Self-assessment report

SHORT CYCLE PROFESSIONAL HIGHER EDUCATION STUDY PROGRAM "PROGRAMMING" (education classification code 41484)

RTU Rezekne Academy

Rezekne, **2025**

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III. CHARACTERISTICS OF THE STUDY PROGRAM "PROGRAMMING"

3.1. Indicators characterising the study programme

3.1.1. Description and analysis of changes in the parameters of the study programme that have been performed since the previous accreditation of the study field or licensing of the study programme, or assessment of changes, including changes planned within the framework of the assessment procedure of the study field.

Parameters of the study program	
The title of the study program in Latvian	"Programmēšana"
The title of the study program in English	"Programming"
The standard of a profession	"Programmer" (8 June 2022, meeting No. 3)
The code of the study program according to the Latvian Education Classification	41484
The type of the study program	Short-cycle professional higher education study program
The qualification level (NQF/EQF)	Level 5
The size of the study program	120 CP
The form, duration and language	Full-time, 2 years, in Latvian
The location	Rezekne Academy of Riga Technical University, Atbrivosanas 115 Str., Rezekne, LV-4601, Latvia
The admission requirements	Secondary education
The director of the study program	Associate Professor, Dr.sc.ing. Sergejs Kodors

The previous accreditation of the study program was 15 November 2023 (Decision No. 2023/41-A of the Academic Information Centre's Study Quality Commission), in which the study program was accredited for two years, until 15 November 2025. The accreditation period was extended considering the Law on Higher Education Institutions of 24 October 2024, and it expires no earlier than one year before or no later than one year after the reorganization of the higher education institution. The Rezekne Academy of Technologies (RTA) was reorganized 1 April 2025; the accreditation term of the study program was accordingly extended until the day when a decision is made on the new accreditation of the study field or a decision to refuse its accreditation, but no longer than until 31 March 2026.

Since the previous evaluation of the study program in 2023, the short-cycle level professional higher education study program "Programming" (hereinafter – the study program) has undergone several changes in its parameters:

1. Based on the regulations of the Cabinet of Ministers (23 May 2023) No. 297 "The reorganisation of Rezekne Academy of Technologies", Rezekne Academy of Technologies (hereinafter RTA) was reorganised on 1 April 2025. Based on the decision of the RTU council (10 February 2025) No. 01000-21.1.2-e/4, RTA is included in RTU under the title "Rezekne Academy of Riga Technical University"

(hereinafter RTU Rezekne Academy).

2. Based on the decision of the Higher Education Quality Agency (19 March 2025) No. 2025/15-I, the study program is included in the study direction "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science" of RTU.
3. Considering the Law on Higher Education Institutions and the changes in the regulations of the Cabinet of Ministers (13 June 2023) No. 305 "The Standard of the State Professional Higher Education", the type of the study program is changed from "the first level" to "the short-cycle professional higher education".
4. As a result of moving from the Latvian to the European credit system, the size of the study program was changed from 80 CP to 120 CP, considering the Law of Higher Education Institutions. Appropriately, the content of the study program was changed to base points on the Cabinet of Ministers' (13 June 2023) No. 305 "The standard of the state professional higher education".

See Annex 01 for the report on the implementation of the recommendations provided by the previous accreditation expert group.

3.1.2. Analysis and assessment of the conformity of the study programme with the study field. Analysis of the interlinkage of the programme title, code, degree to be obtained, professional qualification or degree and professional qualification objectives and objectives, study results corresponding to the relevant level of LQF/EQF, as well as admission requirements. Characterisation of the duration and scope of the implementation of the study programme (including different variants of the implementation of the study programme) and assessment of the usefulness.

Relevance to the field of study

Considering the decision of the Higher Education Quality Agency (19 March 2025) No. 2025/15-I, the study program is included in the study direction "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science" of RTU (hereinafter the study direction). The study direction provides all levels of higher education, starting from the short cycle to the third cycle study programs. At this moment, the study program "Programming" is the only short-cycle program in the study direction.

The development plan of the study direction "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science" (see the Study Direction Development Plan in Annex 23) was considered within the self-assessment (see Table 1).

Table 1

The tasks defined by the study direction	**The suitability of the study program for the study direction**
The content and organization	
1. The development of study courses at different study levels, which are contently and methodologically suitable to the good practice of the partners.	The study courses: "No-SQL databases", "Introduction to Project Management", "Basics of programming" (C++, Python), and "Introduction to Research and Data Science" were developed. The small courses were connected into larger courses.
2. Train academic staff, especially young	The usage of the RTU e-study environment

people, using the programs which develop pedagogical capacity and teach modern teaching methods.	the methodological support for the academic staff. The order (10 September 2025) No. 01000-1.2-e/76 states 30 hours for professional development, including 6 hours for hosting.
3. Increase the pedagogical capacity, integrating the technical equipment necessary for the implementation of study courses.	The MOOC courses, online training tools (like CodeWars), certification systems (like SoloLearn, CodeAcademy, etc.) and online courses were integrated into the study program.
4. The diversification of study content and methods according to the students' level of knowledge, their interests and expected experience. Create support centres for weak students, develop the study courses for excellent students, and integrate technical equipment into the study processes.	There is the personalised content for the excellent students (portfolio, online courses, additional requirements for evaluation above 8 points (the regulations of the Cabinet of Ministers No. 305)). The support of weak students is provided through the simplification of the study courses to reduce dropout.
5. Development of students' interest in scientific work and to solve complex program-related tasks, thereby promoting research-intensive cooperation in student groups and individual studies, as well as with industry by solving important problems	Involvement of students in scientific projects, primarily FLPP projects, which support student employment. Order No. 01000-1.2-e/76 declares to support the development of FLPP project proposals or other scientific projects.
6. Strengthening of interdisciplinary studies to improve the general ICT skills in other study fields as well.	ICT study courses are offered for other study directions or included in the list of free courses.
International collaboration	
1. Strengthening partnership with current partners, which is necessary to improve the content of courses and pedagogical methods.	Collaboration with RTU and other partners (MIDIS, LTK association, Erasmus+ lecturers and researchers).
2. Increase the number of foreign students with a high level of knowledge.	The updated courses (e.g. "No-SQL databases", "Introduction to Research and Data Science", Python inclusion in the study program, the mandatory course "Web development: Back-end (.NET)") establish the competence of the students at the regional and global level.
3. Promotion of student mobility in research-intensive study fields, which are related to the study direction.	Students participate in the international conferences, guest lectures provided by Erasmus+ lecturers, and the course "English language" (6 ECTS) included in the study program (it contains topics aimed to motivate Erasmus+ mobility).
4. Increase the number of foreign academics and the mobility of the staff to adopt the good practice of partners.	Guest lectures with company representatives, Erasmus+ lecturers, researchers and graduates.

Collaboration with industry	
1. Development of projects together with industry, policymakers and Latvian or abroad partner universities.	Cooperation with SIA "MIDIS", LTK Association and other companies; involvement of employers in updating the content of study courses.
2. Participation of industry in the innovation implementation to promote the development of knowledge-intensive innovations in Latvian companies, as well as to create a stronger partnership between the Latvian academic and business environments.	Organization of internships with the support of prakse.lv, RTU Development Fund; bootcamps (Accenture), summer schools (TestDevLab), trainee programs (If); guest lectures on current industry trends.

The short-cycle professional higher education study program "Programming" (41484) with the profession standard "Programmer" (code 2512 05) corresponds to the study field "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science" contains the code element (41), which indicates the short-cycle study programs that are implemented after secondary education. The code element (48) indicates belonging to the thematic group "Information and communication technologies". The code element (484) indicates the thematic group "Software and application development and analysis". The duration of the study program (full-time) is 2 years (120CP), as specified in Point 3 of Section 57 in the Law of Higher Education Institutions and in Point 12 of the regulations of the Cabinet of Ministers "the Standard of the State Professional Higher Education".

