Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: Daugavpils University

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

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Summary of the Assessment of the Study Field and the Relevant Study Programmes

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The expert group found that the Daugavpils University (DU) offers education programmes in the fields of Information Technology and Computer Science with a strong emphasis on professional and academic excellence and regional development. The study field (SF) has clear aims and objectives aligned with the needs of the society and the national and especially regional economy. Regulations and other documents show deep commitment to have a quality assurance supporting the aims of DU.

However, it seems that the Quality Management System (QMS) as a whole was working effectively but the existing SF management system and internal quality improvement processes could be improved.

The study field is mostly well-founded, management procedures are defined, and the management team is well-qualified and experienced. Deep SWOT analysis is performed in the new strategy document “Daugavpils Universitātes attīstības stratēģijas 2022.- 2028. gadam izstrāde” and the development plan incorporates its results, but some plans are mostly identified as opportunities. Admission and assessment are defined in detail, and well formalized, and collaboration with the stakeholders is taking place though intensification of the collaboration is suggested. A system for plagiarism detection as well as regulations allows control of plagiarism risks. Overall, the management of the study field is efficient, but in some cases is too informal in the sense of feedback control. DU has all necessary major expertise and experience in study program management including all necessary resources and is competent, but overloaded with teaching staff to provide good level education and contribute essentially to local development. DU has equipped students and teaching staff with the necessary information systems, laboratories, special software, and hardware to achieve learning objectives within a study process. It is worth mentioning that DU has retained a relatively stable number of students during recent years. The DU quality assurance system relies on both formal and informal communication. All of the formal procedures are well described. Overall students are very well informed about the quality assurance processes and the Student Council is actively participating in the quality assurance processes by carrying through their own student feedback surveys. The frequency of both the surveys might be increased to have surveys bi-yearly to have an opportunity to react faster to situation changes. DU considers scientific and research development with attention focusing on the number of scientific publications and the respective support system is well developed and known among the staff. DU development strategy for the years 2022-2028 includes specific activities targeted to improve this scientific and research domain especially improving the collaboration with the industry and initiating new research projects and international collaboration. But at the same time mechanisms and approaches to support wider research activities in the field of ICT do not form the system or framework of the scientific and research domain development activities, including students and teaching staff attraction, R2B and commercialization activities, continuous utilization of results of respective activity. There are a number of pieces of evidence gained from SAR and expert meetings that DU is collaborating with the local public and private sector in the domain of the research, but lack of commercialization activities targeted the establishment of long-running collaboration in the form of start-ups, spin-offs or any other form of collaboration with the industry. There are international projects, in which the teaching staff is involved, but it's strongly believed that DU has enough experience not only to participate in projects as partners, but also initiate and take leading positions in some ICT international R&D and local development projects. The teaching and student staff mobility could be improved, by moving from classical mobility programs to blended intensive programs (BIP). All the programs fully comply with formal regulations (except some minor issues, mentioned in the analysis). Teaching staff conforms to the requirements as well. Research is not the strongest part of

the staff, but it conforms to the requirements. The programs are well-designed. Communication between the faculty staff and the students is good as expressed by the students and the attitude of the staff towards the students is very open.
Employers and graduates are satisfied with the level of skills and knowledge that DU provides and they are ready to contribute even more in possible further improvements of study programs. It seems there is a need to focus more on certain ICT research topics in the future in order to have a clear competitive advantage utilizing and contributing to regional development in Latvia.
In any case, the importance of DU for the region and its economy is obvious and it should be supported also in the future. It also means that the cooperation and involvement of all stakeholders like students, academic staff, graduates, employers and regional institutions has to become an integral part of the DU QMS and should be strengthened. Limited level of international mobility should be more in focus in coming years. Some study programmes (SPs) have high drop-out rates, raising concerns about their sustainability.
DU offered study programmes hold significant importance for both national and regional development interests. These programmes play a crucial role in fostering local human resources and training qualified specialists. Overall, DU strengths outweigh its weaknesses, and the HEI has commendable aims for research and education in its fields of focus especially to support local industry growth.

I - Assessment of the Study Field

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1.1 Management of the Study Field

Analysis

1.1.1
DU SAR (p.14-15) shows that the aim of the study field is to provide high quality education adequate for national requirements in information technology, computer engineering, electronics, telecommunications, computer management and computer science. The aim is also preparing the students for independent scientific research activities in the field of computer science and for successfully furthering academic and professional careers to solve the problems of the national economy.
The goals of the SF are in line with the medium-term goal set in the DU Strategy (SAR p.15): "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 labor market, developing their abilities and motivating lifelong learning.".
SAR and the DU Strategy for 2022-2028 define also the general assignments and tasks to achieve the aims (SAR p.15 and Daugavpils Universitātes attīstības stratēģijas 2022.- 2028. gadam izstrāde), which are very general and are more like hopes for the future. The document “Study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science", Development plan” is based mainly on the document “Development Strategy of Daugavpils University 2015-2020” because the strategy document for the years 2022-2028 was approved only in 2023. Therefore it seems some renewal and more detailed action plans are needed for the SF to focus on the new strategy document and respective aims.
Although the goals are clear, they may not be sufficient and may only address the objectives of the analyzed study fielddirection. Therefore, it would be desirable to complement the goals with specifics that describe aspirations in the field of information technology (Study fielddirction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science", Development plan). For example, in branches such as graphic environments and user experience, program systems, or mobile applications. Currently, it is only

mentioned that there is a goal to provide the latest knowledge in the field of information technology. Since achieving this practically is not feasible, it would be preferable to see more emphasis on distinctiveness, as this depends on the competence of the pedagogical and scientific staff. It is also challenging to understand how important this field is for the university, as the main description of the university's goals does not mention this specific field.
It is essential that the SF gives students the opportunity to acquire higher education in the field of IT and computer science both at lower and Master levels (SAR p.15-16) to retain the consistency of the IT education in the region. The SF includes 3 study programs: First-level study program ‘’Information Technology’’, Professional bachelor study program ‘’Information Technology’’ and Academic master study program ‘’Computer science’’. The SF covers all the relevant educational levels, except the doctoral programs.
The study fielddirection is implemented in accordance with the regulatory enactments of the EU and the Republic of Latvia. As it is mentioned in the document “Development of Daugavpils University development strategy for 2022-2028” one of the key directions is human workforce development to support local industry. The document emphasizes development of international collaboration with higher education institutions, companies and organizations; develop research activities in the SF and involve field professionals in the implementation of the SP-s.
The short-cycle study programme and the first-cycle study programme as well as the second-cycle programme are based on the Latvian professional and educational standards and the SF complies with a number of different level development policies as: Sustainable Development Strategy of Latvia until 2030, Latvian National Development Plan 2021-2027, Education Development Guidelines 2021-2027 “Future Skills for the Society of the Future”, Digital Transformation Guidelines 2021-2027 and Regional Policy Guidelines 2021-2027. This is in line with the current Latvian, local, regional and international economic needs. DU has also set an aim for development of lifelong learning and aim to be an open and dynamic university which is flexible with regard to market topicalities and this also complies with the SF tasks. The full perspective of the strategic development plan also is presented in the document (Study direction "Information technology, computer engineering, electronics, telecommunications, computer management and computer science", Development plan) and in the new DU strategy document “Development of Daugavpils University development strategy for 2022-2028”.
Among the evaluated programs, there is a clear compatibility and consistency aimed at students' improvement and achieving higher results.

1.1.2
The higher education institution provided a SWOT analysis (SAR p.16-18); however, it was not mentioned in the self evaluation on the procedure detailing how this analysis influences the institution's quality management system. Challenges related to the study program, as outlined in the self-analysis and clarified during meeting sessions, are not apparent from the SWOT analysis. It is unclear how emerging challenges, such as decrease of student numbers, attracting new young lecturers, and international collaboration in a specific field, are considered in the development planning documents.
Taking into account the information provided in the SWOT analysis and the responses obtained from the meetings, clear inaccuracies are evident. For example, in the strengths, it is stated that "Lecturers have high-quality necessary education and extensive pedagogical and scientific-research work experience," but it became apparent from the meeting sessions and the list of publications submitted that researchers/lecturers have not been publishing in this field for some time (publications in other fields are provided in the Annex 2.4.4 “Teaching staff publications”). The issue of excessive workload is mentioned, but it is not addressed as a weakness or threat in the SWOT. There is no mention of the threat of declining student numbers and the shortage of young lecturers.
There are no created procedures for checking the quality of lectures and classes, since the surveys

are collected only once a year, students have to solve the problems with the lectures individually with the program director. The way of spreading the good experience and the teachers visiting each other's lectures should not only have a negative impact, but on the other hand, it will allow for colleagues to see the work of others and sometimes learn how to use good solutions to make the lessons more interesting.
The weak internationalization among lecturers and students is not mentioned in the SWOT. During meetings with lecturers, it was noted that there is a possibility, but only visits to Lithuanian state institutions were mentioned. In the case of students, practically mostly students are working and lack motivation to go abroad and gain additional international experience. In turn, during the feedback sessions with employers, it is indicated that students with international experience could more easily integrate into their international work teams.

1.1.3
The effectiveness of managing the study program hinges on the feedback garnered from student surveys. The university has established mechanisms for survey collection, and the insights and suggestions provided by students undergo annual analysis. Given the direct correlation between surveys and the quality of lectures, the study program director can only conduct a formal evaluation and offer assistance to students once a year, while also devising solutions for future improvements.
However, the management structures and passionate managers of the study fielddirection are focused on study programs and their improvement, because of it decision-making is efficient and fast. Decision-making at the level of study programs and the faculty occurs quickly among lecturers and students due to continuous and good mutual communication and assistance. However, there is no continuous formal financial support for study programs, and it is limited to informal agreements (expert meetings with study programme directors). This can influence the characteristics and attitudes of interpersonal communication, so it is necessary to ensure clear procedures for how program support should take place within the university, regardless of the administrative staff.
Except for the professional study field, for Information Technology short-cycle and first-cycle level 1 and 2 studies, highly specialized technical and software equipment is not necessary. Moreover, there are many open-source options to choose from, making technical support naturally less complex. At the same time, in professional studies, a bit more computer network equipment is needed, which is not very problematic to acquire. Therefore, in general, the administration and servicing staff must timely arrange everything to interfere as little as possible with the conduct of the study process.
Concentrating the entire management of the study field into the hands of one or two individuals, namely the study field and program directors, without distributing responsibilities among university structures, may lead to administrative challenges. Rigid hierarchical structures, excessive rules, and cumbersome procedures can impede decision-making and hinder individuals' ability to assume responsibilities and make prompt decisions.

If higher management lacks support and fails to empower individuals to take on responsibilities, it can foster a culture of dependency. Employees may become disengaged or hesitant to make decisions without clear support and guidance. Effective distribution of responsibility necessitates clear communication channels and a culture that fosters open communication. The existence of management barriers can result in communication breakdowns, leading to misunderstandings and inefficiencies.
Distributing responsibilities effectively also requires ensuring that individuals possess the necessary skills and training. If higher management neglects to provide adequate training and support, it can result in suboptimal performance and an increased risk of errors, and the university has not provided such opportunities for employees.
Employees may be reluctant to take on responsibilities if they fear negative consequences or lack

assurance that their efforts will be recognized and appreciated. This fear can be intensified by a high management culture that emphasizes blame rather than learning from mistakes."

1.1.4
The university admission process for students is established, and detailed information can be found online at https://du.lv/gribu-studet/uznemsana/. The admission procedure for international students, along with references to internal university documents, is clearly outlined at https://du.lv/en/studies/admission/. All study deadlines and requirements for admission to specific programs are clearly listed in tables, available at Stud_iesp_pil_nep_laika_pamatstud_2024-1.pdf in one of the links. While there is limited information in English about study programs on the website, comprehensive information in Latvian is accessible at https://du.lv/studijas/studiju-programmas/1-limena-profesionalas-augstakas-izglitiba/informacijas-tehnologijas/, where program goals, subjects, skills developed in the program, and other details are provided. Information for admission to various degree programs is available and fully presented (SAR p. 20-22).
The procedure for the admission of international students is presented here: https://du.lv/en/studies/admission/. In section 2.1.1 of the document, it is indicated to submit documents from previous studies. This is an abstract requirement that does not specify that the candidate must have successfully completed school and meet the requirements set for Latvian students.
The procedure for starting studies in later stages (the assessment of options for students to extend their study period) at DU is available here: https://du.lv/wp-content/uploads/2022/06/ENG_Procedure-for-the-initiation-of-studies-in-subsequent-study-stages-1.pdf. Opportunities for the recognition of professional experience and previously acquired formal and informal education are described in the Regulation on the recognition of competences acquired outside formal education or professional experience and the recognition of study results achieved in previous education at DU: https://du.lv/wp-content/uploads/2022/06/ENG_Regulations-for-the-recognition-of-study-results-2.pdf
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During the reporting period, 12 students underwent the procedure for the 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."

1.1.5
The relevance of assessment methods and procedures for achieving the aims of study programmes and the needs of students is analyzed (SAR p. 22-23). Methods, principles, and procedures for assessing students' achievements have been developed and are provided at : https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf. Section 13 of the document explains the evaluation system. The program director, along with instructors, oversees the main responsibility and procedures. The explanation of student evaluation is precise and minimal. The document does not provide any additional information about students' assessment opportunities, so it remains the responsibility of both the subject and the instructor. There is no mention, from the university's perspective, of the possibility of having a cumulative grade and other modern options for students to be evaluated when putting in effort.

1.1.6
The study programs in the field adhere to 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) (SAR p. 24). The document is quite abstract and encompasses the admission mechanism as well, providing only a basic declaration of principles. It is unclear whether or to what extent the document is available and discussed with the stakeholders as the employers do not have regular meetings and discussions with the SF management and are not aware and there are no procedures introducing respective DU regulations (expert meeting with the employers). The university has created a plagiarism check system for theses (https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf). It is not clear whether stakeholders are familiar with its use. It states that responsible persons must check thesis plagiarism, but it is not clear how information is obtained as an evaluation indicator.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The primary objective of the study field is to prepare proficient specialists in information technologies. The director's competence, as evidenced by active engagement in processes and consistent support from higher management, is crucial for the development and sustained operation of the study field.
DU has implemented a centralized system for student admissions. Student surveys are used as a key evaluative tool. While expert meetings with students indicate high satisfaction with the study process, there is a noticeable absence of explicit procedures for integrating survey feedback into the Quality Assurance system. The university has established principles focused on identifying and addressing plagiarism.
Essential information about the study programs within this field is easily accessible through the main DU website.

Strengths
1. The study programs are aligned with current industry trends.
2. The SP director's demonstrated competence and active involvement in processes.
3. There is clear support to SF and SP-s from both lecturers and employers from the point of need of the graduates and respective graduates' knowledge level.
4. Full, clear and easy to find information is provided in the university web page.

Weaknesses.
1. Concentrating responsibility in a single individual (the study field director) for numerous aspects introduces potential risks in handling emergencies.
2. Limited engagement in internationalization efforts.
3. Insufficient student enrollment, particularly in short-cycle first-level professional and master's studies, along with a notable dropout rate.
4. Lack of systematic monitoring for the quality of provided classes and SP-s.
Weak involvement of the employers in development of the SF.
5. New DU strategy for the years 2022-2028 does not accompany a clear action plan with respective KPI-s.

1.2. Efficiency of the Internal Quality Assurance System

Analysis

2.1.1
Quality policy, as well as other university legal documents, can be found on the internet at https://du.lv/en/about-us/documents/.
Quality management primarily involves student surveys and summaries of academic work. Social

partners are involved minimally or not at all. Feedback from students in a study field is evaluated by the programme director, and efforts are made to address them. However, continuous procedures such as improving the quality of lecture delivery, the quality of literature provided in subjects, and other aspects are not assessed and supervised. The benefits of international exchanges for students and teachers are not evaluated. Most issues related to the quality of education are left for instructors or the programme director to resolve directly. These shortcomings are not related to the specific study field; however, within the framework of the study field, there is a strong and qualitative connection felt among students, teachers, and support staff, contributing to effective quality management of education.

The existing internal quality assurance system has several gaps/weaknesses in terms of support for academic staff and needs to be improved.
According to the information gained during the meetings with teaching staff, management of HEI and included in the Appendix for evaluation_1-2_evaluation poits.pdf, only scientific activities are evaluated. The academic personnel support system lacks a motivational system for the support of academic staff where professional development, methodical and organizational activities, as well as activities related to the popularization and development of the faculty would be taken into account.
Experts has not gained evidence by examining CVs of teaching staff that all members of the elected teaching staff involved in the implementation of study programmes will learn professional development programmes on innovations in the higher education system, didactics of universities or educational work management in the amount of 160 academic hours (including at least 60 contact hours) until the end of the election period that is required by the Regulation of the Cabinet of Ministers No.569 "On the education and professional qualifications required for teachers and the procedure for the development of professional competence of teachers".
At the end of each study year, academic staff workloads for the next study year are planned in the respective structural units (SAR, p.96). Approval of academic workloads takes place in accordance with the "Procedures for recording the workload of academic staff at the DU". During the visit, teaching staff acknowledged that they are overloaded (the academic workload is too high, more than 1000 hours per academic year) that limits teaching staff, and shows obstacles to doing scientific work.

1.2.2
The procedures for the creation and maintenance of study programmes at the university are regulated by the document available at this link: https://du.lv/wp-content/uploads/2021/12/3_DU_Studiju-virzienu-un-studiju-programmu-atversanas-un-parv-nolikums.pdf. The responsibilities of each department are described in the document.
It is not clear from the document what strategy is followed in developing a programme. Since it is unclear how many fundamental, social or humanity, mathematics, or computer science subjects must be selected when creating a programme, the strategy remains unclear. The document does not specify which Latvian or EU documents are used to calculate the hours of subjects and, correspondingly, to determine the workload for students. It is also unclear whether there is an aim to provide students with the opportunity to design their studies using the principles of Artes Liberales.
Student surveys are not mandatory (SAR p. 31). Collected surveys are analyzed and provided to study field and programme directors. Surveys are conducted once a year, and when the results are received, a meeting with students is organized for feedback.
Surveys of graduates and employers are conducted randomly.
Study programme directors respond to all well-founded opinions, suggestions, and reprimands expressed in the questionnaires, and if necessary, they examine the issues in the study field council. After making changes in the content of the study programme, the director of the study programme 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.

1.2.3

In the self-evaluation, extensive discussion is given on how students can submit complaints and suggestions, but no regulating document was found. It is suggested that students use the general Latvian regulations available at https://likumi.lv/ta/id/164501-iesniegumu-likums and https://du.lv/wp-content/uploads/2021/12/Etikas-kodekss.pdf.

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/); A trust questionnaire created by the Student Council is also available in Latvian at https://ej.uz/1jjg).

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. (SAR p. 29-29)

In order to consider admission-related complaints 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.

1.2.4

The mechanism for obtaining and providing feedback, including from students, graduates and employers, is effective and focused on the improvement of the study field.

At DU, the information system DUIS manages statistical data and information related to study programmes, students, and lecturers. Accessible within the DU internal network, DUIS data entry is facilitated by study programme directors and the Student Service Centre, with the Studies Department responsible for collection and verification. Monthly, the accumulated data in the DUIS system is exported to the State Education Information System (VIIS) in compliance with the June 25, 2019 Cabinet of Ministers 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 (such as matriculation and ex-matriculation, changes in status like semester membership, students on study breaks, etc.), and other pertinent details are collected.

Survey data, obtained through the DU survey system (utilizing the Open Source Project LimeSurvey), undergo analysis, and the survey results are incorporated into self-assessment reports for the respective study areas. Additionally, DU conducts surveys of graduates and employers.

Alumni Surveys (available in Latvian: https://aptaujas.du.lv/index.php/764263/lang-lv) provide insights into the employment trends of graduates, evaluations of studied programmes, and recommendations for enhancement. Employer surveys (available in Latvian: https://aptaujas.du.lv/index.php/544412) are carried out by study programme directors, aiming to gather recommendations for the improvement and development of DU study programmes.

Guided by feedback from students, graduates, and employers, DU reviews and enhances the content of study programmes. Study programme directors address well-founded opinions, suggestions, and reprimands expressed in questionnaires, potentially examining issues in the study field council. Post-content changes, the study programme director ensures communication with all involved parties (students, lecturers, employers, graduates), facilitating a comprehensive feedback

loop.

1.2.5
All essential information regarding studies, faculty, study fields, and programmes is regularly published and updated on the DU website, ensuring accessibility for students. The DU website provides interested parties with comprehensive information on the following:
Faculty of Natural Sciences and Mathematics (accessible in Latvian: https://du.lv/studijas/fakultates/dabaszinatnu-un-matematikas-fakultate/) including the dean's office, city council, structural units, study programmes, news, and teaching materials.
Short-cycle 1st level professional study programme "Information Technologies" (accessible in Latvian: https://ieej.lv/LW5Sp).
Professional Bachelor's study programme "Information Technologies" (accessible in Latvian: https://ieej.lv/abzin).
Master's study programme "Computer Science" (accessible in Latvian: https://ieej.lv/U6KLk).
The SP "Computer Science" information published on the DU web sites https://du.lv/en/studies/study-programmemes/academic-master-study-programmes/computer-science/ and https://du.lv/studijas/studiju-programmas/akademiska-magistra-studijas/datorzinatnes/ is not identical and English language web page contains considerably less information and data that one in Latvian. In addition there are some discrepancies compared with the data in SAR. For instance the admission criteria for the SP is according to the SAR "Level 2 or equivalent higher professional education in the field of information technology or computer science" and according to the web page "bachelor's degree in computer science or 2nd level higher professional education in the field of informatics; participates in the competition with the average grade of the final/state exams.". Moreover there is a specified awarded degree in SAR "Master of Natural Sciences in Computer Science" and on the web page "Master of Science in Computer Science". Therefore both the web sites have to be corrected and information provided about the respective incorrectness in SAR.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The internal quality assurance system at DU is well-established, with clear steps outlined in internal policies. 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. The mechanism for obtaining and providing feedback, including from students, graduates and employers, is effective and focused on the improvement of the study field. However, there is a need for more formalized procedures, particularly in closing the feedback loop with students and employers. Regular surveys are conducted to assess student, graduate, and employer satisfaction, identify necessary changes, and explore potential improvements. The study programs undergo regular updates to ensure ongoing enhancement. DU has acknowledged certain shortcomings and is actively committed to improvement.
All essential information regarding studies, faculty, study fields, and programs is regularly published and updated on the DU website.

Strengths:
1. A robust and transparent internal quality assurance system.
2. The teaching staff is highly accessible for face-to-face feedback from students.
3. DU, along with the study program director, is cognizant of the deficiencies in the development program and demonstrates a strong willingness to improve the deficiencies.

Weaknesses:
1. Students lack exposure to proactive and innovative teaching methods, and there is a need for

systematic monitoring of class quality.
2. Not all members of the teaching staff are well-informed about the established procedures within the quality management system, particularly in the context of scientific research work and support.
3. The support system of academic personnel lacks a motivational system where professional development, methodical and organizational activities, international cooperation and research project work as well as activities related to the popularization and development of the faculty could be taken into account.
4. Implementation of the quality assurance system, particularly for the courses (improvement, control of changes implementation) is weakly utilized.
5. The DU SF and SP web sites in Latvian and English does not contain identical information and need to be corrected.

