APPLICATION

Study field "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science" for assessment

Study field	*Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science*
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Self-evaluation report

Study field "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science"

Daugavpils University

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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,.

Brief characteristics of Daugavpils University

Daugavpils University (henceforth – DU) is a significant centre of science and education in Daugavpils and East Latvia. DU is a modern science-based university that offers high quality education, prepares highly qualified specialists and professionals, greatly contributes to science innovation and transfer of scientific ideas to broader public and national economy. DU is the only university in Latgale that performs the functions of the driving force for the development of the region of East Latvia and its adjacent territories, it concentrates major intellectual and technical resources in the region. DU has gained international recognition by joining the European University Association, European International Studies Association, European Union Universities of Small States Association, and European Science Events Association.

Daugavpils University mission and vision

DU mission: to contribute to the development of sustainable future society by implementing scientific research on an international level and ensuring high quality education in the fields of natural, engineering, education, health, humanities and social sciences, thus promoting the sustainable development of Latgale region and the whole country.

DU vision: In 2030 DU is a modern scientific university that offers high quality education and conducts important scientific work. The quality of the University work and its reputation in Latvia and all over the world has provided the basis for its growth and stability. DU has become a driving force of the educational, scientific, innovation and business development in Eastern Latvia. DU functions as an excellence centre in the fields of mathematics, physics, nano-materials, material engineering, biology, regional studies, literature, art, and education science. DU accumulates, preserves, and maintains regional knowledge and contributes greatly to the regional development.

Main objectives of DU activity:

1. to act as a regional university in the spheres of natural sciences, humanities, education and social sciences creating opportunities for diversified high quality studies and research;
2. to provide high quality study programmes and conduct research in compliance with the dynamics of labour market demands and needs of the community;
3. to create opportunities for enhancing the professional mobility of the population by developing further education;
4. to develop personality capable of analytical thinking, critical perception, and creative processing of information, who can, due to the acquired education, contribute to the development of the state and region of Latvia and the welfare of the population;
5. to preserve and develop Latvian national identity and culture legacy, simultaneously entering international integration;
6. to implement interior quality provision systems that build policy and procedures for the provision of the higher education quality.

DU strategic specialization areas

According to the order of the Cabinet of Ministers of June 21, 2022 no. 449 "On strategic

specialization of state HEI", three areas of strategic specialization are defined in DU:

- natural sciences;
- social sciences;
- humanities and art.

DU, implementing its studies and research activities in accordance with the areas of strategic specialization defined for it in Paragraph 1 of this order, implements interdisciplinary studies, research and innovations, as well as cooperation with the business sector.

The university has the right to implement study programs and research activities also outside the initial areas of strategic specialization specified in this order, in accordance with Article 4 of the Act on HEI.

Implemented study directions and the number of study programmes within them

Study process at DU is implemented in 16 study directions: "Education, pedagogy, and sports" (7 study programmes), "Art" (5 study programmes), "History and philosophy " (3 study programmes), "Language and culture studies, native language studies and language programmes " (5 study programmes), "Translation" (1 study programme), "Psychology" (3 study programmes), "Economics" (3 study programmes), "Management, administration, and real estate management" (3 study programmes), "Law" (3 study programmes), "Life sciences" (3 study programmes), " Chemistry, Chemical Technologies and Biotechnologies" (2 study programmes), "Physics, material science, mathematics, and statistics" (3 study programmes), "Information technologies, computer technology, electronics, telecommunications, computer management, and computer science" (3 study programmes), "Health care" (2 study programme), "Environment protection" (2 study programmes), " Internal Security and Civil Protection " (3 study programmes).

The dynamics of student number at Daugavpils University in the period of assessment

In accordance with the Ministry of Education and Science “Survey of higher education in Latvia in 2021” (available in Latvian)[1], DU occupies 5th place among Latvian higher education institutions as to the number of students. DU provides higher education not only to East Latvia region represented by the majority of DU students but to other regions of Latvia and labour market of foreign countries.

Assessment of the dynamics of the student number in the time period from 2017 to 2022 (Figure 1) leads to a conclusion that the number of students at DU has remained steady and even increased during the last two years, despite the long-term decline and emigration of the population in Latgale and Latvia. According to the informative material “Summary: Economic and labor market trends”, in the following years the number of the population of Latvia will keep diminishing (available in Latvian)[2]. The main reasons of this process include aging of the society, durably low birth rate and emigration of the population (available in Latvian)[3]. Due to economic reasons, more and more secondary school leavers choose to study or get employed outside Latvia, therefore state funded budget places are not filled and the fall of the number of students concerns almost all higher education institutions (available in Latvian)[4].

In order to attract students in the current conditions, Daugavpils University is developing new competitive study programmes, for example, in 2021, one of such study programmes was the professional Bachelor’s study programme “Nursing”, in turn, in 2022 – professional Master’s study programme “Economic security”.

Enlarging of the number of foreign students is one of the priority goals of DU. For the purpose of internationalization of studies, 19 study programmes are offered in English. In the time period from 2017 to 2022, there were 615 students from abroad at DU. Most of foreign students at DU are

citizens of Uzbekistan, Kazakhstan, Tajikistan, Belarus, China, USA, Israel, Finland, Italy, Ukraine, Philippines, Indonesia, etc. 3 – 4 times a year DU representative participate in higher education exhibitions in Belarus, Uzbekistan, Kazakhstan, as well as cooperate with higher education institutions and education institutions in foreign countries to inform of the current offer of study programmes, establish contacts with foreign universities for elaboration of joint programmes, to facilitate the attracting of foreign students and the academic staff.

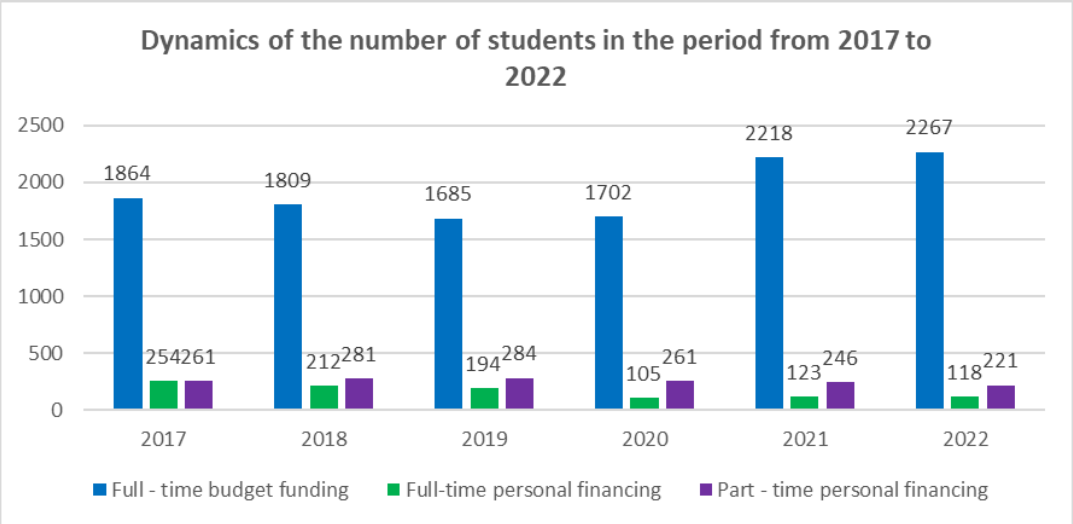

Figure 1. Dynamics of the number of students in the period from 2017 to 2022. Displayed data for October 1 of the respective year.

Daugavpils University development strategy major goals and activity directions

DU development goals are envisaged by "Daugavpils University development strategy for 2015-2020" (henceforth – Strategy)[5] (available in Latvian). The summary of the strategy in English can be seen here[6].

Based on letter No. 4-10e/21/99 "On Development Strategies of Institutions" issued by the Ministry of Education and Science on 11.01.2021, for the implementation of nationally mutually harmonized education and science policy and successful implementation of the ongoing reforms, by the decision of the DU Senate (Protocol No.1 of the DU Senate meeting of January 25, 2021) the period of "Daugavpils University Development Strategy 2015-2020" has been extended until the start of a new approved strategy. A new strategy was developed but not approved at the time of reporting.

Strategy general goal is developing Daugavpils University as academic traditions based, modern, and competitive study, scientific, and innovation centre.

Strategy determines the medium-term goals:

1. To provide high quality education that corresponds with future challenges and is based on theoretical knowledge and acquiring of research skills, preparing internationally competitive specialists, developing their abilities and encouraging life-long learning.
2. To develop scientific and creative work on an international level, deepening integration of scientific research in the study process, facilitating technology transfer and development of innovations and contributing to public understanding of the science.
3. To increase the role of Daugavpils University as a consolidator of scientific educational institutions in Eastern Latvia and a driving force of the development, as well as to promote the reputation of the University in Latvia and all over the world.
4. To ensure united and efficient work of organisational structure and to introduce a quality management system.

5. To develop a modern, environmentally friendly infrastructure, safe and supporting working environment.

[1] Ministry of Education and Science, Survey of higher education in Latvia in 2021. Available in Latvian: https://www.izm.gov.lv/lv/media/18744/download?attachment [viewed 20.02.2023]

[2] Ministry of Economics, Summary: Economic and labor market trends. Available in Latvian: https://prognozes.em.gov.lv/lv [viewed 20.02.2023]

[3] Ministry of Economics, Informative Report on Medium and Long-Term Labor Market Forecasts. Available in Latvian: https://www.em.gov.lv/lv/media/598/download [viewed 20.02.2023]

[4] Vasiļevska, Daina. Socio-economic factors for ensuring access to higher education in Latvia. Doctoral Thesis, University of Latvia, 2014. Available in Latvian: https://dspace.lu.lv/dspace/bitstream/handle/7/5241/42418-Daina_Vasilevska_2014.pdf?sequence=%20%201 [viewed 20.02.2023]

[5] Daugavpils University Development Strategy 2015-2020. Available in Latvian: https://du.lv/wp-content/uploads/2021/12/DU_attistibas_strategija_25.01.2021.-converted.pdf [viewed 20.02.2023]

[6] Daugavpils University Development Strategy 2015-2020 (summary). Available: https://du.lv/wp-content/uploads/2022/09/DU-Strategy-summary-1.pdf [viewed 20.02.2023]

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.

DU is a derived public person. DU is state founded and acts as an autonomous self-governing institution. Decision about reorganization or liquidation of DU is made by the Cabinet of Ministers on the proposal of the Minister of education and science.

DU self-governing is based on the rights and opportunities of the staff to engage in academic and scientific, administrative, and economic decision-making. DU acts on the basis of the Constitution of the Republic of Latvia, Law on Education, Law on Scientific Activity, Law on Higher Education Institutions, DU Constitution, and other laws and regulations.

DU major decision-making institutions are: Daugavpils University Council, Constitutional Assembly, Senate, rector, Academic Court of Arbitration.

In 2022, the **Daugavpils University Council** was approved – the highest decision-making body of the University, which is responsible for the sustainable development, strategic and financial supervision of the University, as well as supervises the activities of the Rector of the University and ensures the University's activities in accordance with the goals set in its development strategy. The Council is established in the composition of 7 (seven) members, of which 3 (three) members of the Council are nominated by the University Senate, 3 (three) are nominated by the Cabinet of Ministers of the Republic of Latvia, and 1 (one) by the President of the Republic of Latvia. The Council operates in accordance with the regulations of the Daugavpils University Council (available

in Latvian only[1]).

DU Constitutional Assembly (Satversmes sapulce) is the academic, general staff and student representative body of DU, which is elected for three years by secret ballot, from professors and other academic staff - 35 representatives (70%), students - 10 representatives (20%), and general staff - 5 representatives (10%). The Constitutional Assembly decides on the adoption, amendment, or repeal of the Constitution (Satversme); The Constitutional Assembly adopts and makes amendments to the Regulation of the Senate, elects the Senate, calls off the members of the Senate; elects the rector to the position and can initiate the removal of the rector from the position, listens to the rector's report; elects the Academic Arbitration Court and approves its regulation. The Constituent Assembly has the right to accept for examination and decision also other conceptual issues of operation and development of Daugavpils University.

DU Senate is a collegial higher academic decision-making body, which is responsible for the excellence, development and compliance of DU with internationally recognized quality standards of education, research, creative activity. The Senate regulates the academic, creative, and scientific spheres of DU. The Senate operates in accordance with the procedures established in the DU Constitution and the regulations approved by the Senate. Within the autonomy of the university, the Senate protects and ensures the academic freedom of the academic staff and students. The Senate is elected by the Constituent Assembly for three years. The Senate consists of 15 members - 11 representatives from the academic staff of DU elected by the Constitutional Assembly, 3 student representatives elected by the student self-government and approved by the Senate, as well as the rector in accordance with the position held and in accordance with the Act on Higher Education Institutions. The students represented in the Senate of DU have the delaying veto right in matters related to the interests of the students.

The highest official of DU is the **rector**. Candidates for the post of rector are selected within an open international competition by the university Council and elected by DU Constitutional Assembly. The rector administrates the university and is responsible for the achievement of the goals set in the university development strategy, as well as efficient and lawful use of the university's financial resources in accordance with the law, other regulatory enactments, as well as the university's Constitution, the decisions of the Council and the Senate. The rector carries out representative functions of the university, performs other activities to ensure successful operation of the university and represents the university in cooperation with other institutions and private individuals, within the scope of rector’s competence bearing responsibility for the compliance of the university's activities with the Act of HEI and other regulatory acts.

The Academic Arbitration Court examines applications by DU students and academic staff regarding restrictions or violations of academic freedom and rights stipulated in the DU Constitution; examines disputes between DU officials, as well as administrative institutions of DU structural units, which are in a subordinate relationship; examines, in the cases specified in the Act on HEI, submissions on challenging administrative acts or actual actions and makes relevant decisions on them, as well as performs other tasks provided for in the DU Constitution. The Academic Arbitration Court is elected for three years in the composition of seven people, including four representatives from among the academic staff by secret ballot by the Constitutional Assembly, three student representatives by the student self-government.

Council of Studies is a management authority that supervises issues of study planning, organizing, and coordinating, provides the necessary conditions for the academic work at faculties and departments. Council of Studies includes vice rector for studies, faculty deans, and the head of the Department of Studies. Main duties of the Council of Studies are coordinating the elaboration and execution of bachelor, master, and professional study programmes, elaboration of the scheme

of studies, its analysis and determining the main directions of its improvement and development, organizing the investigation and implementation of foreign countries' experience.

Council of Science is an institution of representation of branches and sub-branches of science that coordinates the scientific work at the university. Main functions of DU Council of Science are supervising the elaboration and implementation of DU strategy, science development process, allocation of funds for science, execution of promotion, and the work of professor councils. DU Council of Science consists of vice rector for science, head of the Department of Science, representatives delegated from each scientific institute council, a representative from professors delegated by faculty in case the faculty has no institute or no institute council, DU Young Scientist Association representative.

Faculty council supervises the study, scientific and/or artistic work and economic activity of the faculty. The configuration of council corresponds to the requirements of the promotion council in the respective branch or sub-branch of science and no less than a half of its members must be professors, associate professors, senior researchers, and experts approved by Latvian Council of Science. The council is formed of the chairperson of the council, deputy chairperson of the council, and council members. The council includes the dean; deputy dean/s and/or education methodologist; heads of departments, institutes, centres and other faculty structural units; it may include study programme directors, representatives of the academic staff from the structural units; student representatives that are delegated by the faculty student self-governance (20% of the council members).

Study direction council is formed upon the recommendation of DU Council of Studies and approved by DU Senate. The members of the Study direction council are approved by DU Council of Studies. Study direction council includes study direction programme directors, the academic staff, students (at least one representative from 1st level professional education programme, bachelor, master, and doctoral study programmes) and representatives of employers. Functions of the council are: to elaborate the study programme/s of the study direction; execute the direction study programme self-assessment and implementation analysis; analyze students' academic performance; analyze the academic work of the academic staff involved in the study direction; facilitate the integration of scientific work in the study programme.

[1] Daugavpils University Regulations of the Council. Available in Latvian: https://du.lv/wp-content/uploads/2022/09/Padomes-nolikums_25.08.2022..pdf [viewed 20.02.2023]

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.

Quality ensuring policy is part of Daugavpils University development strategy for 2015-2020. A new strategy will be approved and implemented in 2023.

DU study quality management system observes the compliance with ISO 9001:2017 quality standard. Compliance with this standard testifies to the fact that DU tends for the quality of its education services by maintaining the quality management system (QMS), periodically passing accreditation and verifying the efficiency of the system. QMS testifies that DU makes an effort to

make out the preferences of the potential students, tends to maintain constantly good quality of studies and governance and ensure systematic and transparent processes as well as incessantly improve cooperation with cooperation partners and community.

The envisaged outcomes of DU implemented ESF project “Daugavpils University governance and management competence improvement” (No. 8.2.3.0/18/A/010) are – adjust DU study and governance quality systems and receive ISO 9001 certificate that is an internationally recognized organization quality mark.

DU Council of Studies and DU Centre of Study Quality Assessment (henceforth – CSQA) introduces quality provision systems on the basis of “DU study internal quality assurance policy”[1]. The policy has been elaborated in accordance with *The Standards and guidelines for quality assurance in the European Higher Education Area* (ESG) and observing legal acts of the Republic of Latvia (Law on Higher Education Institutions, Higher education standards, etc.), DU normative acts and “Daugavpils University development strategy for 2015 – 2020”.

To ensure the improvement of the existing normative documents and procedures at DU and compliance with the student centered and sustainable higher education, especially assessing and updating quality policy implementation mechanisms, the study quality system is being updated within ESF project “Daugavpils University governance and management competence improvement” (No. 8.2.3.0/18/A/010). Within the framework of the project, in 2021, the new normative acts for the internal study quality assurance were drawn up, which were approved by rector's ordinance, for example, “Internal Quality Assurance Policy of studies at DU” (see in *Other Annexes*), “DU Study Quality Policy and Study Quality Monitoring Strategies, “Procedures for Ensuring the Effectiveness of DU Study Internal Quality Assurance System”, etc., which are aligned with the content of the newly developed "DU Quality Policy" and "Quality Management System Manual". All these documents are available from the DU internal network in Latvian. List of Regulations for internal quality assurance in English see in "*Other Annexes*".

Mechanisms of the study process quality provision

Study quality maintaining aims at monitoring and improving the study programme implementation and facilitating prerequisites for reaching study programme outcomes. Quality monitoring is constant: during enrolment, recruiting the academic staff, improving the study programmes, reviewing the activity of structural units and their heads according to the academic and research work outcomes.

Higher education internal and external quality provision proceeds in cooperation between DU and the Ministry of Education and Science (in distribution of State budget funded places, execution of conceptual decisions), Higher Education Council (dealing with strategic issues, drawing statements), and Academic Information Centre (study programme licensing, study direction assessment, recognition of students’ prior education).

The main forms of quality assessment are as follows:

External assessment – licencing, accreditation, and assessment of independent experts. It is ensured by the quality ensuring agency listed in the European higher education quality ensuring register (in Latvia – Higher Education Quality Agency). It is coordinated by heads of study directions along with CSQA and vice-rector for studies.

Internal assessment – constantly performed by DU study direction councils elaborating self-assessment reports. Internal assessment is implemented and coordinated by DU CSQA approved by the Senate. In accordance with DU study internal quality ensuring policy there is systematic assessment of study directions and programmes in order to make sure how the programme

objectives and study outcomes are reached, the compliance of the programme with the current developments of national economy and labour market demands.

The internal quality of studies is ensured by the following measures:

Quality ensuring instrument	Implementation procedure
Strategic planning of the process of studies	Implemented by the study programme director in cooperation with the academic staff and members of the study direction council; Analyzing the shortcomings, risks, development opportunities of the study direction and study programmes wherein.
Examining the issues related to the process of studies	Study direction councils assess the process of studies within a programme, its outcomes, and proposes to the head of the study direction and study programme directors measures for the programme improvement and integration of recent ideas in the study content and process. The respective structural units discuss the submitted proposals and initiate changes in the study course amount, their content and calendar arrangements in semesters. Each semester, departments, taking into consideration the results of student surveys, formal indicators of students' academic performance as well as the professional indicators of the academic staff members in respective spheres (participation in conferences, research and other projects, applied projects, publications, etc.), analyze in detail the content of each course and the quality of its delivery. After that proposals as to changes in the study courses or study programme are discussed in faculty councils and after their support are addressed to DU Council of Studies that examines the justification of changes proposed. In case of a positive decision taken by the Council of Studies, the changes are implemented.
Surveys	At the end of each academic year surveys of students[2], employers[3] (available in Latvian), and alumni[4] (available in Latvian) are carried out. Based on the survey results, the study programme content is reviewed and improved within study direction councils executed by study programme directors. All justified opinions, proposals, and reprimands are examined by the study programme director, in case of necessity discussing the issues in study direction councils. CSQA upon necessity carry out express surveys in order to clarify students' opinion on current issues concerning the process of studies.
Self-assessment of the study direction and preparation of the self-assessment report	The head of the study direction organizes meetings of the study direction council in order to discuss the main trends of programme development and management. For examining debatable issues (assessment of examinations, ignoring the regulations of DU by students and/or academic staff members, etc.) student representatives are invited. Once a year the head of the study direction along with programme directors prepare the self-assessment report of the study direction on the previous academic year that is examined by CSQA and approved by the Council of Studies and the Senate.

E-study environment improvement	DU e-study environment Moodle is used to provide information on the courses acquired during the semester. For each course students have access to the following information: study course description, criteria of assessment, materials for student independent work, etc.

Characteristics of the parties involved in the elaboration and improvement of quality ensuring system and their role.

Efficient results are reached by means of understanding and support of the administration, purposeful DU strategy and policy implemented by successful participation of the academic staff as well as full partnership, resource saving approach, and process governance.

The party involved	Role description
DU management	- develops the DU development strategy and realizes the achievement of its goals; - promotes employee development and professional development, develops and implements various motivation and support mechanisms (e.g. promotion of scientific activity, involvement in ERASMUS+ programs for exchange of experience, adoption of good practices); - cooperates with deans, heads of study fields, provides support in solving management and financial issues
Academic and scientific staff	- ensures high-quality implementation of studies; - conducts scientific research, implements its integration in the study content; - participates in professional development events, implements international mobility and experience exchange activities; - cooperates with external experts, employers and graduates, promotes their involvement in improving study directions
Administrative staff	- ensures quality management of study programs; - provides support to students and lecturers involved in the study program; - takes care of the restoration of the study's material and technical base
Employers, social partners and external experts	- conducts study program content expertise and provides recommendations for improvement of study content and methods; - provides practice opportunities by promoting the principles of study based on the work environment in professional study programs
Graduates	- uses, applies the applicability of acquired knowledge, skills and competences in professional activity; - provides recommendations for improving the study content
Students	- performs the function of providing feedback in improving the quality of studies.

[1] “DU study internal quality assurance policy”. Available: https://du.lv/en/about-

us/documents/ [viewed 20.02.2023]

[2] Survey of students. Available: https://aptaujas.du.lv/index.php/admin/survey/sa/view/surveyid/253299 [viewed 20.02.2023]

[3] Survey of employers (in Latvian). Available: https://aptaujas.du.lv/index.php/544412 [viewed 20.02.2023]

[4] Survey of alumni (in Latvian). Available: https://aptaujas.du.lv/index.php/764263/lang-lv [viewed 20.02.2023]

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.	Complies DU is being implemented "DU study internal quality ensuring policy" (see Other appendicies) that facilitate and ensure the quality of higher education. To ensure the improvement of the existing normative documents and procedures at DU and compliance with the student centered and sustainable higher education, especially assessing and updating quality policy implementation mechanisms, the study quality system is being updated within ESF project "Daugavpils University governance and management competence improvement" (No. 8.2.3.0/18/A/010) (see section 1.3).
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.	Complies In accordance with the "Regulation on Studies at Daugavpils University" (available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf) and "Regulations on Opening and Managing Daugavpils University Study Directions and Study Programmes" (https://du.lv/en/about-us/documents/) there are established mechanisms for the development, internal approving of study programmes, their monitoring and periodic examination.
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.	Complies "Regulation on Studies at Daugavpils University" (available: https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf) and study course descriptions of each study programme state the criteria, conditions, and procedures of the assessment of students' academic performance that attests to reaching the envisaged outcomes of studies. The Regulation and study course descriptions are freely available to students. Students have an opportunity of giving proposals for the criteria, conditions, and procedures of the assessment of students' academic performance in surveys.

4.	Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.	Complies DU has elaborated internal normative acts and mechanisms that regulate the ensuring of the qualification and work quality of the academic staff: "Regulation on elections to academic positions in Daugavpils University" (available in Latvian: https://du.lv/wp-content/uploads/2021/12/Nolikums-par-velesanam-akademiskajos-amatos-DU_APSTIPRINATAIS.pdf) and "Procedure of assessing the scientific activity of Daugavpils University academic staff" (see appendix 1_4_Procedure of assessing the scientific activity). Self-assessment reports include the results of surveys and measures of implementing students' proposals and averting criticism.
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.	Complies Surveys of students (https://aptaujas.du.lv/index.php/253299), alumni (in Latvian only: https://aptaujas.du.lv/index.php/764263/lang-lv), and employers (in Latvian only: https://aptaujas.du.lv/index.php/544412) are organized every year. CSQA carries out express surveys to learn students' opinion on current issues related to the process of studies. There is regular cooperation with the Student Council, exchange of opinions, examination of proposals.
6.	The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing their quality assurance systems.	Complies DU study quality management system observes the compliance with ISO 9001:2017 quality standard. Compliance with this standard testifies to the fact that DU tends for the quality of its education services by maintaining the quality management system (QMS), periodically passing accreditation and verifying the efficiency of the system. QMS testifies that DU makes an effort to make out the preferences of the potential students, tends to maintain constantly good quality of studies and governance and ensure systematic and transparent processes as well as incessantly improve cooperation with cooperation partners and community.

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 study direction** is to provide Daugavpils University (DU) students with high-quality education adequate for national requirements in information technology, computer

engineering, electronics, telecommunications, computer management and computer science programs, preparing the students for independent scientific research activities in the field of computer science, which gives the opportunity to successfully further their education academically and professionally, as well as to get involved in solving the problems of the national economy.

Assignments of the study direction:

- providing the students with the opportunity to acquire a high-quality and successful study program, integrating various sub-branches of computer science and other branches of science in the learning process;
- providing the students with up-to-date knowledge of various information technology sub-sectors in the context of modern computer science development trends;
- making the students independently acquire, select and analyze new information technologies, theories and products and use them;
- developing students' abilities to use the acquired theoretical foundations and skills, to carry out research activities, to solve problems independently, to work individually and in a team, and to manage the work of other people;
- implementing the above-mentioned tasks, involving qualified academic personnel in the implementation of the program, as well as specialists from other Latvian and foreign scientific research and educational institutions, adapting to the appropriate regional needs.

The study programs have been developed based on the DU strategy (DU development strategy for 2015 – 2020: https://ieej.lv/IlhgA) and the latest trends in information technology in the education system in the European Union. The goals of the study programs are in line with the medium-term goal set in the DU Strategy: "Providing quality education that meets the challenges of the future and is based on theoretical knowledge and the acquisition of research skills, preparing specialists who are competitive in the international labour market, developing their abilities and motivating lifelong learning."