Title, code, goal, tasks, study results

The title of the study program (Programming), code (41484) and the profession (Programmer) depict the relation to the IT industry and the list of requirements defined by the professional standard (Programmer). The goal of the study program is to prepare students for the duties of a programmer (professional code 212 05), providing a professional qualification level 5 considering the Latvian Qualifications Framework (LQF); promoting the development of students' personality and competitiveness in changing socio-economic conditions; creating motivation for further education and providing a basis for further studies at the professional bachelor's level in the field of computer science.

The **objectives** of the study program specify the mechanisms for implementing the aim and are aligned with the requirements of the LQF and the professional standard "Programmer", and are aimed at achieving the study results defined by the study program:

(1) Provide general and specialized knowledge in the field of information technology and programming.

(2) Develop skills of software development, testing and maintenance, considering professional standards.

(3) Promote the ability to solve the problems related to the profession independently or in a team, respecting professional ethics and labour market requirements.

(4) Build motivation for further learning and lifelong learning by preparing the framework for the next studies at the first cycle (bachelor's) level.

Each task is directly derived from the aim of the Study Program and linked to the requirements of the professional standard 'Programmer', considering that the aim defines the

direction, the tasks define the implementation steps, and the learning outcomes define the results to be achieved.

The outcomes of the study program (knowledge, skills, competences) have been developed considering the requirements of the LQF/EQF level 5, which are specified by the regulations of the Cabinet of Ministers No. 322 of 13 June 2017 "Regulations of the Classification of Latvian Education":

Knowledge (K):

K1. Has general knowledge and specialized knowledge in information technology and computer science.

K2. Knows the software development life cycle and technologies, as well as the basic principles of cybersecurity and quality assurance.

Skills (S)

S1. Able to analyse user requirements, consider non-functional requirements, model and design systems;

S2. Able to develop, test and maintain software, considering security, performance and the best practice of the industry.

S3. Able to critically evaluate own competence, identify development possibilities and engage in lifelong learning.

Competence (C):

C1. Able to develop projects related to information systems or their components and prepare the necessary documentation, using appropriate modelling methods and tools;

C2. Able to perform the duties of a software developer – create, test and maintain applications or their modules, observing security, performance and industry best practice requirements;

C3. Able to effectively collaborate in a team, apply knowledge and skills in software development processes, observing the principles of professional ethics and work culture.

At the end of the study program, there is the defence of a qualification thesis, which is stated by the regulations of the Cabinet of Ministers (13 June 2023) No. 305 "The Regulations of the State Professional Higher Education Standard" (see Point 9).

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The knowledge outcomes (K1–K2) provide the theoretical foundation in programming and IT security required for professional practice. The skills outcomes (S1–S3) demonstrate the ability to apply this knowledge when developing and testing software. The competence outcomes (C1–C3) reflect the ability to work independently in the profession, collaborate within a team, and adhere to professional ethics. In this way, the learning outcomes demonstrate vertical alignment with the EQF/LQF level 5 descriptors and horizontal alignment with the program's aim and tasks.

Admission requirements

Applicants should have a general/professional secondary education (considering Point 46 of Section 3 in the Law of Higher Education Institutions). To begin studies, the applicant should have completed the exams in Latvian, in a foreign language (one of the applicant's choice - English, German, French or Russian), and in mathematics.

Applicants who obtained secondary education until 2004 (before the system with centralized examination) should have positive assessments in the appropriate subjects.

The admission requirements are aligned to ensure students' initial preparedness for studies at LQF/EQF level 5. Knowledge of mathematics and a foreign language provides the necessary foundation for algorithmic thinking and professional terminology, which is directly related to the requirements of the programmer's profession. Thus, the admission criteria form the starting

point in the chain of the Study Program's intended learning outcomes – they ensure sufficient potential for achieving the study aim and obtaining the qualification.

Graduates of the study program can continue to study in the first-cycle study programs (Point 3, Section 57 of the Law of Higher Education Institutions).

Duration and size

The duration and size of the study program (2 years, 120 CP) with a full-time and face-to-face format is useful and meets the requirements of the labour market, because it allows for preparing specialists in a relatively short time, at the same time it provides the opportunity to continue education in the first-cycle higher education study programs. The study program does not have a part-time format. During the study (within 12 months), students obtain knowledge and skills to work as full-stack developers. In the final stage, students undergo a 16-week internship (24 CP) and write a qualification thesis (12 CP). Thus, the duration and scope of the study program are justified both pedagogically and economically, ensuring an optimal balance between theory, practice, and opportunities for obtaining the qualification.

According to the results of the student survey in 2025, 73.3% of students answered that the duration of the study program (two years) is an important parameter of the study program; meanwhile, 53.4% of respondents negatively assessed the decision to create the longer study program. Therefore, the current duration and size of the study program meet the needs of students and the requirements of the labour market.

Thus, it can be concluded that the elements characterizing the study program (aim, objectives, learning outcomes, admission requirements, duration, scope, title, code, and qualification) are mutually aligned, structurally balanced, and substantively justified. The study program demonstrates a clear link between the aim, objectives, and learning outcomes, as well as a logical correspondence to the qualification level, the duration and scope of the study program, and the admission requirements. The structure and content of the study program ensure the full acquisition of professional qualifications and promote graduates' competitiveness in the labor market and further education.

Annex 02 contains a sample of the diploma and its supplement issued upon completion of the study programme, in accordance with the Cabinet of Ministers Regulations No. 2022 of 16 May 2013 "Procedures for Issuing State-Recognised Higher Education Documents".

Annex 03 contains a sample of the full-time on-site study agreement, in accordance with the Cabinet of Ministers Regulations No. 70 of 23 January 2007 "Mandatory Provisions to be Included in a Study Agreement".

Annex 04 contains a sample of the agreement on the possibilities for continuation of studies if the study programme is closed.

Annex 05 contains a confirmation that RTU guarantees compensation of losses to students if, due to RTU's actions or inaction, the study programme(s) is/are not accredited or the licence is revoked. The student does not wish to continue studies in another study programme(s).

3.1.3. Economic and/ or social justification of the study program, analysis of the employment of graduates.

The development of Latvia's economy and society is strongly impacted by the digital transformation, which is defined as one of the priorities of the state and regions. The National Development Plan 2021–2027 (NDP2027) includes the objective "Society with digital skills", emphasizing the need to strengthen digital skills at all stages of education and create a highly qualified workforce that is able to adapt to technological changes. The NDP2027 also

specifically emphasizes that the ICT sector is the basis for sustainable growth of the Latvian economy and one of the main sources of competitiveness.

These priorities also support Smart Specialization Strategy (RIS3) of Latvia, which identifies information and communication technologies as one of five strategic directions, where human and research resources should be directed. RIS3 emphasizes that the ICT sector is a horizontal priority that provides innovation opportunities in all areas of the economy - from manufacturing and logistics to healthcare and the public sector.

At the regional level, the Latgale Planning Region Development Program 2021–2027 considers that one of the most important challenges is to provide high-quality and labour market-relevant education, especially in the field of information technologies, to the residents of Latgale. The top priority of the program "Economic competitiveness and entrepreneurship development" is the objective to develop digital skills, attract and retain young specialists in the region, and reduce socio-economic differences among Latgale and other regions of Latvia. At the same time, the secondary priority "Quality of life of residents" considers education as one of the tools to stop the emigration of residents to other countries or regions.

The economic importance of the study program is based on the following aspects:

- The demand for programmers in the labour market significantly exceeds the offer (according to the labour market forecasts of the Ministry of Welfare, a labour shortage will remain in IT professions);
- The Latgale region has a relatively lower concentration of companies in the IT sector, therefore, the training of qualified programmers can promote the establishment of new companies and attract foreign investments;
- The short duration (2 years) and the small size (120 CP) of the study program provide the opportunity to quickly respond to the needs of the labour market, while allowing graduates to continue their studies.