Assessment of the requirement [1]

1 R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:

Assessment of compliance: Partially compliant

The internal quality policy has been formulated and integrated into daily operations, ensuring that study programs and relevant courses should be consistently updated and enhanced at DU. However, there is a notable absence of a systematic approach to elevate the professional and didactic skills of the teaching staff, despite the availability of training opportunities. While regular surveys are conducted to assess student, graduate, and employer satisfaction, there are identified deficiencies in effectively closing the feedback loop, particularly in interactions with students and employers.

2 1.1 - The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.

Assessment of compliance: Fully compliant

DU has developed and published a comprehensive quality policy aimed at ensuring and enhancing the quality of the teaching process within the institution. This policy is part of DU's broader commitment to maintaining a Study Quality Assurance (QAS), which encompasses a strategic framework for quality assurance and the continuous development of study programs. The QAS adheres to clearly defined laws and procedures. While the QAS is legally compliant, expert opinions suggest potential improvements, particularly in updating internal information exchange procedures such as course description updates and audits. Additionally, recommendations include refining elements related to distance learning principles and fostering industry cooperation, such as sourcing Master and Bachelor thesis topics from entrepreneurs. These insights were gleaned from a thorough on-site visit and are documented in the Self-Assessment Report.

3 1.2 - A mechanism for the development 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.

Assessment of compliance: Partially compliant

The DU has established procedures for the development, approval, improvement and revision of the study programmes ("Regulations for the Opening and Administrating of Study Fields and Study Programmes of Daugavpils University'' and "Regulation on Studies at Daugavpils University", which provide in quite detailed level procedures and conditions for study

programmes of different types and levels (short-cycle study programme, first-cycle (professional bachelor) and second-cycle (academic master)), procedures for the development and approval of new study programmes, provisions for study programme management, as well as procedures for making changes to them. Based on these regulations, changes to a study programme may be proposed by DU academic staff or students, and must be accepted by the Study Field Council and approved by the Faculty Council. The documents describing the mechanism for the development and internal approval of the study programmes exist but the implementation mechanism and supervision could be improved as well as availability of all the SP data on open web pages and informing the stakeholders.

4 1.3 - 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 published.

Assessment of compliance: Fully compliant

The criteria are defined and accessible the LMS Moodle to students and teachers and also clearly specified in the document "Regulation on Studies at Daugavpils University"

5 1.4 - Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.

Assessment of compliance: Partially compliant

While there is an opportunity for teaching staff to enhance their professional and academic skills, there is a lack of a systematic approach to their professional and didactic improvement. Consequently, it is crucial to establish internal procedures or mechanisms aimed at ensuring the qualifications and work quality of the academic staff in a target-oriented manner, aligning with the current skills and needs of the teaching staff. DU has a system in place to verify that the teaching staff possesses the required qualifications and competencies, as outlined in the DU Regulation on electing to academic positions and Regulations on DU promotion councils.

6 1.5 - 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.

Assessment of compliance: Partially compliant

The internal quality assurance policy outlines the process of gathering feedback from students, graduates, and employers at DU. Collecting feedback from the students once per year is not enough, this should be done in the end of each semester. This information is consistently collected, analyzed, and used to implement necessary changes. Control of the implementations is weak. DU conducts assessments and analyses of key performance indicators, reflecting the findings in self-assessment reports, though the KPI-s for teaching staff are not clear and avaialble to all the staff. Statistical methods and surveys are employed to summarize data on student progress, academic achievements, drop-out rates, satisfaction with study programs, and graduate careers.

7 1.6 - The higher education institution/ college ensures continuous improvement, development, and efficient performance of the study field whilst implementing its quality assurance systems.

Assessment of compliance: Partially compliant

The internal quality assurance system at DU is operational, with clearly defined steps outlined in internal policies. Regular surveys are conducted to collect data on student, graduate, and

employer satisfaction, as well as to identify necessary changes and potential improvements. However, there is a notable absence of a closed feedback loop, especially in interactions with employers. The principles outlined in the Study Quality Assurance Policy play a crucial role in maintaining internal quality and facilitating continuous improvement. This policy is developed and periodically updated based on the perspectives and needs of both internal and external stakeholders at DU. Nevertheless, the specific mechanism for this process lacks clear definition and coherence.

1.3. Resources and Provision of the Study Field

Analysis

1.3.1

DU is a state university. Study field "Information technology, Computer Hardware, Electronics, Telecommunications, Computer Management and Computer Science" is funded through a state budget grant and study fees. DU gets a budget for the number of state-funded study places annually and redistributes these places between the study programmes. When all state-funded places are allocated for a particular study programme, DU can assign additional places from other programmes (if such are available).

The Department of Finance and Accounting of DU calculates the costs of one study place considering all cost positions required to deliver study field programmes (including the investment into required resources like books and equipment). In the year 2023/2024 one study year (two semesters) costs 1600 EUR for short-cycle professional, bachelor and master level programmes (https://du.lv/gribu-studet/studiju-maksa-un-atlaides/). Ability to attract new students has a crucial impact on the financial sustainability of the study field. DU has established a discount system for various groups of students (https://du.lv/gribu-studet/studiju-maksa-un-atlaides/). Nevertheless, DU was able to attract students only for state-funded study places during the last 6 years (based on the students' admission statistics of all 3 programmes for years 2017-2022). In this period DU attracted in total 51 students on average (including lowest numbers of 38 and 36 in years 2018 and 2020). In the last 2 years, the number of attracted students is stable and is above 50 new students. Meanwhile, the number of dropouts remains very high and in the largest bachelor study programme the average number of annual dropouts in the last 6 years is more than 30 (Appendix 3.1.4 "Statistical data on students PBSP IT"). This aspect significantly impacts financial and overall sustainability of the study programme and the whole study field.

Academic staff can get additional funding for their research work. DU gets this funding from the Ministry of Education and Science. DU has established regulation ("Procedure in which scientific publications and monographs of academic staff of Daugavpils University are paid") to fund academic staff for their scientific publications indexed in the Web of Science and/or SCOPUS databases, and for scientific monographs. Besides this, academic staff can participate at annual research projects competition driven by DU. In 2023, DU has budgeted 51000 EUR to fund research projects of individuals or groups with maximum allocation of 3000 EUR per one project (https://du.lv/aktualitates/daugavpils-universitate-izsludinats-ieksejo-petniecibas-projektu-konkurss-2023-gadam/).

Similarly, to funding of research work of academic staff, DU supports research work done by students. The total available budget for student's research projects is 24000 EUR with maximum allocation of 2000 EUR per one project (https://du.lv/aktualitates/daugavpils-universitate-izsludinats-studejoso-petniecibas-projektu-konkurs-2023-gadam/).

1.3.2

DU owns necessary facilities and resources to successfully deliver study field programmes. Large

auditoriums have ~100 seats equipped with necessary projectors and audio/video resources. 7 classrooms are available for practical and laboratory work. Additionally, DU provides a dormitory and sports complex. However, during the site visit and discussion with students, it was mentioned that rooms in the dormitory may be unavailable (due to heavy occupancy), which raises additional challenges for students (expert meetings with the DU management and Director of SF and SAR p. 34-35) .
DU leverages ZOOM to support remote study processes. Moodle is used as the main information system for students providing necessary details about study courses. Academic staff uploads to Moodle presentations, practical tasks, useful literature, and other supporting materials about the delivered courses. There is an alignment on the minimal information required for each study course in Moodle, but some teachers go beyond and add more information (i.e. student's marks).
Even though investments into required resources are budgeted on the annual basis and are included into study place costs, the major renewal and investment into teaching material and technical base is done through various projects (like ERDF or ESF). DU in collaboration with ERDF completed 2 large projects in the last 10 years ("STEM, modernization of healthcare and arts study programmes at Daugavpils University" and "Improving the quality of Daugavpils University study programmes and ensuring environmental accessibility"). DU renewed premises, laboratories, hardware necessary for practical work, books and other material-technical equipment with-in these projects. During the onsite visit academic staff reconfirmed availability of necessary equipment and renewal with-in large projects, but also highlighted that there is no information about the annual budget for required resources and the most critical items are requested as per the need in an ad-hoc manner. So, experts didn't get evidence of the establishment of an unified system of purchase of material, methodological or informative provision.

1.3.3
DU has established the library and enables students with a broad range of literature required in the study process. The facilities of the library ensure access to the required materials on premises. Library has working hours from Monday to Saturday. Students have the opportunity to search for required literature and leverage self-service during the pick-up and return of the selected materials (experts visit to the DU library).
Library provides access to the latest electronic databases within and outside the DU network: Cambridge Journals Online, EBSCO, Science Direct, Scopus, Web of Science and others. Besides these resources, DU has collected free access resources, e-books and e-journals and stores them centralized and making them available for students and teaching staff. Some additional electronic resources are added to the particular study course description in a section of recommended literature.
Based on the feedback received from the students and teaching personnels, IT students prefer and leverage electronic resources over the physical ones. Therefore, DU strategically focuses on the increase of the digital subscriptions and availability of electronic materials rather than procurement of the physical books and allocating them in the library. On an annual basis, the university reviews existing subscriptions and decides on the necessary enhancements. Obtaining access to some specialized IT related electronic databases (IEEE, etc. for example) could be suggested.

1.3.4
University does not provide complete distance learning programmes or interactive courses, however, actively implements remote delivery of particular lectures and overall collaboration with students. During the onsite visit, various groups (students, teaching staff and management of the study programmes) have reconfirmed the fact that the majority of IT students start their employment while being full-time students. This has an impact on the ability of students to be fully available for the study process and demands more flexibility in the delivery of study courses and

overall collaboration between students, teaching staff and other representatives of the university (experts meetings with the Directors of SF and SP-s).
ZOOM and MS Teams are being used as platforms for remote delivery of study materials and collaboration with students. In some cases, teaching staff can also utilize alternative applications for individual collaboration like Skype. Communication between teaching staff and students mostly is done by emails or phone calls – students have reconfirmed that they have access to teaching staff and can reach them when necessary. Students utilize their personal emails and DU doesn't provide a centralized approach. DU doesn't provide and utilize a common platform for collaboration.
DU has established a variety of information systems to support general students' experience, individual study and internship processes. University has implemented a Moodle system to support the study process and enable students with complete information about the study courses, practical tasks and examinations, evaluations of them and other related processes. Moodle is integrated with the general DU information system (DUIS) ensuring better experience for students in searching required information. In DUIS students can find timetables of the study courses, their personal achievements and individual requests related to the study process in their profiles.

1.3.5
Election and approval of the academic staff is done in accordance with "Regulations on elections to academic positions at Daugavpils University". The number of positions is determined by Rectors based on the proposal from appropriate unit:
assistants, lecturers, docents: number is determined based on the amount of study work to be performed and submitted by the Faculty Council.
researchers, leading researchers, and scientific assistants: number is determined based on the need and funding possibilities and submitted by the Institute Scientific Council.
associate professor: number is determined according to the need and funding opportunities after approval by the DU Senate.
Information about the open positions is published in "Latvijas Vestnesis" and on DU homepage (https://du.lv/par-mums/vakances/). At the moment (Dec 09, 2023) 3 vacancies from non-IT study fields are available on the homepage (1 researcher and 2 docents with 752 EUR and 1270 EUR salaries accordingly for the full-time workload). Despite the clearly defined procedures the teaching staff is aging fast and there are no procedures or plans defined to attract younger and qualified staff though the problem is stressed in the new DU Strategy for years 2022-2028. The respective work with stakeholders is slow and the number of guest lectures and involvement of the stakeholders is low (expert meetings with students, SP directors and employers).

1.3.6
DU has established procedures to monitor and improve (if necessary) scientific work of the academic staff (The procedure for evaluating the effectiveness of scientific work of the academic staff of Daugavpils University). Annually, each representative of the academic staff (professors, associative professors, docents, lecturers, assistants, leading researchers, researchers and scientific assistants) submits their own report to the manager of the unit. Then the unit manager does the analysis and submits the annotation to the Department of Science. Above mentioned procedure determines expected scientific work for each academic staff position. The Department of Science has rights to recommend improvements or suggest the review of the compliance of the hold positions.
DU supports academic staff development with various activities that are established on the permanent basis: participation at ERASMUS+ programme, participation at conferences, scientific publications, increase of Hirsch index and various professional development courses (like Moodle and distance learning). Despite the facts the teaching staff is overloaded with teaching tasks and there are very few caps for personal developments and for preparing new international IT research projects where this last activity is not mentioned in Annex 1.4 "Procedure of assessing the scientific

activity".
Evaluation of the quality of the teaching staff is done through the annual student's surveys. Students are asked about the lecturing quality, feedback from the teaching staff and few other questions related to their duties. Students provide answers for all study courses in general and can leave feedback about particular courses. During the visit, teaching staff couldn't strongly confirm that they had received results of the last survey and there was no evidence of any action plan related to this.
Teaching staff has established relationships with the industry and is cooperating to ensure visiting guest lectures, practice for students, review and joint development of study course materials. Strong cooperation with TestDevLab has been highlighted during the onsite visit and highly appreciated by several industry and DU representatives.

1.3.7
28 individuals are involved as teaching staff to deliver study field programmes. Majority of them are employed by DU, but 5 are the visiting lecturers. Most of the teaching staff representatives have a balanced workload (participate in delivery of less than 30 study courses), but five have significantly longer list of study courses (Nellija Bogdanova (30), Olga Perevalova (38), Andrejs Radionovs (39), Vija Vagale (42), Andris Vagalis (40)). This involvement doesn't include other administrative, research and external positions that people hold. During the onsite visit and discussion with DU representatives, it was highlighted that significant load and involvement in delivery if study courses limits teaching staff availability for students' consultations. (Annex 2.3.7 "Teaching staff.xlsx" and expert meeting with the teaching staff)
Teaching staff collaborates with industry partners (SIA BINITEX, TestDevLab and others), ensures guest lectures and jointly improves study course materials. Nevertheless, the last survey (2021./2022.) of the bachelor programme students highlights the need to increase the number of guest lectures (The provision of guest lecturers is sufficient: 30.77% - Completely disagree, 7.69% - Partially disagree, 30.77% - Neutral rating) (Annexes 2.2.4 "Student Survey Analysis PBSP IT", 2.2.4 "Student Survey Analysis 1stPSP IT", 2.2.4 "Student Survey Analysis AMSP CompSci").

1.3.8
DU has students coming from Daugavpils and the whole Latgale region. This builds the real need of having dormitory for the students. (SAR p.62, 82). DU has established and runs the dormitory providing students with such opportunities. Based on the feedback received during the onsite visit, availability of the rooms in the dormitory is limited (what is natural) and not all students, who required it, got a room. DU has established regulation, enabling the successful full-time undergraduate and master's degree students who live in the dormitory and need social support, can receive a 50% discount on dormitory rent.
DU has established the discount system for the students with top achievements in sport, graduates of the bachelor programmes and other criteria. Based on the statistics of the applicants, DU has enough state-funded seats and self-financed studies are not popular in this study field.
University has enhanced its own facilities and made them accessible for the people with functional impairments (movement, vision, hearing impairments). DU provides a special nursery room for the young parents.
In the academic year 2022/2023, DU has established a Psychological Support Centre (PSC), where students and employees can receive free of charge psychological support in solving various daily problems in personal, work or educational matters. PSC provides up to 3 consultations, but this number can be increased.
To support ERASMUS+ programme for incoming students, DU provides a volunteer buddy to support foreign students in their daily activities.

Conclusions on this set of criteria, by specifying strengths and weaknesses

State-owned DU has established and proven processes to manage revenue and expenses as well as keep control and tracking of the execution of the SP-s. DU is running business relevant and by region demanded study programmes that ensure financial sustainability through state-funded budget places. DU ensures students with resources necessary to successfully graduate study programmes.
University has developed a system for assessing scientific work efficiency of teaching staff ("Procedure for Evaluation of Scientific Work Effectiveness of DU Academic Staff_EN") and the staff teaching load (Annex 2.3.7 "Teaching staff"). DU has established a system to fund and support internal research activities and participation of international conferences.
Overall, students have necessary facilities (physical and virtual ones) to focus on their studies and successfully graduate.

Strengths:
1. DU is the university with history and well established and managed processes to plan and execute financial processes that support development of study programmes.
2. DU is sharing material and technical base between study fields to secure students with necessary equipment, tools, information systems, library, dormitory, and other items required in the study process.

Weaknesses:
1. Current surveys don't provide explicit feedback on particular study courses, limiting insights to improve delivery of them. Therefore, results of the existing surveys are not discussed with the teaching staff and no action/improvement plan is in place.
2. Budget and procurement of the required resources is not handled with necessary frequency and without proactive involvement of the teaching staff and without a longer plan.
3. Five representatives of the teaching staff are involved in delivery of 30-40 study subjects each (excluding involvement in other administrative roles, research work and other external positions they may have), which should be considered extreme overload.
4. DU lacks a centralized and unified system of purchase of material, methodological or informative provision.

1.4. Scientific Research and Artistic Creation

Analysis

1.4.1
The scientific research directions in the study field align well with the development goals of the higher education institution. Valuable insights have been derived from the "Development plan for the study direction 'Information technology, computer technology, electronics, telecommunications, computer control, and computer science'" as well as the "Law on Higher Education Institutions". While the self-assessment report lacked sufficient information, discussions with the administration and lecturers revealed a focus on research areas beyond the immediate study field.
Out of the 28 researchers listed, a few are engaged in relevant scientific fields, primarily in e-education. However, others contribute from related yet distinct disciplines such as education, economics, mathematics, culture, and humanities. Although only a limited number of articles could be considered directly relevant to the study field, it's essential to note that the programme's objectives and the competence of the lecturers align seamlessly with both external and internal requirements of the study programme.

1.4.2
The connection between research and the study process is currently presented inadequately. However, lecturers actively engage, primarily in educational, medical, or other projects. The provided annex (Annex 2.4.4 "Teaching Staff Publications" and additionally provided list of projects “No_13_projects.xlsx”) highlights some study or scientific projects focusing on e-learning from an information technology perspective, as well as initiatives related to digitizing educational materials and developing specialized databases.
Information gleaned from the self-assessment report and interviews (expert meeting with students and teaching staff) with researchers and students indicates a lack of integration between the study process and ongoing direct IT focused scientific projects. This is attributed to the majority of lecturers being affiliated with neighboring study fields, coupled with a substantial academic workload (exceeding 1000 hours per year), leaving little additional time for scientific research.
Students are assigned task-oriented projects aligned with business needs, fostering applied research. While this approach fulfills the criteria for applied research and contributes to the enhancement of study programmes, it is also conducive to the continued development of the study process.
Students have the opportunity to use electronic systems for low-level software development and verification,, and also have the opportunity to develop software for robotic and mechatronic systems, thus expanding their abilities in various areas where IT experts in electronics or mechatronics may be needed
Recognizing the significance of scientific research in master-level studies, it is imperative for students to grasp the principles of investigation and innovation. As studies predominantly cater to industry needs, there is a broader focus, albeit with limited depth in understanding various processes, algorithms, and emerging technologies in information technology.

1.4.3
The SAR lacks instances of collaboration between institutions. However, a few examples were gathered from the teaching staff, such as visits to Šiauliai University (Lithuania) and Panavėžys College in the framework of ERASMUS mobility.
Lecturers across the university actively participate in a substantial number of various EU-funded projects, specifically in E-Learning and other educational domains, alongside numerous other projects. These initiatives play a crucial role in enhancing lecturers' competencies, fostering collaboration with local and international peers engaged in multidisciplinary projects. There is no data in SAR about the direct IT international research projects or about preparations of these projects.

1.4.4
The higher education institution has implemented mechanisms to involve the teaching staff in scientific research, with a detailed and clear explanation provided in the SAR (SAR p.14, 26, 33).
The engagement of the teaching staff in scientific research is facilitated and encouraged in alignment 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/), 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/), and the "Procedures of the competition "Daugavpils University research projects"" (available in Latvian: https://du.lv/aktualitates/daugavpils-universitate-izsludinats-ieksejo-petniecibas-projektu-konkurss-2023-gadam/).

While these mechanisms are well established, their efficiency is hindered by a limited number of researchers in the relevant study field, primarily engaged in providing lectures to students.

1.4.5
The desire to engage students in research is acknowledged as an aspiration within the research institution. However, this intention lacks a well-defined mechanism and supporting documents, posing a challenge for lecturers. Additionally, the absence of active research activities means that students are not currently involved and are not given scientific assignments.
The increased presence of visiting lecturers could present a significant opportunity for developing tasks that are more aligned with the actual needs of businesses. Nevertheless, this scenario raises concerns about students potentially missing out on exposure to scientific uncertainties.
Notably, both the self-assessment report and interviews failed to highlight any international or local projects in which students, specifically those studying in the relevant field, could actively participate.

1.4.6
The institution actively executes projects and engages in various activities dedicated to enhancing the study process and incorporating educational innovations. Nevertheless, during the interview, only representatives from other scientific fields were able to elaborate further on these possibilities. Regrettably, the discussion with lecturers did not yield any information regarding innovations in the study process and education overall. Strengthening the educational competencies of lecturers is deemed essential.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The institution has prepared a plan for research support and initiatives. Also, due to the small number of lecturers and researchers working on a full-time basis, as well as visiting teachers, it is not possible to gather teams of researchers and work purposefully. As a result, the potential involvement of students in various projects is significantly reduced. Furthermore, almost none of visiting lecturers from business do not allow for students to receive assignments of small projects that meet real business needs, which could significantly improve learning outcomes and student achievement after graduation.
It is necessary to improve the educational knowledge of teachers to use more innovative studying solutions. Although the university has very good opportunities and initiative, the university does not have procedures to improve skills in a regular manner. It is advisable to conduct regular educational competency development courses with the involvement of visiting teachers. The study field has good potential for further development in a more scientific direction, and gaps are easily remedied over time.

Strengths:
1.Students have possibilities to use electronics and other equipment to write a special dedicated low level software.
2. Existence of DU different faculties with respective staff and programmes create an unique interdisciplinary research and internal collaboration opportunity.
3. Staff has a good experience in preparing high quality publications.

Weaknesses:
1. Lack of strong scientific teams in the field of IT and research also low knowledge of innovative education.
2. Missing IT focused international research projects and wider local applied IT research collaboration projects.

3. Project preparation and applying for international projects and organizing international conferences are not counted as scientific activity in scientific efficiency assessment.

Assessment of the requirement [2]

1 R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)

Assessment of compliance: Partially compliant

The institution has a formal regulation for the research support and initiatives, but scientific research is not carried out in practice. 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/).