DU makes a significant contribution to the training and preparing of highly qualified specialists in the field of information technology and computer science for the region of Eastern Latvia.

The economic situation in Latvia significantly limits the opportunities of high school graduates of the East Latvian region to obtain higher education in Riga. The offer of the DU study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" gives students the opportunity to acquire higher education in the field of IT and computer science at three study levels.

The implementation of study programs of the study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" is interconnected and successive. Currently, this DU study direction includes three study programs:

1 table Study programs to be implemented in the direction of studies

Program name	Study type	Amount	Degree and/or qualification acquired
Professional study program, Level 1 Information technology (41483)	Full time studies	80 CP	Level 4 professional qualification Administrator of computer systems and computer networks

Professional Bachelor's Study Programme Information technologies (42483)	Full time studies	160 CP	Level 5 professional qualification Programming engineer, professional bachelor's degree in information technology
Academic Master's study program Computer Science (45483)	Full time studies	80 CP	Master of Science in Computer Science

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.

SWOT analysis of DU study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science":

	Strengths	**Weaknesses**
Internal conditions	· Lecturers have high-quality necessary education and extensive pedagogical and scientific-research work experience; · Qualified and experienced teaching support staff; · Staff experience in project works; · Highly qualified and professionally prepared program graduates; · Good cooperation with DU structural units, Latvian and foreign educational and scientific research institutions; · Cooperation between teaching staff and students, regular evaluation of study program development; · Study program is purposefully oriented mainly to the needs of Latgale and other regions of Eastern Latvia; · Cooperation with employers.	· Insufficient number of published materials that reflect the activity of scientific-research and methodical personnel; inactive participation in international conferences; · Insufficient number of educational trajectories (directions) differentiating educational level and content, which a student can choose when studying a specialty; · Insufficient level of foreign language knowledge of students and teaching staff; · The relatively weak supply of modern scientific literature and periodicals in the Latvian language of the DU library; · Opportunities of student exchange programs are not utilised to their fullest extent.
	Development opportunities	**Risks**

External conditions	· Optimization and maintenance of the IT industry based on information technologies is a priority in Latvia; · A demand exists for IT specialists in the labour market; · National aspiration to raise education to a new, high-quality, including international level; · The diversity of technologies (both methodical, strategic and tactical), which contribute to the improvement of the quality of educational services.	· Budget funding reduction; · Under the influence of the demographic situation, the number of potential students may decrease, as well as the initial preparation of admitted students may deteriorate; · Strengthening of competition in the educational services market; · Insufficiently used opportunities to attract funding for conducting scientific research and improving the material and technical base (Latvian Science Council (LZP), Ministry of Education and Science *[Izglītības un zinātnes ministrija]*, and other grants, EU funding); · Employers' inability to formulate precise requirements for the competences of an efficient and competitive specialist in the IT field in the existing labour market; · Due to the rapid development of the IT industry, constant changes in the requirements for the competences of IT specialists.

SWOT analysis matrix for strategy selection:

	Development opportunities	**Risks**
Strengths	**Strategies for using strengths to get the most out of the opportunities offered**	**Strategies for using strengths to minimize risks**
	· Preserving and developing traditions, improving the potential of personnel; · Constantly cooperating with companies and organizations of the region, establishing business contacts; · Development of new study courses; · Improving the content of study courses, provision of study courses in foreign languages; · Involvement of academic staff and students in scientific research projects.	· Transformation of educational content and specialist preparation structure according to demands of the labour market; · Active use of students and the potential of program graduates to develop contacts with potential employers; · Search, analysis and use of opportunities for students and teachers to participate in various competitions, grants, projects, contractual works; · Development and implementation of new learning technologies and active learning methods.

Weaknesses	Weakness minimization strategies using the offered options	Weakness and risk minimization strategies
	· raising awareness of graduates of the program, emphasizing the quality and efficiency of specialist training; · Within the framework of cooperation with Microsoft IT Academy, Cisco Networking Academy, continue work on integrating and adapting training courses authorized by leading developers into the study program; · Increasing the scientific and methodical potential of lecturers; · To the extent possible, improving the material and technical base with equipment that meets modern requirements; · Activating student involvement in international exchange programs · Involving employers' specialists in the field of IT in the study process.	· Expansion of non-material incentives for lecturers who actively participate in scientific research, projects and contractual works, reduction of disproportions in the distribution of workloads and bonuses; · Increasing the interest of the department employees in improving their qualifications and obtaining scientific degrees; · Improvement of the monitoring system of students' attitude towards the content, forms, structure and teaching methods of the program; · Further work in the creation and modernization of the new generation of methodical materials, which perform not only informative functions, but also guide students' cognitive activity.

The development plan of the field of study is related to the development strategy of DU. The most important directions of activity are the constant improvement of the quality of all aspects of studies, strengthening and expansion of existing international relations, raising the scientific capacity of the teaching staff of the study direction, more actively engaging in the international circulation, improving the material and technical base. Activities within the study process are still relevant: promotion of renewal of academic staff; strengthening of e-study opportunities, which became especially relevant in the context of the COVID-19 pandemic, *etc.* A summary of the development plan of the study direction is attached as *2_1_2_Study_direction_development_plan.*

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.

The management of the study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" takes place in accordance with "Regulations on the opening and management of study directions and study programs of Daugavpils University" (available in Latvian: https://ieej.lv/FvS88).

The study process is organized according to

- Constitution of the Daugavpils University (DU) (available in Latvian: https://du.lv/wp-content/uploads/2022/09/DU-Satversme_17.06.2022.pdf),
- Law on Higher Education Institutions *[Augstskolu likums]* (available in Latvian: https://likumi.lv/ta/id/37967-augstskolu-likums),

- June 21, 2023 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 305 "Regulations on the state standard of professional higher education" (available in Latvian: https://ieej.lv/yPMNV) and other legislative enactments.

The overall management of the study direction is provided by the Study Council of DU, the supervisor of solving specific issues is assigned to the Council of the Faculty of Natural Sciences and Mathematics (DMF), Department of Informatics and the field of study "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" (*2_1_3_Schematic_structure_of_study_direction_management*). The study direction council evaluates the progress and results of the study process and recommends measures to improve the programs and integrate the latest knowledge into the study content and process. The council approves the proposals of the Department of Informatics and program directors regarding changes in the scope of study courses, their content and calendar arrangement by semester, taking into account the results of student surveys, the indicators of student success and professional practices, as well as the indicators of the professional performance of lecturers. Proposals for changes in study courses or study programs are discussed in the DMF Council and forwarded to the DU Study Council.

DMF Department of Informatics coordinates work related to studies, promotes feedback between lecturers and students. The head of the study direction, in cooperation with the program directors, organizes and coordinates the study process in the study programs included in the direction, monitoring the quality of studies. The head of the study area, in cooperation with the study program directors, prepares the annual study area self-evaluation report, collects and analyses the information to be included in it. The director of the study program cooperates with the directors of other programs and the academic staff to ensure the continuity and mutual connection of the study process. At the end of each study year, the head of the Informatics department plans the workload for the next study year and sends requests to structural units. The head of the department is responsible for appointing lecturers to teach study courses. Directors of study programs communicate with students, make improvements in study programs, coordinating them with the head of the study direction. If necessary, topical issues are considered by the study direction council and the Faculty Council.

DU has a Student Service Centre (SSC), the Department of Informatics has a computer systems and computer network administrator who develops and circulates documents binding to study programs, participates in final exams, and records them. The administrative staff of the department and SSC provide information about students, achievements, study programs, lecturers in the DU Information System (DUIS), prepare diplomas and diploma supplements. Student service specialists provide informational support to students, lecturers and study program directors. Computer network administrators and technical specialists of the Information and Communication Technology Centre provide support to lecturers, ensuring the use of IT in the study process, during the organization of conferences and science communication events. DU's academic publishing house "Saule" provides printing and binding of theses. Administrative and technical staff also perform other duties within their competence.

The support provided within the study direction of the administrative and technical personnel of DU can be evaluated positively. Effective communication and systematic circulation of information is ensured within the faculty. Students are informed about where to turn if they have questions or need help.

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.

Admission to the programs of the DU study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" is ensured in accordance with the following documents:

- "Admission rules for full-time and part-time undergraduate studies" (available in Latvian: https://du.lv/gribu-studet/uznemsana/),
- "Admission rules for full-time and part-time higher level studies" (available in Latvian: https://du.lv/gribu-studet/uznemsana/),

which are approved annually by the DU Senate. Admission rules are updated every academic year in accordance with Law on Higher Education Institutions *[Augstskolu likums]*, the October 10, 2006 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 846 "Rules on requirements, criteria and procedures for admission to study programs" and in accordance with the decision of the DU Board of Studies. Admission rules at DU have been developed according to different levels of studies, "Admission rules for full-time studies for foreigners" are available separately. Detailed information on admission, as well as links to admission rules, are available on the DU website (available in Latvian: https://du.lv/gribu-studet/uznemsana/).

The admission process is additionally regulated and "Full and part-time study opportunities", "DU admission process", registration fee, study fee in programs, number of study places for admission are approved by the decision of the DU Senate before the start thereof. The Senate approves the deadlines for the competition and announces admission.

"DU Admission Rules" and "Study Opportunities" determine the requirements for persons who wish to study at DU, the university's and the mutual rights and obligations of this person in the admission process; documents contain information about the study programs and study forms of a specific academic year, about additional requirements for applicants' previous education, preparation or special suitability for the specific studies, about the evaluation criteria of the competition. Admission to DU study programs includes the registration of applicants for studies, the conduct of the competition for study places, the announcement of the results of the competition, the conclusion of the study contract and registration in the list of students (matriculation).

Admission to DU study programs is ensured by the Secretariat of the DU Admission Commission. The admission commission determines and approves the results of the competition. The Admissions Committee can also approve and redistribute Admission Places.

The responsibilities of the Admissions Commission and the Secretariat of the Admissions Commission are defined in the document "Mutual obligations and rights of a person and DU in the admission process" (available in Latvian: https://du.lv/gribu-studet/uznemsana/).

The decision of the DU Admission Commission on the results of the competition can be challenged in accordance with the "Procedure in which a person can challenge and appeal decisions related to admission to a study program at Daugavpils University" developed by DU (available in Latvian: https://du.lv/wp-content/uploads/2021/12/kartiba_uznemsanas_apstridesana.pdf). The DU admission procedure and information about it are implemented efficiently and transparently. During

admission, information boards are placed in the DU foyer on the 1st floor, consultations are provided in person, by phone and via e-mail. It should be noted that most potential students communicate about admission issues through DU social media accounts.

In the programs of the study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science", students in the later stages of their studies are also matriculated ("Procedure for starting studies in later stages of studies at Daugavpils University", https://du.lv/wp-content/uploads/2022/06/ENG_Procedure-for-the-initiation-of-studies-in-subsequent-study-stages-1.pdf), taking into account the applicants' professional experience, previously acquired formal and informal education recognition opportunities (Regulation on recognition of competences acquired outside of formal education or professional experience and study results achieved in previous education at Daugavpils University, https://du.lv/wp-content/uploads/2022/06/ENG_Regulations-for-the-recognition-of-study-results-2.pdf). During the reporting period, 12 students underwent the procedure of recognition of previously acquired education:

- 6 students – in the 1st-level professional study program "Information technologies",
- 5 students – in the professional bachelor's study program "Information technologies",
- 1 student – in the academic master's study program "Computer Science".

Table 2. Examples of the procedure for the recognition of previously acquired education

Study programme designation	Previous education	Year
DU 1st-level professional study program "Information technologies"	Daugavpils University, professional higher education bachelor study program "Information technologies"	2021
	Daugavpils University, professional higher education bachelor study program "Information technologies"	2021
	Daugavpils University, academic bachelor study program "Physics"	2021
	Daugavpils University, 1st-level professional higher education study program "Civil security and defence"	2022
	Daugavpils University, professional higher education bachelor's study program "Law" [legal consultant]	2022
	Daugavpils University, academic bachelor study program "Philology (English Philology)"	2022

DU professional bachelor's study program "Information technologies"	State Agency of Social Integration of the Ministry of Welfare *[Labklājības ministrijas Sociālās integrācijas valsts aģentūra]* of the Republic of Latvia, first-level professional higher education study program "Software for Applied Systems"	2022
	Daugavpils University academic bachelor study program "Computer Science", Daugavpils University academic master's study program "Computer Science" and Daugavpils University's first-level professional higher education study program "Information technologies"	2022
	"Transport and Business Logistics" professional bachelor's study program of the Institute of Transport and Communications *[Transporta un sakaru institūts]*	2022
	Riga Technical University *[Rīgas Tehniskā universitāte]* professional bachelor's study program "Mechatronics"	2022
	Daugavpils University's first-level professional higher education study program "Information technologies"	2017
DU academic master's study program "Computer Science"	Riga Technical University *[Rīgas Tehniskā universitāte]* academic master's study program "Computer systems"	2019

DU has concluded two agreements (with Vidzeme University *[Vidzemes Augstskola]* and Ventspils University *[Ventspils Augstskola]*) and one certificate (of Daugavpils University), which confirms that the respective universities will provide students with opportunities to continue their education, if the implementation of study programs are interrupted (*2_1_4_Agreement_ViA_PBSP_IT, 2_1_4_Confirmation_DU_1stPSP_IT, 2_1_4_Agreement_VeA_AMSP_CompSci*). A standard sample of the study contract is available in the appendix *2_1_4_ Agreement_on_studies*.

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.

According to the Standards and guidelines for quality assurance in the European higher education area adopted in 2015 (Standard No. 1.3), universities must ensure that the study programs are implemented in such a way as to encourage students to actively participate in the formation of the study process, and that the assessment of student performance is consistent with this approach. Evaluation in the study programs of the direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science" is carried out

based on the following principles:

- the evaluation criteria are clear and understandable, are previously published and available;
- evaluators are familiar with testing and examination methods;
- assessment gives students the opportunity to show to what extent they have achieved the expected learning outcomes;
- students receive feedback that, if necessary, provides advice related to the learning process;
- assessment is consistent, fair, suitable for all students and is carried out in accordance with approved procedures and legislative enactments;
- there is a procedure for examining student appeals.

The knowledge, skills, competences acquired in the theoretical basic courses of the industry and information technology courses are tested with tests, colloquiums, exams, reports, presentations and other assessment methods. Practical classes are the dominant form of program implementation in the study of industry professional specialization courses, and students' knowledge and practical skills are assessed in these study courses.

Depending on the teaching form and methods, the lecturer chooses the assessment forms and criteria. A large part of the study results require the student not only to demonstrate knowledge, but also to practically analyze the learned material, connecting it to everyday life and existing experience. Therefore, seminars and practical classes play an important role. In practical lessons, during individual or group work presentations, students express their opinion, improve their analytical skills. Acting in this way, a constant dialogue is maintained with surrounding partners – students are aware of the diversity of existing opinions and enrich each other's experience.

In addition to formative assessment, lecturers also use summative assessment. Summative assessment is formed in the case of the posting of mid-examination grades. At the end of the study course, there is a test with a grade or an exam. The final exam is in oral, written form, and in the form of an achievement test.

Students can familiarize themselves with the evaluation criteria, conditions and binding procedures in the study course descriptions.

The evaluation principles and criteria are in the description of each study course, which are available in the DU e-environment. When starting work with students in the audience, lecturers introduce students to the requirements of the study course and the knowledge and skills assessment system.

In order to analyze the conformity of assessment methods and procedures to the achievement of study program goals and students' needs, the results of student surveys, formal student success indicators are characterized, the content of each study course and the quality of its delivery are examined in detail. If inconsistencies in assessment methods are found, then a decision is made on the necessary changes in the content of the study courses or in the organization of the study process, if necessary, considering issues at the meeting of the Department of Informatics. After that, proposals for changes in study courses or the study program are discussed in the Council of DMF, and after its acceptance, they are forwarded to the Study Council of DU, which evaluates the need for changes. In case of a positive decision of the Board of Studies, the changes are approved.

Evaluation of study results is described in detail in the "Regulations on studies at Daugavpils University" (https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf).

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.

The guidelines for the ethical behaviour of DU employees and students are determined by the "Ethical Code of Daugavpils University Employees and Students" (available in Latvian: https://ieej.lv/F8WUA). The Code stipulates that students support and maintain academic and professional honesty, do not allow plagiarism, copying, other unfair use of intellectual property or cheating, on the other hand, the academic staff evaluates student work in a timely, honest and fair manner, supports and maintains academic and professional honesty, without creating conditions for manifestations of academic dishonesty, monitors the development process of students' work, does not allow plagiarism, copying, other unfair use of intellectual property or other types of cheating.

The study programs of the field of study follow the principles of academic honesty in accordance with the Regulations on studies at Daugavpils University (https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf). For example, if students use unauthorized aids in the test or whose final work shows signs of plagiarism, they will be suspended from the test as having failed the test and an appropriate entry will be made in the test protocol.

DU has developed and follows the procedure for submitting final theses for plagiarism control at Daugavpils University, which provides for mandatory submission and storage of electronic versions of final theses in the DU Information System and provides an opportunity to compare students' final theses with the set of theses defended in previous years (https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf). All final theses of DU studies, including the final theses of students studying the field of study "Information technology, computer engineering, electronics, telecommunications, computer management and computer science", are checked before their defense, using the plagiarism control system PlagLV (available in Latvian: plag.lv). If signs of plagiarism are detected in the process of comparing the final theses, the Expert Commission established by the dean of the faculty and approved by order evaluates the work and decides on the detection of plagiarism in the work. The expert commission examines the report within three working days and submits proposals on the responsibility of the student to the dean of the faculty.

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.

An important role in the implementation of the study process is played by the direction administration and the quality assurance system, the functioning of which is coordinated by the DU Study Council and the DU Study Quality Assessment Centre (SKNC). The purpose of ensuring the

quality of the study process and the management system is to guarantee the compliance of the program content with the standard of higher education, the quality of science, as well as with the requirements of the labour market of Latvia and the European Union.

Study quality assessment is carried out with the aim of controlling the execution of study programs and planning development in order to fully achieve the goals set in the programs and fulfill the defined tasks. Quality control takes place continuously: admitting students, hiring academic staff, evaluating and improving study programs, evaluating the operation of structural units, their leaders and staff according to scientific efficiency and academic work results.

DU has developed a structured quality management system model that sets guidelines for achieving excellence. This model of excellence is binding on every DU employee. It includes nine criteria (refer to Figure No. 1). Five of them cover contributing factors, the other four cover outcomes and results. Contributing factors (facilitating criteria) reflect what DU does and how it is done, while outcome (result) criteria reflect the achievements obtained.

The results are achieved thanks to the contributing factors, whereas the contributing factors are improved retrospectively based on the results achieved. Effective results can be achieved with the management's understanding and support, purposefully directed DU strategy and policy, which in turn is implemented with the successful participation of the staff, as well as with the help of a full-fledged partnership, a resource-saving approach and effective management of all the processes. The arrows shown in the figure show the dynamic improvement nature of the model of excellence – the importance of creativity, innovation and education in the improvement of promoters, which in turn ensures the achievement of better results. The model of excellence makes it possible to understand the cause-and-effect relationships between the activities that DU implements and the results it achieves (DU development strategy).

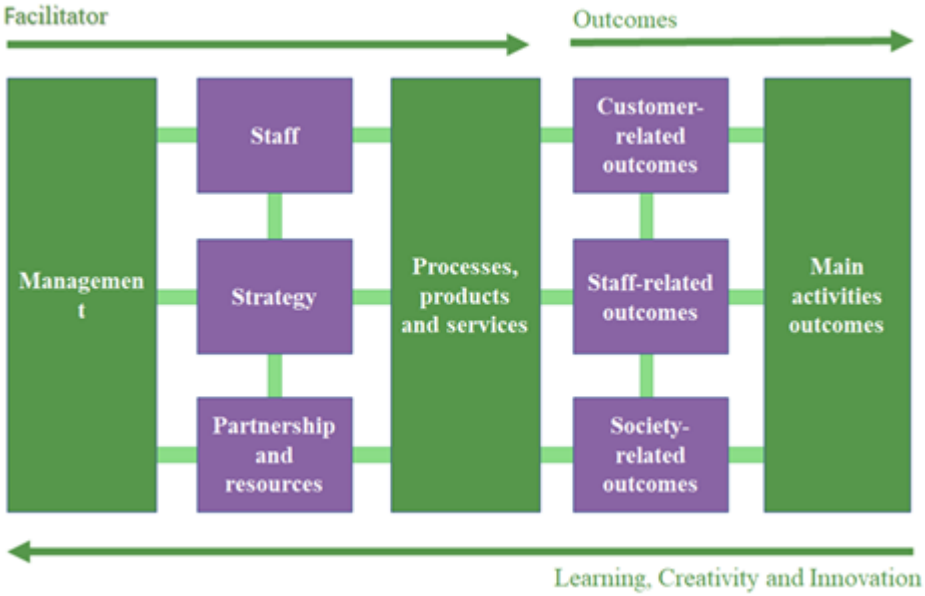

Figure No. 1 Quality management system model that sets guidelines for achieving excellence in DU

Surveys of students, employers and graduates are regularly organized at Daugavpils University; their results are used to make operative decisions, to improve the quality of study courses, to improve the quality of programs, to improve the work of teaching staff. The operation of the programs is evaluated at the meetings of the Board of Studies. Proposals for changes in study programs are considered at the faculty council meetings.

Lecturers and docents regularly revise the descriptions of study courses and supplement them with current topics and the latest literature. At the end of the study year, lecturers add their data to the

internal information system (DUIS) and discuss the year's results and directions for improvement in discussions with the directors of the study program. Strategic planning of the study process is constantly carried out, analyzing the study program's weaknesses, risks, development opportunities and other related aspects; The DU e-study environment, Moodle, contains information about the courses to be studied in the semester – the students have access to the following information: description of the study course, tasks set for independent work, additional materials. In order to ensure the exchange of information and to make decisions about the study process, management and staff meetings are organized, in which the personnel involved in the provision of the program participate;

The internal quality assurance system of the study direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" is implemented in accordance with the practice implemented by DU. The system can be evaluated as efficient, transparent and coordinated with the goals and implementation process of the study direction "Information technologies, computer engineering, electronics, telecommunications, computer control and computer science".

– The internal quality control of the field of study "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" is carried out by the Council of the Field of Studies, program directors, teaching staff of the profiling structural units (departments). Discussion and evaluation of the study direction development plan and study quality improvement measures take place at the end of each study year or as regularly as required.

– Once a study year, the head of the study field "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" prepares a self-evaluation report of the study field in cooperation with program directors for the previous year of study.

– The latest scientific literature and the experience gained by lecturers by visiting European universities within the framework of "Erasmus+" mobility are discussed at the meetings of the study direction council and department meetings.

– In the process of implementing the study programs of the study direction, there is a regular survey of the opinions of the employers involved in the programs and the graduates of the program (surveys, expertise of individual program components, involvement of employers and university graduates in the Study Direction Council), which allows for a closer alignment of program content with the needs of the labour market. The quality of study work is promoted by the intensive participation of graduates in the study process of the university, both by teaching guest lectures and by providing internships and work places.

– Academic staff of the field of study "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" participate in academic and methodical conferences, seminars and qualification improvement courses as lecturers or listeners, regularly improving study courses with innovative study forms and modern methods.

– While improving the skills to work remotely, lecturers of the field of study regularly participate in trainings, for example, to ensure the full use of the possibilities of the e-study environment Moodle. Within the framework of the ESF project "Reducing the fragmentation of study programs and strengthening the sharing of resources at Daugavpils University" No. 8.2.1.0/18/A/019, seminars were organized for the development and integration of study course support materials necessary for lecturers into the study process.

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 study program development process is regulated by the "Regulations on opening and management of study directions and study programs of Daugavpils University" (available in Latvian: https://ieej.lv/AU6q9).

The development of a new study program is started in accordance with the DU strategy or other strategic and study process regulatory documents at least one study year before the start of the study program implementation. The development of the new study program is monitored by the Board of Studies, if necessary, convening meetings of the Study Direction Council to discuss the content of the study program, provision and other issues related to the development of the study program. The person responsible for the development of the study program prepares the characteristics of the study program and all its appendices in accordance with the December 11, 2018 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 795 "Regulations for study program licensing" (available in Latvian: https://likumi.lv/ta/id/303957-studiju-programmu-licencesanas-noteikumi). The person responsible for developing the study program, in consultation with the head of the Studies Department, prepares the structure of the study plan and, in consultation with the head of the Secretariat of the Admissions Commission, prepares the admission requirements. The person responsible for the development of the study program in cooperation with the dean of the faculty, representatives of the profiling structural unit and representatives of the structural units involved in the implementation of the study program, prepare the study plan of the newly created program and proposals for the author/-s of the study courses, which are submitted for approval by the faculty council. After coordinating the study plan and study course authors, the study course authors develop study course descriptions in the faculty council.

The study direction (as well as all programs included in the direction) is evaluated in accordance with the accreditation schedule of the study directions of the Republic of Latvia Ministry of Education and Science *[Izglītības un zinātnes ministrija]*, which is determined in Clause 48 of Chapter XII of the Law on Higher Education Institutions *[Augstskolu likums]*. The preparation of documents and annexes necessary for the evaluation of the field of study is carried out in accordance with the guidelines developed by the Higher Education Quality Agency of the Academic Information Centre "Guidelines for the development of the self-evaluation report of the field of study".

Each year, the field of study submits a self-assessment report for the academic year to the SKNC of the Daugavpils University. The self-evaluation includes the description of the direction and the evaluation of each program. The self-evaluation is prepared by the head of the department together with the program directors. Self-evaluation includes mandatory annual surveys (surveys of students, graduates, employers) that allow evaluating the strengths and weaknesses of the programs depending on the situation. During the COVID-19 pandemic, the need for program review increased. At this stage, the program directors regularly (1-2 times per semester) conducted student surveys (written and verbal to find out their attitudes and define problems). In 2021, the DU Student Council initiated a student survey with the aim of evaluating the quality of studies during

remote studies. The results and recommendations of the survey were compiled and presented to the faculties, as well as discussed in the Study Direction Council.

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.

Submitting and examining student complaints and proposals is an essential component of the study quality system. In order to ensure the improvement of the quality of studies, it is necessary to analyze the processes, obtain a clear statement of the reasons for the complaints and provide feedback to the person who submitted the complaint or proposal.

Students have the opportunity to submit complaints or proposals to the Study Quality Assessment Centre, the Study Council, the Dean's Office of the Faculty of Natural Sciences and Mathematics, the Department of Informatics or the director of the study program. Complaints and proposals, depending on their importance, are accepted orally, in writing and electronically.

Students of the study direction prefer to solve problems within the structural units of the faculty. For example, heads of departments or administrative secretaries receive complaints about communication problems with guest lecturers. Officially, according to the law, the head of the structural unit or program has the right to respond to a written complaint (students are informed about it). During distance studies, several proposals were received from the students regarding the organization of the study process: the schedule of classes, the proportion of independent work, the choice of an e-platform. When organizing the state/final exams during the pandemic, the students' opinion about the form of the exams was taken into account.