Considering the social context, the study program promotes the employment of young people in the region, offering competitive professions closer to home, thus reducing the risks of emigration. It also supports adults (change of specialization or further education) to obtain an actual profession. It promotes the development of digital skills in society, that is mentioned in the objectives of the European Union's Digital Decade 2030, which declares that at least 80% of the population to have basic digital skills. It supports the improvement of the quality of life of the Latgale residents by offering education that is accessible and directly linked to labour market opportunities.

The OECD emphasizes that this type of education is an effective tool for expanding access to higher education, reducing skills shortages in the labour market, and ensuring lifelong learning opportunities.

To obtain data on the graduates' employment and the needs of the labour market, the director of the study program interviews the graduates to find out whether they are working, whether their work is IT sector, or whether they continue their education in some field (see Annex 25), which includes the summary of survey data. This data is important to understand whether the study program provides appropriate skills, promotes employment, and meets the development priorities of the region and the country.

The survey of graduates (36 respondents) shows that 58% of graduates have entered the labour market after graduating from the study program in the period from 2022 to 2025 (see Annex 24). After two years counting from graduation year, the values are higher - 80% and 75%, respectively, which correlates with the statistics of graduates who continue studies in the first-cycle study programs, in IT or in interdisciplinary programs, where one of the components is IT, for example, mechatronics. Statistical data show that 50% of graduates in 2024 and 47% of graduates in 2025 continue their studies in the first-cycle (bachelor) programs, which affects the employment of students in IT companies. 30%

of employed students as IT specialists are working in software development companies as web developers. Other graduates work in the public sector and municipalities, for example, in state institutions, municipalities, and schools (computer technicians, IT teachers, system administrators). The employment data shows that the study program successfully prepares students for the labour market and further studies.

Annex 06 contains the list of cooperation agreements of the study program.

3.1.4. Statistical data on students in the study programme, dynamics of the number of students, analysis and assessment of factors affecting changes in the number. When analysing, distinguish separately different forms of study, types, languages and sub-programmes (if applicable).

Considering student statistical data of the study program (see Annex 07 shows that the number of students in the period from 2022/2023 to 2025/2026 remains relatively stable, ranging from 28 to 46 students.

The number of students admitted into the study program:

- 2022/2023 – 22 students,
- 2023/2024 – 29 students,
- 2024/2025 – 20 students,
- 2025/2026 – 11 students.

These fluctuations reflect both changes in labour market demand and the impact of the Study Program's popularization campaigns (including changing institutional affiliation). As of September 1, 2025/2026, 28 full-time students are studying in the Study Program, 17 in the second year of study, and 11 in the first year of study. 15 of the students started the study program after general secondary school, 11 - after secondary vocational secondary school, 2 - after previously obtaining higher education. All students come from the Latgale region, which clearly demonstrates the importance of the Study Program for regional development and education. The success of second-year students is positive.

The performance of the second-year students is positive. The weighted average mark in the study course is 7.69 points, which indicates high motivation among the students. The four students have an average grade of 9 (excellent), the six - 7-8 (good, very good), the seven - 6 (almost good), and only one has a weighted average grade equal to 5.57. In total, the high weighted average grade (7.69) and the small proportion of low-performing students depict that students are motivated and complete requirements, as well as the majority of them can achieve good and excellent results. The data of the first-year students shows the following results of the centralized examination: the average grade of Latvian language is 43.9%, mathematics – 24%, foreign language – 50.4%. 10 applicants have passed the exam of physics with an average score of 7 points (good), 3 applicants have passed the exam of informatics with a score of 7 (good) (two of them) and 9 (excellent) (one of them).

Therefore, the overall education level of the first-year students is not even: the part of them have a low level in languages and mathematics, which causes difficulties in the study process. At the same time, there is a small group of students who have a strong level in physics and informatics.

The academic year 2025/2026 is characterized by a decrease of about 50% in the number of students. This period is marked by two significant events:

- The decision to terminate the implementation of the professional bachelor's study program "Programming Engineer" (4 years), where the students of the study program "Programming" could continue their studies in the later stages (the 3rd year of study),

obtain a professional bachelor's degree and the qualification of a programming engineer. This is also confirmed by the survey of the graduates 2022-2025, - 48% of the respondents mention that they want or already study in the study program "Programming Engineer".

- The decision to implement the RTU academic bachelor's study program "Computer Systems" (3 years) at RTU RA. This study program is perceived as new and less well-known, with the advantage expressed by the shorter duration of studies than the professional bachelor's study program "Programming Engineer". The survey data shows that 73% of existing students of the study program "Programming" mention the importance of the short duration of studies.

To save the competitiveness of the study program, several improvements were made:

- several RTU study courses were integrated to provide credit transfer opportunities;
- the emphasis on professional development was increased – creation of CVs and portfolios, simulations of job interviews, and guest lectures provided by the company representatives (the list of guest lectures is provided in Annex 26).

However, it is important to continue to overlap the study program with the study programs offered by RTU Riga and RTU RA, and to strengthen the professional component in order to emphasize the uniqueness of the study program and to improve the competitiveness of students in the labour market.

Exmatriculation data shows that the main reason is unsuccessfully completed study results, which are up to 45% of the total dropouts. However, in the last two years, there were completed activities to reduce dropout, as a result, the dropout rate was decreased to 30%. A small number of students leave their studies based on their own decision, which is mostly due to job opportunities in the IT sector, even before obtaining a qualification. In some cases, students do not continue their studies after a break in studies. At the same time, the number of graduates is growing significantly: from 8 (in 2023) to 17 (in 2025), which is a positive indicator which proves the positive improvements of the study program.

Annex 08 contains data on mobility indicators.

3.1.5. Justification for the establishment of the joint study programme and characterisation and assessment of the choice of partner universities, including information on the establishment and implementation of the joint study programme (if applicable).

Not applicable.

3.2. Content and implementation of studies

3.2.1. Analysis of the content of the study program. Assessment of the interconnection of the information included in the study courses/modules, the results to be achieved, the objectives set, etc., with the objectives of the study programme and the results to be achieved, which conform with the relevant LQF/ECF level, state standard, profession standard or professional qualification requirements. Assessment of the topicality of the content of study courses/modules and their compliance with the needs of the sector, labour market and scientific trends, whether and how the content of study courses/ modules is updated according to the trends in the development of the sector, labour market and science. In case the study programme includes sub-programmes, include an analysis of each of the sub-programmes.

The study program provides the education considering the professional qualification

"Programmer" (profession code 2512 05). The study program aims to prepare students for the duties of a programmer, ensuring the acquisition of the 5th-level professional qualification, considering the LQF. The objectives of the study program are to promote personal development and competitiveness in changing socio-economic conditions; to create motivation for further education and provide a basis for studies in the first cycle in the field of computing. The study program (knowledge, skills, competences) is based on the requirements of LQF/EQF level 5 and the regulations of the Cabinet of Ministers No. 305.

The study results of the study program are defined based on the regulations of the Cabinet of Ministers No. 322, considering the knowledge, skills and competences defined by the 5th level of the LQF:

• **Knowledge** (K1–K2): fundamental knowledge of IT and computer science, principles of software development and security.

• **Skills** (S1–S3): ability to analyse requirements, develop, test and maintain software considering quality and security aspects.

• **Competences** (C1-C3): ability to work according to the profession, to plan, manage and evaluate work, to adapt to the requirements of the labour market and to engage in lifelong learning.

The study courses of the study program ensure compliance between the study results, the requirements of educational and professional standards. The study courses ("Basics of Programming" (3CP), "Algorithms and Data Structures" (6CP), "Selected Topics of Modern Artificial Intelligence" (3CP), "Linux and System Management" (3CP)) support the study results K1 and K2. The study courses "Information Systems Security" (3CP) and "Intellectual Property Rights and Data Protection in Information Technologies" (3CP) improve knowledge of security and regulations.