1.5. Cooperation and Internationalisation

Analysis

1.5.1
SAR report discusses the cooperation of the DU with the partners, also during the assessment visit it was an opportunity to discuss the cooperation activities between DU staff and employers. The DU has established a wide cooperation network with local industry partners, which supports the study field, especially providing internship placements and further job opportunities for the students by implementing different types of the activities: delivery of industry introductory lectures, internship places, providing specific topics for the student final Theses. DU has signed 9 contracts with local companies for providing practice places and 22 Erasmus+ agreements with foreign educational institutions in the field of IT (Annex 2.5.2 “Cooperation agreements”) and numerous practice agreements related to the studies.
It is worth mentioning that DU has set clear criteria for selecting cooperation partners of DU in Latvia and abroad to support development of the SF as well as SP-s and further collaboration in research (SAR p.49-50) and therefore the collaboration with the partners is real functioning (expert meetings with the employers, graduates and students). During the meeting in assessment visit all the employers meeting participants expressed support to the DU in general, to the study field and to all the study programmes. Among supporters
SIA “TestDevLab”, SIA "Baltic Technology Group", SIA “Mācību centrs plus”, SIA "Stream Labs", SIA "Entrypoint", SIA “Binitex”, etc. Software development companies that can offer real internships to students are essential for SF development. At the moment, this cooperation is mainly focused on local and regional companies, thus strengthening regional cooperation and preparing employees for the region, which is particularly important. From the interviews with graduates, it is also worth mentioning their high willingness to be involved in the development of the field of study, for example by providing guest lectures, which is a positive and developable area of cooperation and resource for DU. In addition, should be mentioned long running and continuous collaboration with

academic partners as Daugavpils schools (Daugavpils 15th high school, Daugavpils Science High School, Daugavpils 3rd high school, Daugavpils Opportunities High School) (SAR p.49), which is a real opportunity to work with potential further students. During the assessment visit DU partners confirmed their involvement in development activities related with the study programmes, by participating in different level meetings with DU representatives (official boards, round tables etc).
In the area of collaboration activities in academic fields, several entities should be mentioned as Panevezys University of Applied Sciences, Vilnius University, Šiauliai Academy, Zhetisu University in Kazakhstan, University of Latvia [Latvijas Universitāte], Ventspils University of Applied Sciences [Ventspils Augstskola], Riga Technical College [Rīgas Tehniskā koledža], Riga International School of Economics and Business Administration (RISEBA) (SAR 49-50).
To conclude DU has created a wide partnership with the local private and public sector, which supports HEI in its activities. A weak point could be mentioned in many cases: the collaboration is often none-formal without having collaboration agreements and the collaboration is focused mainly on student/staff mobility, providing practice places or participating on general educational projects and not state of art IT research or local applied research contracts solving problems essential for the regional industry.

1.5.2
The international collaboration partners are listed in Annex 2.5.1 (“Cooperation agreements.xlsx”) and in SAR (SAR p.50) where most of the international collaboration institutions, in total 22, are ERASMUS+ programme partners (Annex 2.5.1 “Cooperation agreements.xlsx”) for mobility of the staff and students.
The mobility and the collaboration in the frame of ERASMUS+ is moderate as for the students and for the incoming teaching staff (7 outgoing and 4 incoming students during the reporting period and only 1 incoming teacher) (Annex 2.5.3 “Statistical data mobility teaching staff” and “Statistical data mobility students). One of the reasons for these low numbers as indicated during the expert meetings is COVID19 impact but the numbers could be improved. The cooperation beside the ERASMUS+ with international institutions is weak and is mainly through participation of some teachers in some general or other fields related projects (Additionally provided list of projects “No_13_projects.xlsx”).
In many cases the projects are targeted on development of the general collaboration and teaching staff personal development. It shall be concluded that besides the ERASMUS+ mobility described in SAR collaboration activities with international institutions is active as participation of conferences and publishing journal papers and developing basic infrastructure (Annex 2.4.4 “Teaching staff publications” and the list of projects “No_13_projects.xlsx”) . SAR is not reporting a presence in the IT international associations, which corresponds to the domain of computer science. So it would be useful to improve such a collaboration to raise international recognition of the DU. For example INFORMATICS EUROPE, IEEE etc.
As part of the new DU strategy document “Development of Daugavpils University development strategy for 2022-2028" main principles of internationalization strategy are discussed and respective importance is stressed. Though there is no action plan neither KPIs set in this new strategy document nor any other document. This would be very essential to set benchmarks for coming period, such as participation in international projects, joint scientific journals with foreign partners and participation in international organizations, increasing the number of international mobility (both incoming and outgoing), development and implementation of non-formal education courses in English and introducing some English language course into the existing SP-s for improving the students specialty vocabulary, etc.

1.5.3
Within the context of the ERASMUS+ programme, DU has established a wide network of partner

universities in Europe. In total, the university has concluded 22 bilateral cooperation agreements with higher education institutions (Annex 2.5.1 “Cooperation agreements.xlsx”), which allow both for students to study at the partner universities as part of the exchange programme, and for the academic staff to go on exchange trips to the partner universities to deliver lectures and to attend training. During the reporting period, there were 4 incoming and 7 outgoing students and 1 incoming lecturer and 24 outgoing lecturers in the IT field in the ERASMUS+ mobility programme (Annex 2.5.3 “Statistical data mobility teaching staff” and “Statistical data mobility students”). Therefore it is seen that not all the ERASMUS+ agreements (22 ERASMUS+ partners) work and particularly do not work for student mobility. Page 51 of the SAR reports the mechanism used by the DU to attract international students and teaching staff. Regarding students DU utilizes a set of the activities to attract students, which includes education exhibitions, information publishing in educational information on DU English language web page (https://du.lv/en/home/) and DU staff participation on presentations in foreign universities in framework of ERASMUS+ mobility and contracts are concluded with recruitment agents, participation in international education fairs and agent forums, etc.
It was reported during the expert visit, that in many cases personal contacts are playing a great role in this international collaboration process. So formalization of this process (or strategy) could be a good support for the HEI to establish sustainable development and make it more efficient. The biggest difficulties that DU faces in the implementation of the outgoing mobility of teaching staff are the difficulties of rescheduling lecturers' classes during business trips due to the very heavy workload and it might be a good idea to offer to the teaching staff some sabbatical period to get acquainted with novel teaching and research practices in abroad. The incoming and outgoing student mobility relatively low level might be assumed to be caused by the lack of international research projects and courses in the SF that could be attractive and collaboration supporting. There are some general assumptions, for example in the case of outgoing student mobility, the students are mostly already working and can not afford a long free period for mobility or are afraid that the mobility period could prolong their study (expert meeting with students). It would be useful to complement the open and freely available information on mobility opportunities and conditions, thus increasing the number of potential applicants.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Concluding, the DU has built good local cooperation with companies in the sector and an international collaboration network but at the same time international collaboration is limited without formalizing collaboration aspects with agreements with specific activity plans. Criteria for cooperation have been defined for both local and foreign partners with the aim of contributing to the development of the SF and the achievement of SP learning outcomes. However, there is potential for intensifying cooperation to develop, by expanding it with national and international companies and organizations, developing new research cooperation projects in the field of IT. Presence in international bodies is limited. The DU has developed a new ambitious HEI strategy and it is now facing a task to develop a specific internationalization strategy for current SF including respective KPIs. The rates of incoming and outgoing mobility of students and lecturers are relatively low, and a longer-term IT research based collaboration and strong networking would be suggested.

Strengths:
1. Well established network of international mobility collaboration partners
2. Good list of Latvian collaborating HEI-s to assure education related cooperation.

Weaknesses:
1. International collaboration is concentrated mainly on ERASMUS+ mobility.

2. Low incoming mobility both for students and staff.
3. Low motivation of DU students for outgoing mobility.
4. Missing strong international research collaboration partners.
5. Missing longer internationalization plan for the SF.
6. Missing IT focused international research collaboration projects.

Assessment of the requirement [3]

1 R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.

Assessment of compliance: Partially compliant

SAR (SAR p.49-50) and Annex 2.5.1 (“Cooperation agreements.xlsx”) lists some Latvian and foreign organizations DU has a good cooperation but the cooperation is mainly on the ERASMUS+ mobility and providing practice places for students level and does not cover IT focused research or applied projects.

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

Analysis

1.6.1
Experts didn’t find a full detailed description of recommendations’ implementation in SAR though the information is provided in the Annex “Review of the implementation of recommendations for study programmes: Professional bachelor study programme Information technologies (42483) and Academic Master's study programme Computer Science (45483)” (Annex 2.6.1 “Implementation of recommendations.docx”), the previous assessment procedure was carried out in 2012. The group of two experts defined three recommendations.
consider idea of consolidation academic and professional study programmes in one programme;
create a detailed development plan for cooperation with other Latvian and foreign HEIs;
introduce new application-oriented modules in the academic Bachelors and Master study programmes.
Previously DU has implemented two bachelor level programmes: the ABSP Computer Science and PBSP Information Technologies programmes. Starting from the 2015/2016 academic year, the admission of students to the academic bachelor's study programme "Computer Science" was stopped (Annex 2.6.1 “Implementation of recommendations.docx”) and now HEI implements one professional bachelor's level study programme “Information Technologies” (42484). Experts conclude that the 1st recommendation was implemented.
Regarding the 2nd recommendation, experts didn’t find any evidence that the HEI prepared a detailed development plan except the Annex 2.6.1 “Implementation of recommendations.docx”, which has been attached to the SAR.
DU choosed to attract foreign teaching staff to lead guest lectures with the aim to improve cooperation with foreign HEIs, but there was only one guest lecturer in the spring semester of 2023, Arif Cem Topuz from Ardahan University (Turkey), who gave lectures for students studying Data Mining.
Eight lecturers from DU have participated in the ERASMUS+ mobility programme both teaching and training in Spain, Lithuania, Portugal, Kazakhstan, Poland, Turkey. In total 24 mobilities have been implemented (Annex 2.5.3 “Statistikas dati mobilitate macibspeki.xlsx”). 6 students from DU have participated in ERASMUS+ learning and internship mobility (Lithuania and Germany) and 5 students came from Lithuania, Turkey and Tajikistan to the DU using ERASMUS+ mobility (Annex 2.5.3

“Statistikas dati mobilitate studejosie.xlsx”).
There were several activities implemented (such as seminar, participation in conferences, reading of the courses in other HEIs, joint projects) with the aim to cooperate with other Latvian HEIs.
In the spring of 2022, the lecturers of the Department of Informatics participated in the seminar "Artificial Intelligence and Machine Learning" organized by DU, led by RTU researcher Ēvalds Urtāns.
The lecturers of the Department of Informatics have participated in joint EU co-financed projects with the lecturers of Ventspils University of Applied Sciences in the field of Information technology.
The lecturers of the Department of Informatics have participated in conferences organized by both universities (DU and Ventspils) and have participated in scientific activities organized by University of Latvia, Ventspils University of Applied Sciences, Riga Technical College, RISEBA.
The lecturers involved in the study course also teach at other Latvian universities.
Therefore, the experts conclude that the 2nd recommendation has been partly fulfilled. The activities related to international cooperation should be improved and the detailed development plan of cooperation improvement must be prepared for the next assessment period.
Regarding 3rd recommendation which required introduction of new application-oriented modules in the professional Bachelors and academic Master study programmes, DU has included topics about app creation in the existing study courses such as Database strategic technologies (4KP), Multimedia project (4KP) in AMSP Computer Science and new study courses about app creation. Unfortunately HEI has not specified which exactly new study courses have been introduced. In addition, students learn the widest range of the latest and most relevant technologies and topics in the IT field as part of their study work, in the final works of all study programmes (Annex 2.6.1 “Implementation of recommendations.docx”).

Conclusions on this set of criteria, by specifying strengths and weaknesses

Two of three recommendations were implemented. Recommendation related to cooperation and internationalization has been partially implemented. DU has considered the idea of consolidating academic and professional bachelor study programmes in one programme. Now HEI implements one professional bachelor's level study programme “Information Technologies” (42484). Experts didn’ t find any evidence that the HEI prepared a detailed development plan for cooperation with other Latvian and foreign HEIs except the Annex, which has been attached to the SAR. But HEI has implemented several activities to improve international cooperation and cooperation with Latvian HEIs such as reading of study courses and participation in scientific activities (joint projects and participation in conferences), as well as participation in ERASMUS+ mobility. Only one foreign teaching staff has been attracted to read guest lectures.

Strengths:
1. The lecturers of the Department of Informatics participate in scientific activities organized by other Latvian universities such as University of Latvia, Ventspils University of Applied Sciences, Riga Technical College, RISEBA.

Weaknesses:
1. The activities related to international cooperation are not sufficiently implemented. Only one foreign teaching staff member has been attracted to read guest lectures.
2. SAR is missing a detailed description of recommendation’s implementation.
3. There is still work on motivating students and teaching staff to participate in ERASMUS+ mobility.

Assessment of the requirement [4]

1 R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.

Assessment of compliance: Partially compliant

Two of three recommendations were implemented. Recommendation related to cooperation and internationalization has been partially implemented.

1.7. Recommendations for the Study Field

Short-term recommendations

Enhance student's survey approach and start collecting student's feedback on the particular study subjects in a year. Ensure that feedback is shared with students and teaching staff and introduce necessary action plan on findings.
The detailed development plan of international cooperation improvement must be prepared in one year.
Improve involvement of the employers in the development of the SF.
Implement a quality assurance system, particularly for the courses (improvement, control of changes implementation and respective feedback).
Develop a plan for starting IT focused international research projects and local applied IT research collaboration projects.
Include international research project preparation and applying and organizing international conferences as scientific activity into the scientific efficiency assessment system.
Develop a plan for attracting foreign teaching staff delivering course lectures and industrial specialists delivering attractive guest lectures.

Long-term recommendations

Implement systematic approach with required frequency (can be annually) on procurement of necessary equipment and materials. Teaching staff should be involved in this process.
Rebalance workload and reduce teaching load of the teaching staff considering study subject delivery and their other assigned roles with-in DU so that teaching staff members will not have more than 2 courses per semester as responsible teacher.
Attract at least three foreign teaching staff members delivering a course.
Increase the ERASMUS+ mobility for teaching staff, at least 1 teaching or training mobility per teaching staff during the next 6 years period.
Increase student mobility by 100%.
Increase student enrollment, particularly in short-cycle professional and master's studies by at least 20%.
Introduce new proactive and innovative teaching methods to the courses making them more attractive and reducing drop-out rate.
Introduce a support and motivation system for academic staff where professional development, methodical and organizational activities, international cooperation and research project work as well as activities related to the popularization and development of the SF are taken into account.

II - "Information technologies" ASSESSMENT

II - "Information technologies" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1

The short-cycle professional studies in Information Technologies, offered in the format of full-time studies, are conducted through face-to-face (in-class) learning over a span of 2 study years. This programme encompasses a total of 80 credit points (CP) or 120 ECTS, distributed across 4 semesters, with 20 CP (30 ECTS) allocated to each semester. At the conclusion of every semester, students undergo examination sessions to assess their knowledge, skills, and competence. Throughout the programme, students are required to accumulate the specified number of credit points and complete a qualification thesis, which they must defend.

The educational classification code for this programme in the Republic of Latvia is No. 41483, in accordance with the Cabinet of Ministers Regulations No. 322 dated June 13, 2017, titled "Regulations on the classification of education in Latvia." This classification aligns with short cycle professional higher education (fifth-level professional qualification) within the thematic field of computer science education, specifically in the group of computer systems, databases, and computer networks programmes.

The objectives, tasks, and structure of the short-cycle PSP Information Technology programme are in compliance with the Cabinet of Ministers' regulations outlined in No. 305 dated June 21, 2023, titled "Regulations on the standard of state professional higher education." Further details about these regulations can be found in Latvian at the following link: https://ieej.lv/FxNDf.

The programme fully meets its objectives and meets the formal requirements. Students studying in this programme can acquire real skills and practical knowledge to administer computers and their networks. the programme courses are well selected and meet the needs of the market/employers.

2.1.2

The study programme "Information Technologies" is a two-year, short-cycle professional higher education programme with the code 41483. The primary objective of this programme is to deliver professional studies in the information technology sector that align with the needs of the Republic of Latvia. These studies aim to meet the professional standards required for computer systems and computer network administrators while emphasizing practical applicability.

The programme is intended for individuals who have the goal of entering the labor market as soon as possible, and at the same time, the university can offer students professional bachelor's studies after relatively simple studies, thus gathering and motivating more potential students. It is a good programme that has a small number of students but has good goals. There is also an aspect that in many cases the students applying for any SP are not sure about the profession and their future career and in this sense this two years SP is enough for them to get acquainted with the future profession and to decide whether they would like to continue this career path and at the same time they can complete one educational level which is short cycle but still gives a diploma. This might reduce unwanted drop-out rate on BA level.

Key aims and tasks of the programme include:

- Educating short-cycle qualifications of a Administrator of computer systems and computer networks in the information technology sector (SAR p. 15), essential for the national economy, and enhancing their competitiveness in evolving socio-economic conditions and the international labor market.
- Providing an opportunity to obtain the professional qualification of "Administrator of Computer Systems and Computer Networks."

- Ensuring that programme graduates can responsibly and safely choose and utilize information technologies for work duties, research, lifelong learning, and the creation and sharing of digital content.
- Motivating further education and offering the opportunity to prepare for first-cycle professional higher education and sixth-level professional qualification.

The short-cycle degree provides knowledge that provides a foundation for undergraduate studies related to operating systems and computer networks. In this way, students who already have knowledge and abilities can more easily apply programming knowledge while learning and thus are able to apply knowledge and abilities more broadly or more precisely according to their inclination. For example, developing software for network data transmission or data flow monitoring platforms.

Admission to DU follows regulations established in accordance with the Law on Higher Education Institutions, the Cabinet of Ministers Regulations No. 846 of October 10, 2006, titled "Rules on requirements, criteria and procedures for admission to study programmes," and the constitution of DU. Eligible candidates include citizens of the Republic of Latvia, individuals with non-citizen passports issued by the Republic of Latvia, and those holding permanent residence permits in Latvia. Foreigners without permanent residence permits are subject to the admission rules outlined in Article 83 of the Law on Higher Education Institutions.

DU organizes full-time studies for the short-cycle PSP "Information Technologies" through state budget funding and additional funds contributed by applicants or other legal or natural persons. The admission process is regulated, and specific components are approved by the DU Senate, including admission requirements and criteria, the admission procedure for the academic year, registration fee, study fee, and the number of available study places.

Admission to the short-cycle professional study programme "Information Technologies" is based on a competition. The competition includes a centralized exam in subjects such as Latvian Language, the first foreign language, and mathematics, with additional points awarded for certified exams or tests in informatics or applied informatics. Further, 5 additional points are awarded to winners of DU "School of Science" certificates.

Outside the competition for full-time studies on budget financing, certain students are matriculated based on meeting admission requirements. This includes participants in youth and junior competitions of the school olympiades, World and European championships, and Latvian championships, as well as winners of various scientific and creative competitions and Olympiads. The detailed admission rules are available on the DU website in the "Admissions" section (in Latvian: https://du.lv/gribu-studet/uznemsana/).

2.1.3

A 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.

Since the issuance of the previous study field accreditation sheet, the short-cycle professional study programme "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). The reference link is not accessible for the experts and it cannot be checked. Therefore, in accordance with the requirements of the profession standard and Cabinet Regulation No. 305 "Regulations on the state professional higher education standard", the study programme'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.

No other changes have been made to the parameters of the short-cycle SP (in terms of its title, duration, scope, form, aim, objectives). The SAR does not provide a more in-depth assessment of the impact of the changes on the future study process, so it is not possible to fully assess the impact of

the changes on the quality of the study programme.

2.1.4
DU predominantly attracts students from Daugavpils city, Daugavpils county, and other counties within the Latgale planning region. The implementation of the short-cycle professional study programme (PSP) "Information Technology" holds significant importance for both national and regional development interests. This programme plays a crucial role in fostering local human resources and training qualified specialists.
Over the three-year period from 2018 to 2020, the number of prospective students did not meet the minimum requirement for forming a group (11 students). Consequently, no groups were opened during this time. However, there has been a positive trend with 19 admissions in 2021 and 17 students admitted in 2022. The data of the Central Statistics Office on students show that since 2005 the number of students has gradually decreased. The overall tendency for the number of students to decrease is determined by demographic processes - the population decreased by 20.51% from 2000 to 2021, the population aged 20 to 39 decreased by 30.89%, the population aged 40 to 59 decreased by 16.07% (Latvian Ministry of Education and Science webpage, https://www.izm.gov.lv/lv/jaunums/publicets-parskats-par-latvijas-augstako-izglitibu-2021-gada?utm_source=https%3A%2F%2Fwww.google.com%2F).
To attract and enhance the pool of potential students, DU actively participates in and organizes various events, including the Night of Scientists, the School of Young Scientists, Open Door Days, and other initiatives. Additionally, several Latvian municipalities offer municipal scholarships to students residing in their regions based on high academic achievements.
The average drop-out rate during the assessment period is about 30% (Annex 3.1.4 “Statistical data on students 1stLevPSP IT EN.xlsx”). The reasons for the termination of the study process are basically the failure of students due to non-attendance of classes, lack of motivation to continue studies, 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. In order to reduce student dropout due to financial reasons, DU has organized the Social Support Programme 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) (SAR, p.84).
In smaller cities, the employment opportunities for graduates are limited, as there are fewer companies requiring a high number of such specialists. However, in the broader regional context, there is a demand for graduates to support local government initiatives, educational institutions, and the private sector as a whole. To address this, DU is committed to annual efforts aimed at promoting the programme and encouraging more students to pursue studies in Information Technology.

2.1.5
N/A

Conclusions on this set of criteria, by specifying strengths and weaknesses

The aim, tasks and learning outcomes of the study programme are minimally formulated and correspond to the state and internal documents. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient. The study results are more abstract and focused on practical activities and this is fully in line with the goals of this qualification. Admission to studies is made according to external and internal requirements after graduating from high school.

Strengths:
1. All indicators describing the study programme are well prepared according to external state and university regulation documents.

