VIRT2UE "Virtue based ethics and Integrity of Research: Train-the-Trainer program for Upholding the principles and practices of the European Code of Conduct for Research Integrity", researcher. · 2018-2021. COST Action CA16210 MINDDDS "Maximising Impact of research in NeuroDevelopmental Disorders", Management committee member. · 2017-now; project "Ethical aspects of the prevention of obesity in Europe. A comparison of the situation in Western and Eastern Europe in selected countries" participant (project applicant: University of Tübingen, Germany). Grant programme of the German Ministry of Education and Science IB-EUROPE.
Tatjana Glaskova - Kuzmina	<ul style="list-style-type: none"> · 2018-2020. Environmental impact on the physical properties of smart carbon nanofilled modified composites and fibre plastics for structural applications, ERAF project Nr.1.1.1.2/VIAA/1/16/066, project manager Dr. Sc. Ing. Tatjana Glaskova-Kuzmina. · 2017. Development of nanomodified polyolefin multilayer extrusion products with improved exploitation characteristics, ERAF project Nr. 1.1.1.1.1/16/A/141 researcher, project manager Dr. Sc. Ing., Andrejs Aņiskevičs.

Scientific publications of the teaching staff related to the study program of the last six years:

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3. Plavina, L., Kolesova, O., Eglite, J., Cakstins, A., Cakstina, S., & **Kolesovs, A.** 2021. Antioxidative system capacity after a 10-day-long intensive training course and one-month-long recovery in military cadets. *Physical Activity Review.*, 9:1; pp.62-69.
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3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is

implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

In the core courses, the learning process is implemented through lectures, seminars and a large proportion of practical work in laboratories, as well as independent study. The courses also focus on the staff-developed lecture structure, based on the best methods of pedagogical practice. For example, in theoretical sessions, the main phases of the lecture structure are observed: the initiation phase, the comprehension phase and the reflection phase. Lecture formats such as introductory lectures, summary lectures, problem-oriented lectures and video lectures are used. The study methods include both practical and laboratory work, information acquisition, statistical data processing, presentation of results, academic writing, etc., aimed at a modern academic and professional education based on theoretical and methodological knowledge and practical skills in the field of sports science. Professionals from various institutions, as well as foreign experts and visiting professors are invited to give particular courses and lectures in order to foster the unity of theory and practice.

In several study courses, guest lecturers with relevant experience and knowledge are invited - experts in sports science and sports in Latvia (coaches, physiotherapists, sensor manufacturers, sports managers), internationally recognised experts - Prof. Ingvars Birznies, PhD, Director of the Department of Physiology, UNSW, Sydney, leading researcher in neuroscience. In the course Biomechanics of Human Motion, guest professors/researchers are invited to give individual lectures and practical sessions - Roberts Joffe, PhD, Polymeric Composite Materials, Professor at Luleå University of Technology, Sweden; Mauro Zarrelli, PhD, Assistant Professor, National Research Council - Institute for Composite and Biomedical Materials, Italy, and Guedes Rui Miranda, PhD, Associate Professor of the Faculty of Engineering, University of Porto, Portugal.

The study process incorporates problem-based learning methods and student-centred learning principles. An integral part of the learning process is independent research project development in groups, allowing students to use the acquired knowledge and research methods to test the effects of different interventions on the human body or to develop innovative products in the field of sport and health science. The project assessment is based on written or oral presentations (posters, scientific manuscript, oral presentations of the project). Thus, students develop a training programme proposal in the course Adaptation to Endurance and Resistance Training, develop an innovative product proposal with market research and analysis within the course Basic Skills for Innovation Activities, etc.

The e-learning environment is widely used and developed within the programme. All courses are active in the E-University Moodle environment, with lecture materials, laboratory and practical work descriptions, final grades for papers, seminars, tests and courses, as well as various supplementary materials. Updating these courses is considered to be a fruitful and important course development, which allows the use of distance learning methods. E-learning is increasingly used to test students' knowledge (multiple choice tests, open-ended questions, essays, matching questions, orientation in pictures and diagrams, etc.).

In the spring semester 2020 and academic year 2020/2021, as well as in the autumn semester 2021/2022, in the context of the Covid-19 pandemic, faculty members urgently developed remote online learning methods on the MTeams platform. This increased the proportion of problem tasks that students had to complete independently. Using mobile telemetric functional parameter

assessment devices (Polar heart rate monitors, oximeters, muscle oxygen sensors, metabometers), students individually developed their own research within the course (e.g. Methods of Cardiorespiratory Function, Anthropometry, Adaptation to Endurance and Resistance Training, Sports Nutrition, etc.), finally preparing research protocols with data analysis and presenting them in MS Teams.

At the end of the course, the teaching staff and students evaluate the achieved results, and course evaluation surveys are carried out, the findings are used in further course development. Relevant recommendations from employers and graduates are also taken into account.

When assessing study outcomes, the basic principles of assessment formulated in the Regulation of the Cabinet of Ministers of the Republic of Latvia No.240 of 13.05.2014 Regulations on the State Academic Education Standard (*the source is available only in Latvian* [1]) are observed:

- **the principle of openness in assessment** - in accordance with the programme aims and objectives and the aims and objectives of the study courses, the University has established a set of requirements for the assessment of learning outcomes;
- **the principle of evaluation review** - the University has established a procedure for reviewing the obtained marks;
- **the principle of mandatory assessment** - a passing grade is required for the completion of all study programme content;
- **the principle of variety in assessment** - different types of assessment are used to assess the completion of the study programme;
- **the principle of assessment relevance** - the assessment allows the opportunity for students to demonstrate knowledge, skills and competence in appropriate tasks and situations. The examination content shall be consistent with the course syllabus.

The MSP Sports Science has the volume, distribution and plan of the compulsory (A) and restricted (B and C) courses and contact hours in accordance with the criteria set out in the Regulations on the National Standard for Academic Education [1]. The planned learning outcomes, examination methods and evaluation criteria are defined in all course descriptions available to students in the University of Latvia Information System (LUIS) and in the LU e-learning environment. The criteria for assessing students' knowledge, skills and competences in each study course are based on the 10-point grading system. The criteria are formulated on the basis of the learning outcomes and the explanation of the assessments formulated in each study course.

The basic criteria for the Master's thesis evaluation are determined by UL Order No. 1/38 of 03.02.2012 (Amendments: UL Order No. 1/69 of 26.02.2015) The Requirements for the Development and Defence of Final Theses (Bachelor's Thesis, Master's Thesis, Diploma Paper and Qualification Paper) at the University of Latvia (*the source is available only in Latvian* [2]) and The Requirements for the Final Thesis Development in the Study Programmes of the Faculty of Biology (Practice Work, Course Paper, Bachelor's and Master's Thesis Design -2017/*Prakses, kursa, bakalaura un maģistra darbu noformēšana -2017*).

[1] <https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitiba-standartu> (*the source is available only in Latvian*)

[2]

https://www.ppmf.lu.lv/fileadmin/user_upload/lu_portal/projekti/ppmf/Studijas/Prasibas_nosleg-dabie m/Prasibas-nosleg-darbu-izstradei-aizstav-LU_nr38_groz-26-02-2015.pdf (*the source is available only in Latvian*)

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The proposed topics for Master's theses in the academic year 2020/2021 were related to the areas of sports science and existing research areas implemented in the Sports Science Programme: 1) biomechanics and neuroscience; 2) physiology and biochemistry of sport loads; 3) sports psychology and public health. It should be emphasised that the themes of the Master's theses feature interdisciplinarity.

The Sports Psychology and Public Health area was represented in the Master's thesis "The relationship of anxiety and stress feelings in young athletes to burnout". Burnout is an indicator of anxiety and stress levels, which in turn are characterised by physical fatigue, emotional fatigue, inability to evaluate one's own performance and level of competence. In young athletes, burnout is associated with injury risk, with mental instability and cognitive development, and, undeniably, with physical performance.

In the area of Exercise Physiology, a major research challenge is to find and develop the theoretical and practical evidence for new exercise and training methods and programmes. In the field of Exercise Physiology and Biomechanics, a Master's thesis was developed on the effects of 4x4 maximal strength training on athletes' maximal strength, vertical jump and other neuromuscular properties.

Neuroscience and Sports Biomechanics areas are represented by the theme on the physiological relationship between athletes' proprioception and spatial perception - "Assessment of athletes' proprioception and spatial awareness in the international level synchronized skating team Amber".

Research in **Neuroscience and Sports Psychology** is carried out in the Laboratory of Perceptual and Cognitive Systems of Prof. J.Škilters. The role of psychic processes in the development and evaluation of physical abilities was studied in the Master's thesis "Dynamics of emotion regulation

of Latvian Olympic team candidates under limited training and competition conditions". The results of this work were presented at the 79th International Scientific Conference of the University of Latvia in 2021. (M.Vilciņa. *Latvian athletes' color preferences and associations for clothing and sport-related emotions*), and reported at the *Annual meeting of the Society for Affective Science (SAS) - "Dynamics of emotions in high-profile sport: Measuring Latvian Olympic team 2020 "* (Marita Vilciņa, Jurgis Škilters, and Līga Zariņa) on 13-16 April 2021 [1].

In the academic year 2020/2021 the average grade of Master's theses was 8,8 points (the distribution from 7 to 10 points).

[1] <https://society-for-affective-science.org/conferences/2021-sas-annual-conference/home/>

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

According to the aim and objectives of MSP Sports Science - to acquire skills for work in modern sports and health science laboratories and research centres, sports medicine rehabilitation centres in Latvia and Europe, a very broad and modern interdisciplinary material and technical resources are required. This study programme uses a wide range of infrastructure and equipment of the faculties and research institutes located in the House of Nature and the House of Science at the UL Academic Centre in Tornakalns. The laboratories of Biomechanics and Neuroscience areas of the Sports Science programme are located in the laboratories of the Faculty of Physics, Mathematics and Optometry, and the Institute for Mechanics of Materials.

In the course of their activity, the Faculty of Biology Department of Human and Animal Physiology, Blood Flow Physiology and Exercise Physiology laboratories have updated and developed a new and modern methodological basis for the study of the circulatory system, respiratory system, metabolism and musculoskeletal system in athletes and non-active people.

The main facilities for the implementation of the Sports Science programme are:

- **Ge Logiq E BT12 high resolution portable sonographer** (General Electric, USA). Our laboratory experts, in collaboration with researchers at the Institute of Atomic Physics and Spectroscopy, have developed unique software for this sonograph to record the haemodynamic parameters of the main arteries during each cardiac cycle during static exercise. The same sonograph can be used to assess the pennation angles, and echogenicity, of muscle bundles in athletes by replacing the probe. Using the abdominal probe and the appropriate software, this sonography system can assess somatotype and visceral adipose tissue mass. The equipment can be used in almost all research modules and new ones can be developed (Motor Control Systems, Methods of Cardiorespiratory Functions, Anthropometry, and Adaptation to Endurance and Resistance Training, Sports Medicine).

- **Venous occlusion plethysmography system Hokanson** (Hokanson, USA). Unique system in Latvia for studies of regional blood supply to tissues during static loads. This system allows automated recording and analysis of regional flow in virtually any limb and its parts. This system can be used in several modules and courses (Methods of Cardiorespiratory Functions, Adaptation to Endurance and Resistance Training, Sports Medicine).
- **The Master-CPX cardiopulmonary system** is a highly advanced and globally recognised standard of research equipment used in sports laboratories around the world to train Olympic athletes. The system is multifunctional and flexible, allowing metabolic, circulatory and respiratory parameters to be recorded and their functions to be evaluated during different workloads. The system includes a special treadmill and an automated cycle ergometer. During the course of the study, several new protocols for this system were also developed in our laboratory, allowing a wide range of studies under specific conditions (e.g. normobaric hypoxia). This system serves as the main methodological basis for several courses (Exercise Physiology, Methods of Cardiorespiratory Functions, Research Methods in Sports Biochemistry, Training Periodization and Monitoring, Adaptation to Endurance and Resistance Training, Sports Medicine).
- **Electrophysiology equipment** (Electromyography, Electrocardiography and Electroencephalography). These techniques are used to assess the parameters of excitable tissues and are used in several modular courses (Neurobiology, Methods of Cardiorespiratory Functions, Adaptation to Endurance and Resistance Loads, Movement Control Systems - Neuromuscular Control and Movement Pattern Learning).
- **The Finameter midi (Finapres FMS, The Netherlands)** haemodynamic monitor is the latest advancement in non-invasive recording of vital circulatory parameters during exercise. It can be widely used in several courses of the programme (Methods of Cardiorespiratory Functions, Adaptation to Endurance Training, Adaptation to Resistance Training, Training Periodization and Monitoring).
- **Anthropometric system for the determination of total fat mass in athletes.** The bioimpedance method measures both subcutaneous adipose tissue and visceral adipose tissue. In combination with 3D scanning, somatotype can also be assessed. The methods are used in the Anthropometry course.
- **Mobile system for testing neuromuscular function in athletes** (*Musclelab; ERGOTEST INNOVATION AS, Norway*). This set of technologies - force platform, strain platform, encoders, etc. - assesses the function of the musculoskeletal system both statically and dynamically. These devices can be interfaced in a single system, thus providing versatile data for posture assessment, assessment of asymmetry between limbs and muscle groups, determination of velocity parameters in the vertical and horizontal planes.

Within **Sports Biochemistry**, we use **the express methods** available to us. These types of methods are widely used for field studies in stadiums or gyms where it is not rational to use large blood biochemistry analysers. These express method test strips can be used to determine capillary blood levels of lactate, glucose, cholesterol, triglycerides, haemoglobin and haematocrit, etc., within minutes. Express methods are widely used in laboratory research because they are practically non-invasive, simple to use and sufficiently accurate.

The facilities of the UL Department of Medical Biochemistry allow to train students in several courses - Biology of Sports Loads, Methods for the Study of Cardiorespiratory Function, Adaptation to Endurance and Resistance Loads, Periodization and Monitoring of Training Process, Movement Control Systems, as well as it is a base for the implementation of sports science research (Master's theses, as well as projects carried out by the teaching staff and students). The currently used equipment includes:

- **Single cell gel electrophoresis** (*Instem Comet Assay IV*, Cleaver Scientific Ltd.C in combination with *Comet Assay IV Image Analysis System* software for slide analysis.) Single cell gel electrophoresis detects single-stranded and double-stranded DNA breaks, e.g. in human mononuclear cells, after intense exercise, thereby assessing the effect of exercise on the integrity of the DNA molecule.
- **Tecan Spark microplate reader.** ELISA detection of cytokines, e.g. in human body fluids, which is essential for determining the effects of various internal and external environmental factors on the human body.
- **Nitric oxide analyser** (*NOA-280-i nitric oxide analyser*). This apparatus is capable of measuring changes in the concentration of nitrate and nitrite, metabolites of nitric oxide, in human body fluids (serum, urine, saliva, sweat, etc.), depending on the various factors to which the human body is exposed.
- **Western blot protein quantitation kit** consisting of vertical electrophoresis, transfer machine, visualisation system. This method can detect changes in the expression of different proteins, for example in human mononuclear cells under different exercise conditions.