Complaints and proposals are accepted individually or collectively, publicly (by identifying identity) and anonymously. Forming and acceptance of submissions to DU is carried out in accordance with the procedures set out in the "Law on Applications and Submissions" *[Iesniegumu likums]* (available in Latvian: https://likumi.lv/ta/id/164501-iesniegumu-likums). Submissions on possible violations of the norms of the "DU Code of Ethics" (available in Latvian: https://du.lv/wp-content/uploads/2021/12/Etikas-kodekss.pdf), including actions or behaviour outside DU, if the prestige of DU has been affected thereby, can be submitted by DU academic, administrative and general staff, as well as students. The application can be submitted on behalf of students by the Student Council, which can act as the student's representative during the examination of the complaint.

Submissions of students and academic staff regarding limitations and violations of academic freedom and rights stipulated in the Constitution are examined by the Academic Arbitration Court of DU.

Daugavpils University has an active Student Council, whose activities are organized in several areas, including the supervision of study work. As an example, a case can be mentioned in which, referring to the student's application, the issue of optimizing the list of lessons for the study week was considered collegially: students expressed their desire to organize lessons compactly, leaving

more days a week for independent work.

Students have the opportunity to submit an open complaint and proposal (in a free form or in accordance with the procedures set out in DU's internal regulatory acts) or an anonymous complaint and proposal (on the SKNC website https://du.lv/en/about-us/study-quality-assessment-centre/); Trust questionnaire created by the Student Council – available in Latvian: https://ej.uz/1jjg).

Anonymous complaints are received electronically, after examination and analysis of the content of the complaint, SKNC conducts negotiations with the involved parties and, if necessary, implements study quality monitoring. In the past practice, SKNC closely cooperated with the Student Council in examining anonymous complaints, conducting a situational study and taking the necessary measures to improve the quality of studies, because according to the "Regulations of the Daugavpils University Student Council", the Student Council has the right to request and receive information from any structural unit of DU on all matters within its competence, which affect the interests of students.

In order to consider admission-related complaints, DU operates the "Procedure in which a person can dispute and appeal decisions related to admission to a study program at Daugavpils University" (available in Latvian: https://du.lv/wp-content/uploads/2021/12/kartiba_uznemsanas_apstridesana.pdf), according to which a person can challenge the decision of the Admissions Commission on the results of the competition by submitting an application to the Rector of DU within seven working days after the results of the competition have been made public.

According to the "Regulations on studies at Daugavpils University" (https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf), students have the right to submit a motivated appeal to the dean of the faculty regarding the exam results within one working day of their notification. The appeal is examined within three working days by a commission established by the decision of the dean, with the participation of the examiner and the head of the relevant department.

Information accessibility

All internal regulatory acts, according to which students can submit complaints and proposals, are publicly available on the DU website, in the "About Us" section. Students can get information by contacting the director of the study program, the head of the Department of Informatics, the vice-dean, the dean, the Student Service Centre, SKNC and the Student Council.

In the course of the implementation of the remote study process, a survey of DU students was also organized in the spring semester of the 2019/2020 academic year regarding the quality of the implementation of the remote study process, as a result of which the offer of library services was improved, as well as methods and tools for organizing remote studies were diversified, including for those studying the field of study "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science". During the implementation of the remote study process during the academic years 2019/2020, 2020/2021 and 2021/2022, the head of the study area and study program directors communicated regularly with students of all levels, monitoring the progress of the study process in the study programs of the area.

Students are informed about the possibility to submit a complaint or proposals when starting their studies at the organizational meeting of the Faculty of Natural Sciences and Mathematics of DU, as well as during the meeting when information about the programs is provided. Students have access

to the e-mail address of the faculty (dmf@du.lv) and the department e-mail address (ik@du.lv), in order to communicate and solve problems.

It is worth noting that the University regularly (once a month) has meetings between the management and the head of the SKNC with the Student Council, where students' problems, complaints, recommendations for improving the quality of studies are identified and discussed.

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.

DU, when collecting data of natural persons, stores and processes personal data for specific, clear and legal purposes and only in the manner and to the extent provided for in regulatory acts.

The information system DUIS operates at DU, which contains statistical data and information about study programs, students and lecturers. The system is accessible from the DU internal network. Data entry in DUIS is provided by study program directors, Student Service Centre; their collection and verification is carried out by the Studies Department. At the end of each month, the data collected in the DUIS system is exported to the State Education Information System (VIIS). Data export is implemented in accordance with the June 25, 2019 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 276 "Regulations of the state education information system" (available in Latvian: https://likumi.lv/ta/id/307796). For VIIS data export, personal data of DU students, information on student status (number of matriculated and ex-matriculated students, changes in their status, *e.g.* semester membership, students on study break, etc.) are collected, as well as other relevant information.

One of the main tools promoting the improvement of study areas is the student survey, which SKNC announces to students of the 1st year of study 2 months after the start of studies, for other students – at the end of each study year. Based on the data and information provided in the surveys, if necessary, SKNC conducts lecture observations and individual surveys of student groups, as well as organizes discussions with lecturers on measures to improve the quality of studies.

The data obtained in the surveys are collected in the DU survey system (Open Source Project LimeSurvey) and are analyzed. The results of the surveys are included in the self-assessment reports of the study areas.

DU also organizes surveys of graduates and employers. Alumni Surveys (available in Latvian: https://aptaujas.du.lv/index.php/764263/lang-lv) and the data included in them provide information on employment trends of graduates, evaluation of studied study programs and recommendations for their improvement.

Employer surveys (available in Latvian: https://aptaujas.du.lv/index.php/544412) are implemented and the data within them is collected by study program directors. Their purpose is to obtain recommendations for the improvement and development of the content of DU study programs.

The systematically obtained data, their analysis and interpretation are used in the improvement of the study direction. Survey data of students and employers ensures that the goals and tasks of the study programs meet the requirements of the labour market and society, allowing to track and

evaluate the quality of each study course, their compliance with the goals and tasks of the program.

Much attention is paid to the satisfaction of students with the teaching quality of the major programs and study courses. Survey results are discussed at the meetings of the study direction council and also at the meetings of the Department of Informatics. The obtained information is transferred to study program directors and lecturers working in study programs. By evaluating the quality of the program of the study direction and individual study courses, it is decided on the necessary changes in the content of the study courses or the organization of the study process. The sessions discuss the possibilities of responding to students' constructive opinions expressed in the comments of the questionnaire (regarding the use of electronic learning materials, organization of the study process, *etc.*).

Mechanism for obtaining and providing feedback (working with students, graduates and employers).

In order for the creation of the study program to meet the requirements of the labour market, the feedback obtained from students and graduates is particularly important. Students and graduates evaluate the progress of the study program, as well as the applicability of acquired knowledge, skills and competences in professional activity, thus feedback becomes a valuable element of improving the study process.

At the end of each study year, SKNC organizes a student survey, the results of which provide information on the assessment of study quality and related aspects. The student survey is available online. Survey questionnaires for graduates and employers have also been developed. The results of student surveys are taken into account when planning the next academic year, evaluating the pedagogical and professional competences of lecturers, the availability of study support materials and sources, the involvement of foreign teaching staff and other issues.

Surveys of graduates and employers are conducted on a random basis. Employers are surveyed after internships, employers not related to internships are surveyed on average once every two years. Surveying or interviewing graduates takes place both immediately after graduation and several times after graduation (after six months, a year, three years). After processing the obtained data and examining the results, changes are made to the content of the study program. The director of the study program informs all involved parties (students, lecturers, employers, graduates) about it, thus ensuring feedback. The recommendations or reprimands and prevention mechanisms mentioned in the surveys are discussed in meetings both with the lecturers of the course and with the students, as well as consultations with representatives of the industry. Student representatives participate in direction councils and in the development of solutions for the comments made in the surveys.

Based on the results of surveys of students, graduates and employers, the content of study programs is reviewed and improved. Study program directors respond to all well-founded opinions, suggestions and reprimands expressed in the questionnaires, if necessary, examining the issues in the study direction council. After making changes in the content of the study program, the director of the study program informs all involved parties (students, lecturers, employers, graduates), thereby ensuring feedback.

The analysis and evaluation of the survey results of students, graduates and employers are attached in the appendices 2_2_4_ student_survey_analysis_PBSP_IT, 2_2_4_ student_survey_analysis_1limPSP_IT, 2_2_4_ student_survey_analysis_AMSP_Dat, 2_2_4_ alumni_survey_analysis, 2_2_4_ employers_survey_analysis.

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).

All necessary information about studies, faculty, study direction and study programs is published and updated on the DU website and is available to students. On the DU website, interested parties can find information about the following:

- Faculty of Natural Sciences and Mathematics (available in Latvian: https://du.lv/studijas/fakultates/dabaszinatnu-un-matematikas-fakultate/) (dean's office, city council, structural units, study programs, news, teaching materials,),
- 1st level professional study program "Information technologies" (available in Latvian: https://ieej.lv/LW5Sp),
- professional bachelor's study program "Information technologies" (available in Latvian: https://ieej.lv/abzin),
- Master's study program "Computer Science" (available in Latvian: https://ieej.lv/U6KLk),

where information is available on admission requirements, learning outcomes, opportunities, as well as study course descriptions in Latvian and English.

The Department of International and Public Relations is responsible for the correspondence of the information available on the DU website about study courses with the information available in the official registers. The study department is responsible for providing regular and timely information about students in the State education information system VIIS.

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 source of funding for the study direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" is state budget funding for studies (grant) and study fees. The cost calculation for one student in the programs of the study direction was carried out in the Department of Finance and Accounting of DU, including the costs of the wage fund and the employer's Mandatory State Social Insurance Contributions (VSAOI), business trips, materials, energy resources and inventory, book, equipment purchase and investment costs, as well as costs for student social security.

Students have the opportunity to apply for tuition fee discounts. More information about study fees and discounts – available in Latvian: https://du.lv/gribu-studet/studiju-maksa-un-atlaides/.

For the development of DU science, funds for the development of the science base are allocated from the Ministry of Education and Science *[Izglītības un zinātnes ministrija]*. Funds intended for the development of science can be obtained by the field of study based on the scientific achievements of lecturers and indicators for the previous year, which are evaluated by the Science Department of DU. The evaluation of the effectiveness of the scientific work of the academic staff of DU is carried out in accordance with the "Procedure for evaluating the effectiveness of the academic staff of the University of Daugavpils" (available from the internal network of DU).

The DU academic staff (assistants, lecturers, docents, associate professors, professors, research assistants, researchers, leading researchers), within the framework of funding in the DU budget, have the right to receive royalties for scientific publications indexed in the Web of Science and/or SCOPUS databases, and for scientific monographs. Payment for scientific publications is made in accordance with the "Procedure in which scientific publications and monographs of academic staff of Daugavpils University are paid" developed by DU (available from the internal network of DU).

The DU academic staff (assistants, lecturers, docents, associate professors, professors, research assistants, researchers, leading researchers), within the framework of funding in the DU budget, have the right to receive compensation for the Hirsch index characterizing citation in SCOPUS and/or Web of Science (hereinafter referred to as WoS) databases. The amount of compensation is calculated according to the "Procedure in which the academic staff of Daugavpils University receives compensation for the Hirsch index".

DU academic staff have the opportunity to participate in the annual Daugavpils University research project competition and receive funding for the implementation of scientific research[1]. The general goals of the research project competition are to ensure the development of DU's scientific activity and scientific excellence; to promote the research growth of DU's academic, scientific staff and students; to promote the practical applicability of scientific results, cooperation with the private sector and attraction of additional external funding; to form innovative interdisciplinary research groups for the implementation of current research topics. Academic and scientific staff representatives working at DU on the basis of an employment contract have the right to submit individual or research group projects to the competition: the representatives thereof include professors, associate professors, assistant professors, leading researchers, researchers, lecturers, assistants, research assistants, DU doctoral students and doctoral degree applicants. The total funding amount of the project competition for the given year is determined by the DU Budget Commission. The allocated project tender fund for 2023 was EUR 51,000.00. The maximum allowable amount of funding for one research project is EUR 3,000.00.

Students in the study programs implemented by DU can apply for the student research project competition[2]. The general goals of the research project competition are to ensure the development of DU's scientific activity and scientific excellence; promote the research growth of DU students; promote the practical applicability of scientific results, cooperation with the private sector and attraction of additional external funding; to form innovative interdisciplinary research groups for the implementation of current research topics; to involve students in DU bachelor's and master's programs in scientific activity; to promote the increase in the number of publications indexed in the Web of Science and/or SCOPUS databases at DU. The right to submit projects to the student research project competition is for successful students in DU bachelor's and master's programs who are studying the study program of the relevant level for the first time. If the student stops his studies, the scholarship payment is stopped starting from the following month. During the implementation of the project, it is planned to publish at least one publication in publications indexed in the Web of Science and/or SCOPUS databases. For the implementation of projects in DU bachelor's and master's study programs, the student receives a scholarship of EUR 200.00 per month for 10 months a year. The maximum allowable amount of funding for one research project

and the total amount of funding for the project competition for the given year is determined by the DU Budget Commission. The project tender fund in 2023 was EUR 24,000.00, while the maximum allowable amount of funding for one research project was EUR 2,000.00.

Funding for improving the teaching material and technical base (for the additional improvement of auditoriums and laboratories, for the purchase of educational literature and modern research equipment, for the purchase of visual aids and software, and other events) is mainly provided from various projects (*e.g.*, ERDF, ESF).

[1] DU internal research project competition for 2023. Available in Latvian from: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-ieksejo-petniecibas-projektu-konkurss-2023-gadam/ [revised on 20.02.2023]

[2] DU Student Research Project Competition for 2023. Available in Latvian from: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-studejoso-petniecibas-projektu-konkurs-2023-gadam/ [revised on 20.02.2023]

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.

In the direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science", the study process is provided mainly in the DU study building at Parades street 1, where the Faculty of Natural Sciences and Mathematics, the Department of Informatics are located and where the lecturers involved in the study program work on a daily basis. The auditoriums at Parades street 1 meet the needs of the study process, they have the necessary technical equipment (computers, video projectors, multifunctional devices), which is used both in computer classrooms and other classrooms to demonstrate lecture and seminar materials and provide practical lessons. Multi-seat auditoriums (approx. 100 seats) are used for the entire study stream lectures. Computer science, information technology courses and professional specialization courses of the major study programs are implemented in 7 computer classrooms, students can use one additional computer classroom for independent work.

During the last 10 years, DU has purposefully invested in the modernization of study and research infrastructure, as a result of which students have access to modern teaching and scientific laboratories. Infrastructure modernization projects implemented by DU, within the framework of which study and research opportunities have been improved for the students of the field of study:

- ERDF project "STEM, modernization of healthcare and arts study programs at Daugavpils University" (agreement No. 8.1.1.0/17/I/005, project implementation period: 2017 -2020, total DU costs: EUR 1,425,138.00). Within the framework of the project, the material-technical information base of the study programs has been developed, hardware, laboratory materials, inventory and tools were purchased, as well as replenished library stocks and developed information technology equipment, to be able to offer high-quality, international standards-compliant and competitive education.
- ERDF project "Improving the quality of Daugavpils University study programs and ensuring environmental accessibility" (agreement No. 2010/0115/3DP/3.1.2.1.1/09/IPIA/VIAA/021,

project implementation period: 2010 to 2015, total DU costs: EUR 16715991). As part of the project, the renovation of the auditoriums of the educational building at Parades street 1, increasing energy efficiency, as well as modernization of equipment, tools, equipment and information technology was carried out. Building of the DU Life Sciences and Technologies building with teaching and scientific laboratory rooms, equipped with modern equipment as part of the project, was added to the existing building. The DU library was also modernized and equipped with new equipment and furniture. Within the framework of the project, access to the modernized premises is ensured for people with functional disabilities.

All study direction students are provided not only with a study environment that meets modern requirements, but also with access to modern-day living infrastructure – renovated dormitories, a sports complex with a swimming pool, *etc.*

The study and research process is sufficiently provided with the necessary photocopying equipment, visual presentation equipment, video filming and video reproduction equipment, with modern photography and audio equipment. Students and lecturers have constant access to the Internet and the local DU network Internet connection, the e-study environment *Moodle*, as well as the possibility to use e-mail and teleconferencing, online platforms such as *ZOOM* or Microsoft Teams.

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.

Supplementing the library's stock and subscribing to databases takes place at the request of faculty lecturers - the lecturers of the course draw up a list of the necessary literature, a submission to the DU Budget Commission is prepared. The list compilation form is available for download on the DU website in the Library collection building section. The purchase of a literature source can be initiated by both the lecturers and students of the course. The student should contact the lecturer of the related course or the program director with questions about the necessary literature, who will include the relevant sources in the list. Applications for the purchase of books are regularly (for each academic year) reviewed and approved by the DU Budget Commission, thereby implementing a mechanism for the purchase of the latest editions in the DU library.

The collection of the library is created according to the directions of university studies and scientific work, the requirements of study programs, thus providing information to all study levels of DU, as well as directions of scientific research. The library ensures the purchase of books, magazines, databases and other publications based on the applications of DU faculties, which have been reviewed and approved by the Budget Commission of DU.

The library does not digitize the collection, but the final theses of DU students are uploaded to the library's information system. The library regularly informs the faculties about the latest literature,

database trials and subscription options, so that faculty lecturers and students can familiarize themselves with new offers.

In accordance with the DU development strategy, the library purposefully increases the share of e-resources and develops the remote access capabilities of e-resources in order to provide users with the opportunity to use resources remotely. Within the framework of the funding allocated to the library, the number of databases is purposefully evaluated. The use of the subscribed databases is analyzed every year.

The Daugavpils University Library is included in the Library Register of the Ministry of Culture *[Kultūras ministrija]* (BLB0524). In its operation, the library uses the integrated information system ALISE (Advanced Library Information Service).

Lecturers and students have access to the services offered by the DU library – the library's electronic catalogue, ordering, reserving and renewing books on the Internet, automated user service, as well as access to electronic databases. Library users have the opportunity to use the open-access reading room with 60 workstations, incl. 15 computerized, open-access subscriptions, Bibliography and information sector. The total area of the library is 1000 m^2, including user service spaces – 400 m^2. The collection of the library is 267,655 items, including books – 233,868, periodicals – 20,322, other publications – 13,464. Number of books in the field of information technology and computer science – 1007, in the field of mathematical science – 11873. Access to the following electronic databases is provided within and outside the DU network:

Name	Characteristics	Location of availability
Cambridge Journals Online	Humanities and social sciences full-text database	On and off the DU computer network
EBSCO	A multidisciplinary database consisting of several full-text and review databases	On and off the DU computer network
Latvian National Standard	More than 46 thousand Latvian standards: national, adapted European (EN) and international (ISO, IEC)	In the reading room (no more than two users at the same time).
LETA archive	Resources of the National News Agency	On and off the DU computer network
Letonika	Reference and translation database with encyclopedias, dictionaries, image, audio and video collections. Internet library of Latvian literature, where full-text works of Latvian authors are available	On and off the DU computer network
LURSOFT	Newspaper library	On the DU computer network

NOZARE.LV	Current information in the most important Latvian business sectors	On and off the DU computer network
Science Direct	Multidisciplinary database. Full texts are marked with a green icon	On and off the DU computer network
Scopus	Database of bibliographic and citation information of multidisciplinary scientific publications	On and off the DU computer network
Web of Science	Multidisciplinary database. The database offers extensive options for searching, selecting and analyzing results	On and off the DU computer network

The DU library has collected free access Internet resources, e-books and e-journals (Computer Science and Computer Technology) that are used by both lecturers and students (available in Latvian: https://ieej.lv/hrOjJ). The library's working hours are suitable for students' needs. After complaints from students about the short working hours of the library on weekdays and the unavailability on Saturdays, the working hours of the DU library have changed since the fall semester of 2018 (Workdays: from 9:00 to 20:00, Saturdays: from 10:00 to 16:00), for which the students gave a positive assessment.

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.

The study process is partially based on several principles of the e-learning environment. Forms and methods of learning organization suitable for the e-study environment are used.

DU has a developed e-study environment *(Moodle)*, and as a result of providing direct communication (e-mail, consultations), information is available in each study course. Daugavpils University (DU) lecturers systematically use the e-study environment Moodle (https://estudijas.du.lv/) and place various study materials in it: materials of lectures, seminars and practical lessons, which are a support for students' independent work. At the same time, through e-studies, the risk of students dropping out is reduced in cases where it is not possible to fully attend all study courses due to work or health conditions. Activating the e-study environment is an important step for promoting the maintenance of a critical mass of students, thus ensuring the preparation of specialists not only for the Eastern Latvian region, which is represented by the majority of DU students, but also for other regions of Latvia and for other countries outside of Latvia.

As part of the study courses, it is also planned to send homework and tests by e-mail or add them online to e-study environment *Moodle*, receive evaluations and reviews of works by e-mail, consultations in the e-environment, the possibility of using library and Internet resources. Thus, by integrating diverse modern IT solutions (e-mail, Moodle, Zoom, Skype, Facebook), the program will

offer more flexible conditions for e-studies. The e-study environment *Moodle* is synchronized with the Daugavpils University (DU) information system *DUIS*, which facilitates students' access to study courses created in the e-study environment without additional registration.

DU regularly organizes professional development courses for lecturers, for example, creating study courses in the e-study environment Moodle, "Using the e-study environment MOODLE in the remote study process, evaluation in the e-study environment MOODLE". Individual consultations are provided to lecturers when necessary. Students can get technical support at the Student Service Centre and from the deans' offices of faculties.

In the e-study environment Moodle, lecturers can also post lectures in video format. The process of filming video lectures is carried out by the Department of Information and Communication Technologies. At the Daugavpils University (at the address Parades street 1a), auditorium No. 130 offers the availability of modern equipment that allows its users to create educational, informative and advertising video materials, as well as provides live broadcasts of conferences in the Internet environment. Video lectures are stored on the DU server and are available in the *Moodle* environment in the corresponding study course.

The DUIS information system operates at DU in which descriptions of all study courses are entered, a list of classes is available, and the students can see their achievements and individual orders related to the study process in their profiles.

In the Department of Informatics of the DMF Faculty of DU, the necessary methodological provision is available for the realization of the study direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science": methodological materials for the development of studies, bachelor's and master's theses and regulations of professional practices.

The study and research process is sufficiently provided with the necessary photocopying equipment, visual presentation equipment, video filming and video reproduction equipment, with modern photography and audio equipment. Students and lecturers have constant access to the Internet and the local DU network connection, the e-study environment *Moodle*, as well as the possibility to use e-mail and teleconferencing, online platforms such as *ZOOM* or Microsoft Teams.

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.

Election to academic positions is carried out in accordance with the requirements of the "Regulations on elections to academic positions at Daugavpils University" (available in Latvian: https://ieej.lv/9hTri). According to the regulations, academic positions at DU are professor, associate professor, leading researcher, assistant professor, lecturer, researcher, assistant, research assistant.

The number of positions of assistants, lecturers, docents is determined by the Rector according to the amount of study work to be performed, upon the proposal of the Faculty Council. The number of positions of researchers, leading researchers and scientific assistants is determined by the Rector according to the need and funding possibilities, upon the proposal of the Institute/Scientific Council. The number of associate professor positions in the relevant science or art subfields is determined by the rector according to the need and funding opportunities after approval by the DU Senate.

Information about academic position vacancies and competition announcements are published on the DU website (available in Latvian: https://du.lv/par-mums/vakances/) and/or in the official publication/gazette of the Republic of Latvia "Latvijas Vestnesis", thus giving any interested person the opportunity to apply for a job at DU within a month after the announcement of the competition

It is possible to elect both citizens of the Republic of Latvia and foreign citizens to academic positions within DU, whose academic education and professional qualifications meet the requirements of the science or art sector, study and research work at DU and who are proficient in the national language and professional English.

Elections of docents, leading researchers, lecturers, researchers, assistants and research assistants, by means of open voting, take place in the Councils of faculties or Scientific Councils of scientific institutes no later than within three months from the date of the announcement of the competition. When electing docents and leading researchers, the qualifications of members of the Scientific Council of the City Council or scientific institute must meet the requirements of the Doctoral Council. The results of the elections of associate professors and leading researchers are confirmed at the DU Senate meeting.

Elections of professors and associate professors, by means of open voting, take place in the council of professors of the relevant branch of science.

Full-time or elected lecturers have an employment contract for six years and their workload includes a wider range of responsibilities than the visiting/guest lecturers. Visiting/guest lecturers are invited to implement a specific study course, the company contract is concluded with them for one study year or study semester. Visiting/guest lecturers mostly have additional qualifications or practical experience in the field of activity related to the study course to be implemented.

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.

DU has developed internal regulatory acts and mechanisms that regulate the qualification and quality of work of academic staff:

- Regulations on elections in academic positions at Daugavpils University (available in Latvian: https://ieej.lv/9hTri)
- The procedure for evaluating the effectiveness of scientific work of the academic staff of Daugavpils University (available in Latvian at the DU intranet: https://ieej.lv/o1KYM).

The rector of DU approves the job descriptions of teaching staff, which determine the requirements of academic, research, organizational work and the education, knowledge and skills necessary to perform the duties of the respective position.

For the selection of teaching staff to be involved in study programs, the compliance of the teaching staff's qualifications with the requirements set by the regulatory acts, as well as the knowledge of

the national language and foreign languages, is assessed.

The following basic criteria have been put forward in the evaluation system of teaching staff:

- Excellence – sustainable and continuous development, ensuring process and resource management;
- The ability to effectively use academic freedom – freely choosing directions and methods of academic activity, creating and publicizing new knowledge, openly discussing its content, looking for opportunities to implement it in practice;
- Academic culture – collegial approach, based on the principles of academic ethics, cooperation with students and other teaching staff formed in an atmosphere of mutual respect, high expectations, interest and support;
- Responsibility for one's work before society and the state, in accordance with DU's quality management system and quality culture.
-

The qualifications of the academic staff meet the requirements of the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia, as all lecturers have master's or doctorate degrees. Teaching study courses is permissible for teaching staff with a master's degree – both elected and visiting/guest lecturers.

In accordance with the Cabinet of Ministers *[Ministru kabinets]* Regulations No. 569 "Regulations on the necessary education and professional qualifications for pedagogues and procedures for improving the professional competence of pedagogues, professional development", professional qualification improvement may include international mobility appropriate for the purposes of professional development, participation in projects and participation in conferences and seminars, which is confirmed by issued documents.

DU academic staff actively use the opportunities offered by the "ERASMUS+" program to improve their professional skills – within the framework of the program, DU lecturers regularly visit foreign cooperation universities or participate in staff training, improving their professional competences, ensuring participation in studies, work observation at a foreign cooperation university or industry organization.

3 table. Support for the development of professional competence at DU

Teaching staff (faculty) activities	**Motivation**
Lecturers are given the opportunity to supplement and expand their knowledge and professionalism within the framework of ERASMUS+ and other mobility programs.	Gains foreign experience by doing internships and conducting lectures in foreign universities/organizations.
Participation in conferences, development of scientific publications, work in projects, organization of science communication activities, *etc.*	For the scientific performance of the previous period, the lecturers are granted funding for the scientific activities of the next period.
Preparation and publication of scientific articles included in editions and publications indexed in *Web of Science* and *SCOPUS*.	Lecturers receive compensation for expenses related to the preparation and publication of scientific articles.
Increasing the Hirsch index.	The academic staff of DU receives compensation for the citation characterizing Hirsch index in SCOPUS and/or Web of Science databases.