Weaknesses
1. Programme tasks and aims are more abstract and could be in the future updated to
be more oriented towards SF and SP and to be more detailed appropriate for the short-cycle SP.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1
The goal of the short cycle professional study 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. All the courses are mapped to the skills and knowledge and competencies provided by the SP (Annex “3.2.1 Mapping of study courses 1stLevPSP IT EN.docx”). DU has indicated the results of study courses, which ensure the achievement of particular programme results. Knowledge of some study courses does not provide achievement of specified knowledge of the study programme. Perhaps it would be appropriate to supplement the knowledge of the study programme or reformulate knowledge acquired by studying a specific course.
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 (SAR, p.80). The dominant forms of programme implementation in the field of professional specialization courses are practical lessons, lectures and seminars are significantly less common (SAR, p.80).
Annex 3.2.1 Compliance with national educational standart 1stLevPSP IT EN.docx shows the compliance of the study programme "Information Technologies" with the State Professional Education Standard and Annex 3.2.1 “Compliance with prof standart 1stLevPSP IT EN.docx” shows the compliance of the short cycle professional SP "INFORMATION TECHNOLOGIES" with the Profession Standard that was proved by investigating descriptions of study courses. The only note, the study courses “Qualification work” (8KP, 12ECTs) and “Internship” (16KP, 24ECTs) are not mentioned in the compliance of the SP with the Profession Standard which would be appropriate.
The attached annex “Compliance of the study programme "Information technologies" (short-cycle professional study program) with the national education standard (MC Regulations Nr.305 ”Noteikumi par valsts profesionālās augstākās izglītības standartu”: https://likumi.lv/ta/id/342818-noteikumi-par-valsts-profesionalas-augstakas-izglitibas-standartu)” (3_2_1_Compliance_with_national_educational_standart_1stLevPSP_IT_EN.docx) approves the compliance of study programme with state professional education standard. The amount of programme is 80 credit points (CP) or 120 ECTS (2 years, full-time studies) and structurally is divided in 4 parts:
General mandatory educational study courses – 20 CP or 30 ECTS that includes theoretical courses of humanities and social sciences and courses that develop social, communicative, organizational skills;
Industry training courses – 36 CP or 54 ECTS that are aimed at professional preparation in the relevant field and includes Digital electronics, Computer networks and communications, Computer architecture, Database technologies, Creation of electronic documentation, Operating system and server administration, Programming, Web technologies, Creating websites, Unix family OS
Practice/internship – 16 CP or 24 ECTS that takes place outside the university in private/public companies and institutions under the guidance of experienced IT specialists

Qualification work – 8 CP or 12 ECTS in which students apply to gather the theoretical knowledge acquired in various study courses, conduct practical research and draw conclusions under supervision of the study paper supervisor.
Almost 52% (by the law it is required at least 30%) of the volume of study courses is implemented practically. The study plan of the SP includes the following courses: Environment protection and Civil defense in accordance with the Clause 13 of the Minister Cabinet No 305 which requires to include study courses specified in the Law on Environmental Protection and the Law on Civil Defense and Disaster Management in the mandatory content of short-cycle professional higher education study programmes.
DU uses the following relationship between contact classes and students' independent work is adopted: 1 credit point corresponds to 1.5 ECTS (European Credit Transfer System) units and form 40 academic lessons = 16 contact lessons + 24 lessons of independent student work that corresponds to the previous version of the Law on Higher Education.
After completion of study programme students are awarded qualification Administrator of computer systems and computer networks - the fifth level of professional qualification, that corresponds to the fifth level of the Latvian qualifications framework, and are able to continue studies in professional programmes designed for studies on the basis of short-cycle higher professional education.
The results of short cycle professional SP "Information Technologies", its' study plan and description of study courses have been renewed and improved in accordance with the requirements mentioned in the Computer Systems and Computer Networks Administrator profession standard (available in Latvian: https://ieej.lv/hi7XN), 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 Cabinet of Ministers regulations no. 305 "Rules on the standard of state professional higher education" and the innovations in the labour market. The descriptions of the existing study courses were improved according to the professional standard, thus attracting specialists of a wider profile in the existing industry (SAR, p.86). It was mentioned during the expert visit (meeting with the director of the SP) that one of the most valuable information for developing the SP is feedback from the employers collected at the end of the student internship.
The basic principles and procedure for the assessment of the acquisition of the SP comply with the requirements of the National Professional Education Standard.
The survey results in the 2018/2019 study year and students' opinions (meeting with students) showed students' satisfaction with the teaching quality (rate - high), the courses included in the study programme 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%) (SAR, p. 82-83).
The definition of the term "credit point" given in SAR (p.86) corresponds to the old definition of the Law on Higher Education Institutions, i.e. "1 credit point (40 academic hours) = 16 contact hours + 24 hours of independent student work. 1 credit point corresponds to 1.5 ECTS (European Credit Transfer System) units." According to the new definition given in the Law on Higher Education Institutions (https://likumi.lv/ta/id/37967-augstskolu-likums) Clause 1 Article 8 "credit point is accounting unit that expresses the amount of study work based on the study results defined in the study programme or part of it and the study load related to their achievement. 60 credit points correspond to the study results acquired in full-time studies in one academic year in accordance with the European credit transfer and accumulation system. Credit points are expressed in whole numbers. One credit point corresponds to 25-30 hours of study work". The university must ensure the transition to the amount of credit points specified in Article 1, Clauses 9 and 10 and the second, third, fourth and fifth parts of Article 57 of this law by 2024 for December 31, according to the amendments in Article 1, Clause 8 of this law regarding the wording of the term "credit point" in the

new version (Law on HEI, Clause 93).
The description of the aim and learning outcomes of specific study courses are described in each study course description (3_2_1_Studiju_kursu_apraksti_1limPSP_IT.zip). The description of study courses include necessary elements: aim, tasks, results, requirements of credit point acquisition, independent work, plan of study course, mandatory and additional literature, but the list of mandatory literature for study courses includes outdated sources that must be renewed, e.g. in the study course Professional terminology in a foreign language the newer books related to professional terminology in the field of IT are books of 2007 and 2013. In the Digital Electronics study course, the newest source was published in 2002: Greivulis J., Ranķis I. Basics of modern electronics. - R.: Avots, 1992. - 165 p. In the computer architecture course, the latest source was published in 2012. A. Tanenbaum, T. Austin. Structured Computer Organization 6th Edition. Pearson, 2012. 808p.
Completion of the study courses is evaluated at its conclusion (mostly completion of the study course is evaluated at the end of it on a 10-point scale) in accordance with the laws and regulations of the Republic of Latvia and the decision of the DU Senate on 17.12.2018. protocol no. 15, guided by the following criteria: volume and quality of acquired knowledge; acquired skills; acquired competence in accordance with the planned study results. Experts invite the DU management to review the form of evaluation of the achievement degree of study results for study courses. According to the new version of the MC Regulation No 305, the degree of achievement of study results within the final examination of the study course can be evaluated with the rating "passed/failed" if the amount of the study course is not more than three credit points (MC Regulation No 305, Clause 57).

2.2.2
N/A

2.2.3
The study process is mainly implemented in forms of study: 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 programme, students' individual work makes up about 52% of the total number of contact hours (SAR, p.86).The style of implementation of the study programme is creative participation. Students update society's challenges and look for opportunities for the implementation of their ideas and projects, discuss and share practical experience within the practical tasks of specific study courses, thus developing critical thinking and arguing their point of view during discussions (SAR, p.87).
The SAR states (p.87) that during the implementation of short cycle professional SP Information Technology, the basic principles of student-centered education are observed, such as:
constant reflection,
individual approach to students, there is no one-size-fits-all solution,
it is taken into account that students have different learning styles, different requirements, interests, experience and previous knowledge,
students' knowledge, skills and abilities are evaluated not only by the academic staff, but there should also be self-control over their studies,
students are offered the opportunity to learn by themselves,
continuous cooperation between students and academic staff.
Communication with the lecturer is organized mostly in face-to-face mode. Students are able to ask questions to the teaching staff before and after lessons (meeting with students). Some teaching staff discuss common mistakes made by students in their works during classes (meeting with teaching staff). But the teaching staff acknowledged that they do not have enough time due to overload to provide students individual consultations (meeting with teaching staff). Students acknowledge that

they have all the necessary materials in the e-study (Moodle) system, but they are not limited to use the materials offered by teaching staff and search for appropriate individually more preferred sources and libraries with theoretical materials independently, as well as lecturers invite students to express their opinion and take their wishes into account, varying presentation forms recommended for the independent work. Classes are scheduled for the second half of the day, which gives students the opportunity to combine work with studies. So the schedule is tailored for working people. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the programme (e.g., e-study environment MOODLE, video conference platforms and others), thus creating an opportunity for students to learn the subject independently (SAR, p.87).
Students regularly participate in seminars and master classes, as well as participate in scientific events organized by DU (Scientists' Night, Open Days, etc.) (SAR, p.87, meeting with teaching staff).
In order to promote the involvement of students in scientific research activities, especially in projects, DU has created an opportunity for study programme students to participate in the "Daugavpils University student research projects" competition, receiving a grant for the implementation of submitted and approved projects (SAR, p.87), but unfortunately no student from 1st level professional SP took this opportunity (meeting with study programme director).

2.2.4
The programme includes an internship in the amount of 16 CP or 24 ECTS. The goal of the internship is to improve students' theoretical knowledge in information technologies; strengthen practical skills; to prepare the student for operation in the company; create motivation for further education.
Students undergo internships in various companies and organizations where computer system and computer network administrators work, for example, 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"; have appropriate conditions for the implementation of professional qualification internships and where specialists with appropriate qualifications work. Students can choose the place of internship themselves, however, if necessary, DU can help to find it (SAR, p.88). The practice is organized according to the goal and tasks of the study programme and corresponds to the professional qualification of computer system and computer network administrators and in accordance with DU practice regulations (Annex 3.2.4 “Regulations on practice 1stLevPSP IT EN.docx”).
Full information about the organization and conducting the internship are given in the description of study course (Annex 3.2.1 “Studiju kursu apraksti 1limPSP IT.zip” - Prakse.docx) and in the internship guidelines - DU regulations on practice in the Annex 3.2.4 (“Regulations on practice 1stLevPSP IT EN.docx”). The DU regulations on practice are developed in accordance to the Regulations of MC No.141 “Noteikumi par pirmā līmeņa profesionālās augstākās izglītības valsts standartu” which have lost their force at 21.06.2023, and must be renewed according to the Regulations of MC No.305 "Noteikumi par valsts profesionālās augstākās izglītības standartu" that came into force at 21.06.2023.
Unfortunately, the sources of mandatory literature listed in the description of study course “Practice” (Prakse.docx) programme include outdated regulations of DU - methodological materials, regulation of professional qualification practice, i.e.:
Boļakova I., Bogdanova N., Drozdovs P., Ignatjeva S., Jankoviče V., Perevalova O., Senkeviča I. (2008). Metodiskie materiāli studiju programmas “Informācijas tehnoloģijas” studentiem. Profesionālās kvalifikācijas prakses īstenošanai. DU. Informātikas katedra, 80 lpp.
Boļakova I., Ignatjeva S., Drozdovs P., Bogdanova N., Senkeviča I., Jankoviče V., Perevalova O. (2007). Metodiskie materiāli profesionālās kvalifikācijas prakses vadītājiem. DU. Informātikas katedra, 60 lpp.

Profesionālās augstākās izglītības programmas "Informācijas tehnoloģijas" (42481) profesionālās kvalifikācijas prakses nolikums (pēdējā redakcija apstiprināta DU DMF Domes sēdē 2012.g.)
The description (aim, tasks, literature) of the study course “Practice” (Prakse.docx) must be renewed too according to the new MC Regulations in force.

2.2.6
The topics of students' qualification papers taking into account the topicality of the theme are chosen based on evidence-based knowledge, current affairs of the industry and in consultation with the supervisor of the qualification paper. The final theses are discussed and approved at the meeting of the Department of Informatics at the beginning of the study year. The theses are defended in front of the State Examination Commission, composed of 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 (SAR, p.90-91).
Examples of the topics of defended theses are (Annex “3.2.6 Defended qualification theses 1stLevPSP IT EN.docx”):
Development of an auxiliary programme for drawing up a work schedule
Creation of a cyber competition platform
Creation of an information system on the topic "Data restoration"
Design and realization of local network of a private house
Comparison, selection and implementation of network monitoring systems
Apparatus support for orienteering sports competitions
Development of a web app for internet control in schools
Integrating cloud technologies into a local company
Use of free online tools and cloud storage in schools
Creation of a "SEO optimization" website
In order to ensure a unified DU study final thesis plagiarism control system, the submission and storage of the electronic version of the final study thesis is compulsory for all DU students. If signs of plagiarism are found in the process of comparing the final theses (see: http://www.plagiarism.org/), the dean of the faculty establishes an Expert Commission which consists of the director of the study programme, director of the study field, head of the department/director of the institute. The Expert Commission reviews the report and submits proposals on the student's responsibility to the dean of the faculty (https://du.lv/wp-content/uploads/2022/09/Procedure-of-thesis-submission-for-plagiarism-control.pdf) .
Summarizing above mentioned, the defended thesis topics are relevant for the programme, as they cover the topics related to the study courses of SP, and were selected based on evidence-based knowledge, as well as industry current affairs.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The content of the short-cycle professional study programme is topical, the content of the study courses is interconnected, corresponds to the objectives of the programme and ensures the achievement of learning outcomes, as well as meets the needs of the industry and labor market. The description of study courses include necessary elements, but the list of mandatory literature for study courses includes outdated sources that must be renewed. Communication with the lecturer is organized mostly in face-to-face mode. Students undergo internships in various companies and organizations where computer system and computer network administrators work. The practice is organized according to the goal and tasks of the study programme and corresponds to the

professional qualification of Administrator of computer systems and computer networks. SP complies with the national professional education standard. The defended thesis topics are relevant to the programme.

Strengths:
1. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the programme.
2. Students are satisfied with the teaching quality and the learning environment and teachers attitude.

Weaknesses:
1. No student from the SP took the opportunity to participate in the "Daugavpils University student research projects" competition, which provides an opportunity to get a grant for the implementation of research projects.
2. The teaching staff do not have enough time to provide students individual consultations due to overload.
3. The list of mandatory literature for some study courses includes outdated sources.
4.The methodological materials and regulation of professional qualification practice are outdated.
5. DU regulations on practice and description of study course “Practice” are developed in accordance to the Regulations of MC No.141 “Noteikumi par pirmā līmeņa profesionālās augstākās izglītības valsts standartu” which have lost their force at 21.06.2023.

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Not relevant

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2.3. Resources and Provision of the Study Programme

Analysis

2.3.1
DU has a significant and sufficient volume of auditoriums (large have ~100 seats), 7 classrooms are available for practical and laboratory work including laboratories for specific study courses to equip students with necessary hardware and software (SAR p.34, 38). The key asset required for students in the SP “Information Technologies” is the computer equipped with compilers, program development and supporting environments and the internet connection supported. DU ensures required software development environments and technologies by establishing collaboration agreements with Microsoft (MSDN). For specific courses, like Computer networks and communications, DU has ensured devices and other hardware equipment from Cisco and Mikrotik. During the onsite visit, several people (1-2 teaching staff and 1-2 students) have mentioned the possibility of having 100 credit points for Microsoft Azure cloud computation resources (https://azure.microsoft.com/en-us/free/students), but the majority of students didn’t know about such possibility.
Students have access to the DU library that provides access to physical and electronic materials used in study program delivery.
DU has implemented a Moodle system to provide required information to students, i.e. necessary

information of the study courses including practical exercises and additional materials. Mentioned information is available in Latvian (https://estudijas.du.lv/).
To maximize availability of delivered lectures (especially during the pandemic period), DU has established hybrid delivery of them. By using ZOOM and MS Teams, teaching staff was able to deliver lectures physically in the class and virtually to the connected students.
Review of the necessary equipment and literature is being done mostly through various projects (like ERDF or ESF). During the onsite visit academic staff reconfirmed availability of necessary equipment and renewal with-in large projects, but also highlighted that there is no information about the annual budget for required resources and the most critical items are requested as per the need in an ad-hoc manner.
Study program includes an internship part. DU has established a number of collaborations with mostly local companies to provide internship options for their students. IT specialists are heavily demanded on the market, and this increases an interest of the industry in the skilled students. Such collaboration supports achievement of the learning objectives of the study program, but also introduces challenges, when students get full-time work and continue studies in DU in parallel.

2.3.3
DU has defined and executed a clear financial budgeting process. The program is financed mostly by state funded grants providing state-funded seats and study fees. Department of Finance and Accounting of DU calculates costs per 1 student for whole program delivery, which includes salaries of the teaching staff, renewal of required equipment and resources, costs for facilities and all other costs associated with program delivery. Currently calculated costs per 1 student for whole program delivery are 5238.42 EUR, which are calculated with conditions to have at least 11 state funded students in the program.
Financial provisioning and sustainability of the study program is directly impacted by the number of students in this program. DU has managed to increase the number of students in the program during the last 2 years. In academic years 2014-2017 average admission to the program was 11 new students, but then followed by 3 empty years 2018-2020. Therefore, during the last 2 years, DU managed to get 19 new students in 2021 and 17 in 2022 (Annexes 3.1.4 “Statistical data on students 1stLevPSP IT”, 3.1.4 “Statistical data on students PBSP IT” and 3.1.4 “Statistical data on students AMSP CS”). Meanwhile, dropout of students also has increased, reaching 6 in 2022. Based on the feedback collected during the expert's visit, one of the main reasons is the inability of students to combine full-time jobs with the study process. Current number of students is higher than the minimal number (11) needed to keep the study program financially sustainable.
Additionally, DU managed to leverage ERAF funds and complete several projects during recent years and attract additional funds to finance new laboratory equipment, new computer classes, improvements of premises and development of the academic staff.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Students and teaching staff are fully equipped to achieve learning objectives and graduate the program. SP has increased the number of students in the last 2 years and shows good financial sustainability to ensure current implementation of the study program and make investment in programme development.

Strengths:
1. Students have access to all required equipment and cooperation with Cisco and Mikrotik has ensured DU with demanded networking devices.
2. During the last 2 years DU managed to attract a high number of new students (19 and 17).

Weaknesses:
1. Considering modern technologies and industry trends, students require experience to work with cloud computing resources.
2. Availability of 100 credit points in Azure cloud (https://azure.microsoft.com/en-us/free/students) should be ensured, promoted between all students and real practical tasks embedded into the SP.

Assessment of the requirement [6]

1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Fully compliant

students and teaching staff are fully equipped so students can achieve learning objectives and graduate the program. Study program has good financial sustainability during the last 2 years through an increased number of new students.

2.4. Teaching Staff

Analysis

2.4.1
Totally 21 members of the teaching staff from different Departments (such as Department of Economics, Department of Physics and Mathematics, Department of Environmental Science and Chemistry, Department of Foreign Languages, Department of Informatics) are involved in the implementation of the 1st level professional study programme “Information technologies” (Annex 2.3.7 “Teaching staff.xlsx”). 11 members are from the Department of Informatics, i.e. 1 elected associate professor, 2 elected assistant professors, 5 elected lecturers and 3 guest lecturers (Annex 2.3.7 “Teaching staff.xlsx”) with more than 10 years professional experience gained in the industry (Annex 2.3.7 “CV EN.zip”). Two members have expert rights of Latvian council of Science in the science branch: Natural sciences-Computer science and informatics.
All members of the teaching staff have masters or doctoral degrees, i.e. 27% of members have Doctoral degrees and other members have masters degrees. One of the lecturers with a masters degree has finished Doctoral studies in engineering in the Faculty of Computer Science and Information Technology of RTU (Annex 2.3.7 “CV EN.zip”). The education (Bc, Mg or Dr degree) of teaching staff from the Department of Informatics is in the field of ICT (SAR, p.94).
According to the Regulation of the Cabinet of Ministers No.569 "On the education and professional qualifications required for teachers and the procedure for the development of professional competence of teachers", professional development may include international mobility, participation in projects and participation in conferences and seminars, as evidenced by the documents issued for professional development. Several members of teaching staff have improved their professional knowledge and skills by attending (Annex 2.3.7 “CV_EN.zip”):
specific courses within the European Social Fund project No. 8.4.1.0/16/I/001 "Improving the professional competence of employed persons" such as RTU: WEB programming languages and development (PHP, Javascript, Python) 160 hours, University of Latvia: "Digital marketing tools: social network marketing and Google Ads". 160 hours,
improved their professional English knowledge level or attended specific course, for example, Artificial Intelligence and Machine Learning Tools, within the ESF project No. 8.2.2.0/18/A/022 "Strengthening the professional competence of academic staff in strategic specialization areas of Daugavpils University";
attended specific courses and seminars, for example, Courses "Artificial Intelligence and Deep

Learning", "Use of Internet resources to ensure high-quality distance learning process", "Google services in education", Power BI - data analysis and visualization tool, Business and Data Analysis, Seminar "Current Affairs in Personal Data Protection" etc..
6 members from 11 members of the teaching staff from the Department of Informatics have participated in the mobility. The obtained information is used in the study process.
Each lecturer has the appropriate academic and/or professional qualifications to teach the specific course, to contribute to the achievement of the learning outcomes, are relevant and appropriate to ensure the achievement of the results, goals and tasks of the study program.
The Statement of acknowledgement (Annex 2.3.7 “STATEMENT native language.docx”) confirms that the official language proficiency of the teaching staff involved in the implementation of the short cycle professional study program “Information Technologies” (41483) complies with the “Regulations regarding the extent of the knowledge of the official language and the procedures for examining the proficiency in the official language” for the performance of their professional duties.
The Annex 2.3.7 (“Teaching staff.xlsx”) acknowledges that all members of teaching staff also have the Knowledge of English according to European language proficiency levels at least B2 and higher, which assures staff ability to be acquainted with the latest professional literature and participate in international cooperation.

2.4.2
During the reporting period, changes in the composition of teaching staff have been insignificant:
in 2018 a new guest lecturer was attracted and started teaching the study course "Digital Electronics",
in 2019 a new lecturer was elected and one member of the teaching staff was elected as an assistant professor (previously was a lecturer),
the director of the study program was changed (SAR, p. 95).
DU has established measures to verify that lecturers involved in implementation of the short cycle professional study programme have the necessary qualifications and competences for the development and teaching of the specific study courses, i.e:
DU Regulation on electing to academic positions where the requirements for applicants for academic positions are defined (https://du.lv/wpcontent/uploads/2021/12/Nolikumspar-velesanam-akademiskajosamatos-DU_APSTIPRINATAIS.pdf (31.05.2021)) ;
student surveys at the end of each semester, where students are able to provide feedback and comments about each individual teaching staff (SAP, p.96, Meeting with students during visit);
the self-analysis of the academic activity performed by the lecturers (SAR, p.96).
During the visit, there were not identified any gaps in the composition of the teaching staff from the perspective of legal requirements. Students acknowledge the high qualification of teaching staff.

2.4.4
In general, 17 members from 21 fulfill the requirements of the Law on Higher Education Institutions, i.e. 14 members of the teaching staff are involved in the research and 3 guest lecturers have more than 10 years professional experience in the industry. 4 lecturers with Masters degrees are educators with more than 15 years or 20 years experience. 13 members from 21 have published in peer-reviewed editions (totally 64 publications have been published in SCOPUS/WoS databases, and 91 publications in other peer-reviewed editions). One associated professor (without publications) has expert rights and is involved in the editorial board of scientific publications (6 times). 9 members have participated in scientific or applied conferences (totally 132 times). 11 members have participated in projects, but part of them are more related to quality assurance of the study process, not research. Totally, 3 associated professors are involved in the editorial boards of scientific publications.

Regarding the Department of Informatics, 4 members (i.e. associate and assistant professors) of the teaching staff from 11 are involved in research (Annex 2.4.4 “Quantitative data teaching staff.docx” and “Teaching staff publications.docx”) (for more details of scientific research see in this opinion section 1.4.). 3 guest lecturers have more than 10 years professional experience in the industry.
According to Article 60 of the Law on Higher education institutions, scientific research is an integral part of the work of every university, and in accordance with Article 26 of this law, all academic staff of the university participate in it. Its purpose is the acquisition of scientific knowledge, scientific substantiation and further development of teaching and studies, solving practically important tasks with research methods. The Law states that performance of scientific research is one of the main tasks of professors, associate and assistant professors, but the tasks of the lecturers and assistants are determined by the university. In the case of DU, all associate and assistant professors involved in the implementation of SP perform research. The involvement of lecturers in the research could be improved, but in the case of short cycle professional study programmes, the attraction of professionals from industry with professional experience could be more relevant. In general, the indicators of scientific activity are adequate.

2.4.5
A mechanism for mutual cooperation of the teaching staff in the implementation of the short cycle professional study programme has been established, that ensures the achievement of the aims of the study programme and the interconnection of study courses within the study programme. According to the SAR (p.96) and information obtained during the meeting with teaching staff, DU carries out several activities regarding mutual cooperation of the teaching staff within the short cycle professional study programme:
activities related to the organization and management of the study process, practice planning;
development of study course programs in cooperation with several teaching staff - program authors;
the regular meetings of lecturers, where the content of the study courses and the structure of the program, how to maintain the basic principle of creating the courses of the developed program – systemicity, how to improve the organizational forms of the study process in order to promote the growth of students are discussed;
discussion with employers;
collaboration activities in the research field.