The technical equipment of **the Laboratory of Perceptual and Cognitive Systems at the UL Faculty of Computer Science**, which includes various sensory systems for perception and analysis of stimuli, navigation technologies, allows to identify the parts of the brain involved in the processing of various spatial information, for the perceptual analysis of biological motion. Sports science and cognitive science interdisciplinary allows for effective neuroscience research on the assessment of biological movement, for example for diagnostic purposes, movement as an indicator of emotion, used for the development of spatial perceptual learning. The methods are used in the courses Philosophy and Cognitive Science, Visual Perception: Methodologies and Approaches, as well as in the development of Master's theses.

Given that the study programme is also implemented on the basis of other research centres and laboratories, the range of methods and equipment available for the course implementation goes far beyond the above mentioned, guaranteeing modern and effective course delivery and specialists trained to work with the latest equipment used in sports laboratories around the world.

Information resources and services of the UL Library.

The services are provided in 8 branch libraries of the UL Library in accordance with the UL Library Terms of Use (UL Rector's Order No. 1/39 of 1 February 2017). The services, according to the terms of use, can be used by UL students, academic and general staff, other libraries, students of other universities, as well as by any person. The UL Library provides free basic services and paid services.

The House of Science Library provides staff with 24-hour access to: the open-access collection, two self-service machines for home delivery, renewal and return of books, and a self-service wall for the use of laptops. The UL Library is the first in the Baltic States to provide such facility and service. The self-service facility is equipped with 36 laptops. UL staff can check out the laptops at any time of the day and use them for 6 hours, not only in the library area, but in the whole building, using student or employee ID cards.

The collection of **the UL Library** is formed in accordance with the directions of UL study and scientific work, requirements of study programmes, providing with information all UL study levels - bachelor, master, doctoral, as well as scientific research areas. The acquisition of e-resources is a priority in the collection development. The Library provides acquisition of information resources on the orders of the UL academic staff, on the proposal of the student self-government or on the proposals of the Library staff.

The UL Library in cooperation with the UL Information Technology Department provides free online

access to the UL e-resources repository. Currently, the e-resources repository contains more than **230** publications in sports science. Table 3.3.1.1. shows the print publications available in the UL Library for the MSP Sports Science.

3.3.1.1. Table

Printed publications available in the UL Library for the MSP Sport Science implementation

Printed Editions (Copies)					Language			
Study programme	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German
	In stock	Total	Total	Total				
Sports Science	620	422	185	13	491	65	48	16

Total for the study direction in the collection of the Library of the UL: 30101 copies

Electronic resources.

In line with the UL Strategic Plan, the UL Library is increasing the share of e-resources and developing remote access to e-resources. In 2020, **37 e-resource platforms** (both **e-book platforms** - *VLeBooks, ProQuest Ebook Central*, and **e-journal databases** - *Cambridge Journals Online* (archived until 31.12.2018), *Emerald eJournals Premier* (archived until 22.04.2020), *Emerald eJournals Premier* (archived until 31.12.2018), *Emerald eJournals Premier* (archived until 22.04.2020) and *Emerald eJournals Premier* (archived until 31.12.2018)) will be subscribed to by the Library.), *JSTOR I-XII, XIV, XV* and *Life Sciences Collections*, *Oxford Journals Online*, *Sage Journals Online*, *ScienceDirect*, *SpringerLink Contemporary Journals*, *Taylor & Francis Social Science & Humanities Library*, *Physical Review Journals* and separately purchased e-journals, and **reference resources** - *LETA Online News, LETA Archive and Nozare. Iv, Letonika*, **tools** - *SAGE Research Methods, Passport, Orbis, MarketLine*, **mixed-format databases** - *ClinicalKey, EBSCOhost, European Pharmacopoeia, LVS Latvian Standards Online Reading Room, OECD iLibrary, ProQuest Dissertations & Theses Global, ScienceDirect, Scopus, Thesaurus Linguae Graecae, Time Higher Education, UpToDate, Web of Science Core Collection, ZentralBlattMATH*). They provide a total of 21 069 full-text e-journals (including individual subscriptions), almost five million full-text world theses and master's theses. 117 verified open access databases with multi-format materials are available at the University.

The subscription collection **ProQuest Ebook Central Academic Complete** (e-book platform) contains ~ 201 149 e-books, of which 722 titles from world-leading publishers (e.g. *Cornell University Press, Indiana University Press, Columbia University Press, John Wiley & Sons, Princeton University Press*, etc.) are available for the MSP Sport Science.

The UL Library periodically provides trial access to multi-disciplinary e-books and e-journals

available on the *IGI Global InfoSci®* platform on UL premises and remotely. *IGI Global* offers a wide range of multidisciplinary e-books and e-journals available on the *IGI Global InfoSci®* platform. The *IGI Global InfoSci* platform provides unlimited access to full-text PDF and HTML formats. The *IGI Global* book collection includes more than 6,000 titles. They can be found in several prestigious indexes including *Clarivate Analytics* Book Reference Index, *Scopus®*, *ERIC* and *PsycINFO®*. E-journals include more than 27,000 peer-reviewed journal articles with more than 1 million citations extracted from the *IGI Global* journal collection. Access is also offered to new research that has been highly evaluated and included in reference indexes including Web of Science™ and Scopus®. Additional information about the *IGI Global* journal collection [1].

To modernise access to electronic resources, the UL Library has introduced the latest technology web services *Primo Discovery* and *SFX*. Information on e-resources is available on the UL Library's website *E-resources from A to Z (E-resursi no A līdz Z* [2]).

To increase the diversity of study courses, new e-study courses are developed and introduced, and existing methodological materials are updated and modernised in the MOODL'e environment, creating materials also in English. The University of Latvia has set the goal of adding e-learning course materials to its teaching staff, who have to continuously update the e-learning course materials. The e-learning environment is also used for knowledge assessment and student-faculty communication - the student assessment system and criteria, as well as the regulatory enactments, are clear and available in the UL Information System (LUIS).

The MSP Sports Science also publishes methodological materials and teaching aids for teachers. They are included in the Annex to this document - List of scientific publications related to the study programme of the teaching staff in the last six years, as well as in the course descriptions - the list of obligatory and additional sources of information to be used.

MSP Sports Science study infrastructure, facilities of scientific laboratories and information support enable the achievement of quality study and research results, and create adequate opportunities for the implementation of the doctoral study programme.

[1] <https://dspace.lu.lv/dspace/>

[2] <https://www.igi-global.com/journals/>

[3] <https://www.biblioteka.lu.lv/en/resources/e-resources-a-to-z/>

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The study programme is currently mainly funded by the students themselves, and there are two state-funded places. The state budget subsidy for a study place is determined for each academic year by agreement between the UL and the Ministry of Education of the Republic of Latvia. The tuition fee is determined by the UL by an ordinance for each academic year, after consultation with the UL Student Council. The tuition fee is calculated taking into account: 1) the cost of a study place, 2) the potential interest of fee-paying students in the study programme, and 3) the tuition fees in similar programmes of other higher education institutions. The cost per student per year is estimated at EUR 2679 (calculations are made per 30 students).

The calculations are based on the following facts.

- Programme structure, consisting of 10 Part A courses and 15 Part B courses. The Part A courses account for 32 credits and Part B courses – for 26 credits. The Master's thesis is 20 credits. The study programme is implemented through a large amount of seminars and practical work - 45% of the total amount. The remaining 55% are lectures.
- The average Part A course is 3.3 credits and the average Part B course is 4.0 credits. The calculations take into account that the maximum number of students in seminars and practical work is 10.
- In order to reduce the programme cost, in some courses the study process can be organised simultaneously with other programme students - the Sports Science programme includes 4 Part A courses and 8 Part B courses, which are also taken by students of other programmes. In addition, teaching 6 Part B courses every second year can reduce the cost price.
- The expected number of students in the programme. The labour market analysis shows that the total number of students could reach 30 - 15 in each academic year, forming one group per course. In the second semester, students start to specialise in one of the 3 fields, with the aim of initiating research methods specific to their field.
- Attracting teaching and general staff. The share of professors in the programme implementation is 11%, associate professors - 31%, assistant professors - 27% and lecturers - 8%. The programme will also involve hourly lecturers, who represent 23% of the academic staff. The total cost of the teaching staff amounts to EUR 1671 per student per year.

General staff, who make up 31.6% of the academic staff, cost EUR 410 per student per year, based on the high proportion of practical work in the programme.

Infrastructure maintenance, property and services and indirect charges on income are estimated at EUR 972.

Teaching staff costs account for 48%, general staff costs for 15%, infrastructure costs for 10% and indirect costs for 26%.

In order to ensure the profitability of MSP Sports Science, the minimum number of students in Latvian group is 20, in English group - 10.

The annual tuition fee approved by the UL Ordinance for the academic year 2021/2022 is EUR 2400 for LV, EU and EEA citizens and EUR 4000 for non-EU citizens.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

Qualification of teaching staff, election of professors or associate professors, including evaluation of the performance of a candidate for the post of professor or associate professor shall take place in accordance with the criteria established by the Cabinet of Ministers, in accordance with the requirements of Section 34 (5) of the Law on Higher Education, as well as Cabinet Regulation No 129 of 25 February 2021 "Procedure for Evaluation of Scientific and Pedagogical Qualification or Artistic Creativity Performance of a Candidate for the Post of Professor or Associate Professor and a Professor or Associate Professor in Appointment" ("Profesora vai asociētā profesora amata pretendenta un amatā esoša profesora vai asociētā profesora zinātniskās un pedagoģiskās kvalifikācijas vai mākslinieciskās jaunrades darba rezultātu novērtēšanas kārtība"[1]) and the UL Regulations on Academic and Administrative Positions.

Professional qualifications are fully relevant to the study programme of the field of study, as the academic staff mostly holds PhD degrees in biology, physics, medicine, pharmacy, psychology, social sciences, economics, engineering and computer science. The following conditions were set for the involvement of teaching staff in the implementation of the MSP Sports Science: a doctoral degree in a relevant field, sub-field; academic and/or professional experience in fields related to sports science and public health; research activity and publications related to the study programme aim and objectives. The academic staff's knowledge of the official language complies with the regulations on the scope of official language knowledge and the procedure for testing the official language knowledge for the performance of professional and official duties. In accordance with the UL normative documents, all teaching staff involved in the study process have at least B2 or higher level knowledge and skills in English. All teaching staff may also teach their courses in English by signing a certificate to that effect. In the framework of the project "Renewal and Competence Development of Academic Staff at the University of Latvia", the teaching staff are upgrading their qualifications in leadership, digital skills, academic integrity lecture courses, as well as developing their language skills in the course "Improvement of Professional English Skills of Academic Staff for Work in the Study Environment".

All lecturers involved in the programme regularly participate in leading international and Latvian scientific conferences, including the annual international scientific conference of the University of Latvia.

[1] <https://likumi.lv/ta/en/en/id/321300-procedures-for-evaluating-the-scientific-and-teaching-qualifications-or-results-of-artistic-creation-work-of-an-applicant-for-the-position-of-professor-or-associate-professor-and-of-a-professor-or-associate-professor-holding-the-position>

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

According to Article 55 of the Law on Higher Education of the Republic of Latvia, the academic staff involved in the development and implementation of the MSP Sports Science are 6 professors, 9 associate professors, 4 assistant professors, 9 lecturers, 1 researcher, PhD students and Doctor of Science, 3 sports physicians. View the certificate in the Annex 8_SpoSci_MSP. The teaching staff involved in the implementation of the MSP Sports Science are listed in Table 3.4.1.1. Four visiting professors and associate professors are involved in the implementation of the study process. This structure of academic staff determines high quality academic education, which is mainly provided by highly qualified and internationally recognised experts in their field. As the programme is new, there have been no significant changes in the core teaching staff. There are additional PhD students and degree candidates involved in practical classes and laboratory work - I.lkstens, physiotherapist, basketball coach and PhD student in sports and health sciences, - participates in lecturing courses Human Movement Biomechanics, Periodization and Monitoring of Training Process, Adaptation to Endurance and Resistance Training; R. Zink, Ph.D. candidate in Psychology, lectures in the course Health Psychology in Sport; in the course Psychological Measurement Methods in Sport, practical classes are conducted by Ph.D. candidate, lecturer E. Vanags.

For example, in the Sports Medicine course, the 2nd year resident sports medicine doctor L.Ušacka already participates as a core lecturer.

Table 3.4.1.1.