The development of skills (S1 and S2) is based on the specialization courses ("Introduction to Application Programming" (3CP), "Web Technologies: Back-end (Python)" (3CP), "Web Technologies: Back-end (.NET)" (3CP), "Web Technologies: Front-end" (3CP), "Introduction to DevOps Methodology and Tools" (3CP), "Mobile Application Development" (3CP)), where students learn the modern software development technologies. The achievement of S3 is ensured by the study courses " Software Testing Technologies and Principles" (3CP), "Algorithms and Data Structures" (3CP), as well as by an internship (24CP in total), which allows to application of the principles of safety, performance and quality in practice.

The development of competence C1 is achieved through the study course " Introduction to Project Management" (3CP), "Commencement of Entrepreneurship" (6CP), "Communication Technologies, Psychology and Ethics" (3CP), as well as during the internship. C2 and C3 are supported by the study courses " Introduction into Research and Data Science" (3CP), "Selected Topics of Modern Artificial Intelligence" (3CP), as well as the development and defence of a qualification paper (12CP).

The professional development module includes the defence of the Qualification work (12CP) and internship, which allows for proof of the obtained competencies. The study courses "The English Language" (6CP in total), "Communication Technologies, Psychology and Ethics" (3CP) and "Commencement of Entrepreneurship" (6CP) are a framework for lifelong learning and further studies.

The content of the study program complies with the regulations No. 305: the size, the structure and the specialization direction of the study program comply with the requirements (84CP are the study courses, 24CP – the internship, 12CP – the qualification paper, at least 40% of the contact hours are practical).

The study program fully complies with the profession standard "Programmer" (LQF level 5). Annex 10 covers the professional requirements (4.1-4.29) that are matched with related study courses, ensuring the full software development lifecycle, starting from requirements

analysis and design until coding, testing, deployment and maintenance.

The requirements analysis, software life cycle and security are provided by the courses "Software Engineering" (3CP), "Software Testing Technologies and Principles" (3CP), and "Information Systems Security" (3CP). System structure modelling and design templates are discussed in the courses "Object-Oriented Modelling and Development" (3CP) and "Software Engineering" (3CP). Data modelling, algorithms and data structures, SQL and data processing are provided within the study courses "Databases" (3CP), "Algorithms and Data Structures" (6CP), "Introduction to Application Programming" (3CP).

The development of user interfaces and APIs is included in the module "Web Technologies" (9CP in total) and "Object-Oriented Modelling and Development" (3CP), while the code documentation is discussed in the courses "Basics of Programming" (3CP) and "Software Engineering" (3CP). DevOps and CI/CD practices, containerization and cloud technologies are covered in the study course "Introduction to DevOps Methodology and Tools" (3CP), as well as "Cloud Computing" (3CP) and "Linux and System Management" (3CP). Software testing is provided through the study courses "Software Testing Technologies and Principles" (3CP) and "Object-Oriented Modelling and Development" (3CP), while maintenance and monitoring aspects – within "Introduction to DevOps Methodology and Tools" (3CP), "Information Systems Security" (3CP) and "Software Engineering" (3CP).

In addition to technical and professional competencies, the study courses "Introduction to Project Management" (3CP), "Communication Technologies, Psychology and Ethics" (3CP), "Commencement of Entrepreneurship" (6CP) and "The English Language" (6CP) develop project management, cooperation, presentation and intercultural communication skills, that is requested by the profession standard. The study course "Environmental, Labour Protection and Civil Defence" (3CP) is included in the mandatory specialization courses, because it is determined by the profession standard to ensure compliance with the requirements of labour protection, electrical safety, fire safety, environmental protection and civil protection.

The internship (24CP) and qualification paper (12CP) provide the examination of competences and execution of the requirements of practical work defined by the state standard (≥ 40 %). Thus, the study program provides the required knowledge and skills. Also, it prepares students for the current requirements of the labour market.

In order to ensure content compliance with industry and labour market requirements, and scientific trends, the study program includes the material about the actual technologies: DevOps, cloud computing, mobile application development, NoSQL databases, and artificial intelligence, which support the needs of the modern IT industry. The internship (24CP) provides real work experience and close cooperation with employers. The science development trends are depicted in the courses "Introduction into Research and Data Science" (3CP) and "Selected Topics of Modern Artificial Intelligence" (3CP), which propose the material about research and innovations.

The common courses, which cover disciplines like psychology, ethics, English, and communication, provide an interdisciplinary view and international competitiveness. The content of the study program is periodically updated, considering feedback from employers, recommendations of experts and the requirements of regulations.

Compliance with and monitoring of the requirements of employers is ensured through several instruments, through direct and indirect communication:

1. Considering the recommendations of experts, a working group was established, which included the representatives of enterprises, graduates, students and lecturers (the meeting of the Study Direction Commission No. IT-2024-1).

2. The content of the study programme is based on the analysis of regional and international labour market demand using the profession standard "Programmer" (approved at the meeting of 8 June 2022, No. 3), advertisements of IT company vacations, as well as

international reports, such as *"The European Software Skills Alliance (ESSA)"* and *"The Future of Jobs Report"* (World Economic Forum, 2020).

3. Guest lectures of companies are periodically organized, where employers present their organizations and competence requirements for the workers. At the end of the guest lectures, there is an open discussion with students and lecturers.

4. The industry representatives are involved as chairmen and members of the committee in the defence of the qualification papers, who provide professional advice considering the prepared graduates.

5. Internship evaluation written by the supervisor assigned by the company.

Considering the admission statistics of the academic year 2025/2026 and the order of the RTU Rector related to the minimal number of students in the study program (see Chapter 3.1.4), as well as the analysis of the study program profitability (see Chapter 3.3.2), the study programme provides joint courses with other RTU RA study programmes. Each study course has a responsible teaching staff who ensures the quality and uniform academic standard; meanwhile, the teaching staff may be different in each centre of RTU, but they follow the instructions of the responsible teaching staff and are responsible for the practical implementation of the study course.

The study program includes 5 study courses ("Introduction to DevOps Methodology and Tools" (3CP), "Selected Topics of Modern Artificial Intelligence" (3CP), "Cloud Computing" (3CP), "Information Systems Security" (3CP), "Software Testing Technologies and Principles" (3CP), for which the responsible teaching staff is an RTU staff with high academic and scientific qualifications, while its implementation is organized by the RTU RA teaching staff corresponding to the quality requirements of the study program and study course. The responsible teaching staff and the teaching staff are depicted in the description of the courses. The self-assessment of the study program is based on the characteristics of the academic staff who implement the study courses in RTU RA. It should be mentioned that the adopted RTU Riga courses are scheduled from the second year of studies, which provides a time for teaching staff to prepare themselves to read these courses following the instructions from the responsible teaching staff (from RTU Riga).

The profession standard provides for the provision of information on the UN Sustainable Development Goals at the national level, emphasizing trends in the use and development of renewable energy resources and the principles of rational and sustainable use of natural resources. This requirement coincides with RTU's strategic direction towards systemic implementation of the UN sustainability goals in the content of study courses, striving for at least 80% of the study courses to include topics aligned with the UN sustainability goals. The study programme demonstrates in its content a close connection with the UN Sustainable Development Goals, especially in aspects related to energy efficiency, the use of renewable energy sources and the rational management of natural resources. Several study courses, such as "Web Technologies" (total 9CP), "Basics of Programming" (3CP), "Databases" (3CP), "Selected Topics of Modern Artificial Intelligence" (3CP), "Environmental, Labour Protection and Civil Defence" (3CP), include topics focused on optimization, efficient use of resources and the application of modern technologies, which are directly related to UN Goal 9 – innovation and infrastructure and goal 12 – sustainable consumption and production. The content of the study courses also highlights the dimension of Objective 7 – affordable and clean energy, as solutions that promote the use of energy-efficient software and hardware are analysed, including cloud computing and data centre optimisation approaches that allow for reducing energy consumption and promote the use of renewable resources. Objective 13 – climate change mitigation – is of additional importance, as the Study Programme emphasises the development of sustainable digital infrastructure that reduces the negative impact on the

environment, for example, by using green IT solutions and resource-saving principles. In general, the implementation of the study program allows students to acquire not only professional programming skills but also to understand how digital solutions can be applied to the development of renewable energy resources and sustainable use of natural resources, thus contributing to the achievement of both national and global sustainable development goals.