Payment of expenses for scientific business trips	DU pays for business trips related to participation in scientific events and conducting scientific research.
The Section of Information and Communication Technologies of DU and the Study Quality Assessment Centre organize professional development courses.	Lecturers improve their knowledge of foreign languages, learn current teaching methods and participate in e-resource usage training.

The opportunities offered to improve the qualifications of teaching staff significantly affect the quality of studies. With the support tools of professional development and scientific activities, newly acquired knowledge and experience are transferred to the content of study courses, current topics of scientific works are offered to students.

While improving the skills to work remotely, lecturers of the field of study regularly participate in trainings, for example, to ensure the full use of the possibilities of the e-study environment Moodle. Within the framework of the ESF project "Reducing the fragmentation of study programs and strengthening the sharing of resources at Daugavpils University" No. 8.2.1.0/18/A/019, seminars were organized for the development and integration of study course support materials necessary for lecturers into the study process.

Feedback on the relevance of the content of the study course is obtained from student surveys. In the free-form answers, the students express their opinion about the competence of the lecturers and the topicality of the topics covered in the content of the study courses. In addition, students are involved in the organization and provision of science transfer activities (Scientists' Night, Science Festival, Science School, etc. events).

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.

28 teaching staff are involved in the implementation of the study programs of the study direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science", of them 2 professors, 7 associate professors, 4 assistant professors, 12 lecturers and 3 assistants. 20 lecturers are elected to DU, employment contracts have been concluded with 3 lecturers for the performance of academic work until the results of the election contest are announced and five are guest lecturers. 13 lecturers (46.4%) have a doctoral degree:

The knowledge of the national language of the academic staff employed in the implementation of the study direction complies with the regulations on the amount of knowledge of the national language and the procedure for testing the knowledge of the national language for the performance of professional and official duties.

The workload of lecturers is determined in accordance with the "Regulations for recording the workload of academic staff at Daugavpils University" (available from the DU internal network) and is calculated taking into account the amount of study work of lecturers in the academic year, applying the workload factor:

Working load = S x N/40

S – volume of the lecturer's study work (work dedicated to the study process and its provision), N - load factor, 40 - the number of hours of the working week.

If the lecturer's study work is more than 1000 hours in the academic year, then overtime is calculated only for the study work, for which the company contract for the performance of the academic work is concluded, in accordance with the procedures specified in the legislation.

The amount of research work of teaching staff is not included in the "Accounting procedure for the amount of work of academic staff at Daugavpils University" and is financed from DU budget funds for specific scientific activities (mentioned in point 2.3.1). The number of academic positions and the stability of persons, equal distribution of workloads, the involvement of industry professionals in the study process is encouraged in order to ensure the high-quality implementation of professional programs. The recruitment of lecturers with doctoral degrees is being intensified in order to implement high-quality study programs in accordance with regulatory enactments.

The results of the academic staff's scientific activity are collected once a year, in accordance with the "Procedure for evaluating the effectiveness of the scientific work of the academic staff of DU". Based on the evaluation of the effectiveness of the scientific work, the Science Department can make a decision to recommend to the DU Science Council and the Senate to evaluate the scientific activity of the structural units of the DU and/or the amount and relevance of academic staff remuneration to the position held.

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.).

DU students are supported in matters related to the organization of the study process by the Student Service Centre, faculty deans' offices and profiling departments (dean, vice-dean, department head, study program director, accounting secretary). Within each study course, as well as in the development of studies, qualifications, bachelor's and master's theses, students have the opportunity to receive individual advice from lecturers.

Students studying with the funds of natural or legal entities can apply for tuition fee discounts. Discounts are granted to those students who, after receiving a bachelor's diploma, continue their studies in a master's degree, who have excellent and excellent results, who have shown high achievements in Olympic sports, as confirmed by the recommendations of the Coaches Council, as well as according to other criteria.

The Social Support Program of the Student Council (SP) operates at DU. According to the "Regulations of the Daugavpils University Student Social Support Program" (available in Latvian: https://du.lv/studentu-padome/dokumenti/), the successful full-time undergraduate and master's degree students of DU, who live in DU service hotels (dormitories) and who need social support, have the opportunity to receive a discount on service hotel (dormitory) rent in the amount of 50%.

DU's infrastructure has been modernized and adapted, improving the accessibility of the environment for persons with functional impairments (movement, vision, hearing impairments), and nursery rooms have been created for young parents who are studying – for changing and feeding babies, and a playroom - for keeping student children occupied during classes

(https://du.lv/en/about-us/environmental-accessibility/).

In 2016, the Association of Disabled Persons of Latvia and their friends "APEIRONS" awarded Daugavpils University with an award in the nomination "Education for all" with the justification "that Daugavpils University as a university has done the most in ensuring environmental accessibility. DU became accessible to people with special needs – students have ideal conditions to fully attend classes". DU has modernized facilities and buildings not only for people with mobility problems, but also for people with visual impairments, which is especially noted by the evaluators of the environmental accessibility competition, stating that "buildings are easy to navigate and move around for everyone" (available in Latvian: https://www.la.lv/ne-tikai-ieklut-eka-bet-ari-parvietoties-invalidu-apvieniba-apbalvo-labakos-vides-pieejamibas-veicinatajus).

Students can use various DU rooms and facilities: the computer room, auditorium for consultations, meetings, library rooms for literature analysis, preparation of independent and research papers, as well as specially equipped rooms for holding conferences, study and extracurricular activities (DU Sports Complex).

Lecturers and students can receive medical support at the Certified Health Office, where first aid in case of various illnesses is provided by a physician's assistant (paramedic).

In the 2022/2023 study year, a Psychological Support Centre (PSC) was established at DU (available in Latvian: https://ieej.lv/KddNN), in which DU students and employees have the opportunity to receive free psychological support in solving various daily problems in personal, work or educational matters. PSC psychologists provide up to three free consultations per person. If necessary, the number of consultations can be increased. Counselling is organized in the premises of DU in person or remotely (online format) after prior coordination of the counselling time. PSC psychologists do not advise/counsel close colleagues and students they educate to avoid multiple relationships. PSC operates in accordance with the developed "Regulations of the Psychological Support Centre of Daugavpils University" (available in Latvian: https://du.lv/wp-content/uploads/2023/02/Psihologiska-atbalsta-centra-nolikums.pdf).

Daugavpils University Centre for Lifelong Education (available in Latvian: https://du.lv/studijas/muzizglitiba/muzizglitibas-centrs/) promotes lifelong learning and career development initiatives by acquiring new or supplementing existing knowledge, skills, competences that improve personality, as well as promote professional development.

DU operates the ERASMUS+ student exchange program, within the framework of which foreign students are assigned a responsible person from the corresponding study program/faculty, with which progress will be discussed at least once a month regarding the mobility activity plan and the progress of the mobility process itself. A volunteer "buddy" from the student environment will be assigned to each student in order to integrate him/her more easily into university life. The students meet monthly with the ERASMUS+ project coordinator to guarantee the student's safety and prevent risks that may arise during the semester. The project coordinator informs foreign students about social and non-academic developments at the university, as well as introduces them to the activities of student self-governments. Free Latvian language courses are offered to foreign students.

The Department of International and Public Relations of DU provides support functions for foreign students studying at DU.

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).

The directions of scientific and applied research of the field of study are consistent with the goals of DU and the field of study. According to the collected data, the teaching staff and guest (visiting) lecturers purposefully and regularly engage in various professional development activities in the fields corresponding to their scientific interests, both at DU and also at foreign universities.

The directions of the research work of the academic staff involved in the study programs are oriented towards the successful implementation of the study program and in most cases they are related to the lecturers' specialization within the programs, taught study courses (but not only). Lecturers prepare scientific articles, including in internationally peer-reviewed journals, participate in conferences, training, practice facilities/internships and various scientific events, including developing methodical materials, participating in international and national research projects.

Areas of field-specific scientific research of the field of study: interdisciplinary application of information technology, technology-enriched study environment, statistical processing of data, artificial intelligence, application of computer-controlled metalworking equipment, *etc.*

The research carried out by the academic staff is a significant contribution to the development of the branch they represent, as well as to the development of the study direction, improvement and updating of the study content. The researches cover both theoretical aspects and industry topicalities and novelties, which are used in lecturers' study courses, thus promoting the interaction of the research and study process and significantly improving the quality of the study process.

The level of research in the direction of study to the level of scientific development is confirmed by the level of scientific publications, the expert rights of the teaching staff of the Latvian Science Council.

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.

As part of the study process, the latest developments in the industry are continuously followed – the academic staff participates in projects, the results are used to update the content of the study courses. Lecturers actively participate in the approval and dissemination of research results, speaking at scientific and practical conferences and seminars. The connection of scientific research with the study process is realized by using the information obtained in the scientific events in the management of the study course, study work and final work, as well as in the preparation of teaching aids. The study direction's staff consists of lecturers who regularly cooperate in improving study processes, thus achieving interdisciplinarity in the development of students' knowledge and

skills.

Science communication is of great importance in the process of society's development. Teaching staff of the field of study are involved in this activity, participating in the Daugavpils Science Festival, Scientists' Night, DU Science School events, providing trainings, lectures, interactive events for different age groups, as well as engaging in consulting and evaluating the development of scientific research works. DU is a member of international associations active in the field of science communication (EUSEA).

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.

The competence of the academic staff of DU is improved by participating in the mobility of the European Union support program in the field of education, training, youth and sports within the framework of "ERASMUS+". Cooperation agreements have been signed with more than 90 higher education institutions in 22 countries.

The Erasmus+ program supports teaching – the lecturers of the field of study travel to one of the foreign universities of cooperation or are involved in staff training, improving professional competences, ensuring participation in studies, work observation at a foreign cooperation university or other relevant organization. Learning mobility gives DU lecturers and staff the opportunity to gain knowledge and specific skills by learning from the experience and good practices of foreign partners, as well as to improve the practical skills required for work at DU and professional development, to encourage the academic staff to expand and improve the range and content of the offered study courses, but it also allows students who do not have the opportunity to participate in the mobility program to benefit from the knowledge and experience provided by the academic staff of other European universities and foreign guest lecturers, it promotes the exchange of knowledge and experience of pedagogical methods between European higher education institutions.

During the reporting period, several scientific publications were developed in cooperation with foreign researchers in the direction of studies. For the teaching staff of the field of study (study direction), cooperation has been established with Panevėžys University of Applied Sciences (formerly Panevėžys College) – academic staff have gone on teaching mobility, participated in seminars, students took part in student competitions organized by Panevėžys College. Such activities contribute to the development of study programs.

Further activities for the development of cooperation in scientific research could be: raising the scientific capacity of lecturers in the field of study by more actively engaging in the international environment (international projects, conferences, publications); conclusion of cooperation agreements and implementation of joint projects with foreign educational and scientific research institutions.

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.

The development and improvement of the academic staff at DU is promoted, moving towards a competent staff. The scientific capacity of the teaching staff is confirmed by the number of publications indexed in the "Web of Science" and SCOPUS databases, the number of supervised theses and research, in the implementation of which the lecturers of the study respective direction participate. DU annually evaluates the scientific activity of teaching staff, within the framework of which the results of research work, activity in projects, as well as pedagogical and organizational work are evaluated. As part of the study process, the latest developments in the industry are continuously followed – the academic staff participates in projects, the results are used to update the content of the study courses. Lecturers actively participate in the approval and dissemination of research results, speaking at scientific and practical conferences and seminars. The information obtained in the scientific events is used in the management of study courses and final theses, as well as in the preparation of teaching aids.

The research and creative activity of the academic staff is closely related to the study process, promoting students' understanding of the connection between innovation and the needs of a real organization or market. The programme staff consists of lecturers who regularly cooperate in improving study processes, thus achieving interdisciplinarity in the development of students' knowledge and skills.

The involvement of teaching staff in scientific research is ensured and promoted in accordance with the "Daugavpils University procedure for paying the expenses of preparing scientific publications" (accessible from the DU internal network in Latvian: https://veidlapas.du.lv/kartibas/), in accordance with the "Procedure in which scientific publications and monographs of the academic staff of Daugavpils University are paid for" (accessible from the DU internal network in Latvian: https://ieej.lv/kZtZq), "Daugavpils University procedures for paying the expenses of participation fees for scientific business trips and scientific events" (accessible from the DU internal network in Latvian: https://veidlapas.du.lv/kartibas/), "Procedures of the competition "Daugavpils University research projects"" (available in Latvian: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-ieksejo-petniecibas-projektu-konkurss-2023-gadam/).

Information about academic staff publications, participation in conferences and projects is available in the appendix 2_4_4_Teaching_staff_publications.

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.

Students of the study direction have the opportunity to participate in research projects, present research results at international scientific conferences, including the DU International Scientific

Conference, and publish scientific articles in conference proceedings. Students can apply for a one-time scholarship for achievements in scientific research. When graduating from DU, students are given letters of appreciation for active scientific work.

Every year, DU organizes research project competitions for students with the aim of promoting the research growth of DU students, promoting the practical applicability of scientific results, involving DU students in scientific activities and promoting the increase in the number of publications indexed in the Web of Science and/or SCOPUS databases.

The most actively used form of student involvement in scientific and applied research in the field of study "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" is research within the framework of studies and final theses (qualification theses, bachelor's and master's theses).

The main research directions of the students of the 1st level professional study program "Information Technologies" are the following:

- design, configuration and maintenance of computer networks of small organizations (for example, educational institutions);
- administration of computer equipment, including remote installation, configuration;
- fully or partially automated software installation;
- design and maintenance of small information systems.

The main directions of research for students of the professional bachelor's study program Information Technology are as follows:

- software design, development, testing, software security;
- use of web technologies;
- use of databases;
- development of mobile applications, games;
- application of robotics, microcontroller solutions.

In the period from 2017 to 2022, 22 master's theses have been defended in the respective field (direction) of studies. The topics of master's theses correspond to the fundamental and professional level of preparation of students in the field of Computer Science, as well as reflect the acquisition of students' professional competencies. The topics of defended master's theses are oriented towards solving the following tasks:

- research and development of software products for solving applied tasks;
- designing information systems and their components in the applied thematic area;
- research and development of effective methods of management of organizational informatization projects;
- analysis and modelling of the subject area using modern information technologies.

The topics of master's theses are relevant from the point of view of the current state of informatics and correspond to the specifics of the scientific activity of the department. The implementation of master's theses includes the use of elements of scientific research, strict justification of decisions, comparative analysis of alternative solutions and discussion of the obtained results.

The topics of study papers, qualifications, bachelor's and master's theses are coordinated with the supervisors and approved at the meeting of the Department of Informatics, evaluating the topicality of the proposed topics and their relevance to the study program. At the end of the last study semester, the defense of the final theses is organized, in which the quality of the practical research carried out during the development of the work and the compliance of the work with the requirements are evaluated, as well as the admission to the defense of the work is decided.

While developing study and final theses, students carry out diverse research activities in the fields of information technology and computer science; students can use the auditoriums and equipment of the Department of Informatics to conduct research. The results are reported during the State Examination period.

For students of short-cycle study programs and professional bachelor's study programs, involvement in scientific work is not mandatory, but recommended, especially for those students who plan to continue their education in higher level studies.

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.

In the implementation of the study process, DU provides a wide knowledge base, support for research and innovation, support for the development of students' personality, as well as support for students' employment. Various forms of innovation are applied in the field of study "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science" and within the DU as a whole.

Product innovation. For students' involvement in research, study work, final work and independent work, the following can be used: Labs of electronics, Cisco, CAD/CAM/CAE/PLM, laser technology and metalworking, Production controllers, LEGO robotics, Operating systems and Mikrotik laboratories with specialized software. This laboratory equipment is used in the implementation of study courses, research is carried out here and the introduction of innovations in the study process is ensured. These are modern laboratories, the purpose of which is to promote students' competitiveness and ability to use new technologies and sources of information. The laboratories contribute to updating the content of study programs, increasing the quality of research works by introducing innovative technological, methodological and IT solutions.

Process innovations. In the last three years, the organization of e-learning has been developed very rapidly, using Zoom to conduct online classes; video lectures are recorded; Descriptions of study courses are available on the DU e-studies website (MOODLE), necessary study materials, links to certain information for learning the study course, colloquiums and exams. Teachers have the opportunity to create a book of student evaluations and students (individually) can keep track of what they have done in the study course. The administration of the DU e-studies website is well organized, the administrator's advice is available (in person, online or by correspondence), the DU e-studies website provides instructions and advice on issues related to the use of e-studies (https://ieej.lv/16xcp, see in Latvian appendix 2_4_6.).

Marketing innovations. DU uses certain marketing tools (Open Door Days online, Night of Scientists online, defending students' scientific research works online, information about DU on social networks, *etc.*), in order to promote the interest of future students in the study programs included in the study direction "Information technologies, computer engineering, electronics, telecommunications, computer management and computer science". In 2022, the DU website was significantly renewed and improved.

Organizational innovations. DU uses several digitized systems: DUIS (allows system users to digitize many study organization processes and document processing: notices, orders, study

contracts, their amendments, preparation of diplomas, entry of grades, compilation of statistical data), Namejs (a document management system that ensures the management of correspondence, orders, contracts, statements, procurement documents, for the efficiency of the document circulation process), HoP (employee self-service portal, which provides the employee with the opportunity to view information about him/herself, the absences of the colleagues, apply for leave, check the accumulated vacation days, *etc.*).

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 various Latvian institutions is carried out within the framework of the study direction in order to promote the achievement of the objectives of the study direction and study results. The lecturers of the Department of Informatics of DU have established a good cooperation with the lecturers of Ventspils University *[Ventspils Augstskola]* of Technology in the field of information technology. Cooperation takes place both by participating in joint EU co-financed projects and by participating in conferences organized by both universities (DU and Ventspils).

The lecturers involved in the course of study also teach at other Latvian universities and participate in the scientific activities organized by them (University of Latvia *[Latvijas Universitāte]*, Ventspils University *[Ventspils Augstskola]*, Riga Technical College *[Rīgas Tehniskā koledža]*, Riga International School of Economics and Business Administration (RISEBA)). Several teachers of the direction carry out pedagogical activities in Daugavpils schools (Daugavpils 15th high school, Daugavpils Science High School, Daugavpils 3rd high school, Daugavpils Opportunities High School), which is a real opportunity to work with potential students of the direction.

Cooperation with Latvian higher education institutions contributes to the achievement of the scientific goals of the field of study, cooperation with employers contributes to the development of students' professional skills.

Cooperation partners of DU in Latvia are selected according to the following criteria:

- in the higher education institution (HEI) similar study programs are implemented within the direction (1st level information technology, professional bachelor's information technology, computer science master's study programs);
- HEI lecturers have common scientific interests and research projects (writing scientific publications);
- the possibility of organizing students' participation in joint events (for example, competitions);
- implementation of the study process with the support of industry specialists – industry specialists are invited as visiting/guest lecturers in the provision of study courses, in

final/state examination commissions, in the organization of practice in professional programs.

Cooperation partners of employers are selected based on the specifics of the field of study programs – IT companies and companies/institutions that actively use IT services.

Cooperation with employers is realized in such forms as:

- periodic targeted survey of employers;
- joint participation in projects;
- informal interviews, meetings, discussions;
- conversations with students and graduates about their competence, employment and career development problems;
- participation of employers in the implementation of study courses;
- Department staff often play an intermediary role, helping employers to choose suitable employees from among students and graduates, and interested students to find a job.

Employer attraction mechanism

Ways of cooperation are discussed during personal meetings with employer representatives. If the type of cooperation is the implementation of professional practice in the company, then a contract on practice is concluded. If representatives of employers are involved in the provision of study programs (teaching study courses, final examination committees), DU concludes company/entrepreneurship contracts with them for the performance of academic work.

Information on the signed cooperation agreements is available in the appendix 2_5_1_cooperation_agreements.

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.

Foreign cooperation partners of the field of study are mostly selected within the Erasmus+ program of DU.

The lecturers of the course actively use the Erasmus+ program and have gone to ten different foreign universities to exchange experience. During the visits, classes were held, and future opportunities for cooperation in the research field were discussed. Cooperation has been established for several years with Panevezys University of Applied Sciences, Vilnius University, Šiauliai Academy, Zhetisu University in Kazakhstan (teaching visits, participation in seminars, participation of students in competitions, joint publications of teaching staff, implementation of joint projects).

International cooperation activities affect the achievement of the study results of the field of study and the improvement of quality, because the cooperation partners involved in it and the lecturers of Daugavpils University exchange experience, they share knowledge and contribute to the development of the field of study and improvement of scientific potential.

Foreign cooperation partners are selected according to the following criteria:

- Universities implement similar study programs in the field of information technology, computer science;
- Lecturers have common scientific interests and research projects (development of scientific research publications).

The following mechanisms are used to attract foreign cooperation partners:

At the beginning of the year, the DU Erasmus+ coordinator sends an Erasmus+ information letter to all partners about how foreign students and teaching staff can apply for studies, practice places, internships, teaching or professional development. The DU Erasmus+ coordinator visits the international Staff Week several times a year, where there is an opportunity to establish new contacts and conclude inter-university agreements on the exchange of students and teaching staff within the Erasmus+ program.

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.

DU actively uses the Erasmus+ program to attract foreign teaching staff and students. In order to attract foreign students, DU provides information about its offer on the website https://du.lv/en/studies/admission/. DU also implements marketing activities: contracts are concluded with recruitment agents, participation in international education fairs and agent forums, *etc.*

During the reporting period, the outgoing mobility of lecturers and employees took place both for professional development and for teaching at cooperation partner universities. Teaching activities were carried out in Lithuania at Panevezys University of Applied Sciences (formerly Panevezys College), Klaipėda University and Šiauliai University (now Vilnius University Šiauliai Academy), in Kazakhstan at the Zhetysu University named after I. Zhansugurov, in Portugal at the Miguel Torga Institute (Instituto Superior Miguel Torga) in Coimbra, in Poland at the University of War Studies. The professional development activities of employees and lecturers were carried out in Spain at the University of Murcia, in Lithuania at Vytautas Magnus University and in Kazimierz Simonavičius University, as well as Gebze Technical University in Turkey (Appendix 2_5_3_Statistical_data_mobility_teaching_staff).

In 2022, 4 lecturers from Panevezys University of Applied Sciences came within the teaching mobility.

Employees and lecturers of the Department of Informatics of DU also participate in the implementation of various projects financed by EU funds in cooperation with foreign partners. For example, in the period from 2017 to 2019, several lecturers and employees participated in the implementation of the cross-border cooperation project CONUS ("Cooperation network for the development of labour mobility and 21st century (engineering) modernized skills" Project No.: LLI-075) in cooperation with Šiauliai University.

During the reporting period, within the framework of the ERASMUS+ project, three foreign students

(from Turkey and Tajikistan) studied in study direction programs and two Lithuanian students came for internship mobility. Students of the professional bachelor's study program "Information Technologies" used the opportunities of outgoing mobility – six students were in Lithuania for study and practice mobility, one student was in Germany for practice mobility. (appendix 2_5_3_Statistical_data_mobility_students)

Positive dynamics of ERASMUS+ mobility can be observed during the reporting period. It can be predicted that this trend will continue in the next reporting period as well. Students and teaching staff are increasingly motivated to gain international experience abroad. The biggest difficulties that DU faces in the implementation of the mobility of teaching staff are the difficulties of rescheduling lecturers' classes during business trips due to the heavy workload. The difficulty in attracting foreign lecturers is the provision of competitive remuneration.

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.

The report of the previous accreditation expert commission was prepared on 25.03.2012 for three major programs: academic bachelor's study program Computer Science (*currently **not** submitted for evaluation*), professional bachelor's study program Information Technologies (*currently **is** submitted for evaluation*), academic master's study program Computer Science (*currently **is** submitted for evaluation*). DU received the assessment and recommendations of the expert commission.

At the time of preparation of expert recommendations, DU implemented two bachelor's level programs - ABSP Computer Science and PBSP Information Technologies. Experts noted that for undergraduate programs

* does not see a different positioning,

* there is a large student dropout rate.

DU stopped enrolling students in the ABSP Computer Science program starting with the 2015/2016 academic year, thus also not dividing the total number of students enrolled at the bachelor's level between two programs. The dropout rate of students in the bachelor's program is still considerable, and the largest dropout rate is in the 1st year of study. One of the mechanisms that is planned to be introduced is the offer of mentors to the students of the first year of study - helping students of the 3rd-4th year of study to get used to the study process, the study organization.

According to the 2020 data of the Organization for Economic Co-operation and Development (OECD), the average dropout rate of university students is 32%. Among OECD countries, the United Kingdom and Switzerland stand out with low early school leaving rates of less than 20%. In Brazil, Italy, the university dropout rate is around 50%. In the case of Spain, a total of 28% of the dropout rate is recorded (OECD, 2022).

The experts' report also drew attention to insufficient use of the opportunities of the ERASMUS+ program. DU has received the Erasmus Higher Education Charter for 2021-2027, which provides the opportunity to participate in all Erasmus+ activities. Agreements have been concluded with 20 foreign universities on the implementation of mobility in IT programs. Every year, Erasmus+ coordinators and directors of major study programs inform students about opportunities for study and practice mobility. The number of students of major study programs who participate in mobility activities has increased.

DU organized English language skills improvement courses (ESF project), in which several lecturers of the field of study participated. Improving language skills also promotes engagement in mobility. During the reporting period, the number of teaching staff who went on teaching or professional development mobility increased.

The accreditation expert commission also noted that DU has good traditions in computer science and informatics. Qualified scientists, lecturers and professional specialists are involved in the implementation of study programs. The study process is organized in a good and professional way. DU uses the best practices of other Latvian universities in the study process. Experts believe that study programs are very important for the development of the Latgale region.