Teachers involved in the implementation of MSP Sports Science

No.	Name, surname	Degree and / or professional qualification	Election status at the University of Latvia (Yes / No)	Position	Implemented study courses / modules
1.	Līga Plakane	Dr.biol.	Yes	associate professor	Sport and Exercise Biology Adaptation to Endurance and Resistance Training
2.	Līga Ozoliņa-Molla	Dr.biol.	Yes	associate professor	Anthropometry Motor Control Systems
3.	Zbignevs Marcinkevičs	Dr.biol.	Yes	associate professor	Processing and Analyses of Scientific Data Methods of Cardiorespiratory Functions

4.	Signe Mežinska	Dr.sc.soc.	Yes	associate professor	Research Ethics in Sport Science
5.	Jurgis Šķilters	Dr.phil.	Yes	professors	Philosophy and Cognitive Sciences Visual Perception: Methodologies, Frameworks
6.	Kārlis Purmalis	Dr.oec.	Yes	associate professors	Business Management
7.	Aleksandrs Koļesovs	Dr.psych.	Yes	associate professor	Personality and Differential Psychology in Sport Psychological Measurement in Sport
8.	Liliāna Civjāne (Lilian Tzivian)	Dr.epid., PhD	Yes	associate professor	Epidemiology I Epidemiology II
9.	Indriķis Krams	Dr.biol.	Yes	associate professor	Preparation of Projects and Publications Neurobiology
10.	Ieva Stokenberga	Dr.psych.	Yes	associate professor	Psychological Measurement in Sport The Development Methods of Team and Individuals
11.	Anda Gaitniece-Putāne	Dr.psych.	Yes	assistant professor	The Development Methods of Team and Individuals
12.	Edmunds Vanags	Mg.psych.	Yes	lecturer	Psychological Measurement in Sport
13.	Evita Rostoka	Dr.med.	Yes	assistant professor	Research Methods in Sports Biochemistry

14.	Zane Šmite	Mg.biol.	Yes	lecturer	Training periodization and monitoring Adaptation to Endurance and Resistance Training
15.	Ivars Ikstens	Mg.sal.	No	Guest lecture	Biomechanics of Human Motion Training periodization and monitoring; Adaptation to Endurance and Resistance Training
16.	Līga Balode	Dr.med.	No	Guest lecturer	Sports Nutrition
17.	Anna Ramata-Stunda	Mg.biol.	Yes	lecturer	Basic Skills of Innovation Activities
18.	Jānis Kaupe	MD	No	Guest lecturer	Sports Medicine
19.	Lolita Kalniņa-Havraneka	MD	No	Guest lecturer	Sports Medicine
20.	Laila Ušacka	MD	No	Guest lecturer	Sports Medicine
21.	Mārtiņš Boroduškis	Mag.biol.	Yes	Researcher	Basic Skills of Innovation Activities
224.	Ingvars Birznieks	PhD, Dr.biol.	No	Visiting Professor Australia	Motor Control Systems
23.	Tatjana Glaskova-Kuzmina	Dr.sc.ing.	Yes	assistant professors	Biomechanics of Human Motion
24.	Signe Bāliņa	Dr.oec.	Yes	professors	Business Intelligence Methods Multivariate Analysis
25.	Ronalds Cinks	Mg.psych.	Yes	lecturers	Health Psychology in Sports

26.	Mauro Zarelli	PhD	No	Visiting Professor	Biomechanics of Human Motion
27.	Roberts Joffe	PhD	No	Visiting Professor	Biomechanics of Human Motion
28.	Rui Miranda Guedes	PhD	No	Visiting Professor	Biomechanics of Human Motion

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

Several UL faculties, departments and scientific institutes, their academic and scientific staff are involved in the programme implementation and development - BF (Department of Human and Animal Physiology and Department of Molecular Biology), MF (Department of Pharmacology and

Department of Pharmacy, Department of Medical Biochemistry), Faculty of Education, Psychology and Arts (Department of Psychology), BVEF, FMOF, Faculty of Computer Science, as well as the Institute for Mechanics of Materials, the Institute of Cardiology and Regenerative Medicine and the Institute of Atomic Physics and Spectroscopy.

The interaction and cooperation between of the academic staff of the various fields of science involved in the study programme takes place during various events organized by the University of Latvia: staff meetings, scientific conferences, science cafes, further education courses and informative meetings on science projects.

Visiting professors/researchers from Sweden (PhD, Prof. Robert Joffe), Italy (PhD, Prof. Mauro Zarrelli) and Portugal (PhD, Prof. Rui Miranda Guedes), Latvian scientist from Australia - PhD, Prof. Ingvars Birznieks - have been engaged for lectures in Biomechanics and Neuroscience.

In the implementation of theoretical courses and practical classes, as well as in the further exchange of experience among academic staff and students, it is planned to use the already existing cooperation with the Department of Sports Exercise Biology of the University of Tartu Faculty of Medicine, the Faculty of Sport and Health Sciences of the University of Jivaskilas, as well as to establish cooperation with the Lithuanian Sports University and Latvian universities for joint research and development of movement mechanics, new technologies (with Riga Technical University and the Latvian Academy of Sports Pedagogy).

Successful cooperation has been established with sports professionals outside the University. As an excellent example of cooperation with the Latvian Olympic Team, 3 sports doctors - J.Kaupe, L.Kalniņa-Havraneka and L.Ušacka give lectures in the Sports Medicine course. Within the course, guest lecturer E.Bernāns from LASE, physiotherapist from LOV A.Noveičuks were invited, J.Misiņš and J.Grīnbergs lectured on the use of modern sports technologies in professional sports, on their international experience in the USA and Spain.

In the lecture course Basic Skills of Innovative Activity, guest lectures were given by well-known innovation experts in Latvia - Mg.oec. Inga Eriņa, lecturer at the Faculty of Engineering Economics, Riga Technical University; MBA (RBS) Dāvids Štēbelis, co-owner and board member of ALINA SIA, RTU researcher, European Institute of Innovation and Technology business mentor and trainer, *Climate Launchpad* trainer; MBA Liene Briede, RTU Design Factory Manager, RTU Student Innovation Grant Programme Manager, *EIT Food Hub* and *EIT RawMaterials Hub* manager and Matīss Neimanis, D.Sc., MBA, *Managing Partner at Buildit Latvia* Business Accelerator, business coach, mentor. These experts, together with the course lecturers A.Ramatas-Stunda and M.Boroduškis, evaluated the students' research and presentations of business ideas and innovations in sports science.

The proportion of students and teaching staff cannot be precisely calculated, because the teaching staff work part-time at MSP Sports Science. The approximate ratio of the number of students and lecturer is 0.7

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	Annex 1_SpoSci_MSP.docx	Pielikums 1_SpoSci_MSP.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	Annex 2_SpoSci_MSP.docx	Pielikums 2_SpoSci_MSP.docx
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Annex 3_SpoSci_MSP.docx	Pielikums 3_SpoSci_MSP.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	Annex 4_SpoSci_MSP.docx	Pielikums 4_SpoSci_MSP.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Annex 5_SpoSci_MSP.docx	Pielikums 5_SpoSci_MSP.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	Annex 6_SpoSci_MSP.docx	Pielikums 6_SpoSci_MSP.docx
Descriptions of the study courses/ modules	Annex 7_SpoSci_MSP.docx	Pielikums 7_SpoSci_MSP.docx
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	Annex 8_SpoSci_MSP.docx	Pielikums 8_SpoSci_MSP.jpg

Epidemiology and Medical Statistics (45726)

Study field	<i>Health Care</i>
ProcedureStudyProgram.Name	<i>Epidemiology and Medical Statistics</i>
Education classification code	<i>45726</i>
Type of the study programme	<i>Academic master study programme</i>
Name of the study programme director	<i>Liliāna</i>
Surname of the study programme director	<i>Civjāne</i>
E-mail of the study programme director	<i>liliana.civjane@lu.lv</i>
Title of the study programme director	<i>Doktora grāds epidemioloģijā</i>
Phone of the study programme director	<i>+37120165566</i>
Goal of the study programme	<i>To provide highly qualified specialists in epidemiology and medical statistics to the Latvian and Baltic health systems at the regional, national and international levels, who know and develop epidemiological and other research methodologies, are able to analyze complex data and interpret results based on the latest international knowledge and standards required by international organizations .</i>
Tasks of the study programme	<i>1.To promote knowledge of modern methods, directions and types of epidemiological, clinical and sociological research, and statistical processing of research.</i> <i>2. To provide knowledge for innovative, professional and science-based decision-making in the health care system, health promotion and health care policy.</i> <i>3. To ensure the combination of theoretical and practical knowledge with the possibility to develop a master's thesis both as an independent research project and as a part of a larger project by joining the existing academic or applied research research groups.</i>

Results of the study programme	<p>Knowledge</p> <p>1. Understands the methods, directions, and types of modern epidemiological, clinical and sociological research.</p> <p>2. Understands the ethical issues of research in adult and child populations and children's rights.</p> <p>3. Understands the possibilities of using the latest technologies in medicine and statistics.</p> <p>Skills</p> <p>4. Critically analyzes theories and research related to medicine, epidemiology and medical statistics.</p> <p>5. Analyzes various relationships between research variables using theories, methods, and problem-solving skills.</p> <p>6. Practically uses technological possibilities in epidemiology and medical statistics.</p> <p>7. Explains and discusses complex and systemic aspects of epidemiology with specialists and non-specialists.</p> <p>Competence</p> <p>8. Independently plans, critically analyzes scientific and professional problems in epidemiology, performs high-quality research work in epidemiology and medical statistics, and develops appropriate tools.</p>
Final examination upon the completion of the study programme	Master's Thesis

Study programme forms

Full time studies - 2 years - latvian

Study type and form	Full time studies
Duration in full years	2
Duration in month	0
Language	latvian
Amount (CP)	80
Admission requirements (in English)	Higher education - bachelor's degree or 2nd level professional higher education in health care, medicine, dentistry, pharmacy, psychology, sociology, natural sciences, environmental sciences, food sciences, or other comparable higher education.
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	Master's degree of Health Sciences in Public Health
Qualification to be obtained (in english)	–

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

Full time studies - 2 years - english

Study type and form	<i>Full time studies</i>
Duration in full years	<i>2</i>
Duration in month	<i>0</i>
Language	<i>english</i>
Amount (CP)	<i>80</i>
Admission requirements (in English)	<i>Higher education - bachelor's degree or 2nd level professional higher education in health care, medicine, dentistry, pharmacy, psychology, sociology, natural sciences, environmental sciences, food sciences, or other comparable higher education. Studies in English require English language skills in accordance with the applicable laws and regulations (for foreigners - English language skills at least at B2 level)</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Master's degree of Health Sciences in Public Health</i>
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
University of Latvia	RĪGA	RAIŅA BULVĀRIS 19, CENTRA RAJONS, RĪGA, LV-1050

3.1. Indicators Describing the Study Programme

3.1.1. Description and analysis of changes in the parameters of the study programme made since the issuance of the previous accreditation form of the study field or issuance of the study programme license, if the study programme is not included on the accreditation form of the study field, including changes planned within the evaluation procedure of the study field evaluation procedure.

Master's study program Epidemiology and Medical Statistics (hereinafter MSP Epidemiology and Medical Statistics) is the latest program in the Health Care direction, developed and licensed in the spring of 2020. During this time, the recommendations of the licensing process have been taken into account:

It is necessary to evaluate the number of graduates required as close as possible to the potential labor market of the Latvian state and, consequently, to review the number of applicants for training in the Latvian language;

After the examination of the labor markets, negotiations with the representatives and management of the SPKC, VI, NVD and VZA, the potential expected number of graduates has been clarified. No more than 30 students will be admitted to the Latvian stream per year. In the first two years, the number of students enrolled in the program was lower than expected. At least in part, this can be explained by the COVID-19 pandemic and people's concerns about the state of their materials during and after it.

In the first and second academic years after licensing the program, two foreign students applied for the program, so the English language flow was not opened. In order to rectify this situation, in 2022 an additional program advertising was created paid from SAM 8.2.1. project. Until April 2022, 9 foreign students were interested in the program, one of whom paid the registration fee.

In order to increase the information of Latvian students about the possibility of the program, interviews with the students of the program and the head of the program are planned for May 2022, which will be published on the OU Ozolzīle website. The activity of existing students in social networks is planned in order to attract new students. Interviews with students are planned to be published on the Delphi portal and in the magazine Ir. These activities have been coordinated with the PR Department of the University of Latvia

Make a separate course program as neutral as possible regarding the prioritization of specific nosologies (association of infections with oncological diseases, Helicobacter pylori infection, celiac disease, autism spectrum disorders, Asperger's syndrome, Attention Deficit Hyperactivity Disorder);

The content of the courses has been specified. The connection of each topic with the general epidemiological situation in Latvia and in the world is presented within the courses.

To find an opportunity to conclude an agreement on the possibility for students to continue their studies at another higher education institution in Latvia, in case the implementation of the study program is terminated;

An agreement has been concluded with RSU on the possibilities for students to continue their studies

To find an opportunity to look at the study courses acquired in the mobility programs in the overall

evaluation of the study program.

Students will be approved to complete the mobility program in accordance with the existing practice of the UL FM.

To find an opportunity to attract appropriate teaching staff to the study program, taking into account the risk associated with the currently high workload of teaching staff outside the study program;

Additional lecturers from foreign and Latvian institutions are involved in the program: doc. J. Brass from SPKC. Some of the courses are attended by guest lecturers from the WHO and the CDC.

Discuss study quality assessment questionnaires with students and, based on the proposals provided by students, improve the questionnaires, as well as, review the mechanism for providing feedback to students.

The recommendations have been fulfilled as far as possible.

3.1.2. Analysis and assessment of the study programme compliance with the study field. Analysis of the interrelation between the code of the study programme, the degree, professional qualification/professional qualification requirements or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements. Description of the duration and scope of the implementation of the study programme (including different options of the study programme implementation) and evaluation of its usefulness.

MSP Epidemiology and Medical Statistics are important for the health care of Latvia and for the development of medicine and health science in general, both in terms of content and in terms of employment opportunities and labor market demand. Currently, there is a lack of specialists in Latvia who are able to compile health care data in accordance with internationally accepted requirements, which is important for comparing them with world data. In order to modernize medical research in Latvia, it is critical to develop the highest level of epidemiology and medical statistics that students acquire within this program, learning the principles of data collection, analysis and interpretation. The Ministry of Health has acknowledged [1] that the lack of such specialists in the Latvian health care system is critical.

Within the framework of the program, the competence to collect large amounts of administratively obtained and digital data is acquired in depth. In the implementation of the study program, co-operation with the representatives of the health care sector is continued, jointly identifying the solution of the problems of the sector. Graduates of the study program will address national challenges in the field of health, as well as develop data-based decision-making in the health care system, which the OECD has identified as one of the five recommendations for strengthening it .

Admission requirements for the study program determine the required previous education: bachelor's degree or second level professional higher education in health care, medicine, dentistry, pharmacy, psychology, sociology, natural sciences, environmental sciences, food sciences, or other comparable higher education.

Applicants are admitted on a competitive basis in accordance with the principles described in the UL Admission Regulations, calculating the assessment according to the weighted average mark of the previous diploma, the total or average mark of the final theses and the result of the entrance

examination. The weighted average mark in bachelor's studies is counted as 40% of the total entrance examination mark. The evaluation of the final work in the bachelor's level studies makes up 30% of the total mark of the entrance examination, which reflects the applicants' knowledge of the research work. Entrance examinations test students' prior knowledge of the human body and its functions. In the entrance examination, students are offered two tasks - the first is related to mathematics and statistics, and the second is related to the problems of epidemiology. A mark equal to 15% of the total mark is calculated for each task. In this way, it is ensured that the matriculated students have already acquired knowledge about the human body before starting their studies, they have a basic knowledge of the methods of mathematical statistics, and are able to carry out scientific research work.

In the study program, most of the study courses are related to the basic specialty - epidemiology or medical statistics. Of the full study program, 80 CP (120 ECTS), 48 CP (72 ECTS) are related to epidemiology and research or medical statistics, as well as 20 CP (30 ECTS) to Master's thesis in epidemiology and medical statistics, 16 CP (24 ECTS) - with public health, of which study courses in the amount of 12 CP (18 ECTS) are acquired, as 4 of them are optional courses) (see Table 3.1.2.1).