Conclusions on this set of criteria, by indicating strengths and weaknesses

The qualification of the teaching staff complies with the requirements set forth in the Law of Higher Education Institutions, is appropriate for short cycle professional study program “Information Technologies” implementation, allows to achieve the aims and ensure the learning outcomes of the study programme IT in Latvian language. All members of the teaching staff have the knowledge of English according to European language proficiency level at least B2 and higher, which assures staff ability to be acquainted with the latest professional literature and participate in international cooperation, as well as opportunity to implement SP in English language in the future. The education (Bc, Mg or Dr degree) of teaching staff from the Department of Informatics is in the field of ICT. Associated and assistant professors are involved in research. Guest lecturers have more than 10 years professional experience in the industry. DU has established a mechanism for mutual cooperation of teaching staff to ensure the achievement of the aim of the study programme.

Strengths
1. The teaching staff involved in implementation of the study programme have the necessary academic (higher) education.
2. The teaching staff collaborates by jointly developing and improving the content of study courses.

3. The English knowledge level of teaching staff (according to European language proficiency level at least B2 and higher) is appropriate for participation in international cooperation.

Weaknesses:
1. Some lecturers are not involved in the research.

Assessment of the requirement [7]

1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Fully compliant

The qualification of the teaching staff complies with the requirements set forth in the Law of Higher Education Institutions, is appropriate for short cycle professional study program "Information technologies" implementation. The involvement of lecturers in the research could be improved, but in the case of short cycle professional study programmes, the attraction of professionals from industry with professional experience is more relevant.

2.5. Assessment of the Compliance

Requirements

1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

The attached annex "Compliance of the study programme "Information technologies" (short-cycle professional study programme) with the national education standard"(3_2_1_Compliance_with_national_educational_standart_1stLevPSP_IT_EN.docx) approves the compliance of study programme with state professional education standard (MC Regulations Nr.305 "Noteikumi par valsts profesionālās augstākās izglītības standartu")

2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Fully compliant

The attached annex "Compliance of the "Information Technologies" study programme with the professional standard" with the valid professional standard (3_2_1_Compliance_with_prof_standart_1stLevPSP_IT_EN.docx) approves the compliance of study programme with professional standard "PS-219 Administrator of computer systems and computer networks"

3 3 - The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

Attached study course descriptions ('III_3_2_1_Studiju_kursu_apraksti_1limPSP_IT.zip') are prepared in Latvian language therefore study course descriptions do comply with the

requirements set forth in Section 561, Paragraph two and Section 562, Paragraph two of the Law on Higher Education Institutions.
But the management of DU should renew the mandatory literature base.

4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Fully compliant

"The sample of the diploma complies with the current valid version state regulations set in the Minister Cabinet regulation No.202 "Kārtība, kādā izsniedz valsts atzītus augstāko izglītību apliecinošus dokumentus"."

5 5 - The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

6 6 - Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

7 7 - At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts (if applicable).

Assessment of compliance: Not relevant

8 8 - The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Fully compliant

The attached annexes Statement of acknowledgement (Annex 2.3.7 "STATEMENT native language.docx" and "Teaching staff.xlsx") affirms that the knowledge of the official/national language of the academic staff involved in the implementation of the study program complies with the Regulations on the extent of knowledge of the national language and the procedure for testing the knowledge of the national language for performing professional and official duties.

9 9 - The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language (if applicable).

Assessment of compliance: Not relevant

The attached Annex 2.3.7 "Teaching staff.xlsx" affirms that the English knowledge level of the teaching staff involved in the implementation of the study programme in English is B2 and higher.

10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

The attached Annex 2.1.4 “Studiju līguma paraugs.docx” fully comply with the requirements set in the Minister Cabinet regulation No.70 “Studiju līgumā oblgāti ietveramie noteikumi”. There is full information about the university and study programme. All the main rights and obligations of both the student and the university. The university assures the possibility to transfer to another university or study programme, if the exact study programme loses its accreditation or license. The agreement mentions possible extra payments for re-examination and other cases.

11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

The Agreements with University of Latvia on students taking over in case of cancellation of study programmes (Annex 2.1.4 “Līgumi studentu parnemsana.zip”) affirms that students are provided with opportunities to continue their education in University of Latvia short-cycle1st level professional study programme "Informācijas tehnoloģijas" if the implementation of the study programme IT is terminated.

12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme’s license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Fully compliant

The study agreement mentions that if any side cannot execute any point of the agreement, that side fully compensates the incurred losses. Students can get compensation for losses with a written submission when deciding not to continue their studies. Student has the right to terminate the agreement if the university does not fulfill all their obligations or decides not to study in this programme by giving a written submission to the faculty dean.

13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

Assessment of the requirement [8]

1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Fully compliant

The study programme complies with the current valid requirements set in national regulatory enactments. The course's literature needs an urgent update.

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

The aim, tasks and learning outcomes of the study programme correspond to the state and internal documents. The aim, tasks and learning outcomes are mutually compatible. Despite the fact the aims and tasks are very abstract but do not contradict each other, though need more itemization according to the specific SP. The content of the SP is topical, the content of the study courses is interconnected, corresponds to the objectives of the programme and ensures the achievement of learning outcomes, as well as meets the needs of the industry and labor market. The description of study courses include necessary elements, but the list of mandatory literature for study courses includes outdated sources that must be renewed. Students undergo internships in various companies and organizations where computer system and computer network administrators work and the practice is organized according to the goal and tasks of the study programme and corresponds to the professional qualification of computer system and computer network administrators. The qualification of the teaching staff complies with the requirements set forth in the Law onf Higher Education Institutions, is appropriate for the SP implementation, allows to achieve the aims and ensure the learning outcomes of the study programme in Latvian language. The education (Bc, Mg or Dr degree) of teaching staff is in the field of ICT. DU has established a mechanism for mutual cooperation of teaching staff too to ensure the achievement of the aim of the SP.

Strengths:
1. All indicators describing the study programme are correctly prepared according to external state and university regulation documents though some more specification of aims and tasks might be needed.
2. The teaching staff involved in implementation of the study programme have the necessary academic education.
3. The teaching staff collaborates by jointly developing and improving the content of study courses.
4. The diversity of students' needs and opportunities is respected, creating a suitable study schedule, using different ways of implementing the programme.
5. Students are satisfied with the teaching quality and the learning environment and teachers' attitude.

Weaknesses:
1. No student from short-cycle professional SP took the opportunity to participate in the "Daugavpils University student research projects" competition, which provides an opportunity to get a grant for the implementation of research projects.
2. The teaching staff is overloaded with the teaching tasks and do not have enough time to provide students individual consultations and conduct research.
3. The list of mandatory course literature for some study courses includes outdated sources.
4. The mapping lacks information on which study course results ensure the achievement of the corresponding programme results.
5. The methodological materials and regulation of professional qualification practice are outdated.
6. DU regulations on practice are developed in accordance to the Regulations of MC No.141 “Noteikumi par pirmā līmeņa profesionālās augstākās izglītības valsts standartu” which have lost their force at 21.06.2023

Evaluation of the study programme "Information technologies"

Evaluation of the study programme:

Good

2.6. Recommendations for the Study Programme "Information technologies"

Short-term recommendations

Renew and approve DU regulations on practice in accordance to the Regulations of MC No.305 "Noteikumi par valsts profesionālās augstākās izglītības standartu" that came into force at 21.06.2023.
Renew and approve methodological materials and regulation of professional qualification practice.
Update the list of mandatory literature for study courses including up-to-date sources, i.e. the mandatory literature should be at least not older than 5 years.
Change the definition of the term “credit point” in SP documents according to the current definition given in the Law on Higher Education Institutions.
Ensure the transition to the amount of credit points by 2024 for December 31, 2024 according to the Article 93 of the Law on Higher Education Institutions taking into account the wording of the term "credit point" in a new wording.

Long-term recommendations

Provide students with the possibility to leverage cloud computing resources and ensure awareness of such options.
Introduce a systematic approach for increasing students and teaching staff involvement in the scientific and/or research activity, for example, organize student participation (at least one student per 2 years) in the "Daugavpils University student research projects" competition.
Rebalance workload of the teaching staff to consider study subject delivery and their other assigned roles with-in DU so that each teaching staff member will not have more than 2 courses per semester to teach as responsible lecturer.

II - "Information Technologies" ASSESSMENT

II - "Information Technologies" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1

The SP "Information technologies" is a first cycle professional higher education programe, which results in a bachelor's degree being given in information technology and the qualification of programming engineer (6th professional qualification level) (SAR p.60). The Republic of Latvia education classification code of the SP is 42484 and it corresponds to the June 13, 2017 Cabinet of Ministers Regulations No. 322 "Regulations on Latvian education classification" for the professional higher education of the first cycle, the level of the 6th of Latvian qualifications. The thematic group of education is "Natural sciences, mathematics and information technologies", the field of computer science and the group of educational programmes "Programming".

The bachelor programme in "Information Technologies," at the first-cycle first level, is structured as full-time studies conducted through face-to-face (in-class) learning. This programme spans four

study years, totaling 160 credit points (CP) or 240 ECTS, organized into 8 semesters (20 CP/30 ECTS per semester). At the conclusion of each semester, students undergo testing of their knowledge, skills, and competence during the session exam period. Throughout the program, students are required to accumulate the specified credit points and, upon completion, develop and defend a bachelor's thesis within the field of information technology. Admission regulations at DU are specified according to Law on Higher Education Institutions, the October 10, 2006 Cabinet of Ministers Regulations No. 846 "Rules on requirements, criteria and procedures for admission to study programs" and the constitution of DU (SAR p.61)

2.1.2

The study programme "Information Technologies" is classified under the Republic of Latvia's education system with the code 42484. This code aligns with the Cabinet of Ministers Regulations No. 322 dated June 13, 2017, titled "Regulations on Latvian education classification." It falls within the category of professional higher education at the first-cycle, specifically at the 6th level of Latvian qualifications. The thematic group is "Natural sciences, mathematics, and information technologies," within the field of computer science and the educational programme group "Programming."

After graduation, students will acquire Level 5 professional qualification Programming engineer, professional bachelor's degree in information technology. The qualification degree fully corresponds to the study courses specified in the programme and students will acquire extensive knowledge of programming technologies. Will be able to create software for computers and electronic devices, will be able to create multimedia software.

The study programme "Information Technologies" is a four-year, fifth-level bachelor higher education initiative. The programme aims to deliver professional studies tailored to the requirements of the Latvian state economy. These studies are grounded in the theoretical foundations of IT industry sciences, adhere to the standards of the programming engineer profession, and emphasize practical applicability.

Key objectives of the programme include: (SAR p.57)

-Providing an opportunity for students to acquire the professional qualification of "Programming Engineer" and earn a bachelor's degree in information technology.

-Enhancing the competitiveness of programming engineer professionals amidst evolving socio-economic conditions and the international labor market.

-Facilitating in-depth knowledge acquisition in the information technology sector, enabling the development or enhancement of software and technologies. Additionally, preparing students for creative, research, and teaching roles within the IT sector. Ensuring that program graduates can responsibly and safely choose and employ information technologies for work duties, research, lifelong learning, and the creation and sharing of digital content.

-Cultivating motivation for further education and furnishing opportunities to prepare for obtaining a higher level of education.

It is seen that the short-cycle programme key objectives are similar to the first-level programme, especially the last 2 objectives are absolutely identical. It is interesting that short-cycle programs have more objectives (five) compared to the first-cycle programme (four). It is hard to divide these 2 programmes from an objective perspective. A significant review of the objectives to add more high level and specified tasks which must to fulfill students in longer studying period and more advanced assignments is needed.

The objectives and tasks of the Professional Bachelor Study Program (PBSP) "Information Technologies" align with the June 21, 2023, Cabinet of Ministers Regulations No. 305, titled "Regulations on the state standard of professional higher education," accessible in Latvian: https://ieej.lv/FxNDf.

The main difference in learning outcomes compared with the short-cycle SP is that it is mentioned in BA SP learning outcomes (SAR p.58 and p.78) that on the BA level students acquire more abilities for

independent work, analytical thinking and abilities working in a team or managing other people's work. The short-cycle SP contrary mentions in outcomes the basic level of the knowledge whereby the knowledge and skills cover mostly the same range of topics. Therefore it might be hard for potential applicants for first-cycle and short-cycle SP to distinguish the difference of the programmes.
Admission regulations at DU adhere to the Law on Higher Education Institutions, the October 10, 2006 Cabinet of Ministers Regulations No. 846 ("Rules on requirements, criteria, and procedures for admission to study programs"), and the DU constitution. Eligible candidates include citizens of the Republic of Latvia, non-citizen passport holders, and individuals with permanent residence permits in Latvia. For foreigners without a permanent residence permit, admission to DU is governed by Article 83 of the Law on Higher Education Institutions and DU Admission Rules for full-time studies for foreigners.
DU conducts full-time studies of the PBSP "Information Technologies" with state budget funding. Additionally, funds from applicants or other legal and natural persons contribute to studies beyond the intended state order.
The admission process is meticulously regulated, with rules approved by the DU Senate. Components include admission requirements, criteria, the admission procedure for the academic year, registration fee, study fee, and the number of available study places.
For PBSP "Information Technologies," admission is based on a competition, involving evaluations in centralised examinations (CE) for Latvian, the first foreign language, mathematics, and the average value of all CE evaluations. Additional points are granted for exams/credits in attested informatics/applied informatics and to winners of the DU "Science School" certificate. DU "School of Science" certificate winners also receive an additional 5 points in any undergraduate study programme.
Outside the competition for full-time studies on budget financing, eligible students include participants of youth and junior competitions of the school olympiades, World and European championships, and Latvian championships (in the last five years). Additionally, 1st to 3rd place winners in the adult group (specifically in Olympic sports) and laureates of students' scientific and creative work competitions in high school classes are considered. Details can be found in Latvian: https://du.lv/gribu-studet/uznemsana/.

2.1.3
As part of the study field evaluation procedure, the PBSP Information Technology education classification code is clarified - the qualification "Programming engineer" to be obtained corresponds to the group of educational programmes "Programming": Code before 42483 changes Code after changes 42484. Planned changes within the course of SP evaluation procedure:
study course "Philosophy" (2 credit points (CP), section "General educational courses", 3rd semester) 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 programme in accordance with the standard requirements of the "Programming engineer" profession;
the denomination of the study course "Declarative programming" (2 CP, section "Industry professional specialization courses", 8th semester) shall be replaced with the name "Logic programming" and the 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;
study courses "Statistical analysis of data I" (2 CP, section "Basic theoretical courses of the industry and information technology courses", 7th semester) and "Statistical analysis of data II" (2 CP, 8th semester) shall be unified in the course "Statistical analysis of data'' (4 CP, 8th semester) (SAR p.59). 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.
In cooperation with the University of Latvia, two courses are offered to students of the bachelor's programme in the section of free elective courses: Introduction course in artificial intelligence (2CP), Creation of machine learning models using Python (2CP);
According to the Amendments to the Law on Higher Education Institutions (15.09.2022), all study mostly courses with an odd CP amount have been restructured to an even CP amount.

2.1.4
Throughout the reporting period, there has been an overall increase in the number of students enrolled in the "Information Technologies" study programme compared to the previous reporting period, specifically referencing data on matriculated and total students in the 1st study year at DU. However, upon closer analysis of the dynamics within the reporting period, a decline in student numbers is evident.
Examining the statistical data on students, in the 2017/2018 academic year, 125 students were enrolled in the program, with 61 students in the 1st academic year. Subsequently, in the 2018/2019 academic year, the total number decreased to 83 students, with 29 matriculated. The 2019/2020 academic year saw 97 students, including 47 matriculated; in the 2020/2021 academic year, there were 75 students, with 36 matriculated; for the 2021/2022 academic year, the numbers further reduced to 67 students, including 30 matriculated. However, in the 2022/2023 academic year, there was a slight increase, with 76 students, including 32 matriculated (Annex 3.1.4 “Statistical data on students PBSP IT”).
Proposed amendments to the Law on Higher Education Institutions [Augstskolu likums] in the Republic of Latvia at the beginning of 2021 led to an uncertain situation for several months regarding the future of DU. The spring season, when high school graduates make crucial decisions about their future fields of study and places of study, became a critical period. Heightened media attention to the perceived threat to the future of regional universities could significantly influence these decisions (SAR p.63).
Concerning dropout rates in the spring semester of the 2019/2020 and 2020/2021 study years, these can be linked to challenges faced during the remote study process, including students' limited opportunities for active participation. Notably, the most substantial dropout occurs consistently during the 1st year of studies, often attributed to difficulties in adapting to the study process and a misalignment between the reality of studying exact sciences and preconceived expectations. Generally, the reasons for discontinuing the study process are predominantly personal, encompassing a lack of motivation to continue studies, financial constraints, family circumstances, health issues, and challenges in balancing studies with work, particularly in the later stages of the programme.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The aim, tasks and learning outcomes of the study programme are minimally formulated and correspond to the state and internal documents. The aim, tasks and learning outcomes are mutually compatible and do not contradict each other and are sufficient. The study results are more abstract and focused on practical activities and this is fully in line with the goals of this qualification. Admission to studies is made according to external and internal requirements after graduating from high school.

Strengths
1. All indicators describing the study programme are well prepared according to external state and university regulation documents.

Weaknesses
1. Programme tasks and aims are more abstract and could be in the future updated to be more oriented to the Information Systems SP.
2. Learning outcomes are similar to the short-cycle professional higher education study programme and do not give the students a qualitative advantage over the mentioned lower-level qualification.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1
The goal of the PBSP Information Technologies SP 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 (SAR p.57) by providing an opportunity to obtain the professional qualification "Programming engineer" and degree “Professional Bachelor in Information Technologies” (SAR p.58) and promoting the competitiveness of programming engineer professional qualification and 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. The target is also creating motivation for further education and providing opportunities to prepare for obtaining a higher level of education. The SP is foreseen to provide students ability 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. It is also targeted to provide students with 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. Therefore the students will be able to organize their independent work, formulate and analytically describe the obtained information, problems and solutions in the profession of a programming engineer and they 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; learn new models, methods and technologies, and also understand the need for continuous professional development. Also the SP provides students ability to apply the acquired knowledge and professional skills in the field of software engineering independently acquiring, critically evaluating, analyzing and selecting information and use it to make decisions and solve problems, working individually or in a multi-professional team (SAR p.58).
BA Information Technologies SP is a full-time studies, and in Latvian. The volume of the professional bachelor's study program "Information technologies" is 160 CP and the duration of implementation is 4 years (SAR p.63). This corresponds to the demand of the market (specially in the IT domain in the Latgale and Southern-Latvia region) and Professional Standard of Programming Engineer (https://ieej.lv/VnpL4) and the Cabinet of Ministers Regulations No. 322. "Regulations on the classification of education in Latvia" (https://ieej.lv/5yDH2) (Annex 3.2.1 “Compliance with state education standart PBSP IT” and “Compliance with prof standart PBSP IT”). The attached Annex 3.2.1 (“Compliance with prof standart PBSP IT.docx”) demonstrate the compliance of professional bachelor SP to the old version of Standard of the profession of programming engineer, agreed at the meeting of the tripartite cooperation sub-council of professional education and employment on June 17, 2009, Minutes No. 5. (https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/ps0227.pdf). On June 7 2023 (Protocol Nr.3) the new version of standard was approved (https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-250.pdf). Experts invite management of the study programme to review the compliance of the program with the current version of the standard and introduce necessary changes to SP and descriptions of relevant study courses.

It might be reasonable to test exploring the possibility of delivering the programme as a part-time study too. The key reason is a note, that many students of this SP have their position in industry very early (1st or 2nd year) and for them it is hard to study and work in parallel. The BA Information Technologies SP isare split on several blocks: Compulsory courses (Block A) – 72 CP including General educational courses – 24 CP; Basic theoretical courses of the industry and information technology courses – 36 CP and State examinations (Bachelor Thesis) - 12 CP. Limited elective courses (Block B) – in total electives 62 and practice – 20 CP and free elective courses (Block C) – 6 CP (SAR p.64 and Annex 3.2.1 "Study plan PBSP IT EN"). The elective part introduces certain flexibility to the programme allowing the students to choose some courses according to their future career needs. The content of the study programme is topical, the content of the study courses / blocks is interconnected and complementary and corresponds to the objectives of the programme and ensures the achievement of learning outcomes. The BA Information Technologies SP contains a lot of "small" (2 CP) courses, which makes the SP hard to manage from the point of teaching staff and hard to concentrate efforts from the point of students and overloads students with small assessments. For instance the two 2 CP English language courses (English language for information technologies I and English language for information technologies II), two Algorithms and data structures 2 CP courses (Algorithms and data structures I and Algorithms and data structures II), two 2 CP Discrete mathematics courses (Discrete mathematics I and Discrete mathematics II), two 2 CP Databases courses (Databases I and Databases II), two 2 CP and 4 CP Operating systems courses (Operating systems I and Operating systems II), two 2 CP Basics of programming (C++) courses (Basics of programming (C++) I and Basics of programming (C++) II), two 2 CP Programming language C# courses (Programming language C# I and Programming language C# II), two 2 CP Programming language Java courses (Programming language Java I and Programming language Java II), 2 CP Web technologies and 2 CP Web programming in the .NET environment courses, 2 CP Numerical methods and 2 CP Mathematical modeling courses, etc. could be merged into a 4 CP course. All the courses, their content and learning outcomes are mapped to the skills and knowledge and competencies provided by the SP (Annex 3.2.1 "Mapping study courses PBSP IT EN"). The correlation of the aims and learning outcomes of the study programme with the learning outcomes of specific study courses are described in each study course description.

Experts would like to note, the definition of the term "credit point" given in SAR (p.66) corresponds to the old definition of the Law on Higher Education Institutions, i.e. "1 credit point (40 academic hours) = 16 contact hours + 24 lessons of independent student work. 1 credit point corresponds to 1.5 ECTS (European Credit Transfer System) units." According to the new definition given in the Law on Higher Education Institutions (https://likumi.lv/ta/id/37967-augstskolu-likums) Clause 1 Article 8 "credit point is accounting unit that expresses the amount of study work based on the study results defined in the study program or part of it and the study load related to their achievement. 60 credit points correspond to the study results acquired in full-time studies in one academic year in accordance with the European credit transfer and accumulation system. Credit points are expressed in whole numbers. One credit point corresponds to 25-30 hours of study work".

The description of the aim and learning outcomes of specific study courses are described in each study course description (3_2_1_Studiju_kursu_apraksti_ PBSP_IT.zip). The description of study courses include necessary elements: aim, tasks, results, requirements of credit point acquisition, independent work, plan of study course, mandatory and additional literature, but the list of mandatory literature for study courses includes outdated sources that must be renewed, e.g. in the study course "Loģiskā programmēšana" the newest mandatory literature source was published in 2003: Programming Languages: Principles and Practice, 2nd Edition by Kenneth C. Louden; Thomson Learning - Brooks/Cole, 2003. ISBN: 0-534-95341-7. In the study course "Angļu valoda informācijas tehnoloģijām I" the newer books related to professional terminology in the field of IT are books of 2008 and 2013. In the "Datoru aparātnodrošinājums" study course, the latest source was published in 2012:1. A. Tanenbaum, T. Austin. Structured Computer Organization 6th Edition. Pearson, 2012.