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).
(Not applicable)

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	1.2_List of the main internal laws and regulations.pdf	1.2_Ieksejo normativo aktu un regulejumu saraksts.pdf
The management structure of the higher education institution/ college	I_1.2_Governance structure.pdf	I_1.2_Parvaldibas struktura.pdf
II - Description of the Study Field - 2.1. Management of the Study Field		
Plan for the development of the study field (if applicable)	2_1_2_Study_direction_development_plan_EN.docx	2_1_2_Studiju_virziena_attistibas_plans.docx
The management structure of the study field	2_1_3_Schematic_structure_of_study_direction_management.docx	2_1_3_Studiju_virziena_parvaldibas_struktura.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.	2_1_4_Agreements_Taking over students.zip	2_1_4_Līgumi_studentu_parnemsana.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.	2.1.4.CONFIRMATION_Compensation guarantee for students.docx	Apliecinājums par zaudējumu kompensāciju.edoc
Standard sample of study agreement	2_1_4_Agreement_on_studies.docx	2_1_4_Studiju_līguma_paraugs.docx
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	2_2_4_Survey analysis.zip	2_2_4_Aptauju analīze.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	2_3_7_Teaching_staff.xlsx	2_3_7_Virziena_macibspeki.xlsx
Biographies of the teaching staff members (Curriculum Vitae in Europass format)	2_3_7_CV_EN.zip	2_3_7_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.	2.3.7.STATEMENT_native language.docx	Apliecinājums par valsts valodas prasmi.edoc
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)		
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.	2_4_4_Quantitative_data_teaching_staff.docx	2_4_4_Kvantitativie_dati_macibspeki.docx
List of the publications, patents, and artistic creations of the teaching staff over the reporting period.	2_4_4_Teaching_staff_publications.docx	2_4_4_Macibspeku_publikacijas.docx
II - Description of the Study Field - 2.5. Cooperation and Internationalisation		
List of cooperation agreements, including the agreements for providing internship	2_5_1_Cooperation_agreements.docx	2_5_1_Sadarbibas_ligumi.docx
Statistical data on the teaching staff and the students from abroad	II_2_5_3_Foreign_students_teaching_staff.xlsx	II_2_5_3_Arvalstu_studejosie_macibspeki.xlsx
Statistical data on the incoming and outgoing mobility of students (by specifying the study programmes)	2_5_3_Statistical_data_mobility_students.xlsx	2_5_3_Statistikas_dati_mobilitate_studejosie.xlsx
Statistical data on the incoming and outgoing mobility of the teaching staff	2_5_3_Statistical_data_mobility_teacing_staff.xlsx	2_5_3_Statistikas_dati_mobilitate_macibspeki.xlsx
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.	2_6_1_Implementation_of_recommendations.docx	2_6_1_Rekomendaciju_izpildes_parskats.docx
An application for the evaluation of the study field signed with a secure electronic signature	APPLICATION for the evaluation_EN.docx	Precizēts iesniegums par SV_Informācijas tehnoloģijas_novērtēšanu.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		
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		
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		
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)		
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)		

Other annexes

Name of document	Document
Studiju iekšējās kvalitātes nodrošināšanas politika	I_1.3_DU-STUDIJU-IEKŠĒJĀS-KVALITĀTES-NODROŠINĀŠANAS-POLITIKA.pdf
Internal Quality Assurance Policy of Studies	I_1.3_INTERNAL QUALITY ASSURANCE POLICY OF STUDIES AT DAUGAVPILS UNIVERSITY.pdf
Studiju iekšējās kvalitātes sistēmas efektivitātes nodrošināšanas kārtība	I_1.3_DU-STUDIJU-IEKŠĒJĀS-KVALITĀTES-SISTĒMAS-EFEKTIVITĀTES-NODROŠINĀŠANAS-KĀRTĪBA.pdf
Studiju kvalitātes politikas un studiju kvalitātes pārraudzības stratēģija	I_1.3_DU-STUDIJU-KVALITĀTES-POLITIKAS-UN-STUDIJU-KVALITĀTES-PĀRRAUDZĪBAS-STRATĒĢIJA.pdf
DU normatīvie akti iekšējās kvalitātes nodrošināšanai	I_1.3_Normativie akti ieksejas kvalitates nodrosinasanai.pdf
Daugavpils University normative acts for internal quality assurance	I_1.3_List of Regulations for internal quality assurance.pdf
Zinātniskās efektvitātes vērtēšanas kārtība	1_4_Zinatniskas_efektvitates_vertesanas_kartiba.pdf
Procedure of assessing the scientific activity	1_4_Procedure of assessing the scientific activity.docx
E-studiju vides kursu satura izveides rokasgrāmata	2_4_6_E-studiju_vides_kursu_satura_izveides_rokasgramata.pdf
Par studiju kursu tulkojumu neiesniegšanu termiņā	Par studiju kursu tulkojumu neiesniegšanu termiņā.edoc
Pielikumi papildinformācijas pieprasījumam no koordinatora	Pielikumi papildinformācijas pieprasījumam no koordinatora.zip
Pieprasījumi pēc papildinformācijas DU IT_DU atbildes	Pieprasījumi pēc papildinformācijas DU IT_DU atbildes.docx
3_2_1_Study_course_descriptions_ AMSP_Cs(MA Datorzinātnes)	3_2_1_Study_course_descriptions_ AMSP_CS.zip
Experts Requested documents before the visit	Pieprasītie pielikumi.zip
Expert request Documents mentioned in SAR but unavailable	Expert request Documents mentioned in SAR but unavailable.docx
īsā cikla studiju kursu apraksti angļu valodā	3_2_1_Study course descriptions_1sLevPSP_IT_EN.zip
Appendix for evaluation_1-2_evaluation points.pdf	Appendix for evaluation_1-2_evaluation points.pdf
DU_Kvalitātes vadības rokasgrāmata.pdf	DU_Kvalitātes vadības rokasgrāmata.pdf
DU_strategija_labojumiem_IZM.pdf	DU_strategija_labojumiem_IZM.pdf
PROCEDURE FOR EVALUATION OF SCIENTIFIC WORK EFFECTIVENESS OF DU ACADEMIC STAFF_EN.pdf	PROCEDURE FOR EVALUATION OF SCIENTIFIC WORK EFFECTIVENESS OF DU ACADEMIC STAFF_EN.pdf
PROCEDURE FOR REIMBURSEMENT OF SCIENTIFIC PUBLICATIONS AND MONOGRAPHS OF DU ACADEMIC STAFF_EN.pdf	PROCEDURE FOR REIMBURSEMENT OF SCIENTIFIC PUBLICATIONS AND MONOGRAPHS OF DU ACADEMIC STAFF_EN.pdf
PBSP Informācijas tehnoloģijas studiju kursu apraksti angļu valodā	3_2_1_Study course descriptions_EN_last.zip

Information Technologies (42484)

Study field	*Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science*
ProcedureStudyProgram.Name	*Information Technologies*
Education classification code	*42484*
Type of the study programme	*First cycle (professional bachelor's) study programme*
Name of the study programme director	*Ieva*
Surname of the study programme director	*Boļakova*
E-mail of the study programme director	*ieva.bolakova@du.lv*
Title of the study programme director	*Mg.paed., lektore*
Phone of the study programme director	*+371 29569653*
Goal of the study programme	*Aim of the programme is to provide professional studies that meet the needs of the Latvian state, which are based on the theoretical foundations of IT industry sciences, meet the standard of the programming engineer profession and are practically applicable.*
Tasks of the study programme	*1. providing an opportunity to obtain the professional qualification "Programming engineer" and a bachelor's degree in information technology;* *2. promoting the competitiveness of programming engineer professional qualification specialists in changing socio-economic conditions and the international labour market;* *3. implementing in-depth knowledge acquisition of the information technology sector, which provides the opportunity to develop new or improve existing software and technologies, as well as preparing the students for creative, research and teaching work in the IT sector;* *4. creating motivation for further education and providing opportunities to prepare for obtaining a higher level of education.*

Results of the study programme	*Knowledge:* *1. Students are able to demonstrate the basic and specialized knowledge characteristic of the information technology industry and the programming engineer profession, as well as understanding the most important concepts and regularities;* *2. They demonstrate application knowledge of common theories, modules, and methods that provide a modern foundation for problem identification and analysis, design, development, implementation, certification, and software documentation;* *Skills:* *3. Students are able to organize their independent work, formulate and analytically describe the obtained information, problems and solutions in the profession of a programming engineer;* *4. Students are able to explain and reasonably discuss proposed solutions to problems both with specialists and non-specialists, working in a team or managing other people's work;* *5. They are able to learn new models, methods and technologies, and also understand the need for continuous professional development;* *Competencies:* *6. Students are able to apply the acquired knowledge and professional skills in the field of software engineering;* *7. They are able to independently acquire, critically evaluate, analyze and select information and use it, make decisions and solve problems, working individually or in collaboration with other professionals in a multi-professional team.*
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	*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 Information Technologies*
Qualification to be obtained (in english)	*Programming engineer*

Places of implementation

Place name	City	Address
Daugavpils University	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

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, the descriptions of study courses in the professional bachelor's study program (PBSP) "Information technologies" were updated, keeping up with the news and topicalities in the relevant branches of science. Changes were made in the provision of lecturers for individual study courses. The stream lecture study course "Practical English" was replaced by the course "English for Information Technologies".

Planned changes within the course of study evaluation procedure:

1. study course "Philosophy" (2 credit points (CP), section "General educational courses", 3rdsemester) shall be replaced with the course "French Language for Information Technology" (2 CP, section "General educational courses", 3rd semester), introducing a second foreign language study course in the program in accordance with the standard requirements of the "Programming engineer" profession;
2. denomination of the study course "Declarative programming" (2 CP, section "Industry professional specialization courses", 8thsemester) shall be replaced with the name "Logic programming" and semester shall be altered (2 CP, section "Industry professional specialization courses", 7th semester). The title of the "Logic Programming" course more accurately reflects the content of the course;
3. study courses "Statistical analysis of data I" (2 CP, section "Basic theoretical courses of the industry and information technology courses", 7thsemester) and "Statistical analysis of data II" (2 CP, 8th semester) shall be unified in the course "Statistical analysis of data" (4 CP, 8th semester). There is no longer any need to divide the course into parts, in a combined course it is easier to formulate the students' independent work tasks, the learning efficiency will increase.
4. In cooperation with the University of Latvia, two courses are offered to students of the bachelor's program in the section of free choice courses: Introduction course in artificial intelligence (2CP), Creation of machine learning models using Python (2CP);
5. According to the Amendments to the Law on Universities (15.09.2022), all study courses with an odd CP amount have been restructured to an even CP amount.

As part of the study direction evaluation procedure, the PBSP Information Technology education classification code is clarified - the qualification "Programming engineer" to be obtained corresponds to the group of educational programs "Programming":

Code before changes	Code after changes
42483	42484

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.

Name, degree to be obtained, purpose and tasks of the professional bachelor's study program "Information technologies", as well as admission requirements are interrelated and correspond to the field of study "Information technology, computer engineering, electronics, telecommunications, computer management and computer science".

PBSP "Information Technologies" in the form of full-time studies is implemented as face-to-face (in-class) learning process, in 4 study years (160 credit points (CP)/240 ECTS), implementing the study course in 8 semesters (20 CP/30 ECTS in each semester); at the end of each semester, students' knowledge, skills and competence are tested during the session exam period. In the course of learning the study program, students must obtain the required number of credit points, and at the end, develop and defend a bachelor's thesis in the field of information technology.

PBSP "Information technologies" is a first cycle professional higher education program, which results in a bachelor's degree being given in information technology and the qualification of programming engineer (6th professional qualification level).

The Republic of Latvia (LR) education classification code of the study program "Information technologies" is 42484, it corresponds to the June 13, 2017 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 322 "Regulations on Latvian education classification" for the professional higher education of the first cycle, the level of the 6th introductory structure of Latvian qualifications, the thematic group of education "Natural sciences, mathematics and information technologies", the field of computer science and the group of educational programs "Programming".

The content of PBSP "Information technology" and the knowledge acquired during its learning, the skills of independent study work and scientific research work allow the students to continue their studies in the DU master's study program "Computer Science" or other relevant master's study programs.

Aim of the programme is to provide professional studies that meet the needs of the Latvian state economy, which are based on the theoretical foundations of IT industry sciences, meet the standard of the programming engineer profession and are practically applicable.

Key tasks of the programme are as follows:

1. providing an opportunity to obtain the professional qualification "Programming engineer" and a bachelor's degree in information technology;
2. promoting the competitiveness of programming engineer professional qualification specialists in changing socio-economic conditions and the international labour market;
3. implementing in-depth knowledge acquisition of the information technology sector, which provides the opportunity to develop new or improve existing software and technologies, as well as preparing the students for creative, research and teaching work in the IT sector;
4. ensure that the graduates of the study program are able to responsibly and safely choose and use information technologies for the performance of work duties, research and lifelong

learning, as well as for the acquisition, creation and sharing of digital content;
5. creating motivation for further education and providing opportunities to prepare for obtaining a higher level of education.

The aim and tasks of the PBSP "Information technologies" conforms to the June 21, 2023 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 305 "Regulations on the state standard of professional higher education" (available in Latvian: https://ieej.lv/FxNDf).

Admission regulations at Daugavpils University (DU) issued in accordance with Law on Higher Education Institutions *[Augstskolu likums]*, the October 10, 2006 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 846 "Rules on requirements, criteria and procedures for admission to study programs" and the constitution of DU. The following persons have the right to study at Daugavpils University: citizens of the Republic of Latvia and persons who have a non-citizen passport issued by the Republic of Latvia, as well as persons who have been issued permanent residence permits in Latvia. For foreigners who have not been issued a permanent residence permit, the right to study at DU is determined by Article 83 of the Law on Higher Education Institutions *[Augstskolu likums]* and DU Admission Rules for full-time studies for foreigners.

Daugavpils University (DU) organizes full-time studies of the PBSP "Information Technologies" at the expense of the state budget, but above the intended state order – for funds contributed by the applicants themselves or other legal or physical (natural) persons.

The admission process is additionally regulated and the following components of the Rules are approved by the decision of the DU Senate before its commencement: admission requirements and criteria, admission procedure for the academic year, registration fee, study fee, number of study places for admission.

In the professional bachelor study program (PBSP) "Information technologies", reflectants are matriculated according to the results of the competition, which consists of the following: Central examination (CE) evaluations in Latvian, first foreign language, mathematics, average value of all CE evaluations. Additional points are awarded for the exam/credit in attested informatics/applied informatics, as well as to the winners of the DU "Science School" certificate. Additional 5 points in any undergraduate study program are awarded to DU "School of Science" certificate winners.

Outside the competition for full-time studies on budget financing, if the admission requirements for the relevant study program have been met, the following students are matriculated: Participants of the youth and junior competitions of the Olympic Games, World and European championships, and Latvian championships (in the last five years) 1st – 3rd place winners in the adult group (only in Olympic sports), if a DU certificate has been received, 1st to 3rd place laureates of students' scientific and creative work competitions in the group of high school classes, refer to: (available in Latvian: https://du.lv/gribu-studet/uznemsana/).

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

Based on the data of the Official Statistics Portal (available in Latvina: https://stat.gov.lv/lv), the number of vacancies in the field of information and communication services remains stable both in the public and private sectors. In the last six years, the demand for specialists in this field has also been increasing.

Every year, representatives from various IT companies, schools, as well as companies and institutions that use IT services, seek employees (programmers, testers, administrators, IT teachers, *etc.*) and contact the Department of Informatics of Daugavpils University (DU). Employers are mostly accommodating and forthcoming, offering flexible work schedules so that students can combine their studies and employment. After graduation, many students continue to work in these companies. In order to gradually introduce potential employers to future employees, employers are involved in the training process (employers provide internships/practice places and participate in final exams) and in evaluating the quality of the study program.

Students of the PBSP "Information Technologies" are mostly from Daugavpils city, Daugavpils county and other counties of the Latgale region. This means that the implementation of the programme is very important from the point of view of national and regional development interests, because it ensures the development of local human resources and the training of qualified specialists for state and local government and educational institutions, as well as for the private sector. DU PBSP "Information Technologies" also has students from Jekabpils, Riga, Aizkraukle and other regions of Latvia, which indicates the popularity of the program also outside the planning region of Latgale.

The survey of program graduates was organized in the 2021/2022 academic year. 18 PBSP Information Technology graduates responded to the invitation to participate in the survey. The study found that 90% of respondents work in a job corresponding to the education they received or in a related industry. 65% believe that the acquired education contributes to professional growth, 60% of the graduates answered agreeing to the statement "The acquired education played a significant role in finding a job".

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 number of students in the "Information Technologies" study program has increased compared to the previous reporting period (referring to the data on the matriculated and total number of students in the 1st study year at the DU). However, analyzing the dynamics of the number of students during the reporting period, a decrease in the number can be observed. Based on student statistical data, 125 students studied in the program in the 2017/2018 academic year, including 61 students enrolled in the 1st academic year; in the 2018/2019 academic year, there were 83 students, 29 students were matriculated; in the 2019/2020 academic year, there were 97 students, 47 matriculated; in the 2020/2021 academic year, there were 75 students, matriculated – 36; in the 2021/2022 academic year, there were 67 students, 30 matriculated; whereas in the 2022/2023 academic year, 76 students, 32 students matriculated.

The number of students at DU PBSP "Information Technology" during the reference period is influenced by external factors:

1. the country's demographic situation (the large drop in the birth rate in the nineties, resulting in the decrease of school leavers (graduates) in the last 6 years);
2. financial problems, because the economic situation in the region of Eastern Latvia is at a relatively low level, many families moving to other countries.

Amendments to the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia proposed at the beginning of 2021 created an uncertain situation for a few months regarding the future of the existence of Daugavpils University. Spring is the time when school graduates make a choice about their future field of study and place. The significantly accentuated attention in the media to the threat to the future of regional universities can significantly influence the making of this choice.

Dropout in the spring semester of the 2019/2020 study year and the 2020/2021 study year can be linked to the progress of the remote study process and the students' limited opportunities to participate in it. The biggest dropout is consistently observed during the 1st year of studies, the reasons for this are most often: it is difficult to adapt to the study process, the reality of studying exact sciences does not correspond to a preconceived idea. In general, the reasons for stopping the study process in the program are basically of a personal nature. The biggest dropout is made up of students who have a lack of motivation to continue their studies, financial problems, family circumstances, health problems, inability to combine studies with work (in the later stages of studies).

Information on the dynamics of the number of students is available in the appendix 3_1_4_Statistival_data_in_students_PBSP_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.

The content and plan of the study program has been created in accordance with the Cabinet of Ministers [Ministru kabinets] Regulations No. 305 "Regulations on the state standard of professional higher education" (available in Latvian: https://ieej.lv/FxNDf).

Compliance of the program with Cabinet of Ministers Regulations No. 305 is added in the appendix 3_2_1_Compliance_with_state_education_standart_PBSP_IT.

The volume of the professional bachelor's study program "Information technologies" is 160 CP (240

ECTS), the duration of implementation is 4 years. After completing the program, students obtain a professional bachelor's degree in information technology and the qualification of a programming engineer. The mandatory content of the study program consists of:

1. general educational study courses in the amount of 24 CP/36 ECTS;

The section includes humanities and social sciences courses and courses that develop basic social, communicative and organizational skills, the business professional competence building study module, and the civil and environmental protection module. Within the framework of these modules, students get an idea of the specialty of programming engineer, its legal and organizational aspects, develop basic social, communicative and organizational skills.

2. Theoretical basic courses of the industry and information technology courses in the amount of 36 CP/54 ECTS;

Completion of the courses provides the basis of mathematical knowledge in the necessary specialty, learning algorithms and data structures, *etc.*

3. Industry professional specialization courses in the amount of 62 CP/93 ECTS;

Module courses provide in-depth theoretical knowledge and practical skills in the specialty of programming engineer.

4. Professional qualification practice in the amount of 20 CP/30 ECTS;
5. state examinations (development and defense of a bachelor's thesis in the amount of 12 CP/18 ECTS);
6. free choice courses in the amount of 6 CP/9 ECTS.

The professional qualification practice (20 weeks) is divided as follows: 10 weeks in the 6^{th} semester (Professional qualification practice I), 10 weeks in the 7^{th} semester (Professional qualification practice II).

Study work is carried out in the 1^{st}, 2^{nd} and 3^{rd} study years (assessed in the 2^{nd}, 4^{th} and 6^{th} semesters), but the 7^{th} and 8^{th} semesters are intended for writing the bachelor's paper (thesis).

Achievable results of the study programme:

Knowledge:

1. Students are able to demonstrate the basic and specialized knowledge characteristic of the information technology industry and the programming engineer profession, as well as understanding the most important concepts and regularities;
2. They demonstrate application knowledge of common theories, modules, and methods that provide a modern foundation for problem identification and analysis, design, development, implementation, certification, and software documentation;

Skills:

3. Students are able to organize their independent work, formulate and analytically describe the obtained information, problems and solutions in the profession of a programming engineer;
4. Students are able to explain and reasonedly discuss proposed solutions to problems both with specialists and non-specialists, working in a team or managing other people's work;
5. They are able to learn new models, methods and technologies, and also understand the need for continuous professional development;

Competencies:

6. Students are able to apply the acquired knowledge and professional skills in the field of

software engineering;

7. They are able to independently acquire, critically evaluate, analyze and select information and use it, make decisions and solve problems, working individually or in collaboration with other professionals in a multi-professional team.

PBSP "Information technology" study results (knowledge, skills, competence) are aligned with the Professional Standard of Programming Engineer (available in Latvian: https://ieej.lv/VnpL4) and the Cabinet of Ministers *[Ministru kabinets]* Regulations No. 322. "Regulations on the classification of education in Latvia" (available in Latvian: https://ieej.lv/5yDH2).

By analysing the information included in the study courses, the results to be achieved, the set goals and other indicators, the mutual connection with the goals and the results of the study program, mapping of the study courses was carried out. The information included in the study courses and the purpose, tasks and achievable results of the program are directly related, because the acquired knowledge, skills and competences within the framework of the study courses are fully applied in the working environment. The choice of study course content topics corresponds to the defined results of the study courses – skills, knowledge and competences.

The content of the study courses is renewed according and following to the innovations in the labour market and amendments to the regulatory acts. Descriptions of existing study courses are improved, new study courses are introduced.

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.

In general, the forms of study used in the implementation of PBSP "Information technology" are lectures, practical classes, seminars, laboratory works, consultations, individual work of students and work in groups. Forms of knowledge control are tests, exams and various papers, reports, tests of students' individual work, thematic presentations. In all parts of the program, students' individual work makes up more than 50% of the total number of contact lessons.

When taking general education courses, basic theoretical courses of the industry and information technology courses (Section A), the most frequently used forms of study are lectures, practical

classes, seminars, development of individual and group projects, and independent studies. The lecturers tend to control the knowledge gained in this part with tests, exams, reports, *etc.*

Practical classes are the dominant forms of study in the field of professional specialization courses, laboratory works, consultations, to a lesser extent – lectures and seminars.

The form of studies for learning basic social, communicative and organizational skills is lectures, seminars and practical lessons. The forms of study for learning the free elective courses of the bachelor's program are lectures and seminars.

In the study program, taking into account the documents regulating higher academic education, the following relationship between contact classes and students' independent work is adopted: 1 credit point (40 academic lessons) = 16 contact lessons + 24 lessons of independent student work. 1 credit point (CP) corresponds to 1.5 ECTS (European Credit Transfer System) units. When implementing the program, the study load is an average of 20 contact (in-class or face-to-face) lessons per week, respectively, an average of 30 lessons per week are devoted to independent work.

PBSP "Information Technologies" is implemented in such a way as to ensure a student-centred approach and self-directed learning. At the beginning of each study course, students are introduced to the achievable results of the course, and at the end of the course, they provide feedback on the progress of the course. The task of the teaching staff is to encourage students to take an active role in the study process. The style of implementation of the study program is creative participation, that is, students look for opportunities for the implementation of their ideas and projects within the practical tasks of specific study courses, discuss and share their practical experience, developing critical thinking and arguing their point of view during discussions. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the program (*e.g.*, e-study environment MOODLE). Teachers and lecturers invite students to express their opinion and take their wishes into account, varying the literature, sources and presentation forms recommended for the independent work.

In order to promote the involvement of students in scientific research activities, especially in projects, within DU, an opportunity has been created for students of bachelor's and master's study programs to participate in the "Daugavpils University student research projects" competition, receiving a grant for the implementation of the submitted and approved project. The competitions "Daugavpils University research projects" and "Daugavpils University student research projects competition" are announced once a year.

Students participate in seminars and master classes, as well as participate in activities organized by DU and the Department of Informatics, scientific events (scientific conferences, Scientists' Night events, *etc.*). During the reporting period, within the study course "Program quality testing", some practical lessons were organized in cooperation with the company SIA "TestDevLab" or with their learning/study structure "TDL School", as hands-on training that took place either on the premises of the company or online. The classes were conducted by the employees of SIA "TestDevLab", who work in real projects. At the end of the practical lessons, the students received a TDL certificate with an assessment for successfully completing the test task. In the 2022/2023 academic year, these lessons did not take place, because the teachers of "TDL School" were busy and could not coordinate the lessons with the course schedule, but such cooperation is planned to continue.

Taking into account the importance of evaluation in the advancement of students in their studies and future career, the study program pays special attention to the evaluation of student knowledge, focusing on the following principles:

1. the evaluation criteria are clear and understandable, are previously published and available;

2. evaluators are familiar with testing and examination methods;
3. assessment gives students the opportunity to show to what extent they have achieved the expected learning outcomes;
4. students receive feedback that, if necessary, provides advice related to the learning process;
5. assessment is consistent, fair, suitable for all students and is carried out in accordance with approved procedures and legislative enactments;
6. there is a procedure for examining student appeals.

During the implementation of the program, basic principles of student-centred education are observed:

7. constant reflection;
8. individualized approach to students;
9. it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge;
10. students' knowledge, skills and competence are assessed not only by the academic staff, but also by the student's self-control of his studies;
11. students are offered the opportunity to study independently;
12. continuous cooperation between students and academic staff.

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 amount of professional qualification practice is 20 CP/30 ECTS, it is implemented according to the PBSP "Information technology" study plan (10 CP/15 ECTS for Professional qualification practice I, 10 CP/15 ECTS for Professional qualification practice II). 1 CP/1.5 ECTS for the practice/Internship is one working week in the company or 40 academic hours, which is equivalent to 30 working hours.

Professional qualification practice is a mandatory part of the study process integrating theory and practice. The practice is organized in accordance with the Regulation on the professional qualification practice of PBSP "Information Technologies", approved by the DU Senate (see annex 3_2_4_Regulations_on_practice_PBST_IT). The regulations contain the purpose, tasks, organization, preparation and submission of the internship report. Internship takes place outside Daugavpils University in companies in the IT field, as well as in companies, institutions and schools that use IT field services. Internship is implemented based on the internship contract concluded between DU, the student and the internship provider. Students achieve the goals of the internship based on the acquired knowledge, skills and competences.

Places of practice are chosen by the student himself, depending on his/her interests and opportunities, in coordination with the practice manager from DU, but DU facilitates the selection of the most suitable place of practice or offers it, often based on requests from companies. Before the internship, students receive a list of possible internships with explanations, as well as advice to try

to independently find an internship that suits them as much as possible (for example, a company whose direction of activity coincides with the student's interests, or a paid internship, or an IT company closer to life place, we recommend that you inquire whether it will be possible to stay to work after your studies). We explain how to write a letter with a CV, in which cases you can call potential interns, how to draw up an internship contract, who to contact in case of various problems.

The duration of the internship and its duration are determined in accordance with the plan of the study program and the schedule of the study process.

Purpose of the practice is to improve students' theoretical knowledge in information technologies, as well as to provide the opportunity to learn and strengthen the practical skills and competencies necessary for the profession of a programming engineer.

Tasks of the practice:

1. getting acquainted with software development methodology and technology used in the specific company;
2. getting to know and learning the software that is used in the specific company, solving specific tasks;
3. participate in various stages of the development of a specific project of the company;
4. getting to know the organization of teamwork in the company while developing an individual project;
5. improve theoretical knowledge, practical work skills and competences by developing a program project in real conditions;
6. getting acquainted with the drafting and design of technical documentation;
7. to gain experience to act efficiently, safely and ergonomically, in accordance with the regulations of safety equipment at the place of practice, the Law on Environmental Protection and the Law on Civil Defense and Disaster Management.