Table 3.1.2.1

Distribution of study courses by thematic areas of the program

Epidemiology and research		Medical statistics		Public health	
Course title	CP	Course title	CP	Course title	CP
Introduction to research and writing of medical publications (A)	4	A new era in digital health (B)	4	Child health and the rights of the child (B)	2
Epidemiology of infectious diseases (B)	4	Analysis and interpretation of qualitative research (B)	2	Public health in a modern society (A)	2
Modern epidemiology I (A)	4	Medical statistics (A)	4	Sociālā pediatrija Social pediatrics (B)	2
Modern epidemiology II (B)	4	The Neuro-revolution - From Computer to Brain and Vice Versa (B)	4	Rhetoric in public health (B)	2
Research ethics and good scientific practice (A)	2	Statistical software for analysis of epidemiological (A)	4	Organization, economics, and policy of health system (B)	4

Health care data and its practical application in research project (B)	2	Visual perception: methodologies frameworks (B)	4	Psychological problems of health and disease (B)	2
Scientific seminar (A)	6			Health promotion methods and practices (B)	2
In Total	26 CP	A-8/ B-14	22 CP	A-2/ B-14	16
A-16/ B -10	39		33		CP
	ECTS		ECTS		24
					ECTS

A- compulsory courses, B- elective courses, C - free elective courses

All skills acquired within the study program will be applied in the master's thesis development process. Compilation of the Scientific Literature and Discussion of the Compulsory Part of the Master's Thesis will prove the student's theoretical knowledge and ability to logically systematize scientific articles and information, as well as to make independent conclusions from the obtained results. The Methods and Outcomes sections will demonstrate the student's knowledge of the selection and use of methods in epidemiology and medical statistics, research design, and data processing, analysis, and interpretation.

Epidemiology and medical statistics are the sciences that deal with health care research and the processing of health-related data. These sciences are an integral part of modern health sciences.

The study program was implemented in person and lasts for 2 years. During the COVID-19 pandemic, part of the study courses were taught remotely, which did not affect the quality of content acquisition. Students' grades during COVID-19 do not differ from their grades during pre-COVID-19. Minimum grade for students in all courses during COVID-19: 8.

[1] Ministru kabineta rīkojums Nr. 394 Par konceptuālo ziņojumu "Par veselības aprūpes sistēmas reformu". Rīga 07.08.2017.
<https://likumi.lv/ta/id/292718-par-konceptualo-zinojumu-par-veselibas-aprupes-sistemas-reformu>
 available only in Latvian

3.1.3. Economic and/ or social substantiation of the study programme, analysis of graduates' employment.

After graduating from MSP Epidemiology and Medical Statistics, students receive a master's degree in "Master of Health Sciences in Public Health", with the main field of study "Epidemiology and Medical Statistics". In order to achieve the goals, tasks and study results of the study program, the fulfillment of all conditions is ensured, starting from the admission requirements, the fulfillment of the study program plan and the process of substituting the master's thesis.

The process of defending the master's thesis will summarize all this information and show whether the student is able to independently conduct and develop scientific research, thus proving the knowledge, skills and competencies acquired in the study process in accordance with the expected

results of the program.

MSP Epidemiology and Medical Statistics are important for the health care of Latvia and for the development of medicine and health science in general, both in terms of content and in terms of employment opportunities and labor market demand. At present, there is a lack of specialists in Latvia who are able to compile health care data in accordance with internationally accepted requirements, which is important for comparing them with world data. In order to modernize medical research in Latvia, it is critical to develop the highest level of epidemiology and medical statistics that students acquire within the framework of this program, learning the principles of data collection, analysis and interpretation. The Ministry of Health has acknowledged that the lack of such specialists in the Latvian health care system is critical. Within the framework of the program, the competence to collect large amounts of administratively obtained and digital data is acquired in depth. In the implementation of the study program, co-operation with the representatives of the health care sector is continued, jointly identifying the solution of the problems of the sector. Graduates of the study program will address nationwide challenges in the field of health, as well as develop data-based decision-making in the health care system, which the OECD has identified as one of the five recommendations for strengthening it.

3.1.4. Statistical data on the students of the respective study programme, the dynamics of the number of the students, and the factors affecting the changes to the number of the students. The analysis shall be broken down into different study forms, types, and languages.

MSP Epidemiology and Medical Statistics is the latest program in the Health Care direction, developed and licensed in the spring of 2020. The first admission took place in the autumn semester of the 2020/2021 academic year, and 8 students were matriculated in the program, of which one student left studies after the end of the 1st semester. Two students were attracted to the scholarship of the Study Quality Improvement Fund of the University of Latvia, which ensures their tuition fees in the amount of 100% in the first year of studies. One student received a scholarship from SIA "Biosan Latvija" in an open competition - tuition fee in the amount of 100% for the first year of studies. SIA "Biosan Latvija" also reviewed the project request for the payment of the 2nd semester studies for other students of the program, and agreed to support the students in case their weighted average mark will be at least 8 points.

SP Epidemiology and medical statistics have so far been implemented only in Latvian.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

MSP Epidemiology and Medical Statistics are important for the health care of Latvia and for the development of medicine and health science in general, both in terms of content and in terms of employment opportunities and labor market demand. Currently, there is a lack of specialists in Latvia who are able to compile health care data in accordance with internationally accepted requirements, which is important for comparing them with world data. In order to modernize medical research in Latvia, it is critical to develop the highest level of epidemiology and medical statistics that students acquire within this program, learning the principles of data collection, analysis and interpretation. The Ministry of Health has acknowledged that the lack of such specialists in the Latvian health care system is critical.

Within the framework of the programme, the competence to collect large amounts of administratively obtained and digital data is acquired in depth. In the implementation of the study program, co-operation with the representatives of the health care sector is continued, jointly identifying the solution of the problems of the sector. Graduates of the study program will address national challenges in the field of health, as well as develop data-based decision-making in the health care system, which the OECD has identified as one of the five recommendations for strengthening it.

In the compulsory part of the course, students acquire knowledge about modern problems in research, as well as methods and tools for solving them. In the first semester, students acquire knowledge about the methods of solving epidemiological problems: in the study course Modern Epidemiology I students acquire study design and planning methodology, provided knowledge about possible problems in research, and their solution during both planning and statistical processing. Students discuss typical methodological problems in research and their solutions. To address specific research issues, the program integrates training in a number of medical and health-related statistical data processing methods (validation, one-dimensional and multidimensional analysis, effect modification assessment, interaction and mediation analysis). Some of the course topics are taught by lecturers whose main job is at the Center for Disease Prevention and Control (SPKC), who provide students with practical experience in SPKC data processing, analysis and inference. In the course Medical Statistics, each of the design methods taught in Modern Epidemiology I in statistical processing and the application of statistical methods in the processing of quantitative data is mastered. After these courses, in the second semester, in the course Introduction to Research and Academic Writing, students acquire the knowledge and skills to describe the research protocol and plan, as well as the results obtained. The course Research Ethics and Safe Scientific Practice complements students' knowledge of ethical research issues and provides an opportunity to get acquainted with the writing of research ethics commission applications. The knowledge provided in both courses gives students the opportunity to develop independent research planning, fully describe it and approve it in the Ethics Commission. The third semester course Public Health in Modern Society provides knowledge about the range of problems and possible directions in health research. Thus, students have the opportunity to apply

the theoretical and practical knowledge gained in the first two semesters to solve specific public health problems. Students can acquire practical skills in data processing of their chosen research in the course Statistical Software for Data Analysis, which gives students the opportunity to train the acquired statistical methods using SPSS, R and other statistical software. This course deepens the knowledge gained in the Modern Epidemiology I and Medical Statistics courses. In the course Scientific Seminar, students can discuss scientific articles, as well as the planning of their master's thesis. This course is a continuation of the course Introduction to Research and Academic Writing and expands the acquired theoretical knowledge with the preparation of a practical scientific article. The materials developed in the scientific seminar give students the opportunity to submit a summary report to the annual UL FM conference. In general, it develops students' understanding of research, from planning through statistical analysis to description, preparing them for both a master's thesis and future research. The limited elective courses are designed to expand students' knowledge of certain research areas. In the courses of the limited elective part, students get acquainted with the problems of public health, which supplement what they have acquired in the study course Public Health in Modern Society. Students can deepen their knowledge of the organization of the health system and political decision-making in health care in the study course Organization of the Health System, Economics and Politics, which can be further used in work in health care institutions. The importance of health promotion as one of the most important areas of public health is explained in the course Health Promotion Methods and Practices. Students acquire in-depth knowledge of research promotion and planning in the courses Modern Epidemiology II and Analysis and Interpretation of Qualitative Research, in which they learn additional research design opportunities and related issues, such as survey design, validation of research tools, interviewing. Particular emphasis is placed on the impact of associations and causality in different types of research, thus making it possible to assess the causality of results. In the course Epidemiology of Infectious Diseases, students have the opportunity to get acquainted with the latest epidemiological methods and concepts adopted in outbreaks of infectious diseases, with SPKC data on the infection situation in Latvia and the Baltic region and on vaccination research. The course is attended by guest lecturers from the SPKC and the World Health Organization (WHO). In-depth knowledge of medical statistics can be gained through the courses Healthcare Data and its Practical Application in a Research Project, Visual Perception: Methodologies and Approaches and the New Age in Digital Health.

Two study courses - The New Age in Digital Health and the Neurorevolution - are taught from computer to brain and vice versa by foreign lecturers from the Holon Institute of Technology (HIT), who show how health statistics are conducted in a country where the electronic health system has been in place since 1990. In this way, students are prepared to work with the e-health system and its analysis. All these courses together provide an opportunity to get acquainted with large amounts of data in medicine, the possibilities of presentation and the application of the results of practical research.

In-depth information in selected areas of epidemiology and public health can be found in Option B courses: Children's Health and Rights and Social Issues in the Context of Public Health. The course Psychological Problems of Health and Illness enables students to gain a deeper understanding of the issues of ethical and psychological research, which complements the information in the course Research Ethics and Safe Scientific Practice, as well as provides an opportunity to conduct research in social epidemiology. These study courses provide an opportunity for students to gain an understanding of the epidemiological and social problems of children's and adults' health. The Rhetoric in Public Health course enables students to develop their own individual strategies for reporting and successful communication in public health and medical institutions. Together, Parts A and B are designed to provide qualified professionals in both research and public health. In case the students did not take the courses Civil Defense which is obligatory according to the Civil Protection

and Disaster Management Law (Section 23) and Environmental Protection, which is obligatory according to the Environmental Protection Law (Section 42) during the bachelor's studies, the students acquire them additionally

The aim of the MSP Epidemiology and Medical Statistics and the study results to be achieved are closely connected with the aims and study results of the study courses, as well as the interconnection of the study courses is ensured.

The aim of the study program is to provide highly qualified epidemiology and medical statistics specialists to the Latvian and Baltic health systems at the regional, national and international levels, who know and develop epidemiological and other research methodologies, are able to analyze complex data and interpret results based on the latest international findings and standards required by international organizations. In order to be able to achieve the goal of the study program, 15 study results were set in the study program - knowledge, skills and competence.

In order to make sure that the goal and study results of each study course will be achieved by acquiring the intended knowledge, skills and competencies, mapping was performed during the development of each course, comparing the study results of the course with the results to be achieved by the study program. Within the description of each study course, a mapping was also performed, which checked how each of the mentioned study results of the course will be assessed in the intermediate examinations and in the final exam.

The study results of MSP Epidemiology and Medical Statistics will be achieved by taking appropriate courses. For example,

1 knowledge- "Understand the historical and current aspects and problems of epidemiology" will be achieved by taking the courses: Part A "Modern Epidemiology I", "Public Health in Modern Society", "Master's Thesis". Part B, Epidemiology of Communicable Diseases, New Era in Digital Health, Modern Epidemiology II, Neurorevolution - From Computer to Brain and Vice Versa, Organization of the Health System, Economics and Policy, Methods and Practice in Health Promotion, "Visual Perception: Methodologies and Approaches". Part B elective courses - "Environmental Protection", "Civil Defense", "Rhetoric in Public Health", "Social Pediatrics", "Psychological Problems of Health and Illness", "Basic Course in the Latvian Language".

2. Knowledge - "Understands modern epidemiological, clinical and sociological research methods, directions and types" will be achieved by taking courses in Part A "Introduction to Research and Academic Writing", "Medical Statistics", "Modern Epidemiology I", "Public Health in Modern Society", "Scientific seminar", "Master's thesis". Part B "Analysis and Interpretation of Qualitative Research", "Modern Epidemiology II", "Health Care Data and Their Practical Application in a Research Project", "Health System Organization, Economics and Policy", "Health Promotion Methods and Practices".

3. Knowledge - "Understands the ethical issues of research in the adult population and the rights of children" will be achieved by taking the courses in Part A "Introduction to Research and Academic Writing", "Contemporary Epidemiology I", "Research Ethics and Safe Scientific Practice", "Scientific Seminar", "Master's Thesis". Part B "Analysis and Interpretation of Qualitative Research", "Health Care Data and Their Practical Application in a Research Project", "Health Promotion Methods and Practice" Part B Elective Courses "Children's Health and Rights", "Psychological Problems of Health and Illness".

4. Knowledge - "understands the latest technological applications in medicine and statistics" will be achieved by taking courses in Part A "Introduction to Research and Academic Writing", "Medical Statistics", "Statistical Software for Data Analysis", "Scientific Seminar", "Master's Thesis". Part B "A New Era in Digital Health", "Modern Epidemiology II", "Healthcare Data and Their Practical

Application in a Research Project".

5.Skills - "Critical analysis of theory and research related to medicine, epidemiology and medical statistics" will be achieved by taking courses in Part A "Introduction to Research and Academic Writing", "Research Ethics and Safe Scientific Practice", "Public Health in Modern Society", "Scientific Seminar ". Part B, Epidemiology of Communicable Diseases, Neurorevolution - From Computer to Brain and Vice Versa, Organization, Economics and Politics of the Health System, Methods and Practice in Health Promotion. Part B elective courses "Environmental Protection".

6.Skills - "to analyze different relationships between research variables using theories, methods and problem-solving skills" will be achieved by taking the courses in Part A "Medical Statistics", "Statistical Software for Data Analysis", "Scientific Seminar", "Master's Thesis". Part B, "Analysis and Interpretation of Qualitative Research", "Modern Epidemiology II", "Neurorevolution - From Computer to Brain and Vice Versa", "Health Promotion Methods and Practices", "Visual Perception: Methodologies and Approaches". Part B elective courses "Environmental Protection", "Psychological Problems of Health and Illness".

7.Skills - "to design a study with the least possible error, taking into account data protection laws" will be achieved by taking courses in Part A "Medical Statistics", "Modern Epidemiology I", "Research Ethics and Safe Scientific Practice", "Master's Thesis". Part B "Analysis and Interpretation of Qualitative Research", "Health Care Data and Their Practical Application in a Research Project".