808p. The list of mandatory literature of separate study courses includes an unspecified source “https://estudijas.du.lv/”.

2.2.2
N/A

2.2.3
The BA SP Information Technologies implements classical teaching methods like lectures, practical classes, seminars, laboratory works, consultations and individual work of students (SAR p.65). The study load is an average of 20 contact hours per week and an average of 30 hours per week devoted to independent work (SAR p.66)..
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" (https://ieej.lv/FxNDf) (SAR p.63) and PBSP "Information technology" study results (knowledge, skills, competence) are aligned with the Professional Standard of Programming Engineer (https://ieej.lv/VnpL4) and the Cabinet of Ministers [Ministru kabinets] Regulations No. 322. "Regulations on the classification of education in Latvia" (https://ieej.lv/5yDH2) (SAR p.65). Therefore the results comply with the old version of Professional Standard of Programming Engineer (https://ieej.lv/VnpL4) but now there is new, approved on June 7 2023 National Academic Education Standard (Ministru kabineta noteikumi Nr.240 Rīgā 2014.gada 13.maijā (prot. Nr.28 18.§) Noteikumi par valsts akadēmiskās izglītības standartu) (https://likumi.lv/ta/id/266187-noteikumi-par-valsts-akademiskas-izglitibas-standartu) and it have to be taken into account for development of the PBSP “Information technology”.
In most courses lecture slides, practice assignments, tests, etc.) are available electronically in the DU Moodle system (SAR p.66), which has been confirmed during the expert visit. It is very important that there are defined principles for student-centred approach at implementation of the SP as follows: 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 and continuous cooperation between students and academic staff (SAR p.67). The real and continuous utilization of these principles was confirmed by the students (expert meetings with the students and graduates). The task of the teaching staff is to encourage students to take an active role in the study process and 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. (SAR p.66 and expert meeting with students). Communication with the lecturers is organized too via the Moodle system or using digital channels like e-mail, videos etc. The course content and teaching process assessment is realized by collecting the feedback from the employers (mostly after the practice) and regular meetings organized by the Director of the Study Programme. The student feedback is collected by filling up surveys once per year and respective adjustments are introduced according to the DU regulations. Though it seems filling the survey once per year might be not enough to introduce changes into the SP and implementation methods and therefore twice per year might give more actual feedback. During the meetings students and graduates stressed the importance of more informal communication in introducing changes into the SP.
In overall the study implementation methods contribute to the achievement of the aims and learning outcomes of the study courses (Annex 3.2.1 “Mapping study courses PBSPIT EN”) and the BA Information Technologies SP.

2.2.4
In the BA Information Technologies SP, the internship is mandatory and it is offered to the students in the limited electivechoice part of the BA Information Technologies SP amounting 20 CP, where 10 CP is Professional qualification practice I and 10 CP Professional qualification practice II (SAR p.67). The experts would like to note that the internship is a separate part of the study program and should not be included in limited elective part of the study program. The practice is organized in accordance with the Regulation on the professional qualification practice of PBSP "Information Technologies", approved by the DU Senate (Annex 3.2.4 “Regulations on practice PBST IT). The regulations on the professional qualification practice/internship are developed in accordance with the "Regulations on the state standard of professional higher education" (June 21, 2023 Cabinet of Ministers Regulations No. 305) (Annex 3.2.4 “Regulations on practice PBSP IT.docx”).
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 (SAR p.68). Places of practice are chosen by the student himself, depending on his/her interests and approved by the practice manager from DU, whereas DU helps in finding and selecting the most suitable place of practice (SAR p.67). Internship takes place in IT companies and institutions and schools that use or implement IT services and the student and DU and the company conclude the internship agreement (SAR p.67). The student during the internship, in addition to performing internship tasks, documents the progress of the internship, and prepares a report on the progress of the internship and the work done submitting the report to the internship supervisor at DU, where there is included the internship evaluation signed by the internship supervisor from the internship site (SAR p.68). The internship ends with the defence of the practice results. The evaluation of the internship is carried out during defence of the internship, and the internship is evaluated in a 10-point system (SAR p.68). Overall opportunities and provision of internship offered to students, as well as the organization of work are effectively concluded both by DU and employers (expert meetings with the employers and Director of the SP). The companies providing internship places are for instance SIA "Entrypoint", SIA "TestDevLab", SIA "Latinsoft", SIA "Wonderland Media (Scandiweb)", SIA "IT54", SIA "BINITEX", SIA "ADA Plus", etc.
The aims and tasks and implementation of the internship correspond to the learning outcomes to be achieved in the SP Information Technologies and full information about the organization and conducting the internship is given in the traineeship regulations in the Annex 3.2.4 (“Regulations on practice PBST IT”).

2.2.5
N/A

2.2.6
Topics of the bachelor thesis are corresponding to the BA Information Technologies SP. It has been reported that some of the topics are industry related and initiated by the industry representatives often started from the practice time of the student (expert meetings with the employers and graduates). The topics of bachelor theses are approved at the meeting of the Department of Informatics of DU (SAR p.69). The topics of the defended bachelor theses are given in the Annex 3.2.6 (“Defended Bachelors theses PBSP IT”) and the topics ranging from creation of mobile applications; game development; web technologies; use of databases; software design and testing to software security; e-learning applications; robotics and microcontroller programming, etc. Some of the bachelor topics are contributions to the developments of the IT resources of the HEI. At the same time, it should be considered that this is a professional SP and it would be recommended to pay more attention to the applied research topics and real implementation of the theses results, rather than development topics or differentiate bachelor thesis by the complexity of an interesting and attractive IT problem during the assessment. Electronic versions of final theses are stored in the

DU Information System. Each thesis has one reviewer assessing the compliance with the level, topicality, structure and content of the work, practical realization (SAR p.70). The final assessment of the thesis consists of the following: 20% assessment of the scientific supervisor, 30% assessment of the reviewer, 50% assessment of the final examination committee (SAR p.70). There is also a form developed for the evaluation of theses (Annex 3.2.6 “Bachelors theses evaluation sheet PBSP IT). During the expert visit samples of the bachelor thesis were demonstrated and they are inline with the BA Information Technologies SP.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The study programme complies with Level 6 of the European Qualifications Framework of Latvian Education Classification and the basic principles and procedures and content 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" but now there is new National Academic Education Standard and it have to be taken into account for development of the PBSP “Information technology”. It shall be concluded that the SP fulfills formal requirements, is inline with the requirements of the industry and labor market and respective normative acts. The content of the BA Information Technologies SP supports reaching the aim and learning outcomes of the study programme. In the same among learning outcomes the applied research component focusing on the real industrial applied research is not very well indicated. Internship is an obligatory part of the programme and it helps both the students and employers to create contacts for the future and focus on solving real industry related problems. Also DU provides support in terms of finding internship places, if a student has some problem with it. During the meeting employers confirmed their willingness to take the SP students for practice and provide topics for bachelor thesis. The topics of the theses are inline with the SP, while it is recommended to put more attention into the applied and practical industry related research part of the bachelor thesis, which might create options for collaboration projects with the local industry.

Strengths:
1. Graduates of the SP are highly requested by the industry.
2. Students value the implemented student-centred approach in the SP
3. SP is targeted to give good level professional knowledge and skills and at the same time to prepare the students to continue their education.

Weaknesses:
1. The definition of the term “credit point” given in SAR (p.86) corresponds to the old definition of the Law on Higher Education Institutions.
2. The list of mandatory literature for some study courses includes outdated sources.
3. Many small courses
4. Introduction of applied research to the students is weakly implemented in the SP
5. Conducting student surveys once per year seems not enough for operative SP corrections
6. Lack of innovative and interactive teaching methods
7. No information or plans are availeble for implementing the changes in SP according to the new Standard of the profession of programming engineer valid from June 2023

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Not relevant

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2.3. Resources and Provision of the Study Programme

Analysis

2.3.1

DU has a significant and sufficient volume of auditoriums (large have ~100 seats), 7 classrooms are available for practical and laboratory work including laboratories for specific study courses to equip students with necessary hardware and software.

For first cycle professional higher education programme implementation, DU has recently established a practical microcontroller programming laboratory equipped with the help of the European Regional Development Fund (ERDF), ensured devices and other hardware equipment from Cisco and Mikrotik. For the Microcontroller programming study course, DU ensured Arduino based platforms and devices to work in the laboratory (SAR p.113). The key asset required for students in AMSP Computer Science is the computer equipped with compilers, program development and supporting environments and the internet connection supported by 10Gb broadband.

DU leverages and has equipped students with next development tools and environments: MSDN subscription, with the latest Microsoft software with an academic license Azure portal and others described in detail in Annex 3.3.1 ("Material and technical base").During the onsite visit, several people (1-2 teaching staff and 1-2 students) have mentioned the possibility of having 100 credit points for Microsoft Azure cloud computation resources (https://azure.microsoft.com/en-us/free/students), but the majority of students didn't know about such possibility.

Students do have access to the DU library that provides access to physical and electronic materials used in study programme delivery. There are accessible databases (library network, databases of DU research centers, earlier Theses and scientific materials (scientific publications, including Web of Science and Scopus publications, archives). Du has Moodle based electronic study information system (DUIS) allowing the students to connect with administrative, financial, IT and network support services, access to official statistical data, and course materials and schedules (SAR p.113). DU has established hybrid delivery of them. By using ZOOM and MS Teams, teaching staff was able to deliver lectures physically in the class and virtually to the connected students.

Majority of the referenced materials in the descriptions of the study courses can be found and are accessible in the DU library (even few copies of each can be enough to source all students).

DU has implemented a Moodle system to provide required information to students. This includes general information about the DU, description and clarification of internal processes and respective regulations, necessary information of the study courses including practical exercises and additional materials. Mentioned information is available mainly in Latvian. On top of email as a collaboration channel, teachers set up study courses dedicated to groups in Moodle, in WhatsApp, ZOOM, MS Teams and other collaboration platforms to speed up communication and bring collaboration between them and students to the next level. Review of the necessary equipment and literature is being done on the annual basis by the teaching staff and the list of necessary items is submitted to the director of the SP and SF. Review of the necessary equipment and literature is being done mostly through various projects (like ERDF or ESF) (SAR p.34, 71). During the onsite visit academic staff reconfirmed availability of necessary equipment and renewal with-in large projects, but also highlighted that there is no information about the annual budget and longer period planning for required resources and the most critical items are requested as per the need in an ad-hoc manner.

2.3.3
DU has defined and executed a clear financial budgeting process. The programme is financed mostly by state funded grants providing state fundedbudget seats and study fees. Department of Finance and Accounting of DU calculates costs per 1 student for whole programme delivery, which includes salaries of the teaching staff, renewal of required equipment and resources, costs for facilities and all other costs associated with programme delivery. Currently calculated costs per 1 student for whole programme delivery (4 years) are 10476.83 EUR, which are calculated with conditions to have at least 11 state funded students in the programme (SAR p.72 and Annex 3.3.3 “Cost Calculation PBSP IT”).
Financial provisioning and sustainability of the study programme is directly impacted by the number of students in this program. DU has managed to keep the number of students in the programme during the last 3 years (30-36 new admissions annually). In academic years 2017. (60) and 2019. (47) DU managed to get a high number of new admissions. Meanwhile, dropout of students remains on an extremely high level – 21-34 annually during the last 6 years. This leads to a decreased number of graduates from 17 to 9 in the last 6 years. Based on the feedback collected during the expert's visit, one of the main reasons is the inability of students to combine full-time jobs with the study process. High number of dropouts correlates with decreased results received from students about the program delivery quality (questions “Lecturing quality is at a high level” and “The provision of guest lecturers is sufficient”) (Annex 3.1.4 “Statistical data on students PBSP IT” and Annex 2.2.4 “Student Survey Analysis PBSP IT”). Current number of students is higher than the minimal number (11) needed to keep the study programme financially sustainable, but such a number of dropouts introduces high risk to the study programme.
Additionally, DU managed to leverage ERAF funds and complete several projects during recent years and attract additional funds to finance new laboratory equipment, new computer classes, improvements of premises and development of the academic staff.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Students and teaching staff are fully equipped to achieve learning objectives and graduate the programme. Study programme keeps new admission on a good level and shows good financial sustainability to ensure current implementation of the study programme and make investment in programme development. However, high dropout increases the risk for sustainability of the study programme.

Strengths:
1. Students have access to all required equipment and cooperation with Cisco and Mikrotik has ensured DU with demanded networking devices.
2. Good stable number of new admissions annually (30+).

Weaknesses:
1. Extremely high number dropouts during the last 6 years. The reason is not only in the ability of students to combine studies with permanent employment, but also quality of the study programme delivery (based on student’s survey results).

Assessment of the requirement [6]

1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Fully compliant

students and teaching staff are fully equipped so students can achieve learning objectives and graduate the programme. Study programme has good financial sustainability, but an extremely high number of dropouts is a clear risk for study programme sustainability in the long run.

2.4. Teaching Staff

Analysis

2.4.1

Totally 28 members of the teaching staff from different Departments (such as Department of Economics, Department of Physics and Mathematics, Department of Environmental Science and Chemistry, Department of Foreign Languages, Department of Informatics) are involved in the implementation of the professional bachelor study programme “Information technologies” (Annex 2.3.7 “Teaching Staff.xlsx”): 2 professors, 7 associated professors, 4 assistant professors, 12 lecturers (9 elected, 3 gquest lecturers with more than 10 years professional experience gained in the industry), 3 assistants (1 elected, 2 gquest assistants). 9 members are from the Department of Informatics, i.e. 1 elected associate professor, 2 elected assistant professors, 5 elected lecturers and 1 guest lecturer (Annex 2.3.7 “Teaching Staff.xlsx”) with more than 20 years professional experience gained in the industry (Annex 2.3.7 “CV_EN.zip”). More than 70% of academic staff are elected in DU (SAR, p.73).

7 members have expert rights of Latvian council, 2 of them in the science branch: Natural sciences-Computer science and informatics, 3 of them in the science branch Social Sciences-Economics and Business, 1 of them in the science branch Natural Sciences-Earth Sciences, Physical Geography and Environmental Sciences, 1 of them in the science branch Natural Sciences-Mathematics.

All members of the teaching staff have masters or doctoral degrees, i.e. 46% of members have Doctoral degrees and other members have masters degrees.

According to the Regulation of the Cabinet of Ministers No.569 "On the education and professional qualifications required for teachers and the procedure for the development of professional competence of teachers", professional development may include international mobility, participation in projects and participation in conferences and seminars, as evidenced by the documents issued for professional development. Several members of teaching staff have improved their professional knowledge and skills by attending (Annex 2.3.7 “CV EN.zip”):

specific courses within the European Social Fund project No. 8.4.1.0/16/I/001 "Improving the professional competence of employed persons" such as RTU: WEB programming languages and development (PHP, Javascript, Python) 160 hours, University of Latvia: "Digital marketing tools: social network marketing and Google Ads". 160 hours,

improved their professional English knowledge level or attended specific course, for example, Artificial Intelligence and Machine Learning Tools, within the ESF project No. 8.2.2.0/18/A/022 "Strengthening the professional competence of academic staff in strategic specialization areas of Daugavpils University";

attended specific courses and seminars, fo example, Courses “Basic principles and application of LEGO robotics in education”, "Artificial Intelligence and Deep Learning", “Didactic basic principles for the implementation of competence-based study content”,"Use of Internet resources to ensure high-quality distance learning process", "Google services in education", Power BI - data analysis and visualization tool, Business and Data Analysis, Seminar "Current Affairs in Personal Data Protection", “Developing effective and interactive e-courses with H5P” etc..

8 members (~33% of teaching staff) of the teaching staff from the Department of Informatics have participated in the mobility. In total, 24 mobility activities (18 teaching and 6 training activities) have been performed during the time period from 2017 till 2022. The obtained information is used in the

study process.
Each lecturer has the appropriate academic and/or professional qualifications (Annex 2.3.7 “Teaching Staff.xlsx”) to teach the specific course, to contribute to the achievement of the learning outcomes (Annex 2.3.7 “CV EN.zip”).
The Statement of acknowledgement (Annex 2.3.7 “STATEMENT native language.docx”) confirms that the official language proficiency of the teaching staff involved in the implementation of the professional bachelor study programme “Information Technologies” (42484) complies with the “Regulations regarding the extent of the knowledge of the official language and the procedures for examining the proficiency in the official language” for the performance of their professional duties. The Annex (Annex 2.3.7 “Teaching Staff.xlsx”) also acknowledges that all members of teaching staff have the Knowledge of English according to European language proficiency levels at least B2 and higher that is appropriate for implementation of SP in English too.

2.4.2
During the reporting period, changes in the composition of teaching staff have been insignificant. Several changes in composition were made for various reasons, e.g. the lecturer reaches retirement age, terminates employment with DU, redistribution of lecturers' workload, etc.:
4 members of teaching staff who were involved in logistics specialization courses ended their work due to termination of enrollment in the sub-direction of the study programme "Logistics structural unit manager" (from the 2018/2019 academicschool year)
in 2019 a new lecturer was elected and one member of the teaching staff was elected as an assistant professor (previously was a lecturer),
in the 2017/2018 study year, two members were elected to the position of associate professors (SAR, p. 74).
DU has established measures to verify that lecturers involved in implementation of the professional bachelor study programme have the necessary qualifications and competences for the development and teaching of the specific study courses, i.e:
DU Regulation on electing to academic positions where the requirements for applicants for academic positions are defined (https://du.lv/wpcontent/uploads/2021/12/Nolikumspar-velesanam-akademiskajosamatos-DU_APSTIPRINATAIS.pdf (31.05.2021)) ;
student surveys at the end of each semester, where students are able to provide feedback and comments about each individual teaching staff (SAP, p.96, Meeting with students during visit);
the self-analysis of the academic activity performed by the lecturers (SAR, p.96).
During the visit, there were not identified any gaps in the composition of the teaching staff from the perspective of legal requirements. Students acknowledge the high qualification of teaching staff.

2.4.4
In general, 26 members fulfill the requirements of the Law on Higher Education Institutions, i.e. 21 members are involved in research, one lecturer and 3 guest lecturers and 1 guest assistant have more than 10 years professional experience in the industry. 4 lecturers with Masters degrees are educators with more than 15 years or 20 years experience. 20 members of the teaching staff from 28 are involved in research (Annex 2.4.4 “Quantitative data teaching staff.docx” and “Teaching staff publications.docx”), i.e. 2 professors, 7 associated professors, 4 assistant professors, 5 lecturers and 2 assistants. 17 members of teaching staff have published in peer-reviewed editions (totally 108 publications have been published in SCOPUS/WoS databases), 12 members have published in other scientific editions (totally 96 publications have been published), 13 members have participated in scientific or applied conferences (totally 176 times). 18 members have participated in projects, but part of them are more related to quality assurance of the study process, not research. 4 associated professors and 1 professor are involved in the editorial boards of scientific publications.

According to Article 60 of the Law on Higher Eeducation Iinstitutions, scientific research is an integral part of the work of every university, and in accordance with Article 26 of this law, all academic staff of the university participate in it. Its purpose is the acquisition of scientific knowledge, scientific substantiation and further development of teaching and studies, solving practically important tasks with research methods. The Law states that performance of scientific research is one of the main tasks of professors, associate and assistant professors, but the tasks of the lecturers and assistants are determined by the university. In the case of DU, all professors, associate and assistant professors involved in the implementation of SP perform research. But one of professors has been involved only in one project related to the Strengthening professional competence of the academic staff and is the member of editorial board of scientific publications of the "Journal of Baltic Science Education'', as well as led doctoral thesis during evaluation period which is being prepared for the defense, but has no publications since 2015.
In general, the indicators of scientific activity are adequate (for more details of scientific research see this opinion section 1.4.). The involvement of lecturers in the research could be improved, but in the case of short cycle professional study programmes, the attraction of professionals from industry with professional experience is more relevant.

2.4.5
A mechanism for mutual cooperation of the teaching staff in the implementation of the professional bachelor study programme has been established. DU carries out several activities regarding mutual cooperation of the teaching staff within the professional bachelor study programme (SAR, p.75), such as:
teaching staff cooperates in the development of study course descriptions and in the planning of study course content;
the regular meetings at the Department of Informatics takes place where the logical sequence of the implementation and content of study courses is evaluated and discussed;
the regular meetings of lecturers, where the content of the study courses and the structure of the programme are discussed;
activities related to the organization and management of the study process, practice planning;
collaboration activities in the research field.
Based on the visit it can be concluded, the collaboration between the teaching staff is at the relevant level, but one of the teaching staff noted that during the Covid period, joint meetings took place less frequently and there was a lack of face-to-face communication (on spot meetings), which allows for the exchange of experience, to learn about new topical things from colleagues.

Conclusions on this set of criteria, by indicating strengths and weaknesses

The qualification of the teaching staff complies with the requirements set forth in the Law onf Higher Education Institutions, is appropriate for professional bachelor study program “Information technologies” implementation, allow to achieve the aims and ensure the learning outcomes of the study programme IT in Latvian language. All members of the teaching staff have the knowledge of English according to European language proficiency level at least B2 and higher, which assures staff ability to be acquainted with the latest professional literature and participate in international cooperation, as well as opportunity to implement SP in English language in the future. Professors, associated and assistant professors are involved in research. Guest lecturers and assistants have more than 10 years professional experience in the industry. In general, the indicators of scientific activity are adequate. But involvement of lecturers in the research could be improved. DU has established a mechanism for mutual cooperation of teaching staff to ensure the achievement of the aim of the study programme.

Strengths
1. The teaching staff involved in implementation of the study programme have the necessary academic (higher) education.
2. The teaching staff collaborates by jointly developing and improving the content of study courses.
3. The English knowledge level of teaching staff (according to European language proficiency level at least B2 and higher) is appropriate for international cooperation and provides opportunity for the management to broaden the variations of the study programme implementation.

Weaknesses:
1. The involvement of lecturers in the research could be improved.
2. Low involvement of teaching staff in Erasmus mobility programmes.

Assessment of the requirement [7]

1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Fully compliant

The academic staff qualification complies to respective requirements set in Latvia and DU ("Regulations on elections to academic positions at Daugavpils University") and they have a good background in IT field, though experts would like to ask DU management to turn more attention to the complexity scientific activities, which should include also initiating international and local industry IT research projects and intensifying international collaboration in the sense of joint projects and jointly organized seminars/conferences.

2.5. Assessment of the Compliance

Requirements

1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

From 13.06.2023. There is a new Professional Higher Education Standard which uses the new definition of "Credit Points". The Law on Higher Education Institutions states that there is a transitional period till 31.12.2024. to implement the new credit point system. Besides that in all the other aspects the study programme is compliant with the Professional Higher Education Standard.

2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Partially compliant

The study programme complies with the old version professional standard or the requirements for the professional qualification ("Regulations on the state standard of professional higher education" and Annex 3.2.1 "Compliance with prof standart PBSP IT"). Experts invite management of the study programme to review the compliance of the program with the current version of the standard and introduce necessary changes in the study plan of SP and descriptions of study courses. This is essential for the students who graduate after a year or two.