Annex 09: see Compliance of the Study Program with the State Professional Higher Education Standard.
Annex 10: see Compliance of the Qualification Awarded by the Study Program with the Professional Standard of the Programmer.
Annex 11: see Study Program Plan.
Annex 12: Course Descriptions of the Study Program.
Annex 13: Course Mapping to the Achievement of the Study Program Learning Outcomes.

3.2.2. In the case of master's or doctoral study programmes, indicate and justify whether the award of degrees is based on the achievements and insights of the relevant field of science or field of artistic creation. In the case of a doctoral study programme, a description of the main research directions, the impact of the programme on research and other levels of education (if applicable).
Not applicable.

3.2.3. Assessment of the implementation of the study programme, including the methods for the implementation of courses/modules, indicating the methods and how they contribute to the achievement of the results of the study courses and the objectives of the study programme. In the case of a joint study programme, or in the case of the study programme being implemented in a foreign language or in the form of distance learning studies, describe in detail the methods used to ensure such a study programme. Include an explanation of how the principles of student-centred teaching, learning, and assessment are followed in the study process.

The implementation of the study program is based on the principles of student-centred teaching, learning and assessment, which ensures active student involvement and personalized growth opportunities. The content and implementation methods of the study programme are coordinated with the State Professional Higher Education Standard (No. 305) and the Profession Standard "Programmer", ensuring the achievement of LQF/EQF level 5 results.

The implementation of the study programme considers the recommendations of the experts of the previous assessment (see Annex 01). For example, according to the recommendation of experts on the provision of personalized content (recommendation 1 in Annex 01), additional tasks have been introduced in the assessment of study courses for the most ambitious students, in which it is possible to receive a rating above 8 points, as well as integrated external resources – certificates and programming trainers (in the study courses "Algorithms and Data Structures" (6CP), "Basics of Programming" (3CP), "Object-oriented Modelling and Development" (3CP)). Such an approach allows students to demonstrate in-depth knowledge and build *a portfolio* that is included in the qualification work.

The acquisition of theoretical knowledge in the study programme is mainly carried out in lectures, it is strengthened in practical classes, supplementing the learning base also with digital resources (MOOC, Coursera, edX, Codeacademy, SoloLearn, etc.) to ensure up-to-date study content and improve the study programme, including observing the experts'

indication of the need to exclude outdated literature from the study content (recommendation 7 in Annex 01). The content of the study courses of the study program is based on the original documentation of the industry (Google, Microsoft, Django), which ensures compliance with the latest technologies.

Laboratory work and project tasks that cover all the tasks specified in the profession standard – requirements analysis, coding, testing, DevOps and CI/CD workflows – play an important role in the development of practical skills. According to the recommendation of experts, the content of the program was optimized by excluding parts of the study course "Business process modelling and graphical interface prototyping" (recommendation 8 in Annex 01), which were not directly related to the profession, and replacing them with the study course "Introduction to Project Management" (3CP), thus strengthening the focus on programming and IT project management skills.

Project works and individual tasks are implemented already from the second semester, where students develop individual projects (Front-end, Back-end (.NET, Python)) that demonstrate creativity and professional readiness. It implements the expert recommendation on the provision of personalised and practice-based content (recommendation 1 in Annex 01).

Professional practice in a real working environment (24CP) and guest lectures with employers and graduates are another important stage of the implementation of the Study Programme, which ensures the linking of study results with the needs of the labour market. Following the recommendation of experts (recommendation 4 in Annex 01), a mechanism was established to ensure regular guest lectures (at least two lectures per semester), thus strengthening students' professional vision and understanding of their careers (see the guest lecture journal in Annex 26).

Since the last accreditation, the digital learning environment has been significantly strengthened – from 1 April 2025, lecturers are trained to effectively use the RTU e-learning platform and other study systems (e.g. nodarbibas.rtu.lv), providing students with easy access to materials, discussion forums, tests and feedback. It provides a flexible study process that combines face-to-face and remote methods, as well as promotes self-directed learning.

The most important principles of student-centred studies are implemented in the study program in several ways:

1. **Personalization**: An opportunity for ambitious students to excel with higher scores, certificates, projects, and research.
2. **Flexibility**: The introduction of MOOCs, LMS and different programming languages allows you to choose an individual learning path.
3. **Feedback**: anonymous surveys and communication system (ORTUS, consultation times, first lecture information) ensure continuous improvement of quality.
4. **Evaluation**: in addition to traditional exams, students' ability to develop practical solutions and creative projects, as well as *a portfolio*, is assessed.

A diverse, practice-based and student-centred approach is adopted in the implementation of the study programme. By implementing the recommendations of experts, the optimization of the content of the study program, the restoration of literary and digital resources, a personalized approach to students, the involvement of employers and the use of modern learning platforms have been achieved. It ensures not only the achievement of the objectives of the Study Programme and the study results, but also compliance with the profession standard and the needs of the labour market.

3.2.4. If the study programme provides for an internship, describe the internship opportunities, provision and work organisation offered to students, including whether

the higher education institution/college helps students to find an internship. If the study programme is implemented in a foreign language, provide information on how internship opportunities in a foreign language are ensured, including for foreign students. To provide analysis and assessment of the linking of the tasks of student internships included in the study programme with the study results to be achieved in the study programme (if applicable).

An internship is an integral part of the study process in the Study Programme. It is implemented in the second year with a total volume of 24 CP: Practice I (6 CP, 4 weeks, in the 3rd semester) and Practice II (18 CP, 12 weeks, in the 4th semester). The division of the internship is justified by the fact that in the 4th semester the qualification paper is developed (12 CP), and therefore, in order not to exceed 30 CP, the internship is split into two parts. This approach also has several positive aspects: 1.) if necessary or according to the student's preference, the internship can be completed in different companies; 2.) the student gains additional experience in defending the internship and presenting their work. In the ideal scenario, the student completes both internships in the same company. The requirements for the individual tasks and the assessment criteria for Internship I and II do not differ; the only difference is that the committee considers the duration of the internship and the volume of work (criterion 'Individual tasks').

Students are offered internship opportunities in Latgale region companies, municipalities, schools, state institutions and non-governmental organizations, as well as RTU RA structural units. Available internships include both IT specialized companies (e.g. SIA "MIDIS" RSEZ, SIA "Testdevlab", SIA "Entrypoint", SIA "TELLS") and organizations of different profiles (Rezekne Municipality Viļāni Association Administration, Ludza Municipality, JSC "Rēzeknes Autobusu parks", National Guard, non-governmental organization "Apeirons", etc.) During the reporting period from the 2022/2023 academic year, 18 students have completed internship tasks by participating in scientific projects implemented by the RA: lzp-2020/2-0115 "E-mentor as a transformation tool for ensuring waste-free food consumption in educational institutions", lzp-2022/1-0350 "Digital twin for promoting the development of competitiveness and complementarity of tourism: an example of Latgale region", lzp-2022/1-0492 "Testing of interventions and development of a knowledge-based recommendation system for the food served" for the reduction of waste in school catering in Latvia". The implementation of professional practice in IT scientific projects provides students with significant added value. It allows students to combine the theoretical knowledge acquired during the study process with practical activity, while developing the ability to work in a research and innovation environment. Unlike traditional internships, scientific projects involve students in solving open-ended problems, where a creative approach and the ability to apply the latest technologies are required. This contributes not only to the deepening of professional competences, but also to an interdisciplinary perspective, as IT solutions are often integrated into other sectors – education, healthcare, social sciences and manufacturing. In scientific projects, students work in teams together with experienced researchers, doctoral students and industry representatives, thus developing cooperation skills and getting to know the principles of project-based work organization (A*gile, Scrum, Kanban*). It provides a link with the demands of the labour market and helps to build a network of professional contacts. Also, the experience gained in scientific projects often becomes the basis for further research activities, motivating students to continue their studies at the master's or doctoral level.