After the practice/internship, students submit a report to the internship supervisor from DU, which includes the student's internship diary and an internship evaluation signed by the internship supervisor from the internship site. At the end, an event for defending the practice results is organized, during which the students report on the work done during the practice, on the analysis of the activity and the results (up to 10 min.), answer the questions posed. At the student's request, the experience gained during the internship can be used in the development of the practical part of the bachelor's thesis, which ensures the interrelationship of the content parts of the study program. The professional qualification internship is evaluated in a 10-point system, based on the evaluation of the internship supervisor from the internship site, the internship report, and the student's presentation at the final seminar. The final assessment is conducted by the head of professional qualification practice from Daugavpils University – lecturer Olga Perevalova *[Olga Perevalova]*.

Completing the tasks set by the practice helps to achieve the results of the program:

- knowledge: appropriate knowledge helps to choose the most interesting places of practice; they are expanded and deepened during practice. Practitioners see the application of this knowledge, which is very motivating to read literature, experiment, discuss various issues with colleagues;
- skills: during the internship, students learn a lot of new material that is needed at work, in parallel they write a study or bachelor's thesis - without the ability to organize their independent work, this would not be possible; when writing a practice report, they formulate/describe their tasks and their solutions (also analyze several approaches and justify their choice). In relatively large companies, students work in teams and participate in

meetings with colleagues and customers where problems are discussed. The need to learn new methods and technologies is felt from the first to the last day of practice;

- competences: when solving the specific task either individually or in a team, knowledge must be applied in practice (it simply cannot be otherwise). In the beginning, experienced colleagues can help with information selection and decision-making, later (at the end of the 1st part of the internship), the company already expects that the interns will be able to deal with it independently, at least in relatively simple cases. Students can gain the experience of cooperation with other professionals in a multiprofessional team directly during the internship.

In the reporting period, the most frequently chosen internship locations are IT companies: limited liability companies (SIA) "Entrypoint", SIA "TestDevLab", SIA "Latinsoft", SIA "Wonderland Media (Scandiweb)", SIA "IT54", SIA "BINITEX". In educational institutions: SIA "ADA Plus", Kraslava secondary school "Varaviksne", Daugavpils central secondary school, Professional Education Competence Centre (PIKC) Daugavpils technical school, as well as many others.

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 topics of students' bachelor papers are chosen based on evidence-based knowledge, current affairs of the industry and in consultation with the supervisor of the paper. The topics of bachelor theses are approved at the meeting of the Department of Informatics. The topics of the defended bachelor theses are added in the appendix III_3_2_6_Aizstavetie_bakalaura_darbi_PBSP_IT.

Bachelor's theses are submitted following the procedure for binding Final theses (https://du.lv/wp-content/uploads/2022/06/plagiats.pdf), and the electronic version of the work must also be submitted for plagiarism control. The electronic versions of final theses are stored in the DU Information System, which gives the opportunity to compare students' final theses with the set of theses defended in previous years.

A uniform form has been developed for the evaluation of theses (appendix 3_2_6_Bachelors_theses_evaluation_sheet_PBSP_IT).

The topics of the selected bachelor's theses are from various topical areas of IT application: creation of mobile applications; game development; web technologies; use of databases; software design, development, testing, software security; e-learning; robotics, microcontrollers, *etc.*

Based on data research by Statista (a global data and business information platform with a wide collection of statistics and reports), it is predicted that the number of mobile app downloads will experience a significant increase in all segments in 2027. The trend can be observed in the forecast period from 2019 to 2027. In this regard, the game segment will reach its highest value in 2027 - 176.1 million downloads. Therefore, it can be concluded that the choice of topics for students' final

papers and study papers in the field of creating mobile apps and games is relevant in the labor market and will predictably be relevant in the coming years.

With the business world increasingly focused on big data and data analytics, knowledge of SQL programming languages has become an important asset for software developers worldwide, and database management skills are highly desirable. Topics of student works related to databases, database management systems are relevant in the labor market.

The topics of the students' works correspond to the areas of activity of IT companies in the region - development of software, use of databases, web services, etc. Also for companies, institutions that actively use IT services or products, the students of the program work on them as part of their work - e-learning, microcontrollers, web technologies, etc.

Average grades of students' defended bachelor's theses during the reporting period (Table 3.2.6.1.):

Table 3.2.6.1. Average evaluations of the defended bachelor's theses of PBSP "Information technologies".

	2022	**2021**	**2020**	**2019**	**2018**	**2017**
Average rating (grade)	7.111	7.667	7.588	8.2	7.875	7.688
Amount of papers	9	15	17	15	16	16

The supervisor of the bachelor's thesis evaluates the cooperation with the student, the choice of literature sources, the content of the work, the performance of the practical part, the technical design of the work. Each bachelor's thesis has one reviewer who assesses compliance with the bachelor's level, topicality, structure and content of the work, practical realization, technical design of the work. During the defence of the student's work, the final thesis committee evaluates the bachelor's thesis, taking into account the relevance of the work, presentation skills and knowledge, answers to questions, justification of its opinion. The final assessment consists of the following: 20% assessment of the scientific supervisor, 30% assessment of the reviewer, 50% assessment of the final examination committee.

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 takes place in DU auditoriums, laboratories, computer classrooms (refer to criterion No. 2.3.2), professional qualification practice is implemented in IT companies or

companies/institutions that use IT services. Lecturers and students use the services offered by the DU library – the library's electronic catalogue, ordering, reserving and renewing books on the Internet, automated user service, as well as access to electronic databases (refer to criterion No. 2.3.3).

DU structural units involved in the implementation of PBSP "Information Technology": Department of Informatics, Department of Physics and Mathematics, Department of Environmental Science and Chemistry of the Faculty of Natural Sciences and Mathematics; Department of Economics, Faculty of Social Sciences, Department of Law; Department of Foreign Languages of the Faculty of Humanities.

The resources and provision available to students fully comply with the conditions of the study program implementation and the achievement of the study results. Resources available to students, incl. study premises, material and technical base, tools and equipment (for preparing, combining, integrating, visualizing and distributing study and research materials), information networks (Internet, Moodle), databases (library, free access to databases (database of book resources), materials (research materials, scientific publications, including Web of Science and Scopus publications, archives), services (administrative, financial, IT and network support services, access to official statistical data), computer applications and software allow students to learn all study courses provided in the program, as well as to conduct research at various stages, provide a flexible and student-oriented environment. The list of positions of the material and technical base used in the study program is in the appendix 3_3_1_Material_tehnical_base.

The DU Information System (DUIS) is intended for a student-centered approach, where all information about the learning process is available. Study courses, their descriptions, evaluations, individual orders of the student are available in the information system according to the division of the study plan. Online scholarship application is available at DUIS.

An MSDN subscription is connected, within which the latest Microsoft software with an academic license can be installed on the equipment of the Department of Informatics. In addition, students can use Microsoft software for educational purposes by downloading it from the Microsoft Azure portal.

In the implementation of the program, the necessary technical equipment is used (computers with licensed software, projectors, interactive whiteboards, *etc.*), various teaching methods are used (group work, role-playing games, simulations, seminars, discussions, *etc.*).

The project "Improving the quality of Daugavpils University study programs and ensuring environmental accessibility" was implemented at Daugavpils University. This project is co-financed by the European Regional Development Fund (ERDF), and it provides for the modernization and adaptation of the Daugavpils University infrastructure for persons with special needs, thereby improving the accessibility of the environment for persons with functional impairments (movement, vision, hearing impairments):

1. Adaptation of rooms for persons with special needs took place in training buildings at Vienibas iela 13, Parades iela 1. The classrooms are accessible to people in wheelchairs - elevators and a lift have been installed, thresholds have been eliminated, the door width is suitable. Information is available for visually impaired and hearing impaired people – projection devices and sound amplifying equipment have been installed;
2. a nursery/kids room was created for new parents who are studying – in order to change and feed the baby, and a playroom – in order to occupy the children of the studying parents during lectures of the parents.

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 source of funding for the PBSP "Information technologies" is state budget funding for studies (grant) and study fees. The cost calculation for one student was carried out in the Department of Finance and Accounting of DU, including the costs of the wage fund and the employer's Mandatory State Social Insurance Contributions (VSAOI), business trips, materials, energy resources and inventory, book, equipment purchase and investment costs, as well as costs for student social security (Tab. 3.3.3.). The calculation of costs per student of PBSP "Information Technologies" is attached in the appendices (3_3_3_cost_calculation_PBSP_IT).

3.3.3. table. The calculation of costs per student of PBSP Information Technologies

No.	Name	Sum (EUR)	% distribution
1.	Salary fund per student	6492.30	62.0
2.	Employer's SSIAI 23.59%	1531.53	14.6
3.	Business trips and business trips costs per student	156.30	1.5
4.	Services per student	691.52	6.6
5.	Costs of materials, energy, water and inventory per student	640.28	6.1
6.	Cost of purchasing books and magazines per student	52.70	0.5
7.	Equipment purchase and investment costs per student	408.24	3.9
8.	Student social security per student	503.96	4.8
	Total costs for 1 student	10476.83	100

The cost calculation is carried out under the condition that at least 11 students study in the study program in state-funded budget 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.

2 professors, 7 associate professors, 4 assistant professors, 12 lecturers and 3 assistants are involved in the implementation of the study program PBSP "Information Technology" (table 3.4.1.1.). Five teaching staff of the study program are Latvian Science Council (LZP) experts: two in natural sciences (computer science and informatics), two in natural sciences (mathematics), one in social sciences (economics and entrepreneurship). The teaching staff of the program is focused on professional development and continuous improvement and development of the quality of taught courses.

Table No. 3.4.1.1. Teaching staff involved in PBSP "Information Technology"

	In total	**% of total number**	**Main election place at DU**	**An employment contract has been concluded for the performance of academic work until the results of the election contest are announced**	**Visiting lecturer**
Professors	2	7.1%	1	1	
Assoc. prof.	7	25.0%	6	1	
Lecturers/docents	4	14.3%	4		
Lecturers	12	42.9%	8	1	3
Assistants	3	10.7%	1		2
In total	**28**	**100%**	**20 (71.4%)**	**3 (10.7%)**	**5 (17.9%)**

The scientific qualification of the teaching staff helps to achieve study results by providing students with knowledge and a better understanding of the study course topics, providing a deeper understanding of scientific concepts and principles, on the practical application of knowledge, helps them develop the critical thinking skills essential for success in professional higher education. The scientific qualification of the teaching staff also indicates that the lecturers are informed about the latest research and achievements in their field, about the possibilities of applying the research in

the industry, which, in turn, helps them provide students with more accurate and relevant information about the field of study.

All PBSP "Information technologies" study courses are taught in Latvian. The qualifications of the academic staff meet the requirements of the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia, as all lecturers have master's or doctorate degrees.

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.

PBSP "Information technologies" did not make any cardinal structural changes during the reporting period, therefore there are minimal changes in the basic composition of teaching staff. Stopping the enrollment of students in the sub-direction of the study program "Logistics structural unit manager" (from the 2018/2019 school year), the number of those lecturers decreased, who were involved in logistics specialization courses (4 lecturers).

During the reporting period, some study courses were provided with changes in the teaching staff (for various reasons, *e.g.*, the lecturer reaches retirement age, terminates employment with DU, redistribution of lecturers' workload, *etc.*).

In year 2019, a new lecturer, A. Radionovs *[A. Radionovs]*, was elected at the Department of Informatics of DU, and V. Vagale *[V. Vagale]* was elected as an assistant professor (previously she was a lecturer). In the 2017/2018 study year, assistant professors A. Sondore *[A. Sondore]* and L. Aleksejeva *[L. Aleksejeva]* were elected to the position of associate professors. As a result of the changes made in the composition of the teaching staff, the foundation of the program is a stronger academic base.

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 of the PBSP "Information technologies" is diverse, deciding on activities related to the organization and management of the study process; considering questions about the content of studies; planning practice; collaborating in the research field. Teaching staff involved in the study programme cooperate both in the development of study course descriptions and in the planning of study course content, jointly agreeing on the goals, tasks, achievable results and content of the study courses to be developed and taught. The logical sequence of the implementation of study courses is discussed and evaluated at the Department of Informatics meetings, which helps to avoid overlapping of certain topics in different study courses. In the regular meetings of lecturers, it is discussed how to maintain the basic principle of creating the courses of the developed program – systemicity, how it is possible to improve the organizational forms of the study process in order to promote the growth of students.

In the implementation of the PBSP "Information technologies", in the development and provision of study courses, not only the faculty of the Department of Informatics, but also other structural units of DU are involved.

At the time of submission of the self-evaluation report, 28 teaching staff are involved in the implementation of PBSP "Information technology", 68 students are studying in the program, or the ratio of the number of students and teaching staff is 1:2.4, which ensures optimal interaction between lecturers and students during the study process.

The cooperation of the teaching staff is evaluated as good, because the PBSP "Information technologies" study courses are connected, sequential. The program is designed in such a way that students develop the ability to critically evaluate, select and analyze information by studying certain courses in sequence, make decisions and solve problems, working individually or collaborating with colleagues in a team.

At the end of each study year, academic staff workloads for the next study year are planned in the respective structural units. Taking into account the results of the evaluation of the relevant study courses of the students of the program and the self-analysis of the academic activity performed by the lecturers, the suitability of the teaching staff for the development and teaching of the specific study courses is evaluated. Approval of academic workloads takes place in accordance with the "Procedures for recording the workload of academic staff at the DU".

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	3_1_2_Diploma_Supplement_Examples_PBSP_IT_EN.pdf	3_1_2_Diploma_Pielikumu_paraugs_PBSP_IT_LV.pdf
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	3_1_4_Statistical_data_on_students_PBSP_IT.xlsx	3_1_4_Statistikas_dati_par_studejosajiem_PBSP_IT.xlsx
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	3_2_1_Compliance_with_state_education_standart_PBSP_IT.docx	3_2_1_Atbilstiba_valsts_izglitibas_standartam_PBSP_IT.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)	3_2_1_Compliance_with_prof_standart_PBSP_IT.docx	3_2_1_Atbilstiba_prof_standartam_PBSP_IT.docx
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	3_2_1_Mapping_study_courses_PBSP_IT_EN.docx	3_2_1_Studiju_kursu_kartejums_PBSP_IT.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3_2_1_Study_plan_PBSP_IT_EN.xlsx	3_2_1_Studiju_plans_PBSP_IT.xlsx
Descriptions of the study courses/ modules	3_2_1_Studiju_kursu_apraksti_ PBSP_IT.zip	3_2_1_Studiju_kursu_apraksti_ PBSP_IT.zip
Description of the organisation of the internship of the students (if applicable)	3_2_4_Regulations_on_practice_PBSP_IT.docx	3_2_4_nolikums_par_praksi_PBSP_IT.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)		

Information technologies (41483)

Study field	*Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science*
ProcedureStudyProgram.Name	*Information technologies*
Education classification code	*41483*
Type of the study programme	*Short-cycle professional higher education study programme*
Name of the study programme director	*Andrejs*
Surname of the study programme director	*Radionovs*
E-mail of the study programme director	*andrejs.radionovs@du.lv*
Title of the study programme director	*Mg.sc.comp., lektors*
Phone of the study programme director	*+371 28345051*
Goal of the study programme	*The purpose of the programme is to provide professional studies in the information technology sector that meet the needs of the Latvian Republic, which meet the professional standard of computer systems and computer network administrators and are practically applicable.*
Tasks of the study programme	*1. to educate first-level professional qualification specialists in the information technology sector necessary for the national economy, as well as to promote their competitiveness in changing socio-economic conditions and the international labour market;* *2. to provide the opportunity in obtaining the professional qualification "Administrator of computer systems and computer networks";* *3. to create motivation for further education and provide opportunities to prepare to obtain second-level professional higher education and fifth-level professional qualification.*

Results of the study programme	*Knowledge:* *1) Students shall be able to demonstrate the basic and specialized knowledge and critical understanding of the computer systems and computer network administrator profession.* *2) They know the basics of cyber security, internet security, digital device and network cyber hygiene, network etiquette (netiquette), digital media culture.* *3) They are familiar with the basic principles of information system security, ICT regulations and laws, as well as legal aspects of personal data processing, Latvian and European regulations in the field of personal data processing.* *Skills:* *4) Students are able to develop and implement the information system security policy in the organization and prepare the necessary technical documentation, incl. the exhibition of various instructions and procedures, to conduct an audit of IT systems.* *5) Know how to ensure the optimal and efficient operation of computer equipment and software, as well as computer networks, incl. perform their design, installation, configuration, maintenance and minor repairs of computer equipment.* *6) They know how to provide technical and advisory support to system users with different levels of knowledge.* *Competencies:* *7) Students are able to independently structure their learning and professional development, show professionalism in solving problems, performing work individually, in a team or managing other people's work.* *8) Students understand professional ethics, are responsible for the results of their professional activity, are able to evaluate the impact of their professional activity on the environment and society and participate in the development of the relevant professional field.* *9) Students are able to keep up with novelties and news and to see the possibilities of their basic use in their professional work.*
Final examination upon the completion of the study programme	*Defense of the qualification 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)	*Secondary education*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*-*

Qualification to be obtained (in english)	*Administrator of computer systems and computer networks*

Places of implementation

Place name	City	Address
Daugavpils University	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

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.

In order to increase the quality of studies, new study courses were introduced, such as "System Administration and Maintenance", "System Design", "Professional Terminology in a Foreign Language", "Civil Defence" and others. The implemented changes strengthen the competences of students.

In addition to that, since the issuance of the previous study direction accreditation sheet, the first-level professional study program "Information technologies" (1st level professional study programme (PSP) Information technologies) was improved in accordance with the professional "Standard of computer systems and computer networks" agreed at the meeting of the sub-council of tripartite cooperation of professional education and employment on June 8, 2022, minutes No. 3 (available in Latvian: https://ieej.lv/hi7XN). Therefore, in accordance with the requirements of the profession standard and MK regulation No. 305 "Regulations on the state professional higher education standard", the study program's purpose, tasks and relevant study course descriptions were specified in order to improve the content of the study courses and the competences to be acquired. In this way, making the graduates of this study program more in demand on the labor market.

In accordance with the professional standard, the descriptions of the study courses were modified in order to improve the content of the study courses and the competences to be acquired.

The dominant forms of program implementation in the field of professional specialization courses are practical lessons, lectures and seminars are significantly less common.

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.

1st-level PSP Information Technologies in the form of full-time studies is implemented as face-to-face (in-class) learning process, in 2 study years (80 credit points (CP) or 120 ECTS), implementing the study course in 4 semesters (20 CP (30 ECTS) in each semester); at the end of each semester, students' knowledge, skills and competence are tested during the session exam period. In the course of learning the study program, students must obtain the required number of credit points, develop and defend a qualification thesis.

Level 1 PSP Information Technologies is a first-level professional study program, the result of which is the award of qualification of a computer systems and computer network administrator. (the fourth level of professional qualification (4th PKL) corresponds to the fifth level of the Latvian qualifications framework (5th LKI)).

Level 1 PSP "Information technologies", the Republic of Latvia (LR) education classification code No. 41483 conforms to the June 13, 2017 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 322 "Regulations on the classification of education in Latvia", conforms to the first-level professional higher education (fourth-level professional qualification), to the thematic field of computer science education, to the group of computer systems, databases and computer networks programs.

The purpose, tasks and course structure of 1st level PSP Information Technology comply with the Cabinet of Ministers' *[Ministru kabinets]* regulations of June 21, 2023 No. 305 "Regulations on the standard of state professional higher education" (available in Latvian: https://ieej.lv/FxNDf).

The **purpose of the programme** is to provide professional studies in the information technology sector that meet the needs of the Latvian Republic, which meet the professional standard of computer systems and computer network administrators and are practically applicable.

Key tasks of the programme are as follows:

- to educate first-level professional qualification specialists in the information technology sector necessary for the national economy, as well as to promote their competitiveness in changing socio-economic conditions and the international labour market;
- to provide the opportunity in obtaining the professional qualification "Administrator of computer systems and computer networks";
- ensure that the graduates of the study program are able to responsibly and safely choose and use information technologies for the performance of work duties, research and lifelong learning, as well as for the acquisition, creation and sharing of digital content;
- to create motivation for further education and provide an opportunity to prepare for first-cycle professional higher education and sixth-level professional qualification.

Admission regulations at Daugavpils University (DU) issued in accordance with Law on Higher Education Institutions *[Augstskolu likums]*, the October 10, 2006 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 846 "Rules on requirements, criteria and procedures for admission to study programs" and the constitution of DU. The following persons have the right to study at Daugavpils University: citizens of the Republic of Latvia and persons who have a non-citizen passport issued by the Republic of Latvia, as well as persons who have been issued permanent residence permits in Latvia. For foreigners who have not been issued a permanent residence permit, the right to study at DU is determined by Article 83 of the Law on Higher Education Institutions *[Augstskolu likums]* and DU Admission Rules for full-time studies for foreigners.

Daugavpils University (DU) organizes full-time studies of the 1st level PSP "Information Technologies" at the expense of the state budget, but above the intended state order – for funds contributed by the applicants themselves or other legal or physical (natural) persons.

The admission process is additionally regulated and the following components of the Rules are approved by the decision of the DU Senate before its commencement: admission requirements and criteria, admission procedure for the academic year, registration fee, study fee, number of study places for admission.

Admission rules are available on the Daugavpils University website, in the "Admissions" section

(available in Latvian: https://du.lv/gribu-studet/uznemsana/).

In the first-level professional study program "Information technologies", reflectants are matriculated according to the results of the competition, which consists of the following:

- Centralised exam in the following subjects:
  - Latvian Language;
  - the first foreign language;
  - mathematics;
  - average value of all CE totals;
- additional points are awarded for the following:
  - certified exam or test in informatics or applied informatics,
  - additional 5 points in any undergraduate study program are awarded to DU "School of Science" certificate winners.

Outside the competition for full-time studies on budget financing, if the admission requirements for the relevant study program have been met, the following students are matriculated: Participants of the youth and junior competitions of the Olympic Games, World and European championships, and Latvian championships (in the last five years) 1st – 3rd place winners in the adult group (only in Olympic sports), if a DU certificate has been received, 1st to 3rd place winners of the Republic of Latvia and the International Olympiads, laureates of students' scientific and creative work competitions in the group of high school classes, DU Olympiad in applied informatics "Pascal's Wheel", Latgale regional scientific research works competition for students.

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

DU students are mostly from Daugavpils city, Daugavpils county and other counties of the Latgale planning region. This means that the realization of level 1 PSP "Information technology" is very important from the point of view of national and regional development interests, because it ensures the development of local human resources and the training of qualified specialists for state and local government institutions, as well as for the private sector. At the same time, there are also students from Riga, Aizkraukle district and other regions of Latvia in the 1st level PSP "Information technologies" of DU, which indicates the popularity of the program also outside the planning region of Latgale.

An anonymous student survey (questionnaire) is organized at the end of each study year. Surveys are conducted to evaluate and further improve the quality of study course delivery, as well as to get an idea of students' attitudes towards the provision of the study process with teaching and methodical literature, the availability and use of computer equipment and the Internet, cooperation with teaching staff, provision of guest (visiting) lecturers, offer of optional courses.

In the survey conducted in the 2017/2018 study year, more than half (60%) of the students note that the study program completely satisfies them. 68% of students rate the teaching quality as high. It follows from the results of the survey that the content of the study courses and their presentation is clear, logical and understandable (100%) and the evaluation requirements of the studied courses are clear, logical and justified (100%).

In the 2018/2019 study year, 100% of students rated the quality of teaching highly. Students are completely satisfied with the courses included in the study program and their distribution by

semester (89%). The results of the survey show that the students had a positive cooperation with the lecturers (90%), as well as the teaching staff provided all the necessary support in the study courses to help achieve the defined study results (95%).

In the 2021/2022 academic year, classes were organized as face-to-face online studies, mostly using the Zoom video conference platform. 2 students of the first year of study participated in the organized survey. In general, the survey data show that students are satisfied with the organization of the study process, lecturers and the quality and structure of course teaching. This is also confirmed by the attendance of students participating in the survey: 80-100%.

Level 1 PSP "Information Technologies" graduates work in information and communication technology (ICT) companies, hospitals, educational institutions and elsewhere, satisfying the current and prospective demand for computer system and computer network administrators in Latvia and especially in Latgale. In order to gradually introduce potential employers to future employees, employers are involved in the training process (presenting at seminars, leading individual classes and participating in final exams) and in evaluating the quality of the study program. Many students start working as computer system and computer network administrators already during their studies, which promotes employment after graduation.

6 graduates participated in the graduate survey conducted for the 2021/2022 academic year. In general, the answers can be evaluated as positive with a slight shift towards a neutral evaluation. Graduates work in full-time employment in the field of ICT, mostly as administrators of computer systems and computer networks, as well as as programmers. Graduates are completely satisfied with their choice of study program, they rate the quality of studies from high to very high. In addition, they also agree that the course content of the study program meets the requirements of the labour market and the acquired knowledge contributes to professional development.

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 in DU level 1 PSP "Information Technologies" during the reference period (2014–2023) was largely influenced by external factors:

- the country's demographic situation (the large drop in the birth rate in the nineties, resulting in the small number of school leavers (graduates) in the last 6 years);
- financial problems, because the economic situation in the region of Eastern Latvia is still at a relatively low level, many families moving to European countries.

Basically, all 1st-level PSP Information Technology students studied with state budget funds. The total number of students in the first-level professional study program "Information Technologies" during the reference period (2014-2023) varied from 14 (2014/2015 study year) to 16 (2021/2022 study year) students. However, during the three-year period (during 2018, 2019, 2020), the number of study-wishers did not reach the minimum number of students in the group (11 students), therefore the groups were not opened.

On the other hand, in 2021 the number of admissions was 19 and in 2022 – 17 students.

It should be noted that all applicants who want to enroll in the first-level professional study program

"Information technologies" with the aim of continuing their studies in the later stages of their studies, were subjected to the procedure of recognition of the completed study courses, thus determining the individual study plan developed based on the comparison made.

The dropout in the 2021/2022 study year was related to the progress of the remote study process and the students' limited opportunities to participate in it. The reasons for the termination of the study process are basically the failure of students due to non-attendance of classes. Part of the dropout consists of students who have financial problems (economic situation in the region of Eastern Latvia, many families moving to European countries), family circumstances, health problems, inability to combine studies with work, as well as lack of motivation to continue studies.

Information on the dynamics of the number of students is available in the appendix 3_1_4_ Statistical_data_on_students_1stLevPSP_IT_EN.

In order to reduce student dropout due to financial reasons, DU operates the Social Support Program of the Student Council, within the framework of which successful DU students have the opportunity to receive a discount on the rent for the service hotel (student dormitory).

In order to attract and increase the number of potential students, DU annually participates in or organizes various events, such as the Night of Scientists, the School of Young Scientists, Open Door Days and other events. Many Latvian municipalities offer municipal scholarships to students living in their region based on high success rates.