8.Skills - "to use technological possibilities in epidemiology" will be achieved in the acquired courses in Part A "Introduction to Research and Academic Writing", "Medical Statistics", "Statistical Software for Data Analysis". Part B, A New Era in Digital Health, Neurorevolution - From Computer to Brain and Vice Versa, Healthcare Data and Their Practical Application in a Research Project, Visual Perception: Methodologies and Approaches. Part B elective course "Civil Protection".

9.Skills - "to explain and discuss complex and systemic aspects of epidemiology with both specialists and non-specialists" will be achieved by taking courses in Part A "Introduction to Research and Academic Writing", "Modern Epidemiology I", "Research Ethics and Safe Scientific Practice", "Master's Thesis". Part B "Epidemiology of Communicable Diseases", "Modern Epidemiology II", "Organization, Economics and Politics of the Health System". Part B elective courses "Environmental Protection", "Rhetoric in Public Health", "Psychological Problems of Health and Illness".

10.The skills of "comparatively analyzing the epidemiological policy, organization and economy in different countries, planning and acting accordingly" will be acquired through the courses in Part A "Modern Epidemiology I". Part B elective courses "Children's Health and Rights", "Civil Protection", "Social Pediatrics".

11.Skills - "to independently advance their further development and specialization in epidemiology and medicine, taking responsibility for their own and staff groups' results and their analysis" will be achieved by taking courses in Part A "Modern Epidemiology I", "Research Ethics and Safe Scientific Practice", "Master's a job". Part B "A New Age in Digital Health", "Analysis and Interpretation of Qualitative Research", "Health Care Data and Its Practical Application in a Research Project", "Health System Organization, Economics and Policy", "Health Promotion Methods and Practices". Part B elective courses "Environmental Protection", "Civil Defense", "Rhetoric in Public Health", "Basic Course in the Latvian Language".

12.Competence - "to independently plan, critically analyze scientific and professional problems in epidemiology and to perform quality research work in epidemiology and medical statistics and to develop appropriate tools" will be achieved by taking courses in Part A "Introduction to Research and Academic Writing", "Modern Statistics" ", " Research Ethics and Safe Scientific Practice " ,"

Public Health in Modern Society ", " Statistical Software for Data Analysis ", " Scientific Seminar ", " Master's Thesis ". Part B, Epidemiology of Communicable Diseases, Modern Epidemiology II, Health Promotion Methods and Practice. Part B elective courses "Environmental Protection", "Rhetoric in Public Health", "Psychological Problems of Health and Illness".

13. Competence - "Independent choice and use of statistical and epidemiological software: SPSS, Prisma, R, MedCalc, DAGitty, GPower and others" will be achieved by taking courses in Part A "Medical Statistics", "Modern Epidemiology I", "Statistical Software for Data Analysis" , "Scientific seminar". Part B "Visual Perception: Methodologies and Approaches".

14. Competence - "to independently describe one's research work in various formats - in the format of a report, master's thesis and scientific article, observing ethical responsibility at all stages of the research" will be achieved by taking courses in Part A "Medical Statistics", "Research Ethics and Safe Scientific Practice" , "Master's Thesis". Part B "Epidemiology of Infectious Diseases", "Analysis and Interpretation of Qualitative Studies", "Health Care Data and Their Practical Application in a Research Project", "Visual Perception: Methodologies and Approaches". Part B elective courses "Environmental Protection", "Rhetoric in Public Health", "Basic Course in the Latvian Language".

15. Competence - "to plan health promotion activities and intervention programs in science and professional practice, integrating knowledge from different fields and assessing their impact on society and the environment" will be achieved by acquiring Part A "Introduction to Research and Academic Writing", "Research Ethics and Safe Scientific Practice" , " Public Health in Modern Society ", " Master's Thesis ". Part B, Epidemiology of Communicable Diseases, New Era in Digital Health, Analysis and Interpretation of Qualitative Research, Modern Epidemiology II, Neurorevolution - From Computer to Brain and Vice Versa, Organization, Economics and Politics of the Health System , "Health Promotion Methods and Practices". Part B elective courses "Environmental Protection", "Children's Health and Rights", "Civil Protection", "Rhetoric in Public Health", "Social Pediatrics", "Psychological Problems of Health and Illness".

All 15 study results of MSP Epidemiology and Medical Statistics have been aligned with 25 study courses, in total, achieving the goal of the study program. Table 3.2.1.1. shows the connection of MSP Epidemiology and Medical Statistics study courses with the tasks of the program. Tasks of the study program:

To promote knowledge of modern methods, directions and types of epidemiological, clinical and sociological research, and statistical processing of research.

To provide knowledge for innovative, professional and science-based decision-making in the health care system, health promotion and health care policy.

To ensure the combination of theoretical and practical knowledge with the possibility to develop a master's thesis both as an independent research project and as part of a larger project by joining the existing academic or applied research groups.

Table 3.2.1.1

Linking MSP Epidemiology and Medical Statistics study courses with program tasks

Course title	Tasks of the study program		
	1	2	3

Part A			
Introduction to research and writing of medical publications	x	x	x
Medical statistics	x	x	x
Modern epidemiology I	x		x
Research ethics and good scientific practice	x	x	x
Public health in a modern society	x	x	
Statistical software for analysis of epidemiological data	x		x
Scientific seminar	x		x
Master thesis	x		x
Part B - limited elective courses			
Epidemiology of infectious diseases	x	x	
A new era in digital health	x	x	
Analysis and interpretation of qualitative research	x	x	
Modern epidemiology II	x	x	
Neuro-revolution - from computer to brain and vice versa	x	x	
Health care data and its practical application in research project	x	x	x
Organization, economics, and policy of health system	x	x	
Methods and practices of health promotion	x	x	
Visual Perception: Methodologies, Frameworks	x	x	
Part B - elective courses			
Child health and the rights of the child	x	x	
Rhetoric in public health		x	
Social pediatrics		x	

Psychological problems of health and disease	x	
Environment protection		
Civil protection		

Part C - Free elective courses

Lecturers involved in the study program regularly improve their qualifications in their field by participating in professional courses and conferences. Once a semester, each lecturer has the opportunity to update the content of study courses in accordance with the latest trends in science and knowledge that was acquired during the qualification improvement.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

All lecturers of MSP Epidemiology and Medical Statistics are actively involved in the research process, participate in scientific projects, report research results at international scientific conferences, and publish articles in highly regarded journals. Table no. 8 summarizes information on the scientific work of lecturers in 2020-2021. per year. The table shows the lecturers' publications that were published in 2020-2021. but only in the most important conferences and projects. In total, all lecturers of the program developed 23 high-quality scientific articles in just one year. The table reviews only the time when lecturers were involved in MSP Epidemiology and Medical Statistics, information on lecturers' activity in previous years can be seen in lecturers' CVs. Despite the fact that 2020 was not an easy year for the whole world, including researchers, the table shows a number of the results achieved this year. All lecturers of the program 2020-2021. Some of the conferences took place online in 2006 to ensure participation during the pandemic. Most of the lecturers' conference reports were published in international journals. The lecturers were involved as researchers and / or leading researchers in several scientific projects (some of the lecturers were involved in different projects at the same time). Lecturers develop several scientific topics and publish articles in indexed journals with a high impact factor. In general, it can be concluded that the scientific research activity of the lecturers of MSP Epidemiology and Medical Statistics is high and of high quality (see Table3.2.2.1).

3.2.2.1.table

Involvement of lecturers in scientific and research work 2016-2021 / academic year.

Lecturer	The most important publications	The most important conference reports	The most important projects
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Bārzdīņš Juris	Mezinska S, Buka A, Bankava A, Barzdins J. 2020. Legal and ethical issues in secondary use of administrative health data: The case of Latvian health care monitoring datalink. <i>Studies in Health Technology and Informatics</i> , 270: 1138-1142.	Medical Informatics Europe. <i>Legal and Ethical Issues in Secondary Use of Administrative Health Data: The Case of Latvian Health Care Monitoring Datalink</i> . 2020, Geneva, Switzerland.	ESP Veselības aprūpes kvalitātes un efektivitātes publiskās monitorēšanas sistēmas izveide (LU finansējums). Amats projektā - vadošais pētnieks. 2018-2020. Multidisciplinārs pētījums par sadzīvē iegūtas sepses pacientiem izdzīvotājiem Latvijā. Amats projektā - vadošais pētnieks. Latvijas zinātnes padome, 2020 - šobrīd. Labākas pārvaldības nodrošināšana Latvijas Universitātē. Amats projektā - vadošais eksperts. CFLA, 2020.
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Civjāne (Tzivian) Liliāna	<p>Mezinska S, Kaleja J, Mileiko I, Santare D, Rovite V, Tzivian L. 2020. Public awareness of and attitudes towards research biobanks in Latvia. BMC Medical Ethics, 21, https://bmcmethethics.biomedcentral.com/articles/10.1186/s12910-020-00506-1.</p> <p>Shapira N, Kushnir T, Brandman R, Katan G, Tzivian L. 2020. Association between parental self-reported knowledge on soy formula and their children's intake of soy-based infant formulae – a cross-sectional study of Israeli parents. International Journal of Public Health 65(7): 1079-1085.</p> <p>Tzivian L, Sopka V, Winkler A, Hennig F, Weimar C, Moebus S, Hoffmann B, Jokisch M. 2020. The role of depressive symptoms within the association of long-term exposure to indoor and outdoor traffic noise and cognitive function – results from the Heinz Nixdorf Recall study. International Journal of Hygiene and Environmental Health, 230, doi: https://doi.org/10.1016/j.ijheh.2020.113570.</p> <p>Weber J, Tzivian L, Müller A, Angerer P. 2020. Country-specific differences of age stereotypes towards older hospital staff and their association with self-efficacy, work ability and mental well-being. Journal of Advanced Nursing, 76: 1614-1626.</p> <p>Dekante A, Daugule I, Pavlovics S, Kikuste I, Polaka I, Tzivian L, Kojalo I, Putnins V, Tolmanis I, Vanags A, Leja M. 2020. Low prevalence of celiac disease among patients with functional dyspepsia and irritable bowel syndrome in Latvia. Journal of Gastrointestinal and Liver Diseases, 29(1): 33-39.</p> <p>Razuka-Ebela D, Zile I, Tzivian L, Ebela I, Polaka I, Parshutin S, Santare D, Murillo R, Herrero R, Young Park J, Leja M. 2020. Does family history of cancer influence undergoing screening and gastrointestinal investigations? Journal of Gastrointestinal and Liver Diseases, 29 (3).</p> <p>Razuka-Ebela D, Polaka I, Parshutin S, Santare D, Ebela I, Murillo R, Herrero R, Tzivian L, Young Park J, Leja M. 2020. Sociodemographic, lifestyle and medical factors associated with Helicobacter pylori infection. Journal of Gastrointestinal and Liver Diseases, 29(3): 319-327.</p> <p>Folkmane I, Tzivian L, Folkmane E, Valdmene E, Kuzema V, Petersons A. 2020. Predictors of Hyperuricemia after Kidney Transplantation: Association with Graft Function. Medicina (Kaunas), 56: 95.</p> <p>Priede D, Roze B, Parshutin S, Arklina D, Pircher J, Vaska I, Folkmanis V, Tzivian L, Henkuzena I. 2020. Association between malocclusion and orofacial myofunctional disorders of preschool children in Latvia. Orthodontic and Craniofacial Research journal, 23(3): 277-283.</p>	<p>International Scientific Conference on Medicine at the University of Latvia. <i>Relations between use of electronic devices and psycho-motor development of 6 – 36 months old children</i>. 2020, Riga, Latvia.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>Perception of patient safety climate in Latvian health care organizations: differences in personal opinions</i>. 2020, Riga, Latvia.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>Public attitudes towards research biobanks in Latvia</i>. 2020, Riga, Latvia.</p> <p>International Society of Quality of Life studies conference. <i>Association between stereotypes toward older worker and health-related quality of life: differences between German and Latvian nurses</i>. 2020, Rotterdam, the Netherlands.</p> <p>International Association for Research on Adolescents. <i>Adolescents' quality of life during final school year and parents understanding of their child's problems in Latvia</i>. 2020, Porto, Portugal.</p>	<p>„Nesīkšūnu plaušu vēža (NSCLC) pacientu izdzīvošana Latvijā un Izraēlā (retrospektīvā analīze): būtiskie uz vērtību balstītas veselības aprūpes (VBHC) izmantošanas aspekti”. Amats projektā – vadošā pētniece. Roche Pharmaceutical Latvia finansējums. 2021-2023.</p> <p>SPKC projekts. Problemātisko narkotiku lietotāju aptaujas 12. posms, ietverot novērtējumu par ārkārtējās situācijas ietekmi Covid-19 dēļ uz narkotiku lietošanas paradumiem un riska uzvedību. Amats projektā – pētniece. 2020.</p> <p>“Fostering institutional transformation of R&I policies in European Universities (FIT FORTHUM)”. HORIZON 2020 projekts. Amats projektā - WP5.3 daļas vadītāja: “Living Labs for societally embedded co-creation of knowledge”. 2020-2023.</p> <p>COVIDzīve - Dzīve ar COVID-19: Novērtējums par koronavīrusa izraisītās krīzes pārvarēšanu Latvijā un priekšlikumi sabiedrības noturībai nākotnē. Amats projekta – pētniece darba grupas WP3: Labklājība attiecībā: COVID-19 psiholoģiskā ietekme uz indivīdiem un ģimenēm. Amats projekta – pētniece. 2020.</p> <p>Latvijas Zinātnes Padomes projekts “Ētiski un sociāli atbildīga pētniecības biobanku pārvaldība Latvijā: sabiedrības, donoru un zinātnieku viedokļu analīze”. Amats projekta – pētniece. 2018-2021.</p>
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Daugule Ilva	Dekante A, Daugule I, Pavlovics S, Kikuste I, Polaka I, Tzivian L, Kojalo I, Putnins V, Tolmanis I, Rumba-Rozenfelde I, Boka S, Vanags A, Leja M. 2020. Low Prevalence of Celiac Disease among Patients with Functional Gastrointestinal Disorders in Latvia Journal Gastrointestinal Liver Diseases, 29 (1): 33-39.	LU konference, pediatrijas sekcija. <i>Helicobacter Pylori: no pētījumiem par baktērijas izplatību līdz pētījumiem par kuņģa zarnu trakta mikrofloras ietekmi uz cilvēku.</i> State- of- the art lekcija. 2020, Rīga, Latvija.	Kuņģa vēža izraisītas mirstības prevencijas pasākumu kompleksa ieviešanas pētījums, likvidējot H.pylori infekciju un savlaicīgi atklājot kuņģa pirmsvēža stāvokļus. Amats projektā – pētniece. 2020.
Ebela Inguna	Razuka-Ebela D, Zile I, Tzivian L, Ebela I, Polaka I, Parshutin S, Santare D, Murillo R, Herrero R, Young Park J, Leja M. 2020. Does Family History of Cancer Influence Undergoing Screening and Gastrointestinal Investigations? J Gastrointestin Liver Dis., 29(4): 523-528. Razuka-Ebela D, Polaka I, Parshutin S, Santare D, Ebela I, Murillo R, Herrero R, Tzivian L, Young Park J, Leja M. 2020. Sociodemographic, Lifestyle and Medical Factors Associated with Helicobacter Pylori Infection. J Gastrointestin Liver Dis., 29(3): 319-327.	XXXIIIrd International Workshop on Helicobacter & Microbiota in Inflammation & Cancer. <i>H. pylori prevalence in individuals with allergic disease in the Latvian population.</i> 2020, Virtual conference. United European Gastroenterology Week. <i>Serologically determined gastric atrophy associated with lifestyle, dietary factors and Helicobacter pylori status.</i> 2020, virtual conference. International Scientific Conference on Medicine, 78th International Scientific Conference of the University of Latvia. <i>Use of ultrasound examinations in pregnancy by region.</i> 2020, Rīga, Latvia. United European Gastroenterology Week. <i>Factors associated with gastric atrophy 'missed' by serologic testing.</i> 2020, virtual conference. International Scientific Conference on Medicine, 78th International Scientific Conference of the University of Latvia. <i>Infant mortality in relation to economic factors since the economic crisis in the Baltic states 2010-2016.</i> 2020, Rīga, Latvia.	Biomarkieru un dabas vielu izpēte akūtu un hronisku slimību diagnostikai un personalizētai ārstēšanai. Amats projektā – pētniece. 2016 - turpinās. Valsts pētījumu programmas "Biomedicīna sabiedrības veselībai (BIOMEDICINE)" 6.3. projekts "Akūtu un hronisku slimību kompleksa izpēte bērniem diagnostikas un ārstēšanas algoritmu izstrādei slimnieku mirstības samazināšanai, dzīvildzes pagarināšanai, dzīves kvalitātes un sabiedrības veselības uzlabošanai". Amats projektā – pētniece. 2014-2017.