Summarizing the above, it can be concluded that practice in IT scientific projects ensures

the achievement of the results of the study program (K, S, C) at a higher level: knowledge of programming technologies and the development life cycle is deepened, skills to analyse complex problems and create innovative solutions are developed, as well as competencies in teamwork and project-based environment are strengthened. Thus, this type of internship significantly strengthens the linkage of the study programme with research and innovation, at the same time preparing graduates for competitive activity both in the Latvian and international labour market.

RTU RA provides organizational support in finding internships: the academy's internship managers provide recommendations on appropriate internships and, if necessary, help to prepare a CV and cover letter. At the same time, students also have the right to independently choose an internship place, if it meets the requirements of the Study Programme and the profession standard. Job search, selection and interviews provide a job search experience, while vacancy requirements motivate learning and explain the need for study courses.

The internship is implemented based on a contract between RTU RA, the place of internship and the student. Contract forms, methodological instructions for practice, a report form and an internship evaluation sheet are prepared for each student. The internship process is coordinated by two managers: RTU RA practice manager (ensures methodological supervision and evaluation) and company practice manager (organizes work tasks and provides a written assessment). The student, together with the company's practice manager, draws up an internship schedule and an individual task, which is coordinated with the RTU RA internship manager. During the internship, the student collects and compiles materials, conducts analysis, develops solutions and prepares an internship report, which is later defended in the presence of the commission.

The evaluation of the internship is carried out according to uniform criteria (the internship report accounts for 70% of the assessment, the presentation - 30%), with special emphasis on the quality of the content, the analytical level and the connection with the theoretical knowledge acquired in the program.

The study program "Programming" is implemented in Latvian, but English is widely used in the IT industry – programming language documentation, version control tools, frameworks, methodologies and project documentation are mostly in English. This means that during the internship, students work with professional terminology in a foreign language, improving their English language skills.

Internship tasks are closely related to the results of the study program:

Knowledge (K)

K1. Comprehensive knowledge of the basics of IT and computer science – during the internship, students practically apply the knowledge acquired during their studies, working with databases, programming languages and systems.

K2. Software development life cycle and quality – Practice II provides for involvement in full-cycle development (requirements analysis, design, programming, testing, implementation), which ensures understanding of life cycle stages, information security and quality.

Skills (S)

S1. Analyse user requirements, model and design systems – during the internship, students participate in the compilation of requirements and system modelling, thus strengthening the ability to implement theoretical knowledge in practice.

S2. Develop, test and maintain software – the internship provides experience in both simple tasks (Practice I) and full-fledged software development (Practice II), subject to security and performance requirements.

P3. Critical assessment of competences and lifelong learning – preparation of practice reports and presentations provides for reflection on the results achieved and professional

development needs.

Competencies (C)

C1. Design systems and work with documentation – during the internship, students prepare design documentation and an internship report, confirming their skills in working with professional documentation.

C2. Develop software – the individual task within the framework of the internship II provides for the development or improvement of a significant software solution, demonstrating independent work with modern tools.

C3. Work and communicate in a team – internship tasks involve cooperation with project managers, testers and designers, who develop cooperation and communication skills in a professional environment.

Linking internship tasks and assessment criteria with the results of the Study Programme and the standard of the programmer's profession ensures the professional readiness of students for the labour market. Students receive both RA methodological management and practical management in companies, while the use of foreign languages is integrated into the IT professional environment, where English is the language of everyday work.

The assessment of the practice considers two main components – the practice report (70%) and the defence in the form of a presentation in the presence of the commission (30%). The report is evaluated according to the amount and quality of individual tasks, feedback from the place of practice, compliance of the place of practice with the chosen field, and compliance of its design and structure with the requirements of RTU RA (see Annex 14). In turn, the presentation evaluates the logic of the structure, the quality of the visual material, the clarity of conclusions and the ability to answer questions in a reasoned way. The maximum total number of points is 100. The assessment requirements stipulate that only students who have completed internships in IT companies can apply for the highest rating (90-100 points, corresponding to 10 points (excellent)).

During the reporting period (2022-2025), the internship ratings received by students are generally positive. In the first phase of the internship, the average score is 7.68, which indicates a uniformly good performance, since most students received ratings in the range of 7-9 points. In the second phase of practice, the average score is 7.50, which is slightly lower; however, the "good" level remains stable.

Continuing the internship, there is an increase in students' competencies – the average assessment of Practice II reaches 8.05, which confirms the ability of students to use the previously acquired knowledge and skills more successfully in a practical work environment. This indicates uneven performance among students and potential challenges in both individual engagement and the quality of internship support. During the reporting period, only two internships were evaluated with a rating of '10' (excellent). For insight and justification of the assessment, a quote from the internship site - *Accenture Latvia* - an international management consulting, technology services and outsourcing company - the head of the Microsoft solution group to the RA student trainee: "R.S. worked as a .NET full-cycle developer. In general, R.S. demonstrates excellent professional and technical knowledge and excellent teamwork. R.S. is currently at the level where there is no longer a discussion of 'what you teach', but a person can be entrusted with any task and will learn and cope with it independently" (The practice report is available at the Study Record-Keeping Centre).

In general, internship evaluations confirm that students can successfully achieve the specified study results and develop professional competencies. At the same time, some lower ratings suggest the need to strengthen individual support for students and improve cooperation with internships to ensure a consistently high quality of study results.

Annex 14, see *Methodological Guidelines for the Organization of Professional Practice*

in the Study Programme.

In Annex 15, see the Sample of Professional Practice Report.

3.2.5. Assessment and characterisation of the doctoral opportunities and doctoral process provided to students of the doctoral study programme (if applicable).

Not applicable

3.2.6. Analysis and assessment of the topics of students' final papers, their topicality in the sector, including the labour market, and evaluations of final papers.

At the end of the study programme, the development and defence of a qualification paper is foreseen. In the period after the last accreditation (in 2024 and 2025), 50 students have developed the qualification paper. The theme of the qualification papers testifies to the orientation of the study programme towards the current development trends of the IT sector and the development of practical competences. An analysis of the themes of the final works of recent years shows that they cover a wide range – from classic web and mobile app development topics to innovative solutions in the fields of artificial intelligence, voice technologies and industrial digitization. Below are described the most important thematic blocks of qualification papers.

1. **Directions of innovation and new technologies.**

In this thematic block, topics such as *"Development of a voice synthesis web application that will use text-to-voice (TTS) technologies*", *"Integrating artificial intelligence into a clothing e-store", "Pet recognition application for Android devices",* as well as *"Food waste identification system in a web and mobile application"* are particularly relevant. These works are in line with the latest trends in artificial intelligence, machine learning and sustainable digital solutions. Their importance in the labour market is linked to the growing demand for data processing, accessibility solutions, personalised e-commerce systems and digital tools that contribute to the sustainability of society.

2. **Digitization of the industry and specialized solutions.**

Topics devoted to the modernization of industrial and woodworking processes, such as *"System for detecting and accounting for wood defects", "System for determining the useful width and analysis of boards"* and *"Smart assistant for operators of rope making machines"* are also highly topical in the labour market. These works reflect the orientation towards "Industry 4.0" solutions and digitization of industries important to the Latvian economy, especially in the timber industry, which is one of the leading export sectors.