3 3 - The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

The attached study course descriptions “Annex 3.2.1 “Studiju kursu apraksti PBSP IT.zip” are prepared in the Latvian language. The descriptions comply with the regulations outlined in the Law on Higher Education Institutions.

4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Fully compliant

“The sample of the diploma complies with the currently valid state regulations set in the Minister Cabinet regulation No.202 "Kārtība, kādā izsniedz valsts atzītus augstāko izglītību apliecinošus dokumentus". “

5 5 - The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

6 6 - Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

7 7 - At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts (if applicable).

Assessment of compliance: Not relevant

8 8 - The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Fully compliant

The attached annexes Statement of acknowledgement (Annex 2.3.7 “STATEMENT native language.docx” and 2.3.7 “Teaching staff.xlsx”) affirms that the knowledge of the official/national language of the academic staff involved in the implementation of the study programme complies with the Regulations on the extent of knowledge of the national language and the procedure for testing the knowledge of the national language for performing professional and official duties.

9 9 - The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language (if applicable).

Assessment of compliance: Not relevant

The Annex 2.3.7 “Teaching staff.xlsx” affirms that the English knowledge level of the teaching staff involved in the implementation of the study programme in English is B2 and higher.

10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

The Annex 2.1.4 “Studiju līguma paraugs” fully comply with the requirements set in the Minister Cabinet regulation No.70 “Studiju līgumā oblgāti ietveramie noteikumi”. There is full information about the university and study programme. All the main rights and obligations of both the student and the university. The university assures the possibility to transfer to another university or study programme, if the exact study programme loses its accreditation or license. The agreement mentions possible extra payments for reexamination and other cases.

11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

The Agreement with Ventspils University of Applied Science on students taking over in case of cancellation of study programmes (Annex 2.1.4 “Līgumi studentu parnemsana.zip”) affirms that students are provided with opportunities to continue their education in Vidzemes University of Applied Science programme “Information technologies” of the professional bachelor's study programme if the implementation of the study programme IT is terminated.

12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme’s license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Fully compliant

The study agreement mentions that if any side cannot execute any point of the agreement, that side fully compensates the incurred losses. Students can get compensation for losses with a written submission when deciding not to continue their studies. Student has the right to terminate the agreement if the university does not fulfill all their obligations or decides not to study in this programme by giving a written submission to the faculty dean.

13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

Assessment of the requirement [8]

1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Partially compliant

The academic staff qualification complies to respective requirements set in Latvia and DU ("Regulations on elections to academic positions at Daugavpils University") and they have a good background in IT field, though experts would like to ask DU management to turn more attention to the complexity scientific activities, which should include also initiating international and local industry IT research projects and intensifying international collaboration in the sense of joint projects and jointly organized scientific seminars/conferences. It is also an urgent need for introducing plans for implementing the changes in SP according to the new Standard of the profession of programming engineer valid from June 2023 as the current SP follows the old standard as it is a transition period currently.

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

The aim, tasks and learning outcomes of the SP correspond to the state and internal documents. The SP complies with Level 6 of the European Qualifications Framework andof Latvian Education Classification and the basic principles and procedure for the assessment of the acquisition of the SP comply with the requirements of Article 40 of the National Academic Education Standard. Current SP is inline with old professional standard but not with the new Standard of the profession of programming engineer valid from June 2023. It shall be concluded that the SP is inline with the requirements of the industry. Internship is an obligatory part of the SP and it helps both the students and employers to create contacts for the future and focus on solving real industry related problems. The topics of the theses are inline with the SP, while it is recommended to put more attention into the applied and practical industry related research part of the bachelor thesis, which might create options for collaboration projects with the local industry. Students and teaching staff are fully equipped to achieve learning objectives and graduate the SP though there still lacks of some more applied and practical/aplied course blocks or applied projects in the SP. The SP keeps new admission on a good level and shows good financial sustainability to ensure current implementation of the SP and make investment in programme development. However, high dropout increases the risk for sustainability of the study programme. The qualification of the teaching staff complies with the requirements set forth in the Law on f Higher Education Institutions, is appropriate for professional bachelor SP "Information technologies" implementation, allows to achieve the aims and ensure the learning outcomes of the SP. In general, the indicators of scientific activity are adequate. But involvement of lecturers in IT research could be improved and number of quest lectures introducing new advanvements in IT industry as well as in research have to be increased. DU has established a mechanism for mutual cooperation of teaching staff to ensure the achievement of the aim of the SP.

Strengths:
1. Graduates of the SP are highly requested by the industry.
2. Students value the implemented student-centred approach in the SP
3. Students have access to all required equipment and cooperation with Cisco and Mikrotik has ensured DU with demanded networking devices.
4. Good stable number of new admissions annually (30+).
5. The teaching staff involved in implementation of the SP have a good level of academic qualification.

Weaknesses:
1. The SP is not fully compatible with the current version of the standard of the profession of programming engineer.
2. Learning outcomes are similar to the short-cycle professional higher education study programme

and do not give the students a qualitative advantage over the mentioned lower-level qualification.s
3. The list of mandatory literature for some study courses includes outdated sources.
Introduction to the students of applied IT focused research is weakly implemented in the SP
4. Conducting student surveys once per year seems not enough for operative SP corrections.
5. Lack of innovative and interactive teaching methods.
6. Extremely high number dropouts during the last 6 years.
7. The involvement of teaching staff in the IT focused research projects have to be improved.
8. Many small (2 CP) courses.

Evaluation of the study programme "Information Technologies"

Evaluation of the study programme:

Good

2.6. Recommendations for the Study Programme "Information Technologies"

Short-term recommendations

Review the compliance of the programme with the current version of the standard of profession of programming engineer, introduce necessary changes in the study plan of SP and descriptions of study courses, as well as create the document of the programme compliance with the current version of the standard.
Change the definition of the term “creditpoint” according to the current definition given in the Law on Higher Education Institutions and introduce changes in the study plan of SP, if necessary.
Update the list of mandatory literature for study courses including up-to-date sources, i.e. mandatory literature should not be older than 5 years.
Make conducting student surveys once per semester (in the end of each semester) regular
Introduce to the students options to participate applied IT focused research in a course
Reduce the teaching staff teaching load so that the maximum limit should be not more than 2 different courses per teacher per semester.
Balance the pedagogical and scientific workload so that all the related activities are taken into account.

Long-term recommendations

Perform detailed analysis of reasons of extremely high dropouts and create and implement an action plan to reduce the dropout.
Make the mobility obligatory for the teaching staff for certain periods of their career (at least once during one election period) and introduce more ERASMUS+ options to students that might be attractive for them (short period visits, career in prestigious companies in EU, etc)
Merge the small study courses into 4-6 CP study courses
Introduce new innovative and interactive teaching methods into the courses making learning more effective and attractive

Create a clear scheme and plan making the short-cycle professional higher education and professional BA higher education SPs qualitatively distinguishable from the outcomes keeping a certain consecution in outcomes
Introduce and implement requirements for the academic staff to apply or at least participate in international or local company IT research projects. Introduce respective requirements as a criterion into the staff scientific work efficiency assessment methodology.

II - "Computer Science" ASSESSMENT

II - "Computer Science" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1
Academic Master's Study Programme (AMSP), titled "Computer Science," is designed to confer a master's degree in computer science and is intricately linked to the Latvian Qualifications Framework (LQF), the European Qualifications Framework (EQF), and the International Standardized Education Classification (ISCED-2011). As per Cabinet Regulations No. 322, titled "Rules for the Classification of Latvian Education," the programme has been assigned the code 45483, affirming its status as an academic master's level of study within the educational thematic group "Natural sciences, mathematics, and information technologies," and in the educational programme group "Computer systems, databases, and computer networks."

In the self-assessment, it is stated that the program complies with professional standards. However, the specified professional standards CS2023: ACM/IEE-CS/AAAI are not directly related to the regulation of higher education in Latvia and, therefore, are not suitable for direct use. From the self-analysis, it is not clear whether the directors of the study field and second cycles use regulatory documents of the Republic of Latvia. However, during a live meeting, it was directly communicated and confirmed that the aforementioned regulatory documents of Latvia are applied.

2.1.2
The academic master's study programme identified by the code 45483 is titled "Computer Science," but it's essential to clarify that it does not primarily focus on scientific pursuits. Instead, it is tailored to meet the demands of the Latvian state economy. Focusing on business problems is related to the weak involvement of teachers and students in scientific activities, and orientation more towards the examination of specific or more complex solutions needed for business. This programme provides advanced theoretical knowledge in the field of information technology (IT) and computer science, aligns with industry standards, and places emphasis on practical applications rather than scientific investigation.
Implemented as full-time studies, the Academic Master's Study Programme (AMSP) "Computer Science" follows a face-to-face (in-class) learning approach, spanning a duration of 2 study years and accumulating 80 credit points (CP). The programme is structured across 4 semesters, with 20 CP/30 ECTS in each semester. Evaluation of students' knowledge, skills, and competence occurs at the end of each semester during the session exam period. Throughout the programme, students are required to attain the specified number of credit points and, upon completion, develop and defend a master's thesis.
The programme's overarching goal is to impart a comprehensive set of knowledge, skills, and competences aligned with the requirements of the 7th level of the basic structure outlined by the

Latvian educational classification. This aim is rooted in the preparation of highly qualified specialists capable of designing and implementing intricate information systems, managing projects and specialist teams, and engaging in research and training activities.
Programme implementation language is Latvian and no other option is proposed for foreigners.
The key objectives of the programme are as follows:
1. To provide students with the necessary conditions and opportunities to acquire skills and abilities for their professional activities, which include practical applications rather than scientific research.
2. To instill in students the ability to independently and creatively learn, evaluate, and apply new information technologies, theories, and products in a practical context.
3. To enhance students' communication skills by promoting their ability to present, explain, and defend the results of their work using oral, written, and modern information technology means.
4. To foster motivation and meet the continuing education needs of students, encouraging them to pursue further studies, potentially in doctoral level programmes, based on practical and applied aspects.
5. To develop students' analytical and problem-solving skills, pedagogical abilities, and the capacity to independently address practical challenges, encouraging their active participation in solving real-world problems.
The knowledge and skills of the programme need to be revised because they correspond more to the first cycle studies and do not provide the knowledge typical of the second cycle studies as “uncertainties in research”. For example, knowledge item 2 indicates that the basics of programming knowledge will be provided, which does not fully meet the requirements of the second cycle studies (SAR, p. 105-106). It would be good to add what new social or personal skills the students will improve after completing the second cycle studies, because such skills must also be developed, for example, to critically analyze the characteristics of data transmission in a computer network in order to understand the latest trends in cyber security or to be able to present a research results for the public and experts in conferences or public lectures.
The admission requirements for the academic master's study programme "Computer Science" reflect its practical focus.
DU has a mistake in english translation because it is asked for applicants to have a second-cycle or equivalent higher professional education in the field of information technology or computer science (SAR, p. 102).
Admission regulations at DU are aligned with the Law on Higher Education Institutions, Cabinet of Ministers Regulations No. 846, and the DU constitution. Eligible candidates include citizens of the Republic of Latvia, non-citizen passport holders, and individuals with permanent residence permits in Latvia. For foreigners without permanent residence permits, the right to study at DU is determined by Article 83 of the Law on Higher Education Institutions and DU Admission Rules for full-time studies for foreigners.
The admission process is carefully regulated, with rules approved by the DU Senate. These rules encompass admission requirements and criteria, admission procedures for the academic year, registration fees, study fees, and the number of available study places.

2.1.3
No changes in programme parameters from previous assessment of the study field were performed except on changes of programme content with courses.
In alignment with Curricula's recommendations (SAR p.101), the academic master's programme "Computer Science" incorporates a diverse range of courses to ensure a comprehensive education. These courses include:
Data Analytics
Data Analysis Tools
Fundamentals of Cybersecurity and Information Security for Individuals and Companies

Digital Marketing Tools
UI/UX Design
Distinguished by its commitment to a profound foundational approach combined with robust practical preparation (excluding a scientific emphasis, as required), the academic master's programme distinguishes itself through its specialized content. The programme's curriculum is meticulously designed in alignment with recognized professional standards (deviating from the usual research-centric approach), specifically catered to the following professional qualifications:
System Analyst (Professional Qualification Level - PQL 5)
Information Security Manager (PQL 5)
Information Technology Project Manager (PQL 5)
In an effort to enhance the quality of the study courses and ensure the acquisition of pertinent competences, adjustments have been implemented to course descriptions, aligning them with these professional standards. This strategic modification aims to enhance both the programme's content and the skills to be acquired by students.
However, it is noted, based on the information provided (https://registri.visc.gov.lv/profizglitiba/dokumenti/nozkval/NKSK_elektron_un_ikt.pdf), that the PQL of the System Analyst, Information Security Manager, and IT Project Manager is currently at the 7th level. It is advisable to consider necessary corrections to the programme in this regard.
Furthermore, there is a valid query regarding the alignment of an academic study programme with professional standards, particularly given the primary focus of academic programmes on research rather than the acquisition of professional competencies. It would be beneficial to elaborate on these concerns in the relevant section addressing the content of the study programme.
It is not feasible to incorporate three professional standards into a single study programme of 80 CP, especially considering the limited elective courses available.

2.1.4
In the dynamic landscape of technological advancements, the pursuit of a Master's degree in Computer Science is gaining increasing significance. In a rapidly evolving technological era, industries in Latvia and Europe are witnessing a growing reliance on digital solutions. A master's in Computer Science equips individuals with advanced skills and knowledge, making them valuable assets to meet the escalating demands of technology-driven sectors (from meeting with industry representatives). With a deep understanding of computer science principles, master's graduates are well-positioned to venture into tech entrepreneurship. They can drive economic growth by establishing startups and creating job opportunities within the technology sector. Computer Science professionals play a crucial role in addressing social challenges through technological solutions. Master's graduates are equipped to develop applications and systems that tackle issues such as healthcare, education, and environmental sustainability, contributing to the betterment of society. Master's programme in Computer Science emphasize inclusivity and diversity (3_2_1_Mapping_of_study_courses_ AMSP_CS.docx), fostering an environment where individuals from various backgrounds can contribute to technological advancements. This promotes digital inclusion by ensuring that the benefits of technology are accessible to a broad spectrum of society. Graduates of Computer Science master's programmes often take on leadership roles in academia, contributing to the education and training of the next generation of tech professionals (this must be added in programme tasks). This educational leadership is instrumental in maintaining a skilled workforce to drive societal progress. Pursuing a Master's in Computer Science in Latvia and Europe is economically and socially justified. These programmes not only meet the demands of a technology-driven economy but also contribute to innovation, address societal challenges, and foster inclusive and diverse tech communities. As technology continues to play a pivotal role in shaping the future, the importance of advanced studies in Computer Science remains paramount for individuals and the broader society alike.

During the evaluation period, a total of 44 master's students were enrolled in the "Computer Science" master's study programme, yet only 22 students successfully completed their studies. Notably, there was a noticeable dropout rate, primarily consisting of students terminated by DU or those who did not return from academic leave. The majority of study interruptions occurred in the first year, with students commonly citing personal reasons, including financial difficulties, family circumstances, health issues, and challenges in balancing studies with work (SAR p.104).
The remarkably low enrollment in the master's programme during this period can be attributed to the robust instrumental competence instilled during the bachelor's programme. Graduates from the bachelor's programme are well-equipped to thrive in the IT, resulting in a diminished motivation among them to pursue immediate further studies. Even when students opt for a master's programme with deliberate intent, they often find themselves unprepared for the heightened level of independence, self-organization, and the accelerated pace of the study process. Struggling with strict deadlines for independent work submissions, reduced oversight from lecturers, and compliance with the heightened expectations for master's students, the initial desire to attain an additional diploma for higher education proves insufficient for a successful two-year master's study journey.
DU and the programme director recognize that motivation to pursue a master's degree is intricately tied to the quality of education provided (SAR p.104 and expert meeting with the SP director). Given the rapid evolution of information technology, computing, system software provision, and their applications, a periodic update of the structure, content, and technology of the educational process is imperative. Unfortunately, opportunities to implement these changes in the study programme were missed, hindering the programme's adaptability to the dynamic landscape of the IT industry.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The aim, tasks and learning outcomes of the study programme are minimally formulated and correspond to the state and internal documents, it is meeting Latvian state economy demands. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient. The study results are more abstract and focused on academic activities and this is fully in line with the goals of this qualification. Admission to studies is made according to external and internal requirements after graduating from high school (SAR p.98-99), however, some mistakes in assessment reports are left where admission is practically impossible, because of the requirement to have a second-cycle or similar qualification.

Strengths:
1. All indicators describing the study programme are well prepared according to external state and university regulation documents, except some mistakes by preparing SAR.

Weaknesses
1. Programme tasks and aim are more abstract and could be in the future updated to be more oriented to the computer science study programme
2. Learning outcomes are similar to the short-cycle and first-cycle study programme and do not give the students a qualitative advantage over the mentioned lower-level qualifications. Especially in master studies students need to solve tasks with some uncertainty.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1
The aim of the AMSP “Computer Science” 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 with knowledge and skills described in SAR (SAR p.98). Achieving the aims in the SP the students after graduating know the modern trends, scientific and practical achievements of theoretical informatics and information technology development; know the state and basic possibilities of programming languages and systems, as well as the situation in the field of standardization of programming languages; know the architecture and functioning principles of global information infrastructure and network applied programmes; know how to implement conceptual analysis when solving scientific and applied tasks in the field of information technology; know how to use the modern theories, methods, systems and means of theoretical informatics and information technology in solving scientific research and applied tasks; 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; are able to use mathematical and information modeling methods in solving scientific and applied tasks; are able to professionally design, submit and present the results of scientific research and production technological studies in their activity profile; 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 (SAR p.99). Declared aim and learning outcomes are in the frame of the SF and the content of the SP contributes to the learning outcome of the SP. AMSP “Computer Science” is provided as full time 80 CP SP with duration of 2 years. The degree awarded after graduating the programme is Master of Natural Sciences in Computer Science.

The SP contains obligatory courses (Block A) 54 CP containing two sub-blocks: Study of theoretical knowledge of the field of science 34 CP and State examinations (Master Thesis) 20 CP and limited elective courses (Block B) 26 CP (Annex 3.2.1 “Study plan AMSP CS”). The study plan (“Study plan of master study program "Computer Science") does not contain free elective courses (Annex 3.2.1 “Study plan AMSP CS”) and this might be a place for further improvement of the SP to add some new advanced technology and attractive courses as free electives.

The study program was developed in accordance with the Act on Education and Law on Higher Education Institutions of the Republic of Latvia and in accordance with all the requirements of the Regulations on State Academic Education Standards (Cabinet of Ministers May 13, 2014 Regulations No. 240) (SAR p.107) according to Level 7 of the European Qualifications Framework of Latvian Education Classification (SAR p.102). The study process is organized in accordance with the DU Constitution, as well as in accordance with the study regulatory documents adopted by the DU Senate (SAR p.105 and Annex 3.2.1 “Compliance with national education standart AMSP CS”). The goals and achievable results defined in the study courses correspond to the aims and results of the whole SP (Annex 3.2.1 “Mapping of study courses AMSP CS”).

There are some small 2 CP study courses that could be merged to avoid fragmentation of the learning process, for instance: 2 CP Discrete dynamical systems I and 2 CP Discrete dynamical systems II could be merged into a 4 CP course and maybe even with the 2 CP course Mathematical modeling. Differential equations, there are 4 CP course Data analytics and 4 CP course Data analysis tools which seems quite close, there are also 2 CP courses Audio and Video integration in multimedia attachments and Application and programming of digital electronics and Computer graphics algorithms, which could be combined with some other 4 CP courses.

The description of the aim and learning outcomes of specific study courses are described in each study course description (3_2_1_Studiju_kursu_apraksti_ AMSP_Dat.zip). The description of study courses include necessary elements: aim, tasks, results, requirements of credit point acquisition, independent work, plan of study course, mandatory and additional literature, but the list of mandatory literature for study courses includes outdated sources that must be renewed, e.g. in the study course “Datu analītika” the newest source was published in 2006: 1. Sukovs, L. Aleksejeva, K.

Makejeva, Borisovs A. „Datu ieguve. Pamati." Rīgas Tehniskās universitātes Datorzinātnes un informācijas tehnoloģijas fakultātes Informācijas tehnoloģijas institūts SIA „Drukātava", 2007. 130 lpp.; in ste study course "Diskrētas dinamikas sistēmas" the newest sources was published in 2007: O. Galor. Discrete dynamical systems, Springer, 2007.
Experts would like to note, the definition of the term "credit point" given in SAR (p.109) corresponds to the old definition of the Law on Higher Education Institutions, i.e. "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." According to the new definition given in the Law on Higher Education Institutions (https://likumi.lv/ta/id/37967-augstskolu-likums) Clause 1 Article 8 "credit point is accounting unit that expresses the amount of study work based on the study results defined in the study programme or part of it and the study load related to their achievement. 60 credit points correspond to the study results acquired in full-time studies in one academic year in accordance with the European credit transfer and accumulation system. Credit points are expressed in whole numbers. One credit point corresponds to 25-30 hours of study work".

2.2.2
The topics of the SP master thesis for the last years contribute to the development of the computer science fields as they are mainly related to the problems of machine learning, remote sensing, databases and data processing and analysis (Annex 3.2.6 "Defended Masters theses AMSP CS"). It should be mentioned that the academic staff involved in conducting the SP does not have any direct IT international projects they are leading or managing (Annex 2.3.7 "CV EN.zip") and the SAR does not mention any industry related applied IT research projects financed by the companies though all the academic staff participate on various other research projects not directly in IT field. So the students are teached and supervised by the academic staff having enough basic research competencies but the students involvement and courses content connection with real IT research is not clear from SAR nor from the expert meetings. It is also unclear whether the students participate in some scientific conferences or collaborate with the academic staff in writing the journal papers and this side should be improved in the SP. It is stated and confirmed during the expert visit that most of the master theses are done in the frame of collaboration with some company the student is working for. The titles of the topics and samples (provided during the visit) shows that presented master theses are based on analysis of the field and insights on potential improvements, which corresponds to the master thesis. The obligatory part of the master thesis is state-of-the-art, which sets the context of the applied research and is based on the novel practical achievements in the specific field in the companies. Therefore it shall be concluded that awarding of a degree is based on the achievements and findings of the relevant field of science. Considering the whole SP the structure of the programme follows the European consortium Career Space (http://www.careerspace.com) foundations and recommendations for training systems for the IT sector. The proposed model emphasizes scientific preparation – fundamental knowledge and methodologies, including mathematical preparation (a strong connection between the scientific base is expected) in parallel with technological preparation – learning the basics of technology ("broad learning") (SAR p.109). The approach is supported by the DU student research competition programme "DU Student Research Project Competition for 2023". Therefore the whole SP and especially awarding the degree is based in general on scientific achievements mostly solving practical problems in a company, i.e doing applied research in the company they work for.