Erts Renārs	<p>Sile L, Berzina K, Kvartalovs D, Erst R, Kikuste S, Sapele I, Rancans E. 2020. Naturalistic follow-up study of rehospitalization rates and assigned disability status of patients with first-episode schizophrenia spectrum psychosis in South East Latvia: preliminary results. <i>Nordic Journal of Psychiatry</i>, p. 1-10.</p> <p>Valeina S, Heede S, Erts R, Septiene S, Skaistkalne E, Radecka L, Vanags J, Laganovska G. 2020. Factors influencing myopic shift in children after intraocular lens implantation. <i>European Journal of Ophthalmology</i>, 30 (5): 933-940.</p> <p>Vanags J, Erts R, Laganovska G. 2021. Anterior Capsule Opening Contraction and Late Intraocular Lens Dislocation after Cataract Surgery in Patients with Weak or Partially Absent Zonular Support. <i>Medicina</i>, 57 (1): 1-12.</p>		<p>Medicīnas fakultātes zinātniskās sadarbības veicināšanas un kapacitātes uzlabošana. Amats projektā - vadošais eksperts. 2019 - turpinās.</p> <p>Starptautiski konkurētspējīgu un Latvijas tautsaimniecības attīstību veicinošu studiju programmu izveide Latvijas Universitātē. Amats projektā - vadošais eksperts. 2019 - turpinās.</p>
Folkmanis Valdis	<p>Priede D, Roze B, Parshutin S, Arkliņa D, Pircher J, Vaska I, Folkmanis V, Tzivian L, Henkuzena I. 2020. Association between malocclusion and orofacial myofunctional disorders of preschool children in Latvia. <i>Orthodontic and Craniofacial Research journal</i>, 23(3): 277-283.</p>	<p>18th annual conference of the International Society for Quality-of-Life Studies (ISQOLS). <i>Association between anxiety and self-reported quality of life of 9th grade adolescents at the beginning and at the end of school year.</i> 2020, Rotterdam, The Netherlands.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>Adolescents' quality of life during final school year and parents understanding of their child's problems in Latvia.</i> 2020, Riga, Latvia.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>Differences in quality of life of 9th grade adolescents at the beginning and at the end of the final school year.</i> 2020, Riga, Latvia.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>Comparison in psychomotor function of children receiving Montessori therapy and children that do not receive any therapy.</i> 2020, Riga, Latvia.</p> <p>International Scientific Conference on Medicine at the University of Latvia. <i>A six-month progress in psychomotor function of children with autistic spectrum disorder.</i> 2020, Riga, Latvia.</p>	<p>Biomarķieru un dabas vielu izpēte akūtu un hronisku slimību diagnostikai un personalizētai ārstēšanai. Amats projektā - vadošais pētnieks. 2020-2023.</p>

Kīvīte-Urtāne Anda	<p>Rancans E, Renemane L, Kivite-Urtane A, Ziedonis D. 2020. Prevalence and associated factors of mental disorders in the nationwide primary care population in Latvia: a cross-sectional study. <i>Annals of General Psychiatry</i>, 19: 25.</p> <p>Vedmedovska N, Bokucava D, Kivite-Urtane A, Rovite V, Zake-Nikitina L, Klovins J, Fodina V, Donders G. 2020. The correlation between abnormal uterine artery flow in the first trimester and genetic thrombophilic polymorphisms: a prospective case-controlled pilot study. <i>Diagnostics</i>, 10: 654.</p> <p>Marty L, Lemsalu L, Kivite-Urtane A, Costagliola D., Kaupe R., Linina I., Upmace I., Ruutel K., Supervie V., HERMETIC study group. 2020. Revealing HIV epidemic dynamics and contrasting responses 1 in two WHO Eastern European countries: Insights from modeling and data triangulation. <i>AIDS</i> (apstiprināts publicēšanai, manuskripta numurs AIDS-D-20-00512R1).</p>	<p>EEZ / Norvēģijas valdības finansēts projekts "Dzemdē kakla vēža ierobežošana: intelligenti un personalizēti risinājumi vēža skrīningam". Amats projektā - Projekta zinātniskā vadītāja / vadošā pētniece. 2020-2024.</p> <p>ESF projekts „Kompleksi veselības veicināšanas un slimību profilakses pasākumi”. “Latvijas iedzīvotāju seksuālās un reproduktīvās veselības ietekmējošiem faktori un paradumi”. Amats projektā - pētījuma vadītāja. 2020-2021. Projekts "Semināru organizēšana Nacionālā veselīgo pašvaldību tīkla koordinatori un pašvaldību atbildīgajām amatpersonām un Veselību veicinošo skolu tīkla koordinatori veselības veicināšanas un sabiedrības veselības jautājumos". Amats projektā - informatīvā materiāla autore, lektore, darba grupu vadītāja. 2020.</p> <p>Valsts pētījumu programmas "COVID-19 seku mazināšanai" projekta "COVID-19 epidēmijas ietekme uz veselības aprūpes sistēmu un sabiedrības veselību Latvijā; veselības nozares gatavības nākotnes epidēmijām stiprināšana". Amats projektā - projekta zinātniskā vadītāja / vadošā pētniece. 2020.</p> <p>SIA "Baltic Communication Partners". "Bez cigaretes.lv" projekts par smēķēšanas atmešanas komunikācijas stratēģijām Latvijas kontekstā. Amats projektā - pētniece. 2020.</p>
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Kužniece Ingrida		<p>Latvijas Ārstu Biedrības konference "Precīzijas/personalizētā medicīna", 2020, Rīga, Latvija.</p> <p>LVAVSA konference "Pacients. Drošība. Veselības aprūpes vadītājs". 2020, Rīga, Latvija.</p> <p>Pasaules Kongress "Sešpadsmitais pasaules kongress sabiedrības veselībā", 2020, Roma(tiešsaistē), Itālijā.</p>	<p>Nacionāla un starptautiska mēroga pasākumu īstenošana izglītojamo talantu attīstībai (konferences) ERAF eksperts. 2020.</p>
Mežinska Signe	<p>Gunnarsson Payne J, Korolczuk E, Mezinska S. 2020. Surrogacy relationships: a critical interpretative review. <i>Upsala Journal of Medical Sciences</i>, 183-191.</p> <p>Mezinska S, Kaleja J, Mileiko I. 2020. Becoming and being a biobank donor: The role of relationships and ethics. <i>PLoS One</i>. 15(11):e0242828</p> <p>Mezinska, S, Kaleja, J, Mileiko, I. <i>et al.</i> 2020. Public awareness of and attitudes towards research biobanks in Latvia. <i>BMC Medical Ethics</i> 21: 65.</p>	<p>Europe Biobank Week congress 2020 BBMRI-ERIC. <i>Relational autonomy, ethics and sustainability of biobanks, Mapping European RECs review processes for biobank-based research</i>. 2020 (online).</p> <p>World Congress of Bioethics International Association of Bioethics. <i>Autonomy and Solidarity in the Context of Research Biobanks: Results of a Study on Public Attitudes Towards Research Biobanks in Latvia</i>. 2020 (online)</p> <p>The Second International Bioethics Conference "Ethical and Legal Issues of Emerging Biomedical Sciences and Research". <i>Assisted Reproductive Technologies and Parenthood</i>. 2020, Oman.</p>	<p>Researcher and consortium member in the H2020 project ROSIE "Responsible Open Science in Europe". Amats projektā - pētniece. 2021-2024.</p> <p>Latvian Council of Science project "Ethically and socially responsible governance of research biobanks in Latvia: analysis of opinions of public, donors and researchers". Amats projektā - vadošā pētniece. 2018-2021.</p> <p>H2020 project VIRT2UE "Virtue based ethics and Integrity of Research: Train-the-Trainer program for Upholding the principles and practices of the European Code of Conduct for Research Integrity". Amats projektā - pētniece. 2018-2021.</p> <p>COST Action CA16210 MINDDS "Maximising Impact of research in NeuroDevelopmental Disorders". Amats projektā - Management committee member. 2018-2021.</p>

Šķilters Jurgis	Šķilters, J., Zariņa, L., Žilinskaite, E., Bērziņa, N., & Apse, L. (2020). Topologic and Geometric Structure of Spatial Relations in Latvian: an Experimental Analysis of RCC. <i>Baltic J. Modern Computing</i> , Vol. 8 (2020), No. 1, 92-125.	Linking relational and absolute: Constraints in spatial cognition conference. <i>Whitehead Lecture in Cognition, Computation and Culture</i> . 2020, London UK. International Symposium Dimensions of Reading. <i>Complexity of Reading within Cognitive Science. Keynote lecture</i> . 2020, Hannover, Germany.
Zīle Inta		Starptautiskās Neiropsihoanalīzes asociācijas konference "Conscious". 2020, Romā, Itālijā. European Associations for Research on Adolescents. <i>Adolescents' quality of life during the final school year and parents' understanding of their child's problems in Latvia</i> . 2020, tiešsaistes konference, Porto Portugālijā.

The lecturers involved in the program taught scientists and lecturers in other scientific institutions and conducted guest lectures and colloquia in scientific organizations outside the University of Latvia, both in Latvia and abroad.

1. Šķilteris - in 2019 led a series of colloquia at the University of Oslo in Norway (topic: Geometric and functional constraints in spatial language. A talk delivered at Super Linguistics), a colloquium at the University of Tel Aviv (topic: Towards a Relational Eigenplace) and a lecture at the University of Leuven in Belgium : A functionally and geometrically extended topological formalism for representing natural language semantics). In 2017, he became a visiting professor and researcher at the Universities of Oslo and Akershus, Norway, and the University of Sassari, Italy; 2017-2019 Vilnius University, Lithuania, and 2019 Tel Aviv University, Israel.
2. Civjāne - in 2017, 2019 and 2020 he gave four cycles of lectures at the State Agency of Medicines (each cycle - 10 lectures, topics: Writing a peer review - how to analyze a study ?; medical sciences; Bias and misclassifications in epidemiological studies). In 2018, within the framework of the ERASMUS project, four lectures were given at Henrich Heine University in Düsseldorf, Germany (topics: The association between ambient noise with cognitive function, specifically with mild cognitive impairment; in cooperative work; The effect modification by depressive symptoms of the association between different types of noise and cognitive function; The association between age, aging with workability of medical personnel - results of the Latvian part of the study).

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the

student-centred principles are taken into account in the implementation of the study process.

Various study methods are chosen for the provision of studies, according to the goals, specifics and planned study results of each course:

1. Lectures and seminars, which use not only different methods of information transfer, but also discussions, group work, etc. active forms of work, which are in addition to the theoretical material. Practical tasks, individual, pair and group work, discussions and project development, study tours to industry organizations are widely used. Employers are involved in the implementation and improvement of study courses (they are invited to lead separate seminar classes, often classes are organized as experience exchange visits at workplaces, etc.). Students' presentation, presentation and discussion skills are promoted in the study course seminars. Thus, students practically learn the methods that ensure the successful presentation of the research at conferences, give students the opportunity to gain experience for further discussions with public health institutions. Special lectures, where students are trained in successful presentation skills, are planned in the Introduction to Research and Academic Writing course. In the study process, methods are used that promote communication between students during the study tasks, solving real problems in the field, modeling situations. Group work is a frequently used method in which communication between students is needed to create, for example, a common research design (in the course Scientific Workshop) or to analyze an existing scientific article (in the course Introduction to Research and Academic Writing).

2. Diverse methods of acquiring and consolidating knowledge, such as lectures, interactive lectures, summary lectures, problem-oriented lectures, lectures combining practical and theoretical parts. Practitioners and professionals from various institutions are invited to teach individual lectures in order to promote the unity of theory and practice. Visiting professors from Israel who give lectures in two courses do not only theoretical but also practical work and know the requirements necessary for the successful development of research and the improvement of the statistical part of medical care. With their rich international experience, these guest lecturers can explain to students in the deepest and most comprehensive way how theoretical knowledge can be put into practice. Specialists from the SPCC and the WHO, who are involved in the courses Modern Epidemiology I and Epidemiology of Infectious Diseases, help to gain a deeper understanding of the amount and structure of existing data and to compare it with data contained in international databases. In some of the study courses, students use real anonymized data files from the SPKC database or from existing international research. Thus, students will be introduced to the principles and strategies of research work both in Latvia and abroad. Students will be able to use all this knowledge and skills in their practical work in the future.