3. **Web and mobile app development.**

Part of the final works is devoted to classic topics of information system development: *"Course management website*", *"Inventory accounting system*", *"LBTU Malnava College library management system", "Business process system based on Dolibarr platform",* etc. These works, although considered more as standard solutions from the market point of view, are important for the development of students' professional skills – programming, database creation, system integration, and user experience (UX/UI) provision. Specific practical solutions for companies and organizations are also being developed – for example, *"RTU Rezekne Academy event management and publishing web application", "Development of the website of the guest house 'Popels'", "Development of the website of the fishing company".* Such projects strengthen the ability of students to operate in real conditions for the execution of the order.

4. **Topics of public significance and education.**

Individual themes reflect directions significant for the development of society. For example, *the "Citizens' Initiatives and Discussion Web App"* promotes the development of digital democracy solutions, while *the "Children's Educational App 'Gudrītis'"* fits into the

current developments in educational technologies (EdTech) by offering digital learning content for children. Also, *the "Food Waste Identification System"* demonstrates the ability of students to solve the challenges of sustainable development, which is important both at the level of Latvia and the European Union.

In general, the theme of the students' final theses is balanced between practical and innovative solutions. Much of the work is focused on the development of websites and information systems that ensure the acquisition of stable professional skills and meet the requirements of the labour market. At the same time, a significant part of the works demonstrates the ability to work with the latest technologies (artificial intelligence, text-to-voice conversion, image recognition, sustainability solutions, digitization of industry). This confirms that the study programme provides students with the opportunity to develop both basic and future competencies necessary for the labour market.

Qualification papers are defended in person in the presence of the commission. Ratings of qualification papers reflect the level of achievement of students, the topicality of the selected topics and the ability to demonstrate professional competencies. Analysing the final works of recent years, it can be seen that the ratings range from 5 to 10 points, which makes it possible to identify several trends.

A very high rating (9-10 points) was achieved by six works that solved innovative and complex problems by integrating the latest technologies. For example, 'Integration of artificial intelligence in the clothing e-shop' (9), 'Food waste identification system in the web and mobile app' (9), 'Children's educational app 'Gudrītis' (9) and 'Smart assistant for rope making machine operators' (10). These works confirm the ability to solve current problems of the industry, creating high added value products with practical potential for use.

The group of high ratings (8 points) includes six works in which significant solutions are implemented, based on solid professional skills, for example, "Development of a web application for voice synthesis", "System for detecting and accounting for wood defects", "System for determining and analysing the useful width of boards" and others. They testify to high-quality technical performance and relevance in the labour market, although the innovative aspect is often less pronounced than in the most outstanding works.

The five works that received a good rating (7 points) confirm the students' skills, but they are characterized by a lower degree of innovation or narrower practical application. Examples: "Inventory accounting system", "RTU RA event management and publication web application", "Pet recognition application for Android devices", "Web application for citizens' initiatives and discussions". The evaluation of the works indicates a technically correct development, however, the potential for an excellent result is not fully realized.

Moderately low ratings (5–6 points) were received for works (7 in total) with simpler, standard themes or insufficient quality of performance. For example, "Online gaming site" (5), "Development of the website 'RokuBrinumi'" (5), "Development of the website of a fishing company" (5), as well as several classic website and shop projects (6). Such works serve as a practical training for the development of students' skills, but they provide limited added value from the point of view of the labour market.

Thus, the best results have been achieved in works that solve current problems using modern technologies (artificial intelligence, TTS, computer vision, sustainable solutions, digitization of industry). These works confirm the ability of students to create high added value products that meet the needs of the labour market. On the other hand, simpler website and system development projects serve mainly as a practical demonstration of skills, but they have not provided an opportunity to demonstrate excellence, which is also reflected in the evaluations.

3.3. Resources and provision of the study programme

3.3.1. To assess the conformity of resources and provision (study base, science base (if applicable), informative base (including libraries), material and technical bases) with the conditions for the implementation of the study programme and sub-programmes and for the achievement of study results, to provide examples.

The resources available for the implementation of the study programme – study base, informative and material and technical base, as well as the offer of libraries and digital resources – ensure full-fledged acquisition of the study programme and achievement of study results.

Study base. The methodological basis of the study program includes course descriptions, the e-learning environment estudijas.rtu.lv, methodological guidelines for internship and qualification paper development, as well as digital learning materials that ensure the achievement of the program's aim and learning outcomes. Interactive and practice-based methods are used in the study process (project work, problem-solving, simulations, teamwork, involvement in research projects). Each study course has an available description with a detailed topic plan, assessment criteria, and expected learning outcomes. The methodological base is regularly improved through the use of digital platforms (GitHub, NoSQL) and in accordance with labor market requirements. The study program is implemented in Rezekne Liberation Alley 115 Str. modern auditoriums and computer classes equipped with modern computer equipment and software. 2 computer classes with 40 computers are available for the RTU RA study process. One computer class is provided with *Cisco* and *MikroTik* equipment to perform laboratory work in the field of computer networks. All auditoriums and computer classes are equipped with webcams and peripherals to conduct classes remotely. Students are provided with *MS Office 365* software. *MS Teams* is used for online communication and collaboration. All courses are based on open source and free development tools, or software that provides student licenses.

During the study process, access to the current technologies and tools necessary for the development of the programmer's professional competence is ensured. Emphasis in the implementation of the study programme is placed on the following areas:

1. **Web technologies:**
   – front-end (HTML, CSS, JavaScript, jQuery, Bootstrap, React, Vue.js);– back-end (Python + Django; C# + ASP.NET MVC / Entity Framework).
2. **Basics of programming:** a brief introduction to C++, C# and Python languages, the principles of application development are explained on the technology MS Windows Forms.
3. **Mobile apps:** Android development in Java with an introduction to the Kotlin environment.
4. **Computer game development:** in C# using the Unity environment.
5. **Database technologies:** MS SQL, NoSQL databases (MongoDB, Cassandra, Neo4j).
6. **Requirements engineering and prototyping:** UMLetino, Enterprise Architect, Axure, Figma, Balsamiq, ninjamock.
7. **Project management and collaboration:** Atlassian Jira, ClickUp, Kanban, Git version control system (GitHub, Bitbucket).

Consolidation with RTU provides new opportunities and potential. RTU High Performance Computing Centre (RTU HPC) provides software for research and provision of the learning process. The use of the software is free of charge for RTU departments. RTU provides a MOOC platform: https://mooc.rtu.lv

The scientific base in the study programme is based on scientific and applied research of teaching staff in the field of information technology, programming and development of digital solutions. Although in short-cycle programs the main emphasis is placed on the acquisition of professional skills, the study content has integrated elements that reflect current trends in science.

1. **Research activity of academic staff**. Lecturers involved in the implementation of the study programme participate in scientific and applied projects (for example, lzp-2021/1-0134, lzp-2022/1-0350, lzp-2022/1-0492). This experience provides an opportunity to supplement the content of the study courses with the latest technological trends and research results (for information on the publications of teaching staff, see Annex 20, on the participation of teaching staff and students in scientific projects, etc. - Annex 19).
2. **Access to scientific resources.** There are 25 online scientific databases available to students, of which the following are more relevant to the profile of the study programme:
    - *ACM Digital Library* – one of the most important databases for programmers and computer science students: contains conference articles, journals, the latest research in the field of IT.
    - *O'Reilly* – practical learning resources, e-books and manuals on programming, programming languages, databases, cloud services, DevOps, AI, etc.
    - *ScienceDirect* – a wide range of articles, including in the fields of computer science, artificial intelligence and software engineering.
    - *SpringerLink* full-text books – many e-books in the field of computer science and IT programming.
    - *Wiley Online Library* – contains IT and computer science journals, textbooks, the latest research.
    - *Cambridge Journals Online* – scientific articles also in computer science and algorithm research.
    - *Scopus and Web of Science* – not specialized only in IT, but very relevant for the search for literature on the latest research in computer science, programming and engineering.
3. **Development of research skills.** In the study process, students learn the methodology of data analysis and programming, working with real data and projects. The development of qualification papers involves applied research, which is often related to the needs of real enterprises (e.g. e-commerce solutions, inventory accounting systems, applications of artificial intelligence and image recognition technologies (see chapter 3.2.6 for an analysis of the topics of qualification papers).
4. **Link to high-performance computing resources**. Students have access to the infrastructure of the RTU HPC Centre, which allows them to get acquainted with data processing and computing technologies which are widely used in research and artificial intelligence training.