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 process is organized in accordance with the DU Constitution, the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia and other regulatory documents, which are valid in the Republic of Latvia, as well as in accordance with the study regulatory documents adopted by the DU Senate.

1st level PSP Information technology parameters comply with the regulations of the CM of June 13,

2023 No. 305 "Rules on the standard of state professional higher education", for short-cycle professional higher education and fifth-level professional qualifications, which correspond to the fifth level of the Latvian qualifications framework. Appendix: 3_2_1_Compliance_with_national_educational_standard_1limPSP_IT.

The mapping of study courses and the correspondence of the results to the results of the study program are reflected in the appendix 3_2_1_Study_course_mapping_1stPSP_IT.

The amount of the program is 80 credit points (CP) or 120 ECTS (2 years, full-time studies) and structurally it has 4 parts:

- General educational study courses – 20 CP or 30 ECTS
- Industry training courses – 36 CP or 54 ECTS
- Practice/internship – 16 CP or 24 ECTS
- Qualification work – 8 CP or 12 ECTS.

Study plan in the appendix 3_2_1_Study_plan_1stLev_PSP_IT

General educational study courses (20 CP or 30 ECTS) are mandatory for all students matriculated in the first-level professional study program "Information technologies". It includes theoretical courses of humanities and social sciences and courses that develop social, communicative, organizational skills. The main competences that should be developed based on the recommendations of the professional standard are the following:

- the ability to work in a team, plan work and observe the principles of professional ethics,
- ability to use industry documentation, follow industry development, communicate, draw up business documents,
- observance and application of safety equipment norms in practice, observance of work hygiene and environmental protection measures.

Industry study courses (36 CP or 54 ECTS) are aimed at professional preparation in the relevant field.

Internship (16 CP or 24 ECTS) takes place outside the university in private/public companies and institutions under the guidance of experienced IT specialists. The purpose of the internship is to create an opportunity for the student to practice the skills and abilities necessary for the profession within the framework of the study process in a real specialist's work environment, while also learning new theoretical knowledge necessary in professional activity in connection with the specific work environment. Internship is carried out in accordance with the internship agreement on the provision of a place of internship.

The qualification work (paper) is the independent work of the students. The student performs the qualification work under the supervision of the study paper supervisor. In the course of its development, students gather the theoretical knowledge acquired in various study courses. Based on this knowledge, students conduct practical research and draw conclusions. The qualification work must prove the student's ability and skill to integrate the theoretical knowledge acquired in various study courses, the skills and abilities acquired in the study process, to use them in practical research, to develop recommendations for the implementation of the research results in practice.

The 1st level PSP "Information Technologies" study plan has been improved in accordance with the requirements mentioned in the Computer Systems and Computer Networks Administrator profession standard (available in Latvian: https://ieej.lv/hi7XN). The compliance of the program with the professional standard has been carried out and can be viewed in the appendix 3_2_1_Compliance_with_prof_standard_1stLevPSP_IT.

The results of the 1st level PSP Information Technology studies (knowledge, skills, competence) are aligned with the "Professional Standard of Computer Systems and Computer Networks Administrator" and with the June 13, 2017 Cabinet of Ministers *[Ministru kabinets]* Regulations No. 322 "The regulations on the classification of education in Latvia" (https://likumi.lv/ta/id/291524-noteikumi-par-latvijas-izglitibas-klasifikaciju), as well as with CM regulations no. 305 "Rules on the standard of state professional higher education".

The content of the study courses is renewed according to the innovations in the labour market and amendments to the regulatory acts. By updating the professional standard, the descriptions of the existing study courses were improved, thus attracting specialists of a wider profile in the existing industry. The information included in the study courses and the purpose, tasks and achievable results of the program are directly related, because the acquired knowledge, skills and competences within the framework of the study courses are fully applied in the working environment.

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 main forms of study that are used for the implementation of the study program are: lectures, seminars, practical lessons, individual work of students, practice/internship in private/public companies. Forms of knowledge control are tests, exams and various papers, reports, tests of students' individual work, thematic presentations. In all parts of the program, students' individual work makes up more than 50% of the total number of contact lessons.

In the study program, taking into account the documents regulating higher academic education, the following relationship between contact classes and students' independent work is adopted: 1 credit point (40 academic lessons) = 16 contact lessons + 24 lessons of independent student work. 1 credit point corresponds to 1.5 ECTS (European Credit Transfer System) units. When implementing the program, the study load is an average of 20 contact (in-class or face-to-face) lessons per week, respectively, an average of 30 lessons per week are devoted to independent work.

According to the Standards and guidelines for quality assurance in the European higher education

area adopted in 2015 (Standard No. 1.3), universities must ensure that the study programs are implemented in such a way as to encourage students to actively participate in the formation of the study process, and that the assessment of student performance is consistent with this approach. The guidelines of the mentioned standard state that student-centered learning and teaching play an important stimulating role in student motivation, self-reflection and involvement in the study process. This means the creation, implementation and evaluation of well-thought-out and well-considered study programs.

During the implementation of 1st level PSP Information Technology, the basic principles of student-centered education are observed:

1. constant reflection,
2. individual approach to students, there is no one-size-fits-all solution,
3. it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge,
4. students' knowledge, skills and abilities are evaluated not only by the academic staff, but there should also be self-control over their studies,
5. students are offered the opportunity to learn by themselves,
6. continuous cooperation between students and academic staff.

Level 1 PSP "Information Technologies" is implemented in such a way as to ensure a student-centred approach and self-directed learning, which is achieved as follows: at the beginning of each study course, students are introduced to the achievable results of the course, during and at the end of the course, they provide feedback on the progress of the course. The task of the teaching staff is to encourage students to take an active role in the study process. The style of implementation of the study program is creative participation, that is, the students, within the practical tasks of specific study courses, update society's challenges and look for opportunities for the implementation of their ideas and projects, students discuss and share practical experience, thus developing critical thinking and arguing their point of view during discussions. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the program (*e.g.*, e-study environment MOODLE, video conference platforms and others), thus creating an opportunity for students to learn the subject independently. Teachers and lecturers invite students to express their opinion and take their wishes into account, varying the literature, sources and presentation forms recommended for the independent work.

In order to promote the involvement of students in scientific research activities, especially in projects, DU has created an opportunity for study program students to participate in the "Daugavpils University student research projects" competition, receiving a grant for the implementation of submitted and approved projects. The competitions "Daugavpils University research projects" and "Daugavpils University student research projects competition" are announced once a year.

Students regularly participate in seminars and master classes, as well as participate in scientific events organized by DU (Scientists' Night, Open Days, *etc.*). In addition, it is possible to participate as a free listener in a study course or part of another study program (*e.g.*, professional bachelor's study programme (PBSP) "Information technologies") by attending a certain number of lectures or practical classes.

Taking into account the importance of evaluation in the advancement of students in their studies and future career, the study program pays special attention to the evaluation of student knowledge, focusing on the following principles:

1. evaluation criteria are clear and understandable, are previously published and available,

evaluators are familiar with testing and examination methods,
2. assessment gives students the opportunity to demonstrate to what extent they have achieved the expected learning outcomes; students receive feedback that, if necessary, provides advice related to the learning process,
3. students receive feedback, which, if necessary, provides advice related to the learning process,
4. assessment is consistent, fair, suitable for all students and is carried out in accordance with approved procedures and legislative enactments,
5. there is a procedure in place for examining 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).

Professional qualification practice is an integral part of the first-level professional study program (SP) "Information technologies", which takes place in various companies and organizations where computer system and computer network administrators work. Students undergo practice periods/internships in companies and institutions where there are appropriate conditions for the implementation of professional qualification internships and where specialists with appropriate qualifications work.

As a tool for learning the basics of the profession, an internship/practice outside of Daugavpils University is mandatory for all students of the program in the spring semester of the 2nd year (16 weeks in total).

The practice is organized according to the goal and tasks of the study program and corresponds to the professional qualification of computer system and computer network administrators. The purpose and tasks of the internship result from the purpose, tasks and achievable results of the study program.

The purpose of the practice/internship is to improve students' theoretical knowledge in information technologies; strengthen practical skills; to prepare the student for activity in the company; create motivation for further education.

Tasks of the practice:

1. Familiarizing themselves with the tasks that are being solved and the technologies that are used in the particular company.
2. Participating in solving specific tasks.
3. Getting to know the organization of teamwork in the company.
4. Gaining practical work skills and experience working in real conditions.
5. Getting acquainted with the drafting and design of technical documentation.

Internship tasks are formulated in such a way as to give students more opportunities to familiarize themselves with the profession and acquire work skills, by performing the tasks corresponding to

the profession of computer system and computer network administrator at the place of internship, thus achieving the tasks of the study program, such as - "educating first-level professional qualification specialists in the information technology necessary for the national economy industry, as well as to promote their competitiveness in changing socio-economic conditions and the international labor market".

During the practice time, students do not have classes at the University, however, in parallel with practice, students develop a qualification thesis, thus acquiring the skills to manage your time for studying and completing work tasks, which is one of the tasks and achievable results of the study program (being able to independently structure your learning and professional development, show professionalism in solving problems, working individually, in a team or managing other people's work).

Students can choose the place of internship themselves, however, if necessary, the University can help to find it, as the University has contacts with many ICT companies and educational institutions in the planning region of Latgale.

The practice/internship must be related to the administration of computer systems and computer networks.

The experience gained during the internship can be used in the development of the practical part of the qualification work, which ensures the interrelation of the content parts of the study program.

The person responsible for the internship on behalf of Daugavpils University is the lecturer O. Perevalova *[O. Perevalova]*. The responsible person evaluates the internship with a grade according to a 10-point system (differentiated assessment tests), based on the evaluation of the internship supervisor, the internship report and the student's public presentation at the final internship seminar, during which each student reports on the course of the internship and the work performed during the internship, submits proposals for improving the course of the internship, *etc.*

Student practice/internship is organized in accordance with the Cabinet of Ministers *[Ministru kabinets]* Regulations No. 305 "Regulations on the state standard of professional higher education" and in accordance with Daugavpils University practice regulations (appendix: 3_2_4_Regulations_on_practice_1stLevPSP_IT_EN). The regulations contain the purpose, tasks, organization, preparation and submission of the internship report.

The internship is implemented based on the internship agreement concluded between DU, the student and the internship provider. Students achieve the goals of the internship based on the acquired knowledge, skills and competences. The duration of the internship and its duration are determined in accordance with the plan of the study program and the schedule of the study process.

Examples of practice/internship places:

- Company SIA "Dautkom TV";
- Company AS "Latvenergo";
- Company SIA "Goodman Group";
- Daugavpils Regional County Council;
- Secondary school of Riebini;
- Ilukste Regional County Council;
- Company SIA "Ezugi Latvia";
- Company SIA "Landors L";
- Company AS "Sadales tikls";
- and others.

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 period from 2014 to 2023, 25 qualification papers have been defended (in the first release after licensing in 2016 - 9 papers, in 2017 – 2 papers, in 2018 – 4 papers, in 2019 – 4 papers, in 2023 – 6 papers).

The topics of students' qualification papers are chosen based on evidence-based knowledge, current affairs of the industry and in consultation with the supervisor of the qualification paper. The justification of the topicality of the theme is a mandatory condition during the development and defence of the respective work. Theoretical qualification works (systematic literature review and analysis) are also being drafted. In order to ensure the relevance of the final theses in the field of IT, the topics of the final theses are discussed and approved at the meeting of the Department of Informatics at the beginning of the study year. The topics of student works are also relevant for the local labor market, as they touch on issues that are the everyday work of many local companies.

Some examples of topics:

- Analysis of common computer system vulnerabilities and protection methods
- Use of virtual local networks for network access control

The topicality of the topics of the selected qualification papers can be justified by the global geopolitical situation and the rapidly increasing number of cyber-attacks.

Examples and evaluations of the topics of qualification papers by study year are reflected in the section "Other attachments" in the appendix 3_2_6_Defended_qualification_theses_1stLevPSP_IT_EN.

Qualification theses are submitted in compliance with the procedure for submission of final theses for plagiarism control (https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf). The electronic versions of theses are stored in the DU Information System, which allows all students to get acquainted with them.

Final theses are evaluated based on the following principles:

1. the evaluation criteria are clear and understandable, are previously published and available,
2. evaluators are familiar with testing and examination methods,
3. assessment gives students the opportunity to demonstrate to what extent they have achieved the expected learning outcomes; students receive feedback that, if necessary, provides advice related to the learning process,
4. assessment is consistent, fair, suitable for all students and is carried out in accordance with approved procedures and legislative enactments;

5. there is a procedure for examining student appeals.

The supervisor of the qualification paper assesses the cooperation with the student, the selection of work literature sources, the content of the work, the collection and analysis of research data, and the technical design of the work. Each qualification paper is assessed by a reviewer who assesses the topicality of the paper's topic, presentation, compliance with the level of the qualification paper, and the content of the paper.

In the defense of the qualification thesis, the qualification thesis and the discussion on the research topic are evaluated. The final assessment consists of the following: 20% assessment of the scientific supervisor, 40% assessment of the reviewer, 40% assessment of the final state examination commission on the defense of the work and discussion on the research topic.

Two lecturers and three representatives of ICT companies participate in the commission, thus the contribution of students' works to the field is fully evaluated and reflected in the evaluations of qualification works. Assessments of works in the period from 2014 to 2023 10 (excellent) make up 12% of all qualifying works, 9 (excellent) – 32%, 8 (very good) – 28%, 7 (good) – 16%, 6 (almost good) – 8% and 5 (average) – 4%. As a result, ratings from excellent to good make up the majority of ratings, which confirm the student's investment and achieved results. The average evaluations of students' defended qualification theses in the reporting period (Table 3.2.6.1):

Table 3.2.6.1. Average evaluations of defended qualification theses in 1st level Information technology

	2023	2022	2021	2020	2019	2018	2017	2016
Average rating	8.16	-	-	-	7.75	8.5	8	8.11
Number of works	6	-	-	-	4	4	2	9

In the years 2020-2022, there is no information about students' works, because during these three years no student groups were opened in the program (mentioned in point 3.1.4 of the report). The average rating of students' final theses is 8 (very good).

The evaluation sheet for the defense of the work of the first-level professional higher education study program (SP) "Information technologies" can be found in the appendix: 3_2_6_Qualification_paper_evaluation_sheet_1stLevPSP_IT_EN.

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 and provision of the study program fully comply with the conditions for the implementation of the study program and the achievement of the study results. Resources available to students, incl. study premises, material and technical base, tools and equipment (for preparing, combining, integrating, visualizing and distributing study and research materials), information networks (Internet, intranet, Moodle), databases (library network, databases of DU research centers, free access to databases (database of book resources), materials (research materials, scientific publications, including Web of Science and Scopus publications, archives), services (administrative, financial, IT and network support services, access to official statistical data), computer applications and software allow students to learn all study courses provided in the program, as well as to conduct research at various stages, provide a flexible and student-oriented environment. The list of positions of the material and technical base used in the study program is in the appendix III_3_3_1_material_technical_base.

The DU Information System (DUIS) is intended for a student-centered approach, where all information about the learning process is available. Study courses, their descriptions, evaluations, individual orders of the student are available in the information system according to the division of the study plan. Online scholarship application is available at DUIS.

An MSDN subscription is connected, within which the latest Microsoft software with an academic license can be installed on the equipment of the Department of Informatics. In addition, students can also use Microsoft software for educational purposes by downloading it from the Microsoft Azure portal.

In the implementation of the program, the necessary technical equipment is used (computers with licensed software, projectors, interactive whiteboards, etc.), various teaching methods are used (group work, role-playing games, simulations, seminars, discussions, *etc.*).

The project "Improving the quality of Daugavpils University study programs and ensuring environmental accessibility" was implemented at Daugavpils University. This project is co-financed by the European Regional Development Fund (ERDF), and it provides for the modernization and adaptation of the Daugavpils University infrastructure for persons with special needs, thereby improving the accessibility of the environment for persons with functional impairments (movement, vision, hearing impairments):

1. Adaptation of rooms for persons with special needs took place in training buildings at Vienibas iela 13, Parades iela 1, DU training base "Ilgas". The classrooms are accessible to people in wheelchairs - elevators and a lift have been installed, thresholds have been eliminated, the door width is suitable. Information is available for visually impaired and hearing impaired people – projection devices and sound amplifying equipment have been installed;
2. a nursery/kids room was created for new parents who are studying – in order to change and feed the baby, and a playroom – in order to occupy the children of the studying parents during lectures of the parents.

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 source of funding for the Level 1 PSP "Information technologies" is state budget funding for studies (grant) and study fees. The cost calculation for one student in the programs of the study direction was carried out in the Department of Finance and Accounting of DU, including the costs of the wage fund and the employer's Mandatory State Social Insurance Contributions (VSAOI), business trips, materials, energy resources and inventory, book, equipment purchase and investment costs, as well as costs for student social security (Tab. 3.3.3.). The calculation of costs per student of the Level 1 PSP "Information technologies", as well as information on the percentage distribution of funding, is attached in the appendix (3_3_3_cost_calculation_1stLevPSP_IT_EN).

3.3.3. tab. The cost calculation for one student of Level 1 PSP Information technologies

No.	Name	Sum (EUR)	% distribution
1.	Salary fund per student	3246.15	62.0
2.	Employer's SSIAI 23.59%	765.77	14.6
3.	Business trips and business trips costs per student	78.15	1.5
4.	Services per student	345.76	6.6
5.	Costs of materials, energy, water and inventory per student	320.14	6.1
6.	Cost of purchasing books and magazines per student	26.35	0.5
7.	Equipment purchase and investment costs per student	204.12	3.9
8.	Student social security per student	251.98	4.8
	Total costs for 1 student	5238.42	100

The cost calculation is carried out under the condition that at least 11 students study in the study program in state-funded budget 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.

3 associate professors, 2 assistant professors, 6 lecturers and 1 guest/visiting lecturer (with at least 6 years of work experience in the field of ICT) are involved in the implementation of the Level 1 PSP "Information technologies" study plan.

Table No. 3.4.1.1. Academic staff involved in the 1st level PSP "Information technologies".

	In total	% of total number	Main election place at DU	Employment contracts for the performance of academic work until the results of the election competition are approved	Visiting lecturer
Assoc. prof.	3	25%	3	1	0
Docents/researchers	2	17%	2	0	0
Lecturers	6	50%	5	1	0
Visiting lecturer	1	8%	0	0	1
In total	12	100%	83%	17%	8%

Basically, the education of lecturers is in the field of ICT, and the qualifications of all lecturers included in the study program are relevant and appropriate to ensure the achievement of the study course and, accordingly, the results, goals and tasks of the study program at the highest level. A guest lecturer who is a representative of the ICT field is involved in teaching the courses.

The scientific qualification of the teaching staff helps to achieve study results by providing students with knowledge and a better understanding of the subjects of study courses, providing a deeper understanding of scientific concepts and principles, of the practical application of knowledge, helps them develop critical thinking skills, which are essential for achieving success in professional higher education. The scientific qualification of the teaching staff also indicates that the lecturers are informed about the latest research and achievements in their field, about the possibilities of applying research in the industry, which, in turn, helps them to provide students with more accurate and relevant information about the field of study.

All 1st level PSP "Information technologies" study courses are taught in Latvian. The qualifications of the academic staff meet the requirements of the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia, as all lecturers have master's and doctorate degrees.

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, changes in the composition of teaching staff have been relatively small, mainly due to the introduction of new courses and changes in course content. In addition to that, in 2018, guest lecturer K. Rasis *[K. Rasis]* started teaching the study course "Digital Electronics", in 2019 a new lecturer A. Radionovs *[A. Radionovs]* was elected and Vija Vagale *[Vija Vagale]* was appointed as an assistant professor (previously she was a lecturer). The director of the study program was changed, currently the lecturer is A. Radionovs.

As a result of the changes made in the composition of the teaching staff, the basis of the study program is formed by a stronger academic base and a representative of the field of ICT, who ensure the teaching quality of the study courses at a high level.

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 existence of the program depends on, and during the implementation of the program, achieving the set goal and achieving the expected results is possible if there is a full-fledged team of professionals, which is united by an understanding of the preparation of computer networks and computer systems specialists, the nature of studies, the structure of learning and forms of organization.

The cooperation of the teaching staff of the program is diverse, deciding on activities related to the organization and management of the study process; considering questions about the content of studies; planning practice; collaborating in the research field.

In the regular meetings of lecturers, the content of the study courses and the structure of the program are discussed, it is discussed how to maintain the basic principle of creating the courses of the developed program – systemicity, how it is possible to improve the organizational forms of the study process in order to promote the growth of students.

The cooperation of the teaching staff is evaluated as good, because the 1st level PSP "Information technologies" study courses are connected, sequential and subordinate to each other. 1st level PSP "Information technologies", based on the professional standard of computer systems and computer networks administrator, is designed in such a way that students develop the ability to critically evaluate, select and analyze information by successively learning certain courses, the ability to make decisions and solve problems, working individually or collaborating with other IT professionals in a multi-professional team.

At the time of submitting the self-evaluation report, the ratio of the number of students and teaching staff within the study program is 1:2 (number of students 24, number of lecturers – 12), which allows for an individual approach on the part of the lecturers.

At the end of each study year, academic staff workloads for the next study year are planned in the respective structural units. Taking into account the results of the evaluation of the relevant study courses of the students of the program and the self-analysis of the academic activity performed by the lecturers, the suitability of the teaching staff for the development and teaching of the specific study courses is evaluated. Approval of academic workloads takes place in accordance with the "Procedures for recording the workload of academic staff at the DU".

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	3_1_2_Diploma_Supplement_Examples_1stLevPSP_IT_EN.pdf	3_1_2_Diploma_Pielikumu_paraugs_1limPSP_IT_LV.pdf
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	3_1_4_ Statistical_data_on_students_1stLevPSP_IT_EN.xlsx	3_1_4_Statistikas_dati_par_studejosajiem_1limPSP_IT.xlsx
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	3_2_1_Compliance_with_national_educational_standart_1stLevPSP_IT_EN.docx	3_2_1_Atbilstiba_valsts_izglitibas_standartam_1limPSP_IT.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)	3_2_1_Compliance_with_prof_standart_1stLevPSP_IT_EN.docx	3_2_1_Atbilstība_prof_standartam_1limPSP_IT.docx
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	3_2_1_Mapping_of_study_courses_1stLevPSP_IT_EN.docx	3_2_1_Studiju_kursu_kartejums_1limPSP_IT.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3_2_1_Study_plan_11stLevPSP_IT_EN.xlsx	3_2_1_Studiju_plans_1limPSP_IT.xlsx
Descriptions of the study courses/ modules	3_2_1_Studiju_kursu_apraksti_1limPSP_IT.zip	III_3_2_1_Studiju_kursu_apraksti_1limPSP_IT.zip
Description of the organisation of the internship of the students (if applicable)	3_2_4_Regulations_on_practice_1stLevPSP_IT_EN.docx	3_2_4_Nolikums_par_praksi_1limPSP_IT.pdf
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)		

Computer Science (45483)

Study field	*Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science*
ProcedureStudyProgram.Name	*Computer Science*
Education classification code	*45483*
Type of the study programme	*Second-cycle (academic master's) study programme*
Name of the study programme director	*Svetlana*
Surname of the study programme director	*Ignatjeva*
E-mail of the study programme director	*svetlana.ignatjeva@du.lv*
Title of the study programme director	*Dr. psyh.*
Phone of the study programme director	*+371 26466715*
Goal of the study programme	*The purpose of the program is to provide a set of knowledge, skills and competences in accordance with the knowledge, skills and competences of the 7th level of the basic structure determined by the Latvian educational classification, in order to prepare highly qualified specialists who would be able to design and implement complex information systems, manage projects and groups of specialists, engage in research and training.*
Tasks of the study programme	*1. to provide students with conditions and opportunities to learn skills and abilities for their scientific and professional activities;* *2. to accustom students to independently and creatively learn, as well as evaluate and apply new information technologies, theories and products;* *3. to promote students' ability to show, explain and defend the results of their work orally, in writing and with modern information technology means;* *4. to create motivation and promote the satisfaction of students' continuing education needs, including motivation to continue studying in doctoral level study programs;* *5. to develop students' abilities of scientific analysis, pedagogical skills, the ability to solve problems independently, to promote their involvement in solving scientific problems.*

Results of the study programme	*Knowledge:* *1. students know the modern trends, scientific and practical achievements of theoretical informatics and information technology development;* *2. students know the state and basic possibilities of programming languages and systems, as well as the situation in the field of standardization of programming languages;* *3. students know the architecture and functioning principles of global information infrastructure and network applied programs;* *Skills:* *4. students know how to implement conceptual analysis when solving scientific and applied tasks in the field of information technology;* *5. students know how to use the modern theories, methods, systems and means of theoretical informatics and information technology in solving scientific research and applied tasks;* *6. students are able to use fundamental concepts, system methodologies, knowledge of international and professional standards, integrated environments and instrumental means, network programs and services in the field of information technology;* *Competencies:* *7. students are able to use mathematical and information modeling methods in solving scientific and applied tasks;* *8. they are able to professionally design, submit and present the results of scientific research and production technological studies in their activity profile;* *9. they are able to independently propose and solve scientific and applied tasks in the field of theoretical informatics, applied mathematics and information technology according to the modern scientific and technical level.*
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)	*Level 2 or equivalent higher professional education in the field of information technology or computer science*
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	*Master of Natural Sciences in Computer Science*
Qualification to be obtained (in english)	-

Places of implementation

Place name	City	Address
Daugavpils University	DAUGAVPILS	VIENĪBAS IELA 13, DAUGAVPILS, LV-5401

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 material is considered a good methodological basis for the preparation and development of IT specialists: CS2023: ACM/IEEE-CS/AAAI Computer Science Curricula. This document, in the form of recommendations from the Institute of Electronics Engineers Society for Computer Specialists (IEEE-CS) and the Association for Computing Machinery (ACM), summarizes the experience of preparing IT specialists in universities. Since the 1960s, ACM, together with leading professionals and scientific societies of computer specialists, has been trying to adapt recommendations to the rapidly changing computer environment. Based on Curricula's recommendations, the program includes courses such as:

- Data analytics
- Data analysis tools
- Fundamentals of cyber security and information security of individuals and companies
- Digital Marketing Tools
- UI/UX design.

The specialty of the academic master's program "Computer Science" is the coordination of a deep fundamental approach with serious practical preparation. The content of the program is created according to such professional standards as:

- System analyst (level of professional qualification (PKL)/5th PKL),
- Information Security Manager (5th PKL),
- Information technology project manager (5th PKL).

In accordance with the professional standard, the descriptions of the study courses were modified in order to improve the content of the study courses and the competences to be acquired.

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.

Name of the academic master's study program "Computer Science", the degree to be obtained (awards a master's degree in computer science), goals and tasks, study results, as well as admission requirements are interrelated and corresponds to the Latvian Qualifications Framework

(LKI), the European Qualifications Framework (EKI) and the International Standardized Education Classification (ISCED-2011), therefore study program code 45483 has been assigned (MK Regulations No. 322 "Rules for the Classification of Latvian Education"), which confirms the academic master's level of study in the educational thematic group "Natural sciences, mathematics and information technologies", in the educational program group "Computer systems, databases and computer networks".