3. Intermediate examinations, independent works - reports, essays, analysis of scientific articles, analysis of practical cases, preparation of presentations, implementation of modeling tasks, etc., such as development and presentation of research projects or development and defense of scientific research works. Active teaching methods are widely used in seminars. With the help of these methods, a democratic and free atmosphere is created in the study process, which in turn stimulates the growth of students' personalities, as well as promotes students' learning motivation, self-reflection and participation in the study process. In addition, these methods can be used more and more as students have access to an ever-expanding range of teaching literature that they can access online. In the study process, in order to provide support to all students, regular face-to-face consultations are offered (at the request of students - both group and individual consultations),

where they discuss current study and other issues, as well as part-time consultations using other means of communication (Teams study platform). Examples of consultations that are not related to current study material but are relevant to epidemiological issues include regular discussion of COVID-19-related situations, including information obtained by students in lectures: explanations of published information and coefficients, vaccine exposure criteria, and comparison of vaccines, spread and control measures of the virus and vaccination plans in different countries, etc.

4. Project-based learning is a new and modern method that has been developing in recent years around the world and will be widely used in MSP Epidemiology and Medical Statistics. This method envisages that from the first semester students choose a topic of interest in epidemiology, which is discussed with potential supervisors. Further, in all subjects where seminar tasks, presentations, situation descriptions, etc. are provided, students develop learning outcomes related to this chosen topic. Thus, by the time the master's thesis is implemented, students already have extensive knowledge of their chosen topic, and it is considered in various aspects - both theoretical (for example, planning research or describing existing literature on the chosen topic in the course Scientific seminar or discussing the importance of the topic in public health in modern society, Health promotion methods and practices and Social aspects in the context of public health, both practical (eg, working with databases on the chosen topic in the course Health care data and their practical application in a research project). international conferences, as materials on this topic are obtained and processed from the very beginning of studies.

5. Use of open access technological solutions in classes, creating a technology-enriched learning environment, modeling a modern and dynamic learning process; organization of studies in the e-environment, offering e-environment materials, independent work, using the recommended and student-selected literature. The possibilities offered by e-learning (Moodle) are used, including forums. An e-learning environment has been created for each study course, in which students have access to lesson materials, task descriptions, additional study materials related to the course topics, as well as study tasks (tests, seminar publications, etc.). Technical innovations are complemented by Teams software, which is actively used for lectures, seminars and consultations. At the request of students, lectures are recorded and placed in the course materials using Streams technology. This gives students the opportunity to listen repeatedly to the issues raised in the lecture and their explanations, in case any information was not clear or was missed.

Properly formulated assessment of learning outcomes promotes students' understanding and co-responsibility for their own learning, self-assessment and understanding of the assessment they receive. In the study process, lecturers use methods, examination forms and evaluation criteria that correspond to the study goal and planned study results. Acquisition of the study course at the end of it is assessed on a 10-point scale in accordance with the regulations of the Cabinet of Ministers of the Republic of Latvia 13.05.2014. Regulations No. 240 "Regulations on the State Academic Education Standard" [1] and the Senate of the University of Latvia on 29.06.2015. decision no. 211, based on the following criteria: the quantity and quality of the knowledge acquired; acquired skills; the acquired competence in accordance with the planned study results. In order for a student to pass the final examination, he / she must successfully pass the intermediate examinations. In the program, mid-term examinations are usually graded on a 10-point scale. The total grade of the intermediate examinations is not less than 50% of the total grade of the course. At the end of the course, oral / written exams are used, which make up at least 10% of the total grade. All assessments of mid-term and final examinations of study courses are recorded in the e-learning environment and are available to students. Assessment of students' knowledge and control of independent work is performed within the semester in parallel with the study work, ie assessment is of a continuous nature. It provides feedback between the student and the lecturer in a certain study course, allowing the lecturer to assess the level of acquisition of the already implemented sections

of the course and, consequently, the quality of teaching. The requirements for obtaining credit points for each study course and their share in the assessment of the total course are clearly indicated in the description of the study course, as well as are reported to the students during the first two lessons.

Until now, the study program has been implemented only in Latvian. The same methods will be used in the implementation of the study program in English as in the Latvian language program.

MSP Epidemiology and Medical Statistics will organize the studies as full-time full-time studies, the development and implementation of which follow a student-centered approach. The implementation mechanism of the MSP Epidemiology and Medical Statistics envisages students to acquire a certain number of CP by participating in a purposeful study process, participating in face-to-face classes, as well as working independently or in groups with other students. The master's study program is implemented full-time. Full-time studies are planned taking into account the opportunities for students to attend classes during the week. The practice so far has been varied, offering students to attend lectures and classes three days in a week, starting in the afternoon or two full days, with students having two days of classes. However, the latter option has so far provoked various discussions, as it is difficult for students to engage in productive learning for such a long time. Therefore, students will be offered the option of studying three afternoons a week, thus enabling master students to combine studies with work. The diversity of students' learning needs will be taken into account in the study process, choosing pedagogical methods, promoting students' learning motivation, self-reflection and participation in the study process. Teaching methods will be chosen according to the goals, specifics and planned learning outcomes of each course. The physical environment of studies will promote the implementation of a student-centered approach: classrooms can be easily transformed into group work, individual work, students will be able to use digital technologies. A variety of teaching methods will be used in the implementation of the program: 1. lectures and seminars, which use not only different methods of information transfer, but also discussions, group work, etc. active forms of work, which are in addition to the theoretical material. 2. use of open access technological solutions in classes, creating a technology-enriched learning environment, modeling a modern and dynamic learning process; organization of studies in the e-environment, offering E-environment materials, independent work, using the recommended and student-selected literature. The possibilities offered by E-learning (Moodle), including Forums, will be used. 3. mid-term examinations, independent works - reports, essays, analysis of scientific articles, analysis of practical cases, preparation of presentations, implementation of modeling tasks, etc., such as development and presentation of research projects or development and defense of scientific research works. Active teaching methods will be widely used in seminars. With the help of these methods, lecturers will create a democratic and free atmosphere in the learning process, which in turn will stimulate the growth of students' personalities. In addition, these methods can be used more and more as students have access to an ever-expanding range of study literature that they can access online. In order to provide support to all students in the study process, regular face-to-face consultations will be offered (consultation times will be announced at the beginning of each academic year and each semester), where both current study and other issues will be discussed, as well as part-time consultations using other means of communication. Assessment: Correctly formulated learning outcomes promote students' understanding and co-responsibility for their own learning, self-assessment and understanding of the assessment they receive. In the study process, lecturers use methods, examination forms and assessment criteria appropriate to the study goal and planned study results. Acquisition of the study course at the end of it is assessed on a 10-point scale in accordance with the Regulations of the Cabinet of Ministers of the Republic of Latvia No. 141, No. 512, No. 240 and the Senate of the University of Latvia on 29.06.2015. decision no. 211, based on the following criteria: the amount and quality of knowledge acquired; acquired skills; the acquired competence in accordance with the planned study results. In order for a student

to pass the final examination, he / she must pass the intermediate examinations. In the program, mid-term examinations are usually graded on a 10-point scale. The total grade of the intermediate examinations is not less than 50% of the total grade of the course. At the end of the course, oral / written exams are used, which make up at least 10% of the total grade. Thus, the assessment of students' knowledge and constant control of the work is performed within the semester in parallel with the study work, ie the assessment is of a continuous nature. This provides feedback between the student and the lecturer in a certain study course, allowing the lecturer to assess the level of acquisition of the already implemented sections of the course and, consequently, the quality of teaching. The requirements for obtaining credit points for each study course and their share in the assessment of the total course are clearly indicated in the description of the study course, as well as are reported to the students during the first two lessons. In the study process, the mobility of students studying in foreign universities for one semester (incl. Recognition of study results) will be promoted, thus enriching the study process. It is planned to involve employers in the implementation and improvement of study courses in the future. Teaching methods will be chosen according to the goals, specifics and planned learning outcomes of each course. The physical environment of studies will promote the implementation of a student-centered approach: classrooms can be easily transformed into group work, individual work, students will be able to use digital technologies.

[1]“Regulations on the State Academic Education Standard”. <https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitiba-standartu> (the source is available only in Latvian)

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

The study program does not provide for internships, but students will receive practical skills in the courses Modern Epidemiology II, Statistical Software for Data Analysis, Health Care Data and its Practical Application in a Research Project, and a Scientific Seminar.

Skills - “to use technological possibilities in epidemiology” will be achieved in the acquired courses in Part A “Introduction to Research and Academic Writing”, “Medical Statistics”, “Statistical Software for Data Analysis”. Part B, A New Era in Digital Health, Neurorevolution - From Computer to Brain and Vice Versa, Healthcare Data and Their Practical Application in a Research Project, Visual Perception: Methodologies and Approaches. Part B elective course “Civil Protection”.

Competence - “Reasonable planning of health promotion activities and intervention programs in science and professional practice, integrating knowledge from different fields and assessing their impact on society and the environment” will be achieved by mastering Part A “Introduction to Research and Academic Writing”, “Research Ethics and Safe Scientific Practice”, “Public Health in Modern Society”, “Master's Thesis”. Part B, Epidemiology of Communicable Diseases, New Era in Digital Health, Analysis and Interpretation of Qualitative Research, Modern Epidemiology II,

Neurorevolution - From Computer to Brain and Vice Versa, Organization, Economics and Politics of the Health System , "Health Promotion Methods and Practices". Part B elective courses "Environmental Protection", "Children's Health and Rights", "Civil Protection", "Rhetoric in Public Health", "Social Pediatrics", "Psychological Problems of Health and Illness".

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The first admission of MSP Epidemiology and Medical Statistics took place in the 2020/2021 academic year, thus the first final works are planned at the end of the 2021/2022 academic year. Although the 4th semester is planned for the development of the master's thesis, based on the above-mentioned Project-based learning approach, already at the beginning of the 1st semester students were offered the opportunity to choose a suitable master's thesis topic. Potential topics were discussed with students at various LU project managers, pharmaceutical companies and researchers, who will be provided with statistical analysis within the project in the future. Students were asked to look at the scientific literature on their chosen topic and formulate it in no detail, preliminarily and initially stating only the general direction of the potential topic. The potential topics of the master's thesis were discussed and clarified in four seminars within the framework of the first year of Modern Epidemiology, learning the ways of research development and research design. Those students who were not sure about the most suitable and interesting topic were offered the opportunity to test themselves in the research using the SPKC database Health Care Data and their practical application in the research project within the course. In this case, the choice of topic was limited to the existing database capabilities and the parameters included in it. Based on the results of the course Health Care Data and their practical application in the research project, the student had the opportunity to submit theses to the International Scientific Conference of Medicine of the University of Latvia, where the theses are to be published in one of the Web of Science / Scopus indexed journals. The draft thesis was corrected and reviewed by the lecturers of MSP Epidemiology and Medical Statistics before submission, ensuring the quality of the thesis and giving students the opportunity to practice in scientific writing. Two students used this opportunity to provide the first publication on their chosen topic. The topics of the master's thesis will be further specified in the 2nd semester, so that by the 3rd semester the final variants of the topics will be fully formulated and students will start creating an overview article on this topic within the course Scientific seminar. The literature review developed in this course will be used as the basis for the master's thesis (sections Introduction, Literature Description and Discussion). In general, by the end of the 1st semester, all students involved in the program have already formulated their master's thesis topics.

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

MSP Epidemiology and Medical Statistics is implemented at the University of Latvia, Jelgavas Street 3, Riga, and premises with multimedia equipment are used for implementation, which use the latest information and communication technologies, such as video conferencing. A study methodologist is attached to the Master's study program, who plans and organizes the study process, as well as administers student affairs, provides all the necessary services to students in the study process.

The material and technical base of the University of Latvia FM fully ensures the implementation of the MSP Epidemiology and Medical Statistics. The study rooms of the study field Health Care are located in several faculties of the University of Latvia. The number of rooms is two computer classes, a total of 48 workstations.

Classrooms and study / seminar rooms are equipped with multimedia projectors, computers, screens and whiteboards, they can be easily converted for group or individual work. Among them, students have access to equipped study laboratories, classrooms equipped with the necessary presentation equipment, Wi-Fi and computer connection in all rooms, individual and group study rooms with electricity supply. In the LU Science House the whole building is provided with wireless internet. Open access printers / copiers for students (with electronic cards). Statistical data processing methods: Microsoft Office 365 ProPlus and Statistical Package for Social Sciences SPSS, which LU offers to students and staff for free installation on their personal computer, as well as R, Prisma, GPower statistical software and specific epidemiology software DAGitty and MedCalc, which students can download to your personal computer.

The methodological support of the University of Latvia for the implementation of the study program is extensive and prepared in accordance with the specifics of the field of medicine and health sciences. In addition to traditional information resources, the University of Latvia provides access to more than 170,000 subscribed e-resources in various fields of science. In order to expand the diversity of study courses, new e-learning courses are being developed and introduced, and existing methodological materials in the e-learning environment are being updated and modernized, creating materials also in English. The principles of the LU Information System (LUIS) stipulate that all study courses of all study programs are included in e-studies, ensuring the LU order no. 1/348 of 10 December 2013. The content of study courses inserted in e-studies is improved and supplemented in accordance with the LU order no. 1/183 of 29 June 2015. The e-learning environment is also used for knowledge assessment and communication between students and teachers. The student evaluation system and criteria, as well as the regulatory enactments are clear and available in the information system of the University of Latvia. The e-learning environment gives students access to study materials and information at any time and place, as well as opportunities to contact lecturers, follow their assessments and study courses.

The Library of the University of Latvia serves users in various fields of science, concentrates information resources necessary for the study process and the work of teachers, ensures their

availability, cooperates with the management of faculties and specialists in information provision and service provision, as well as participates in user training. The library of the Science House and the library of the Academic Center of Natural Sciences are open daily and 24 hours a day. Students of the program have the opportunity to use any library of the University of Latvia. Users can communicate with the library by phone, email and Skype. Users in the library have access to computers with Internet connection, the ability to burn information to CD / DVD and USB media. The library has photocopiers, a printing device and free scanners. Users have access to an electronic joint catalog on the Internet, where it is possible to find and order information resources. The information resources ordered from the catalog can be picked up at the library during the next working days. Users can access and use the electronic information resources subscribed to the University of Latvia at any time from any place where the Internet is available - scientific journals available in the library databases Science Direct; Scopus, Thomson Reuters Web of Science; Taylor and Francis, Sage Journals Online, etc., textbooks, scientific monographs, dictionaries, encyclopedias, news databases, regulatory databases, electronic journal databases, and e-book databases. In the library, users can get acquainted with the final theses developed and defended by students of previous years, including doctoral dissertations, master's theses, diploma theses and bachelor's theses. The University of Latvia Library has its own website, where information about new acquisitions of the library is regularly posted, as well as librarians of faculties regularly inform about new acquisitions in the library in a weekly informative report sent to the academic staff by e-mail, as well as on the Library website. Electronic / digitized journals in various fields of science and their interdisciplinary aspects are available in the subscribed databases, which LU students can use around the clock and every day.