2.2.3
The MA Computer Science SP is implemented as a full-time face-to-face programme. The forms of the study are lectures, practical classes, seminars, laboratory works, consultations, individual work of students and work in groups and in all parts of the SP, students' individual work makes up more than 50% of the total number of contact classes (SAR p.109). The study load is an average of 20

contact (in-class or face-to-face) hours per week, respectively, and an average of 30 hours per week devoted to independent work (SAR p.110). Practical long time experience of the teaching staff in companies and various tasks ensures synergy of theoretical knowledge and practical experience, which fully ensures the achievement of study results and study objectives by using diverse teaching methodologies.
In DU the student-centric method is utilized as a core teaching paradigm, which is also supported by the statements of the students (open attitude of the teachers, availability for consulting with teaching staff and availability of the MA Computer Science SP director). The SP utilizes a self-directed learning approach, where 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, where 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 programme is creative participation, that is, students look for opportunities for the implementation of their ideas 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 (SAR 110). Most students work in parallel to their studies and therefore practical work can be done individually, too (upon agreement with the lecturer of the specific study course) as confirmed by experts meeting with students.
Utilization of these principles at DU was confirmed during the expert visit and meetings with the students and graduates.

2.2.6
The list of the defended theses main topics in the frame of the AMSP “Computer Science” are reported in SAR (p.111-112). The complete list of the defended theses is given in Annex 3.2.6 (“Defended Masters theses AMSP CS”). The topics are relevant to the field and correspond to the AMSP “Computer Science”. Most of them are related to network services, machine learning, data processing, design of information systems and computer game algorithms. In addition SAR states (SAR p.111) that most of master thesis topics are done as a direct assignment of a company or institution as in most cases, the MA students are selecting topics strongly connected to their everyday work (at the companies that employ them), which helps them in deepening their understanding of the given field and in career development and therefore the selection of topics for master theses reflects labor market trends. Theses are evaluated by the final examination committee, where the evaluation consists of the average grade of all commission members for the master thesis, the reviewers grade, the evaluation of the students presentation and the answers to the questions of the commission (SAR p.112). Evaluation procedure is specified in the Regulations on studies at DU (https://du.lv/wp-content/uploads/2022/06/ENG-NOLIKUMS_PAR_STUDIJAM_DU_2018-1-1.pdf).

Conclusions on this set of criteria, by specifying strengths and weaknesses

The study programme is compliant with the Latvian State Standard for Academic Education. It shall be concluded that the AMSP “Computer Science” fulfills formal requirements and is inline with the requirements of the industry and labor market. The content of the study programme supports reaching the aim and learning outcomes of the AMSP “Computer Science”. Some improvements or adjustments might be needed to make the programme more flexible and to introduce some options for the students to participate in real international research projects in the IT field.

Strengths:
1. Graduates of the SP are highly requested by the industry.
2. Students value the implemented student-centred approach in the SP
3. Small number but motivated students

Weaknesses:
1. The definition of the term “credit point” given in SAR (p.86) corresponds to the old definition of the Law on Higher Education Institutions.
2. The list of mandatory literature for some study courses includes outdated sources.
3. Many small-volume courses
4. Introduction and participation in external IT research projects of the students is weakly implemented in the SP.
5. Conducting student surveys once per year seems not enough for operative SP corrections
6. Lack of innovative and interactive teaching methods
7. Small number of graduates
8. Number of industry leaders and foreign teachers guest lectures is very small

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Partially compliant

The study programme is in line with the regulations and good practices both in the EU and Latvia. In general, the teaching process can guarantee the main aims of the SP, and the achievement of the foreseen learning outcomes. The SP could take into account more flexibly and dynamically the newest developments of the IT field and students should be provided more options to take part from the serious international IT R&D projects. As the graduates of this study programme are intensively sought after in the labor market, more students should be admitted through more intensive educational marketing and constantly improving the academic offer.

2.3. Resources and Provision of the Study Programme

Analysis

2.3.1
DU has a significant and sufficient volume of auditoriums (large have ~100 seats), 7 classrooms are available for practical and laboratory work including laboratories for specific study courses to equip students with necessary hardware and software. The key asset required for students in study programme “Computer science” is the computer equipped with compilers, programme development and supporting environments and the internet connection supported. DU ensures required software development environments and technologies by establishing collaboration agreements with Microsoft (MSDN).
Students do have access to the DU library that provides access to physical and electronic materials used in study programme delivery. Expert visit to the library revealed that students are not very keen to use hard copies of the literature and the library lacks the modern IT periodicals. There is access to many electronics databases in the library but they are general databases (Web of Science and Scopus, etc) but not specialized IT related databases like IEEE or others similar databases. Therefore it is hard for the students to be familiar with the most recent scientific and practical achievements in the field of IT.
DU has implemented a Moodle system to provide required information to students, i.e. necessary information of the study courses including practical exercises and additional materials. Mentioned information is available in Latvian. To maximize availability of delivered lectures (especially during the pandemic period), DU has established hybrid delivery of them. By using ZOOM and MS Teams,

teaching staff was able to deliver lectures physically in the class and virtually to the connected students.
Review of the necessary equipment and literature is being done mostly through various projects (like ERDF or ESF) and listed in the Annex 3.3.1 (“Material and technical base”). During the onsite visit academic staff reconfirmed availability of necessary equipment and renewal with-in large Univ projects, but also highlighted that there is no information about the annual budget for required resources and the most critical items are requested as per the need in an ad-hoc manner. Moreover there is no specific student research oriented laboratory except the industrial robotics lab, which is shared with all the programmes and not directly facilitated for this second-cycle programme research needs. The access of the students to a specific laboratory where they can do their research (Thesis or coursework related) freely in classes free times is unavailable.

2.3.3
DU has defined and executed a clear financial budgeting process. The programme is financed mostly by state funded grant providing budget seats and study fees. Department of Finance and Accounting of DU calculates costs per 1 student for whole program delivery (SAR p.113-114), which includes salaries of the teaching staff, renewal of required equipment and resources, costs for facilities and all other costs associated with programme delivery. Currently calculated costs per 1 student for whole programme delivery are 7857.63 EUR (for 2 years), which are calculated with conditions to have at least 5 state funded students in the programme.
Financial provisioning and sustainability of the study programme is directly impacted by the number of students in this programme. DU has managed to keep the required number of students in the programme in 2021. (7), but in 2022. (1) number of new admissions was extremely low and was close to 2020., when DU got 0 new admissions for this programme. In academic years 2017.-2019. average admission to the programme was 6,66 new students. Meanwhile, dropout of students also is stable high (4 in 2020., 1 in 2021. and 4 in 2022.). Based on the feedback collected during the expert's visit, one of the main reasons is the inability of students to combine full-time jobs with the study process. Data from the student's survey doesn’t provide confidence due to the low number of respondents. Number of new admissions in 2022. (1) is less than the minimal number (5) needed to keep the study program financially sustainable (Annex 3.1.4 “Statistical data on students AMSP CS”)
DU managed to leverage ERAF funds and complete several projects during recent years and attract additional funds to finance new laboratory equipment, new computer classes, improvements of premises and development of the academic staff.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Students and teaching staff are fully equipped to achieve learning objectives and graduate the programme. The availability for the students to do or join a research project at DU is limited due to lack of real IT projects and especially international IT projects. Despite the fact that students are working in companies there are no data about any direct funding or sponsorships from companies to intensify research in the IT field. Laboratories and classes are sufficient for a good level of teaching for this SP but availability of the resources to support master level students research at DU is limited. The study programme got only 1 new admission in the year 2022., which is insufficient to keep the programme sustainable. Before the year 2022, the number of new submissions was sufficient.

Strengths:
1. Students have access to all required equipment for the study process.
2. Nice and new study classes, lecture and leisure rooms

Weaknesses:
1. Extremely low number of new students and high level of dropouts highlights the risk for the study programme's financial sustainability in the long run.
2. Resources availability for the students' research at DU is low.

Assessment of the requirement [6]

1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Partially compliant

students and teaching staff are fully equipped for the SP courses but it is insufficient for doing MA level research or joining some research or applied projects in the field at DU. Low number of new admissions and high level of dropouts introduces the risk for the study programme sustainability in a long run and this is connected with the ability to attract and participate the students in real research projects in IT.

2.4. Teaching Staff

Analysis

2.4.1
Totally 12 members of the teaching staff from different Departments (such as Department of Physics and Mathematics, Department of Law, Department of Informatics) are involved in the implementation of the academic master study programme "Computer science" (Annex 2.3.7 "Teaching staff.xlsx"): 1 professor, 4 associated professors, 2 assistant professors, 5 lecturers. 8 members are from the Department of Informatics. All members of the academic staff are elected in DU.
5 members have expert rights of Latvian council, 2 of them in the science branch: Natural sciences-Computer science and informatics, 1 of them in the science branch Social Sciences-Economics and Business, 2 of them in the science branch Natural Sciences-Mathematics.
All members of the teaching staff have masters or doctoral degrees, i.e. 58% of members have Doctoral degrees: 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 (SAR, p.114), and other members have masters degrees.
According to the Regulation of the Cabinet of Ministers No.569 "On the education and professional qualifications required for teachers and the procedure for the development of professional competence of teachers", professional development may include international mobility, participation in projects and participation in conferences and seminars, as evidenced by the documents issued for professional development. Several members of teaching staff have improved their professional knowledge and skills by attending (Annex 2.3.7 "CV EN.zip"):
specific courses within the European Social Fund project No. 8.4.1.0/16/I/001 "Improving the professional competence of employed persons" such as RTU: WEB programming languages and development (PHP, Javascript, Python) 160 hours, University of Latvia: "Digital marketing tools: social network marketing and Google Ads". 160 hours,
improved their professional English knowledge level within the ESF project No. 8.2.2.0/18/A/022 "Strengthening the professional competence of academic staff in strategic specialization areas of Daugavpils University";

attended specific courses and seminars, for example, courses "Artificial Intelligence and Deep Learning", Power BI - data analysis and visualization tool, Business and Data Analysis, Seminar "Current Affairs in Personal Data Protection", “Developing effective and interactive e-courses with H5P” etc..
6 members (~50% of teaching staff) of the teaching staff from the Department of Informatics have participated in the mobility. In total, 22 mobility activities (17 teaching and 5 training activities) have been performed during the time period from 2017 till 2022. The obtained information is used in the study process.
Each lecturer has the appropriate academic and/or professional qualifications to teach the specific course, to contribute to the achievement of the learning outcomes, are relevant and appropriate to ensure the achievement of the results, goals and tasks of the study programme.
The Statement of acknowledgement (Annex 2.3.7 “STATEMENT native language.docx”) confirms that the official language proficiency of the teaching staff involved in the implementation of the academic master study programme “Computer science” (45483) complies with the “Regulations regarding the extent of the knowledge of the official language and the procedures for examining the proficiency in the official language” for the performance of their professional duties. The Annex 2.3.7 (“Teaching staff.xlsx”) acknowledges that all members of teaching staff also have the Knowledge of English according to European language proficiency levels at least B2 and higher, which creates a good presuppositions for international collaboration and potentialities to be acquainted with the latest scientific literature.

2.4.2
During the reporting period, changes in the composition of teaching staff have been insignificant. Several changes in composition were made for various reasons, e.g. retirement, change of job (SAR, p.116):
4 members of teaching staff ended their work;
3 new members (associated professor, assistant professor, lecturer) were involved in implementation.
DU has established measures to verify that lecturers involved in implementation of the professional bachelor study programme have the necessary qualifications and competences for the development and teaching of the specific study courses, i.e:
DU Regulation on electing to academic positions where the requirements for applicants for academic positions are defined (https://du.lv/wpcontent/uploads/2021/12/Nolikumspar-velesanam-akademiskajosamatos-DU_APSTIPRINATAIS.pdf (31.05.2021)) ;
student surveys at the end of each semester, where students are able to provide feedback and comments about each individual teaching staff (Meeting with students during visit);
the self-analysis of the academic activity performed by the lecturers (SAR, p.96).
During the visit, there were not identified any gaps in the composition of the teaching staff from the perspective of legal requirements. Students acknowledge the high qualification of teaching staff.

2.4.3
N/A

2.4.4
9 members of the teaching staff from 12 are involved in research (Annex 2.4.4 “Quantitative data teaching staff.docx” and “Teaching staff publications.docx”). 7 members of teaching staff have published in peer-reviewed editions (totally 67 publications have been published in SCOPUS/WoS databases), 5 members have published in other peer-reviewed editions (totally 37 publications have been published), 7 members have participated in scientific or applied conferences (totally 75 times).

11 members have participated in projects, performing roles such as expert, course developer, course leader, program author, reviewer, group leader, performer. Teaching staff participated in many ESF projects, individual Latvian-Lithuanian cross-border cooperation program projects, which are mostly related to the Implementation of national and international measures for the development of student talents, improving the skills and/or professional competence of learners, pedagogues, workforce, and employed persons.
2 associated professors are involved in the editorial boards of scientific publications. 5 members have expert rights of Latvian Council.
According to Article 60 of the Law on Higher education institutions, scientific research is an integral part of the work of every university, and in accordance with Article 26 of this law, all academic staff of the university participate in it. Its purpose is the acquisition of scientific knowledge, scientific substantiation and further development of teaching and studies, solving practically important tasks with research methods. The Law states that performance of scientific research is one of the main tasks of professors, associate and assistant professors, but the tasks of the lecturers and assistants are determined by the university. In the case of DU, all professors, associate and assistant professors involved in the implementation of SP perform scientific activities. One of the associated professors hasn't published any scientific publications during the evaluation period, but is the member in 6 editorial boards of scientific publications.
In general, the indicators of scientific activity are adequate (for more details of scientific research see this opinion section 1.4.). Recognizing the significance of scientific research in master-level studies, involvement of lecturers in the research must be improved.

2.4.5
A mechanism for mutual cooperation of the teaching staff in the implementation of the professional master study programme has been established. According to the SAR (p.117), DU carries out several activities regarding mutual cooperation of the teaching staff within the SP, such as:
teaching staff cooperates in the development of study courses' curriculum
attend regular meetings at the Department of Informatics where the logical sequence of the implementation of study courses is evaluated and discussed;
attend regular meetings of lecturers, where the content of the study courses and the structure of the programme and other questions related to the study process are discussed;
participate in the activities related to the organization and management of the study process, practice planning;
collaborate in the research and/or project implementation.
Based on the visit it can be concluded, the collaboration between the teaching staff is at the relevant level.

Conclusions on this set of criteria, by indicating strengths and weaknesses

The qualification of the teaching staff complies with the requirements set forth in the Law onf Higher Education Institutions, is appropriate for the AMSP "Computer Science" implementation, allows to achieve the aims and ensure the learning outcomes of the study programme in Latvian language. Professor, associated and assistant professors are involved in some various research. In general, the indicators of scientific activity are adequate. Recognizing the significance of scientific research in master-level studies, involvement of lecturers in the research must be improved. DU has established a mechanism for mutual cooperation of teaching staff to ensure the achievement of the aim of the study programme.

Strengths
1. The teaching staff involved in implementation of the study programme have the necessary

academic (higher) education.
2. The teaching staff collaborates by jointly developing and improving the content of study courses.
3. The English knowledge level of teaching staff (according to European language proficiency level at least B2 and higher) is appropriate for implementation of SP in English language.

Weaknesses:
1. The involvement of lecturers in the research must be improved.
2. Teaching staff weak participation and not having experiences in leading IT field international or local company IT research projects.

Assessment of the requirement [7]

1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Fully compliant

The qualification of the teaching staff complies with the requirements set forth in the Law on Higher Education Institutions, is appropriate for SP implementation, though experts invite DU management to turn more attention to the complexity scientific activities, which should include also initiating international and local industry IT research projects and intensifying international collaboration in the sense of joint projects and jointly organized seminars/conferences.

2.5. Assessment of the Compliance

Requirements

1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

According to Annex 3.2.1 ("Compliance with national education standart AMSP CS") the MA Computer Science study programme complies with the "Rules on the National Standard for Academic Education" Nr.240 by the Cabinet of Ministers.

2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Not relevant

3 3 - The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

The study course descriptions (Annex 3.2.1 "Studiju kursu apraksti AMSP Dat.zip") are prepared in Latvian language therefore study course descriptions do comply with the requirements set forth in Section 561, Paragraph two and Section 562, Paragraph two of the Law on Higher Education Institutions.

4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Fully compliant

The sample of the diploma complies with the current state regulations set in the Minister Cabinet regulation No.202 "Kārtība, kādā izsniedz valsts atzītus augstāko izglītību apliecinošus dokumentus".

5 5 - The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

According to Annex 2.3.7 “Teaching_staff”, Acknowledgment (Annex 3.4.1.AMSP Computer Science_Statement_Article 55_EN.docx) and Annex 2.4.4 “Quantitative data teaching staff” the AMSP “Computer Science” study programme complies with the requirements set forth in the Law on Higher Education Institutions.

6 6 - Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

7 7 - At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts (if applicable).

Assessment of compliance: Not relevant

8 8 - The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Fully compliant

The attached annexes Statement of acknowledgement (Annex 2.3.7 “STATEMENT native language.docx” and “Teaching staff.xlsx” affirms that the knowledge of the official/national language of the academic staff involved in the implementation of the study programme complies with the Regulations on the extent of knowledge of the national language and the procedure for testing the knowledge of the national language for performing professional and official duties.

9 9 - The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language (if applicable).

Assessment of compliance: Not relevant

Despite the attached Annex 2.3.7 “Teaching staff.xlsx” affirms that the English knowledge level of the teaching staff involved in the implementation of the study programme in English is B2 and

higher.

10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

The attached Annex 2.1.4 “Studiju līguma paraugs.docx” fully comply with the requirements set in the Minister Cabinet regulation No.70 “Studiju līgumā oblgāti ietveramie noteikumi”. There is full information about the university and study programme. All the main rights and obligations of both the student and the university. The university assures the possibility to transfer to another university or study programme, if the exact study programme loses its accreditation or license. The agreement mentions possible extra payments for re-examination and other cases.

11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

The Agreements with Ventspils University of applied science on students taking over in case of cancellation of study programmes (Annex 2.1.4 “Līgumi studentu parnemsana.zip”) affirms that students are provided with opportunities to continue their education in Ventspils University of applied science “Computer science” in the natural sciences master's study programme if the implementation of the study programme “Computer science” is terminated.

12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme’s license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Fully compliant

The study agreement mentions that if any side cannot execute any point of the agreement, that side fully compensates the incurred losses. Students can get compensation for losses with a written submission when deciding not to continue their studies. Student has the right to terminate the agreement if the university does not fulfill all their obligations or decides not to study in this programme by giving a written submission to the faculty dean.

13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

Assessment of the requirement [8]

1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Fully compliant

The study programme is compliant with the requirements set forth in the Law of Higher

Education Institutions and other regulatory enactments.”

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

The aim, tasks and learning outcomes of the SP correspond to the state and internal regulations. It shall be concluded that the AMSP “Computer Science” fulfills formal requirements and is inline with the requirements of the industry and labor market. The content of the SP supports reaching the aim and learning outcomes of the AMSP “Computer Science”. Some improvements or adjustments are needed to make the SP more flexible and to introduce some more options for the students to participate in real and high-tech international research projects in the IT field. Students and teaching staff are fully equipped to achieve most of learning objectives but acuiring the knowledge and skills in research and in newest technology trends is not on the best level. The qualification of the teaching staff complies with the requirements set forth in the Law of Higher Education Institutions, is appropriate for the AMSP “Computer Science” implementation, allow to achieve the aims and ensure the learning outcomes of the study programme in Latvian language. Professor, associated and assistant professors are involved in various research though no direct IT research programmes run by the professors in the SP field. Recognizing the significance of scientific research in master-level studies, involvement of lecturers in the research must be improved, especially in direct IT field. DU has established a mechanism for mutual cooperation of teaching staff to ensure the achievement of the aim of the SP but the students and teachers exchange and providing high-tech guest lectures must be intensified and the number of students on the programme is critical.

Strengths:
1. Graduates of the SP are highly requested by the industry.
2. Students value the implemented student-centred approach in the SP
3. Motivated students and teaching staff
4. Nice and new study classes, lecture and leisure rooms

Weaknesses:
1. Low number of admissions and graduates. High dop-out rate.
2. The list of mandatory literature for some study courses includes outdated sources.
3. Many small-volume courses
4. Introduction and participation in external IT research projects of the students is weakly implemented in the SP.
5. Conducting student surveys once per year seems not enough for operative SP corrections
6. Lack of innovative and interactive teaching methods
7. Teaching staff weak participation and not having experiences in leading IT field international or local company IT research projects.
8. Number of industry leaders and foreign teachers guest lectures is very small

Evaluation of the study programme "Computer Science"

Evaluation of the study programme:

Average

2.6. Recommendations for the Study Programme "Computer Science"

Short-term recommendations

Change the definition of the term “ creditpoint” according to the current definition given in the Law on Higher Education Institutions.
Update the list of mandatory literature for study courses including up-to-date sources, i.e. mandatory literature should not be older than 5 years.
Introduce and implement an option to SP for the students to participate in IT research projects
Change the frequency conducting student surveys from once per year to once per semester.
Introduce a plan for inviting industry leaders and foreign teachers delivering guest lectures and implement this on a regular basis yearly.
Urgently increase the number of students (applicants for the SP).

Long-term recommendations

Enhance student’s survey to have reliable and detailed information on the quality of the delivered SP and particular subjects introducing more focused questions.
Work on an action plan to increase the number of new admissions to the study programme.
Ensure higher involvement of teaching staff in the research, i.e. publications in peer-reviewed editions (including SCOPUS, WoS and taking into account quartile index), for example, at least 1 publication during 2-3 years.
Small (2 CP) courses should be merged into bigger (4-6 CP) courses
Introduce new interactive and more effective teaching methods to SP courses
Introduce a plan and make it obligatory for the SP teaching staff to participate and apply for specific IT field international or local company IT research projects.

III - Assessment of the Requirements for the Study Field and the Relevant Study Programmes

III - Assessment of the Requirements for the Study Field and the Relevant Study Programmes

Assessment of the Requirements for the Study Field

Requirements	Requirement Evaluation	Comment
R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:	Partially compliant	The internal quality policy has been formulated and integrated into daily operations, ensuring that study programs and relevant courses should be consistently updated and enhanced at DU. However, there is a notable absence of a systematic approach to elevate the professional and didactic skills of the teaching staff, despite the availability of training opportunities. While regular surveys are conducted to assess student, graduate, and employer satisfaction, there are identified deficiencies in effectively closing the feedback loop, particularly in interactions with students and employers.
R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)	Partially compliant	The institution has a formal regulation for the research support and initiatives, but scientific research is not carried out in practice. 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/).
R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.	Partially compliant	SAR (SAR p.49-50) and Annex 2.5.1 (“Cooperation agreements.xlsx”) lists some Latvian and foreign organizations DU has a good cooperation but the cooperation is mainly on the ERASMUS+ mobility and providing practice places for students level and does not cover IT focused research or applied projects.
R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.	Partially compliant	Two of three recommendations were implemented. Recommendation related to cooperation and internationalization has been partially implemented.

Assessment of the Requirements for the Relevant Study Programmes of the Study Field

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)
1	Information technologies (41483)	Not relevant	Fully compliant	Fully compliant	Fully compliant	Good
2	Information Technologies (42484)	Not relevant	Fully compliant	Fully compliant	Partially compliant	Good
3	Computer Science (45483)	Partially compliant	Partially compliant	Fully compliant	Fully compliant	Average

The Dissenting Opinions of the Experts

No different opinions