Academic master's study program (AMSP) "Computer Science", in the form of full-time studies, is implemented as face-to-face (in-class) learning process, in 2 study years (80 credit points (CP)), implementing the study course in 4 semesters (20 CP/30 ECTS in each semester); at the end of each semester, students' knowledge, skills and competence are tested during the session exam period. In the course of learning the study program, students must obtain the required number of credit points, develop and defend a master's thesis.

The purpose of the program is to provide a set of knowledge, skills and competences in accordance with the knowledge, skills and competences of the 7th level of the basic structure determined by the Latvian educational classification, in order to prepare highly qualified specialists who would be able to design and implement complex information systems, manage projects and groups of specialists, engage in research and training.

Key tasks of the programme are as follows:

1. to provide students with conditions and opportunities to learn skills and abilities for their scientific and professional activities;
2. to accustom students to independently and creatively learn, as well as evaluate and apply new information technologies, theories and products;
3. to promote students' ability to show, explain and defend the results of their work orally, in writing and with modern information technology means;
4. to create motivation and promote the satisfaction of students' continuing education needs, including motivation to continue studying in doctoral level study programs;
5. to develop students' abilities of scientific analysis, pedagogical skills, the ability to solve problems independently, to promote their involvement in solving scientific problems.

The purpose, tasks and achievable results of the academic master's study program "Computer Science" have been observed when setting the admission requirements for applicants: Level 2 or equivalent higher professional education in the field of information technology or computer science.

Admission regulations at Daugavpils University (DU) issued in accordance with Law on Higher Education Institutions *[Augstskolu likums]*, the Cabinet of Ministers *[Ministru kabinets]* Regulations No. 846 "Rules on requirements, criteria and procedures for admission to study programs" and the constitution of DU. The following persons have the right to study at Daugavpils University: citizens of the Republic of Latvia and persons who have a non-citizen passport issued by the Republic of Latvia, as well as persons who have been issued permanent residence permits in Latvia. For foreigners who have not been issued a permanent residence permit, the right to study at DU is determined by Article 83 of the Law on Higher Education Institutions *[Augstskolu likums]* and DU Admission Rules for full-time studies for foreigners.

The admission process is additionally regulated and the following components of the Rules are approved by the decision of the DU Senate before its commencement: admission requirements and criteria, admission procedure for the academic year, registration fee, study fee, number of study places for admission. Admission rules are available on the Daugavpils University website, in the "Admissions" section (available in Latvian: https://du.lv/gribu-studet/uznemsana/).

The aforementioned confirms that the name of the study program, the degree to be obtained, the

purpose of the program, the tasks, the results to be achieved and the admission requirements are mutually agreed upon, logically combined, meet the requirements of the Law and the labor market.

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

Information and communication technologies (ICT) are entering all sectors, and new professions related to the digital economy are being created in the labour market. In addition, digital innovations such as machine learning, big data and artificial intelligence (AI) are changing the nature of many jobs, including the growing demand for specialists with the aforementioned and other new ICT skills. According to the labour market forecasts of the Ministry of Economy *[Ekonomikas ministrija]*, in the mid-term labour market shortage will develop in the professions of ICT specialists (such as database and network senior specialists, programmers/application developers and analysts, information technology operations and user support specialists, telecommunications and radio equipment specialists and others). In order to ensure the development of the ICT sector and to meet the demand for ICT specialists in other sectors, the Ministry of Economy *[Ekonomikas ministrija]* recommends increasing the number of graduates of ICT study programs to 3,000 graduates per year. Salary in the ICT sector is one of the highest in the national economy, in 2019, in the field of programming and related activities, the gross average salary reached EUR 2021.00, or approximately two times higher salary than the national average. Although it is a challenge for higher education institutions to attract capable students in the conditions of mutual competition, the labour market situation is very favourable for the development of ICT studies, because the labour market is able to offer young people attractive, well-paid jobs, and employers are very interested in attracting employees, including taking in and training trainees, in industry promotion activities, in cooperation with educational institutions. Taking into account the very favourable labour market conditions mentioned above, DU has a great potential in attracting students to ICT studies in the preparation of industry specialists and in cooperation with employers, both for the needs of the labour market of the Latgale region and for the labour market of the whole of Latvia.

The specificity of the program is the alignment of a deep fundamental approach with practical preparation/development of the students. The program gives masters the opportunity to develop into IT company researchers and program developers. Graduates of the master's program "Computer Science" work in IT companies, private and state companies with developed IT infrastructure, internet companies, educational system organizations. They perform organizational and management, design, analytical activities in the field of information and communication technologies, are prepared for professional activity in the IT sector, that is, they perform the work of research, IT project managers, programmers, work as designers, program developers, are specialists who implement complex information systems in practice.

The aforementioned confirms that the name of the study program, the degree to be obtained, the purpose of the program, the tasks, the results to be achieved and the admission requirements are mutually agreed upon, logically combined, meet the requirements of the Law and the labor market.

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, a total of 44 master's students studied in the master's study program "Computer Science". Only 22 students successfully completed their studies. During the reporting period, there is also a dropout of students, most of whom have been terminated by DU or who have not returned from their academic leave. Most students stop their studies in the first year of study. Most often, students indicate personal reasons for stopping the study process (financial problems, family circumstances, health problems, inability to combine studies with work.

Information on the dynamics of the number of students is available in the appendix 3_1_4_Statistical_data_on_students_AMSP_CS.

The critically low number of master's students in the reporting period is due to the fact that the level of instrumental competence created within the framework of the bachelor's program enables graduates to successfully work in the IT industry. The motivation of bachelor program graduates to continue their studies immediately after finishing university is extremely low. And even if a student enters a master's program and his choice is deliberate, very often he is not ready for that level of independence, self-organization and fast rhythm of the study process, is not ready for strict deadlines for handing in independent works, lowering the control from the lecturers and complying with the requirements set for the master's student, then just the desire to get another diploma for higher education turns out to be not enough to successfully complete the two-year master's study process.

We understand that the motivation to study at a master's degree is also related to the quality of the education offered. Information technology, computing, system software provision and their areas of use are changing very rapidly. This requires an update of the structure, content and technology of the educational process. The transformation of the program, which took place during the reporting period, provided an opportunity to make it more modern, more in line with the requirements of the labour market.

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 process is organized in accordance with the DU Constitution, the Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia, State standard of academic education and other regulatory documents, which are valid in the Republic of Latvia, as well as in accordance with the study regulatory documents adopted by the DU Senate.

The scope of the program is 80 credit points (CP), structurally it is divided into 3 parts:

- Research of the theoretical findings of the field of science – 34 CP,
- Approbation of theoretical knowledge – 26 CP,
- Master's paper (work) – 20 CP.

One of the stages of the implementation of the master's study program is the development of the master's thesis. A master's thesis is the student's research, which has been carried out independently and which confirms the acquisition of theoretical and practical knowledge, methodological and organizational skills in the field of computer science in the scope determined by the study program.

The aim of the master's thesis is to conduct independent scientific research and the development of solutions to current problems with elements of novelty or practical application in the field of computer science.

The study plan is provided in the appendix 3_2_1_Study_plan_ AMSP_CS.

Study results to be achieved:

Knowledge:

1. students know the modern trends, scientific and practical achievements of theoretical informatics and information technology development;
2. students know the state and basic possibilities of programming languages and systems, as well as the situation in the field of standardization of programming languages;
3. students know the architecture and functioning principles of global information infrastructure and network applied programs;

Skills:

4. students know how to implement conceptual analysis when solving scientific and applied tasks in the field of information technology;
5. students know how to use the modern theories, methods, systems and means of theoretical informatics and information technology in solving scientific research and applied tasks;
6. students are able to use fundamental concepts, system methodologies, knowledge of international and professional standards, integrated environments and instrumental means, network programs and services in the field of information technology;

Competencies:

7. students are able to use mathematical and information modeling methods in solving scientific and applied tasks;

8. they are able to professionally design, submit and present the results of scientific research and production technological studies in their activity profile;
9. they are able to independently propose and solve scientific and applied tasks in the field of theoretical informatics, applied mathematics and information technology according to the modern scientific and technical level.

The content and study courses of the study program are aimed at achieving the study results of the program. The structure of the program is logical and is aimed at deepening research skills and improving practical skills. By analysing the information included in the study courses, the results to be achieved, the set goals and other indicators, the mutual connection with the goals and the results of the study program, mapping of the study courses was carried out. The goals and achievable results defined in the study courses correspond to the results of the study program and are coordinated with the higher level study programs. The choice of study course content topics corresponds to the defined results of the study courses – skills, knowledge and competences.

In Latvia, labour demand in the short term (up to one year) is forecasted by the National Employment Agency *[Nodarbinātības valsts aģentūra/NVA]*, while medium and long-term labour market forecasts are developed by the Ministry of Economy *[Ekonomikas ministrija]*.

The most demanded labour market professions in Latvia in 2023:

- Project managers;
- Internet security specialists;
- Marketing analysts;
-

Graduates of the master's study program can work in any of these directions. Such study courses as

- Software development,
- Digital Marketing Tools,
- Fundamentals of cyber security and information security of individuals and companies

allow master's students to increase their competence in accordance with the requirements of the labour market.

Computer Science research trends:

- Artificial intelligence and robotics;
- Big data analysis;
- Cyber security.

These trends are reflected in the study courses:

- Data analytics;
- Data analysis tools;
- Intelligent systems;
- Fundamentals of cyber security and information security of individuals and companies.

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 study program was developed in accordance with the Act on Education *[Izglītības likums]* and Law on Higher Education Institutions *[Augstskolu likums]* of the Republic of Latvia. We have created this study program in accordance with all the requirements of the Regulations on State Academic Education Standards (Cabinet of Ministers *[Ministru kabinets]* May 13, 2014 Regulations No. 240).

The teaching-methodical foundations of the preparation of IT professionals are reflected in the documents "Computing Curricula for 2023-2026" and "Computer Science Curricula 2023" (CS2023). These documents reflect the modern requirements for the level of training in IT, as well as the principles and methods of implementing the respective study programs. In international educational practice, the direction of preparation of IT specialists has been named "Computing" since 1989. Computer Science is one of the "Computing" profile directions.

CS2023 planned knowledge areas (https://csed.acm.org/knowledge-areas/):

1. Fundamentals of Algorithm Theory
2. Architecture and organization
3. Artificial intelligence
4. Data management
5. Fundamentals of programming languages
6. Graphics and interactive methods
7. Human-Computer Interaction
8. Basics of mathematics and statistics
9. Networking and communication
10. Operating systems
11. Security
12. Fundamentals of software development
13. Development of a specialized platform
14. Software engineering
15. Basics of systems

Correspondence analysis between CS2023 planned fields of knowledge and AMSP Computer Science courses, which provide the required level of mastery of these technologies, is reflected in the table No. 3.2.2.1.

It should be noted that a certain level of basic knowledge of the IT field is already achieved in the bachelor's program Information Technologies. The Master's program provides for a higher level. The program covers the major body of knowledge in the field and generally meets the standards offered in CC2023.

3.2.2.1. Relationship between core IT technologies and program content

	CS2023 planned knowledge areas															
Course name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Programming paradigms, languages and programming systems	ü				ü											
Network operating systems		ü							ü	ü	ü					

Database strategic technologies				ü											
Software development											ü	ü			
Intelligent systems			ü												
Discrete dynamical systems							ü								
Mathematical modeling Differential equations							ü								
Data analytics	ü			ü			ü							ü	
Technologies of large databases				ü											
Audio and Video integration in multimedia attachments	ü					ü									
Digital Marketing Tools								ü							
Data analysis tools				ü			ü								
Fundamentals of cyber security and information security of individuals and companies										ü					
UI/UX design						ü	ü								
Computer graphics algorithms	ü					ü									
Application and programming of digital electronics					ü								ü		
Research methodology and technologies													ü	ü	

The European consortium *Career Space* (http://www.careerspace.com) plays an active role in shaping the methodological foundations of the training system for specialists in the information and communication technologies (ICT) sector. The structure of the master's program in IT education is proposed in the consortium documents. The proposed model emphasizes the following sections:

- scientific preparation – fundamental knowledge and methodologies, including mathematical preparation (a strong connection between the scientific base and nuclear technologies is expected);
- technological preparation – learning the basics of nuclear technology, the principle of "broad learning" is considered important;
- developing systems thinking, learning applied technologies;

- developing interpersonal and business skills, including team projects, business modeling, negotiation skills, presentation preparation, ;
- final (project) work.

In general, the DU master's study program "Computer Science" corresponds to this structure.

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 forms of study used in the implementation of AMSP "Computer Science" are lectures, practical classes, seminars, laboratory works, consultations, individual work of students and work in groups. Forms of knowledge control are tests, exams and various papers, reports, tests of students' individual work, presentations. In all parts of the program, students' individual work makes up more than 50% of the total number of contact lessons.

When studying courses for the study of theoretical knowledge in the field of science, the most frequently used forms of study are lectures, practical classes, seminars, development of individual and group projects, and independent studies. The lecturers tend to control the knowledge gained in this part with tests, exams, reports, *etc.*

The dominant forms of study in the approbation courses of theoretical knowledge are practical lessons, laboratory works, consultations, to a lesser extent – lectures and seminars.

In the study program, taking into account the documents regulating higher academic education, the following relationship between contact classes and students' independent work is adopted: 1 credit point (40 academic lessons) = 16 contact lessons + 24 lessons of independent student work. 1 credit point (CP) corresponds to 1.5 ECTS (European Credit Transfer System) units. When implementing the program, the study load is an average of 20 contact (in-class or face-to-face) lessons per week, respectively, an average of 30 lessons per week are devoted to independent work.

AMSP "Computer Science" is implemented in such a way as to ensure a student-centred approach and self-directed learning. At the beginning of each study course, students are introduced to the achievable results of the course, and at the end of the course, they provide feedback on the progress of the course. The task of the teaching staff is to encourage students to take an active role in the study process. The style of implementation of the study program is creative participation, that is, students look for opportunities for the implementation of their ideas and projects within the practical tasks of specific study courses, discuss and share their practical experience, developing critical thinking and arguing their point of view during discussions. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the program (*e.g.*, e-study environment MOODLE). Teachers and lecturers invite students to express their opinion and take their wishes into account, varying the literature, sources and presentation forms recommended for the independent work.

In order to promote the involvement of students in scientific research activities, especially in projects, within DU, an opportunity has been created for students of bachelor's and master's study programs to participate in the "Daugavpils University student research projects" competition, receiving a grant for the implementation of the submitted and approved project. Students participate in seminars and master classes organized by the department and the university.

Taking into account the importance of evaluation in the advancement of students in their studies and future career, the study program pays special attention to the evaluation of student knowledge, focusing on the following principles:

- the evaluation criteria are clear and understandable, are previously published and available;
- evaluators are familiar with testing and examination methods;
- assessment gives students the opportunity to show to what extent they have achieved the expected learning outcomes;
- students receive feedback that, if necessary, provides advice related to the learning process;
- assessment is consistent, fair, suitable for all students and is carried out in accordance with approved procedures and legislative enactments;
- there is a procedure for examining student appeals.

During the implementation of the program, basic principles of student-centred education are observed:

- constant reflection;
- individualized approach to students;
- it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge;
- students' knowledge, skills and competence are assessed not only by the academic staff, but also by the student's self-control of his studies;
- students are offered the opportunity to study independently;
- continuous cooperation between students and academic staff.

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 period from 2017 to 2022, 22 master's theses have been defended (see appendix 3_2_6_Defended_Masters_theses_AMSP_CS), for the entire evaluation period, since the previous evaluation, 50 master's theses. The topics of master's theses correspond to the fundamental and professional level of preparation of students in the field of Computer Science, as well as reflect the acquisition of students' professional competencies. The topics of defended master's theses are oriented towards solving the following tasks:

- research and development of software products for solving applied tasks;
- designing information systems and their components in the applied thematic area;
- research and development of effective methods of management of organizational informatization projects;
- analysis and modelling of the subject area using modern information technologies.

The topics of master's theses are relevant from the point of view of the current state of informatics and correspond to the specifics of the scientific activity of the department. The implementation of master's theses includes the use of elements of scientific research, strict justification of decisions, comparative analysis of alternative solutions and discussion of the obtained results.

The topics of defended master's theses also reflect trends in the labor market in the IT field, where developers are among the most sought-after specialists. Such works as:

- Analysis of the efficiency of parallel programming using different technologies (2017),
- Benefits of using streams in server application development (2017),
- Creation of recommendations for the selection of project management tools (2017).

Graduates of the program, being specialists in the field of IT with a deep knowledge of programming engineering, can analyze automation requests from different fields of activity. It provides an opportunity to implement projects related to the digitization of business, financial sectors, education and society as a whole. Works such as:

- Features of the development of an information system intended for business (2017),
- Development of an automated system for trading on stock exchanges (2020),
- Development of a learning process organization system for a private educational institution (2020),
- Development of a mobile app for implicit association tests (2017),
- Development of the electricity consumption management system (2017),
- Integration of social network services (2019).

In recent years, the demand for qualified specialists in the field of information security has grown noticeably. An example of a study that reflects the high level of program graduates in this field is the work "Blockchain technology as a mechanism for intellectual property copyright protection in the Latvian higher education system" (2022).

Another side of business digitization is analytics and database creation, which is necessary for high-quality setting of processes. The work "Data classification using a machine learning model" (2020) is devoted to this problem.

Video games are and remain one of the most popular methods of stress relief, which, along with the

monetization capabilities of mobile games, open up great opportunities for business. Games development is devoted to such works as:

- Modifying computer game algorithms to obtain adaptive behavior (2021),
- Development of a system prototype for the generation of three-dimensional graphics based on geographical data (2020),
- Using procedural generation in game development (2018).

Today's program changes are focused on ensuring that the knowledge and skills of graduates meet the requirements of the labor market. The selection of topics for master's theses reflecting labor market trends is one of the most important areas of program development.

Students' final works are evaluated by the final examination committee. The evaluation consists of the average grade of all commission members for the master's thesis, the reviewer's grade, the evaluation of the student's report or work presentation and the answers to the questions of the commission and those present.

The average rating of the defended works is 8 points. Half of the defended master's students have a rating of 9 or 10.

Evaluation is carried out in accordance with the Regulations on studies at Daugavpils University (https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf).

DU has developed and follows the procedure for submitting final theses for plagiarism control at Daugavpils University (https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf), which provides for mandatory submission and storage of electronic versions of final theses in the DU Information System and provides an opportunity to compare students' final theses with the set of theses defended in previous years.

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 and provision of the study program fully comply with the conditions for the implementation of the study program and the achievement of the study results. Resources available to students, incl. study premises, material and technical base, tools and equipment (for preparing, combining, integrating, visualizing and distributing study and research materials), information networks (Internet, intranet, Moodle), databases (library network, databases of DU research centers, free access to databases (database of book resources), materials (research materials, scientific publications, including Web of Science and Scopus publications, archives), services (administrative, financial, IT and network support services, access to official statistical data), computer applications and software allow students to learn all study courses provided in the program, as well as to conduct research at various stages, provide a flexible and student-oriented

environment.

Also the DU Information System (DUIS) is intended for a student-centered approach, where all information about the learning process is available. Study courses, their descriptions, evaluations, individual orders of the student are available in the information system according to the division of the study plan. Online scholarship application is available at DUIS.

An MSDN subscription is connected, within which the latest Microsoft software with an academic license can be installed on the equipment of the Department of Informatics. In addition, students can also use Microsoft software for educational purposes by downloading it from the Azure portal.

In the implementation of the program, the necessary technical equipment is used (computers with licensed software, projectors, interactive whiteboards, etc.), various teaching methods are used (group work, role-playing games, simulations, seminars, discussions, *etc.*).

The project "Improving the quality of Daugavpils University study programs and ensuring environmental accessibility" was implemented at Daugavpils University. This project is co-financed by the European Regional Development Fund (ERDF), and it provides for the modernization and adaptation of the Daugavpils University infrastructure for persons with special needs.

The list of positions of the material and technical base used in the study program is in the appendix 3_3_1_Material and technical base (1st level PSP Information technologies *Other attachments)*.

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 source of funding for AMSP "Computer Science" is state budget funding for studies (grant) and study fees. The cost calculation for one student in the programs of the study direction was carried out in the Department of Finance and Accounting of DU, including the costs of the wage fund and the employer's Mandatory State Social Insurance Contributions (VSAOI), business trips, materials, energy resources and inventory, book, equipment purchase and investment costs, as well as costs for student social security (Tab. 3.3.3).

3.3.3. table. The cost calculation for one student for AMSP Computer science

No.	Name	Sum (EUR)	% distribution

1.	Salary fund per student	4869.23	62.0
2.	Employer's SSIAI 23.59%	1148.65	14.6
3.	Business trips and business trips costs per student	117.23	1.5
4.	Services per student	518.64	6.6
5.	Costs of materials, energy, water and inventory per student	480.21	6.1
6.	Cost of purchasing books and magazines per student	39.53	0.5
7.	Equipment purchase and investment costs per student	306.18	3.9
8.	Student social security per student	377.97	4.8
	Total costs for 1 student	7857.63	100.00

The cost calculation is carried out under the condition that at least 5 students study in the study program in state-funded budget 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.

During the reporting period, 10 teaching staff were involved in the implementation of the Master's study program "Computer Science" - 1 professor, 4 associate professors, 2 assistant professors, 3 lecturers (Table 3.4.1.1.). Nine lecturers have been elected to the primary employment at the Daugavpils University, an employment contract has been concluded with one lecturer for the performance of academic work until the results of the election contest are announced. 7 lecturers have a doctoral degree: 3 lecturers have PhD degrees in mathematical sciences (2-dr. math. and 1-dr. habil. math.), 1 lecturer has the scientific degree of doctor of physics (dr. phys.), one lecturer has a doctorate in computer science (dr. sc. comp.), 1 lecturer has the scientific degree of doctor of pedagogy (dr. paed.), 1 lecturer has a doctorate in legal sciences.

Two teaching staff involved in the implementation of the study program are Latvian Science Council (LZP) experts in the field of science: Natural sciences-Computer science and informatics.

Table No. 3.4.1.1. Faculty members involved in AMSP "Computer Science"

	In total	Main election place at DU	An employment contract has been concluded for the performance of academic work until the results of the election contest are announced	Visiting lecturer
Professors	1	1		0
Assoc. prof.	4	3	1	0
Lecturers/docents	2	2		0
Lecturers	3	3		0
In total	10 (100%)	9 (90%)	1 (10%)	0

The teaching staff of the stufy program "Computer Science" is focused on professional development and continuous improvement and development of the quality of taught courses. Several teaching staff involved in the master's study program "Computer Science" use the opportunity of professional development within the framework of outgoing mobility, which contributes to the improvement of the qualifications of lecturers according to the taught study courses and achievable study results. Lecturers prepare scientific articles, including in internationally peer-reviewed journals, participate in conferences and practical seminars, training, practice facilities/internships and various scientific events, including developing methodical materials, participating in international and national research projects.

The research carried out by the academic staff is a significant contribution to the development of the branch they represent, as well as to the development of the study program, improvement and updating of the study content. The researches cover both theoretical aspects and industry topicalities and novelties, which are used in lecturers' study courses, thus promoting the interaction of the research and study process and significantly improving the quality of the study process.

The knowledge of the national language of the academic staff employed in the Master's study program (MSP) "Computer Science" complies with the regulations on the amount of knowledge of the national language and the procedure for testing the national language proficiency for the performance of professional and official duties, the teaching staff's English language proficiency corresponds to at least B2 level according to the European Language Proficiency assessment levels. Within the framework of the European Social Fund (ESF) project No. 8.2.2.0/18/A/022 "Strengthening the professional competence of the academic staff of the strategic specialization areas of Daugavpils University", the "English language curriculum" was offered in levels B2 and C1 (132 academic lessons). Several lecturers have acquired knowledge of the English language at the B2/C1 level. Lecturers also participate in the ERASMUS mobility program, including practicing teaching in English.

The academic and scientific qualification of the teaching staff of the study program, professional work experience in the relevant sector, regular addition and improvement of knowledge in the relevant continuing education program of university pedagogues fully meet the conditions of the implementation of the study program and the requirements of regulatory acts. The above helps to achieve study results, not only by providing students with knowledge of a modern level, but also

helps to plan and implement the compliance of the study process with the current world trends in education and science, as well as market requirements.

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 staff composition of professors and lecturers of the program has changed as follows:

- Teachers who terminated employment: dr. paed., assoc. prof. P. Drozdovs *[P. Drozdovs]*, mag. oec., lect. Sandra Zelca *[Sandra Zelča]*, dr. ing., doc. V. Kugelevics *[V. Kugeļevičs]*, mag. comp.sc., visiting assistant V. Silovs *[V. Šilovs]*.
- New lecturers involved in the implementation of the study program: dr. iur., assoc. prof. A. Matvejevs *[A. Matvejevs]*, mg. sc. comp., lect. A. Radionovs *[A. Radionovs]*, dr. sc. comp., doc. Vija Vagale *[Vija Vagale]*.

Lecturers who have terminated employment with DU due to objective reasons (retirement, change of job) no longer participate in the implementation of the program. The pedagogical potential of the young lecturers involved in the program has made it possible not only to continue its implementation, but also to introduce new courses and research directions into the program.

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).

Teaching staff involved in the implementation of the academic master's study program (AMSP) "Computer Science" cooperate both in the development of study course descriptions and in the planning of study course content, jointly agreeing on the goals, tasks, achievable results and content of the study courses to be developed and taught. The logical sequence of the implementation of study courses is discussed and evaluated both at the meetings of the study direction and the Department of Informatics, which helps to avoid overlapping of certain topics in different study courses.

In the development of the academic master's study program "Computer Science", in the development and provision of study courses, not only the faculty of the Department of Informatics, but also other structural units of DU are involved.

At the time of submitting the self-evaluation report, 10 teaching staff are involved in the implementation of the academic master's study program, 4 students are studying in the program.

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	3_1_2_Diploma_Supplement_Examples_AMSP_CS_EN.pdf	3_1_2_Diploma_Pielikumu_paraugs_AMSP_Dat_LV.pdf
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	3_1_4_Statistical_data_on_students_AMSP_CS.xlsx	3_1_4_Statistikas_dati_par_studejosajiem_ AMSP_Dat.xlsx
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	3_2_1_Compliance_with_national_education_standart_ AMSP_CS.docx	3_2_1_Atbilstiba_valsts_izglitibas_standartam_ AMSP_Dat.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	3_2_1_Mapping_of_study_courses_ AMSP_CS.docx	3_2_1_Studiju_kursu_kartejums_ AMSP_Dat.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	3_2_1_Study_plan_ AMSP_CS.xlsx	3_2_1_Studiju_plans_ AMSP_Dat.xlsx
Descriptions of the study courses/ modules	3_2_1_Studiju_kursu_apraksti_ AMSP_Dat.zip	3_2_1_Studiju_kursu_apraksti_ AMSP_Dat.zip
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)	3.4.1.AMSP Computer Science_Statement_Article 55_EN.docx	Apliecinājums par AMSP _Datorzinātnes_ akad_personāla atbilstību AL 55 pantam.edoc