At the beginning of each study year, students are introduced to the library, the information resources available in it and their use. The library provides support to the teaching staff of the faculty in the digitization of the course literature in the e-learning environment. Wi-Fi and computer connection in all rooms, individual and group study rooms with computer charging options, open library room, which provides all the necessary study literature, as well as descriptions of study courses and study materials that are placed in the e-learning environment.

The collection of the Library of the University of Latvia with the compliance with the master's study program "Epidemiology and Medical Statistics" from January 1, 2018 to March 10, 2019 includes 684 copies of printed publications (see Table 3.3.1.1).

Table 3.3.1.1

Number of printed editions (copies) of MSP Epidemiology and Medical Statistics in the collection of the Library of the University of Latvia

UL study direction Health Care									
Total in the collection of the UL Library as of 01.12.2020. existing printed publications									
Printed Editions (Copies)					Language				
<i>Study programme</i>	Total	Books	Serials, periodicals	Other types of expenditure	Latvian	English	Russian	German	Other
Epidemiology and medical statistics	698	679	13	6	479	157	59	3	0

The material and technical provision provided for the implementation of the study programs and its availability to students and teaching staff can be assessed as fully appropriate to the needs of the study field. The jobs created and equipped to ensure the study process are sufficient for students.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The cost calculation of MSP Epidemiology and Medical Statistics has been performed without providing state funding for these studies. According to the methodology for calculating the cost of study programs developed by the Department of Studies of the University of Latvia, the cost per student per year is 3449 euros, the expected return per student is 39 euros per year. The calculation takes into account the projected number of students 32, of which 22 are full-time students and 10 are students with an increased plan, who are students from outside the European Union. Ratio of CP to contact hours, number of courses in parts A and B, remuneration of teaching staff, other costs. It is estimated that at least 32 first-year and second-year students will study at MSP Epidemiology and Medical Statistics.

In addition to teaching costs, the cost calculation also includes general staff costs in the amount of 31.7% of the academic staff (432 euros per student per year), infrastructure costs in the amount of 7.5% (258 euros per student per year), property and services 14.5% (501 euros per student per year), indirect costs in the amount of 26% (897 euros per student per year) other costs totaling 2088 euros per student per year.

The tuition fee for the study program is 2400 euros per year. Compared to similar master's study programs in the Baltics and abroad, tuition fees for citizens of Latvia and the European Union are similar or even lower. For example, the tuition fee for the Master's program in Public Health at LSMU (Lietuvos Sveikatos Mokslo Universitetas / Lithuanian University of Health Science) is 4,200 euros per year. Tuition fees for English-speaking students from outside the European Union are set at € 6,000, which is significantly lower than for similar programs at foreign universities. For example, the tuition fee for the MSc in Applied Infection Disease Epidemiology at the University College of London is £ 10,750 (€ 12,505.5 per year); The MSc Medical Statistics program is £ 11,830 (€ 13,761.32) per year; The MSc Epidemiology London awarded by the School of Hygiene

and Tropical Medicine is £ 10,450 (€ 12,156.03) per year. In Germany, where higher education is free and fully paid for by the state, the only program with tuition fees is the MSc in Public Health, which is similar to the program developed by the University of Latvia. For example, in HHU with a 60 ECTS program, the tuition fee is 7,500 euros for the entire program.

Tuition fees have been agreed with the student government at the FM faculty and have been discussed with students at the university level.

The minimum number of students in the Latvian stream is 22, in the English stream is 10.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

MSP Epidemiology and Medical Statistics teacher selection criteria are based on the following regulatory enactments and are based on the following projects:

1. MK 23.01.2018. Regulations No. 49 Regulations on Latvian Science Sectors and Sub-Sectors [1].
2. LR 02.11.1995. Law on Higher Education Institutions [2] (likumi.lv)
3. Operational Programs "Growth and Employment" 8.2.1. the requirements of the specific support objective project 8.2.1.0/18/A/015 "Development of Internationally Competitive Study Programs Promoting the Development of the Latvian Economy at the University of Latvia".

The teaching staff of the program fully complies with the requirements specified in regulatory enactments.

Project no. 8.2.1.0/18/A/015 MSP Epidemiology and Medical Statistics was developed within the framework of "Development of Internationally Competitive and Economic Development Study Programs at the University of Latvia", one of the requirements is the English language skills of the lecturers, which correspond to at least C1 level, required for teaching in an international environment. The teaching staff involved in the implementation of the program is those who can prove their knowledge of English at the C1 level already in the development phase of the program, or who have started additional English language training to achieve this level, for example, 8.2.2. within the framework of the specific support objective project "Academic Staff Renewal and Competence Improvement at the University of Latvia" . The table shows that the majority of lecturers have a C1 level of English and that a large proportion of lecturers have a degree / qualification from a foreign university. The degree / qualification obtained abroad expands the lecturers' knowledge of various aspects related to the program and provides an opportunity to train students based on international experience.

Table 3.4.1.1

MSP Epidemiology and Medical Statistics Teachers' level of foreign language (English) knowledge

Lecturer of the program	Foreign language (English) knowledge	Notes
Bārzdīņš Juris	C1	The level is determined on the basis of an academic degree / qualification obtained abroad
Barkan Refael (<i>HIT</i>)	C2	Lecturer abroad from the Israeli Holon Institute of Technology
Bennis Ariel (<i>HIT</i>)	C2	Lecturer abroad from the Israeli Holon Institute of Technology
Civjāne Liliāna	C1	The level is determined on the basis of an academic degree / qualification obtained abroad
Daugule Ilva	C1	The level is determined on the basis of an academic degree / qualification obtained abroad
Ebela Inguna	C1	Alius Lingua test certificate
Erts Renārs	B2	Studying C1 level courses within the SAM project
Folkmanis Valdis	B2	Studying C1 level courses within the SAM project
Ķīvīte- Urtāne Anda	C1	Alius Lingua test certificate
Kužniece Ingrīda	C1	The level is determined on the basis of an academic degree / qualification obtained abroad
Lewy Hadas (<i>HIT</i>)	C2	Lecturer abroad from the Israeli Holon Institute of Technology
Mežinska Signe	C1	The level is determined on the basis of an academic degree / qualification obtained abroad
Šķilters Jurgis	C1	The level is determined on the basis of an academic degree / qualification obtained abroad

Within the framework of the study program, regular methodological sessions of lecturers are organized, which help lecturers to exchange pedagogical approaches, develop teaching methods, adapt to the needs of each study course, thus improving the study program. The first meeting took place before the start of the study program, 07.09.2020, where the specific goals of each course and their interconnection, student-centered approach, counseling opportunities and individual assistance to students during the course, as well as further communication opportunities between the program teachers and the program manager were discussed. Meetings of the lecturers of the program take place before the beginning of each semester.

The lecturers of the program have wide opportunities to improve their qualification in order to acquire the latest knowledge related to the study process and content. Even before the beginning of the program, the teaching staff participated in various types of seminars and courses - both in Latvia and abroad. The knowledge that lecturers receive in continuing education courses is applicable to their teaching practice. The content of the program's courses is updated annually to include the latest trends in the programme.

Once a year, lecturers have the opportunity to participate in the international scientific conference of the University of Latvia FM, which has had an epidemiology and public health session since 2018. Lecturers and professors from various Latvian universities, as well as from abroad, participate in the session. In addition, an annual summer school in epidemiology and digital medicine is planned for the newly established Latvian Society of Epidemiologists. The first such summer school took place in 2018. in May; it was attended by professors from HIT. In 2020, the summer school did not take place due to the COVID-19 pandemic, but is planned for 2021 in a remote format. It is planned that professors from abroad will teach in summer schools every year. In addition, it is planned that the Medical Research Design and Statistics Processing Center (UL FM) will create a research and statistics course for lecturers every two years, in which the latest knowledge in these fields will be acquired. The first course (10 lessons) was developed as part of a pilot project. The course was implemented for LU MF lecturers in 2018/2019. In the 1st semester. The volume of the course was 9 lectures, three of them - on research planning and design (assoc.prof. L. Civjāne), three - on medical statistics in quantitative research (doc. R. Erts), two - on medical ethics and one on qualitative research planning and processing (assoc.prof. S.Mežinska). 16 lecturers of the University of Latvia MF and supervisors of students' final theses took part in the course. At the end of the course, a survey of lecturers was conducted to find out what knowledge they would need about the development of the research and statistical processing .

Lecturers have the opportunity to participate in exchange programs provided for in ERASMUS + agreements. The agreement with Ben Gurion University of the Negev provides for an exchange of three lecturers for three days; in agreement with the Holon Institute of Technology (HIT) diviemiņš two lecturers for 14 days. Short-term exchange of lecturers is also provided for in all cooperation agreements.

The program is constantly implemented by 13 lecturers, including those who teach electives. Lecturers from other Latvian and international institutions joined part of the courses for 1-5 lectures.

[1] MK Regulations No. 49 Regulations on Latvian Science Sectors and Sub-Sectors. <https://likumi.lv/ta/id/296661-noteikumi-par-latvijas-zinatnes-nozare-un-apaksnozarem> available only in Latvian

[2] Law on Higher Education Institutions <https://likumi.lv/ta/en/en/id/37967>

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

The lecturers of MSP Epidemiology and Medical Statistics were selected by assessing the qualifications of the staff involved, as well as their scientific and methodological training. The qualification of the lecturers is confirmed by their activity in the chosen field of scientific research and scientific and academic activity, which is also in accordance with the study program and the content of the taught courses, they have appropriate scientific publications. The application of the selection criteria ensures that the teaching staff is involved in the implementation of the study program, who not only have pedagogical work experience, but also carry out active scientific work themselves in order to prepare highly qualified specialists in epidemiology and medical statistics.

Due to the fact that the program has three main blocks - epidemiology, medical statistics and public health, the lecturers were selected based on their education and / or long-term work experience in the respective topic. For example, in the Epidemiology block, the courses Modern Epidemiology I and II will be taught by assoc. prof. Dr. Civjāne, who has an international education in epidemiology; The course Epidemiology of Infectious Diseases is taught by the lecturer Dr. Ķīvīte-Urtāne, who is an epidemiologist and an active researcher and participant in several Latvian and World Health Organizations. In the block of medical statistics, the courses Medical Statistics and Statistical Software for Data Analysis will be taught by docent Dr. Erts, who has a long experience in working with medical data sets, as well as several publications in the field of medical statistics; The course New Age in Digital Health will be taught by foreign lecturers Dr. Bennis and Dr. Hadas Lewy, whose PhD thesis is defended in medical informatics and who has a number of additional education in biology and medical engineering, has a degree from a French university. The courses of the Public Health Block will be taught, for example, by the lecturer Kužniece, who has a degree in Public Health, prof. Folkmanis, who has been involved in health promotion in Latvia for a long time.

According to the recommendations of experts, additional lecturers from foreign and Latvian institutions are involved in the program: doc. J. Brass from SPKC. Some of the courses are attended by guest lecturers from the WHO and the CDC.

[1.] Law on Higher Education Institutions <https://likumi.lv/ta/en/en/id/37967>

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the

implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

MSP Epidemiology and Medical Statistics was licensed in the summer of 2020. During the first semester, there was active cooperation between students and faculty, students discussing current issues with lecturers, facilitated a broader examination and solution of the problem. In cooperation with the lecturers, two students have submitted their reports to the LU MF International Conference on Scientific Medicine, the reports have been prepared in close cooperation with the lecturers of the program:

- *Baltāne, L. Tzivian, R. Erts, J. Bārzdīņš. 30-day mortality after myocardial infarction in men with type 2 diabetes mellitus in Latvia.*
- *Maurina, J. Barzdins, L. Tzivian. First-time diagnosed with diabetes within hospitalized for acute myocardial infarction: administrative data analysis.*

In addition to the information transfer capabilities using the e-learning environment, students created a common Internet address to help lecturers transfer urgent reports and materials needed for the study process to all students. For the same purpose, a joint WhatsApp group has been set up where students can contact the program manager. In addition, all electronic contacts and mobile phone numbers of lecturers are placed in the e-learning environment. Students are free to call lecturers during working hours, but for particularly urgent questions they have the opportunity to contact the program manager by phone outside working hours.

During the semester, students received consultations on study materials and topics, they take place remotely on the Teams platform and can be recorded upon students' request. The consultation is open to all course students as well as to individual students who are unsure about any part of the material. For example, students can receive additional information about the principles of data processing in the course Medical Statistics by consulting with lecturers of other courses who are familiar with medical statistics (Prof. Bārzdīņš, Prof. Civjāne). Taking into account that lecturers use different methods and look at the issue from other aspects, students have the opportunity to learn the study material in more depth and create a suitable strategy for learning the material. As a result, the lecturers also discuss the questions with each other and create a common strategy for teaching complex topics.

The total number of students in the program is small, because the study program was licensed in the spring of 2020, thus it was not possible to advertise the program to Latvian and foreign students. Eight students were admitted to the program, one of whom dropped out after the 1st semester because they could not combine work with studies. The total number of lecturers in the

program is 17 lecturers (including all lecturers who teach free choice courses and additional courses. It is planned to increase the number of students in the program, as well as to accept foreign students in the English language stream. Of course, the epidemiological situation in the country and in the world, which may be a burden for students wishing to study outside their home country, must be taken into account.

In order to attract Latvian students, there is active cooperation with health care institutions, medical centers, etc. In Latvia for attracting students for the next study year.

Currently, the ratio of students to faculty within the study program is 1: 1

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	11_annex_Diploma_MSP_Epidemiology and medical stttistic.docx	11.pielikums_EPIDiploms ar pielikumu_MSP_epidemioloģija un medicīniskā statistika.docx
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)	AIP_55_2_option_Epidemiology and Medical Statistics.docx	13.pielikums_EPI_AIP_atzinums_LV.pdf
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	4.annex_EPImedical statistics_statistics_Eng.docx	4. pielikumsEPI_studentu skaita statistika.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	5.annexEPI_Compliance with National Education Standard.docx	5._pielikums_EPI_atbilstiba valsts izglītības standartam_LV.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	8.annexMSP Epidemiology and Medical Statistics study course mapping.docx	8.pielikums_EPI_studiju kursu kartējums_LV.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	1.annex_EP_study_plan_Eng (2).docx	1..pielikums_EPI_studiju_Plāns_LV (1).docx
Descriptions of the study courses/ modules	7. annex_MSP_Epidemioloģija_un medicīniskā statistika_kursu_apraksti_eng.docx	7. pielikums_MSP_Epidemioloģija_un medicīniskā statistika_kursu_apraksti_lv.docx
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)	15_annexEPIapliecinajums_AL_55.docx	15.pielikums_MSP Epidemioloģija un medicīniska statistika apliecinajums par atbilstību AL.jpg