Information base. RTU libraries and online resources are available to students:

- RTU library and RTU RA library collections;
- the already mentioned online databases **EBSCO, ScienceDirect, SpringerLink, Cambridge Journals Online, O'Reilly learning platform, ACM Digital Library, WILEY Online Library,** etc., which provide access to up-to-date literature in the IT sector;
- open online resources (W3Schools, Tutorialpoints, Codecademy, MOOC courses, etc.) are used as additional sources for the acquisition of practical skills;
- electronic learning environment ORTUS / Moodle, in which lecturers place study course materials, laboratory work and tasks. Communication between students and lecturers is carried out here, and management and evaluation of study results take place.

The resource available in person and remotely at the place of implementation of the study programme in Rezekne is the RTU RA library, which offers users well-equipped premises – a reading room, subscription, individual workspace for independent study and research work. The total area of the library is 459m², providing users with 30 workplaces. RTU RA Library uses the Latvian library information system ALISE for accounting of its collection, which provides remote access to library catalogues and various information search options, as well as ordering/booking of expenses for authorized users. From the library's e-catalogue website, it is possible to connect to the joint catalogue of higher education institutions and special libraries, the joint catalogue of the Rezekne region, and the joint catalogue of national significance, which ensures the search for and ordering of the necessary resources, using interlibrary subscription options. The library is open on weekdays from 9.00 to 17.00. At the suggestion of the management of master's / part-time students or study directions, the library also provides reader service on Saturdays, these schedules are adapted to the current demand and return to the normed working hours, when the actual demand runs out. The library collection corresponding to the study programme in the RTU RA library and the number of names in the RTU library are summarized in Table 3.3.1.1.

Table 3.3.1.1.

Provision of the study programme with literature RTU RA/ RTU library

UDK index, industry	RTU RA Library		Number of names in RTU library
	Number of names	**Number of copies**	
004 – Computer science. Computer equipment. Information technology	446	968	569
51 – Mathematics, probabilities and statistics	508	2691	663
53 – Physics	198	731	808
621.3 – Electrical engineering	177	474	536
681 – Automation technique	38	133	41
62 – Engineering	663	1928	911

RTU RA is working purposefully to ensure the widest possible availability of study process and study content information that is freely available to students. The most important information resources available to students at RTU RA include:

1. ORTUS – RTU internal portal, which provides students with access to the individual study plan. It publishes final evaluations, provides communication with lecturers and administration, and integrates access to library resources and international databases. This digital platform significantly facilitates the management of the study process and facilitates the achievement of study results. Before integration into RTU, Rezekne Academy used the Electronic Information System (LAIS) of Latvian higher education institutions, where up-to-date study information was also provided.
2. The electronic study site *Moodle* estudijas.rtu.lv, where descriptions of study courses, requirements for the assessment of study results, recommended literature lists, materials of lectures and laboratories of study courses, as well as results of tasks and examinations are available. The system is being improved every year.
3. The website of scientific journals and collections of articles journals.rta.lv, where the annual international scientific conference "Environment. Technology. Resources" materials that also include scientific publications of the IT industry indexed by Scopus.

4. The repository of electronically accessible books of RTU RA teaching staff books.rta.lv (only Latvian), which also houses the development of study programmes, such as App Security (only Latvian), Data Pre-Processing Methods in Data Analysis Tasks (only Latvian), and Introduction to Requirements Engineering (only Latvian).

The resources available for the study programme fully ensure the achievement of its objectives and meet the requirements of the labour market. The study environment is equipped with modern technologies, access to current literature and databases is ensured, as well as the practice of integrating scientific research into the study content has been established.

3.3.2. Assessment of the study and scientific base, including resources which are provided within the framework of co-operation with other scientific institutions and higher education institutions (applicable to doctoral study programmes) (if applicable).

Not applicable.

3.3.3. To indicate the data on the available funding in the relevant study programme and its sub-programmes (if applicable), the sources of financing thereof and their use for the development of the study programme. To provide information on the costs per student within the framework of this study programme and sub-programme (if applicable), indicating the items included in the cost calculation and the percentage distribution of funding between the specified positions. The minimum number of students in the study programme to ensure the profitability of the study programme (separately indicating information on each language, type and form of implementation of the study programme, and sub-programme).

RTU RA resources and provision are sufficient for high-quality and growth-oriented implementation of the study programme. The financing of the study programme is planned within the scope of the funding available for the study field. The financing of the particular study programme shall consist of the financing of the study base, the part of the funding of the science base and own revenue.

Financing of the study base is earmarked for a specific study programme and allocated from the funds of the State budget based on the number of study places specified by the State for the study programme, the base costs of the study place and the coefficients of study costs of thematic areas of education. The financing of the State budget study base shall consist of funds for utility payments, taxes, maintenance of infrastructure (including provision of data to the register of students and graduates), purchase of inventory and equipment and staff salaries, as well as financing for scientific activity. The financing of the study base ensures the accessibility of education and is aimed at the development of the study programme, as it ensures stable and regular funding, which allows for planning and implementing the study programme, covers the basic needs of the development of the programme, in particular, the remuneration of employees, updating of teaching literature, and inventory costs. The study programme corresponds to the educational thematic group "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Management and Computer Science", for which the minimum value of the coefficient of study costs (ki) "1.8" and the coefficient of the study level "1" are determined by the Cabinet Regulation No. 994 of 12.12.2006.

Cost per student. The constituent data in the study programme in 2025 are as follows:

- Basic cost of studies (EUR) - 1896.98*1.8=3414.56
- Funding for study places financed by the State budget (EUR) - 130267.00

- Scholarship amount (EUR) - 251.98
- Sports, culture, dormitory (EUR) - 13.52
- Number of study places financed from the State budget – 38.00
- Full-time student equivalent (PLK) - 11.20
- Costs per student **without R&D funding** (EUR) - 11630.20

The cost per student is determined by dividing the funding available for the study programme by the full-time equivalent of students in accordance with the OECD methodology (Education at Glance 2025, Table C1.1. p. 284). The funding of the RA study base per student without R&D funding is slightly higher than the average in Latvia, where the average indicator in short-cycle programmes in 2022 is EUR 9'203, but is slightly lower than in OECD countries as a whole, where the average funding per student without R&D funding in 2002 is EUR 14'512.

In addition to the study-based funding, performance **funding for the results in the provision of research-based higher education is used for the financing of studies,** which also includes the financial resources allocated for the preparation of graduates, demonstrating the change of emphasis from quantitative to qualitative indicators and is an important indicator of the development capacity of the programme. It provides for specific performance indicators (number of graduates and employment) with a high capacity to assess the quality of the programme and improve it to ensure and improve the competitiveness of graduates in the labour market, promote cooperation with employers, provide traineeships for students and facilitate job opportunities.

The funding of the science base and the funding of scientific activity (performance) in RA in 2025 shall not be divided by study fields, but shall be directed to the provision of scientific activity of the RA in 2025, including also to such activities aimed at the development of the study programme as:

- remuneration of the scientific staff employed in the study programme, increasing the amount of workload for the scientific staff, and introducing new workloads for the scientific staff;
- ensuring co-financing of international scientific research projects;
- the cost of conference missions and other scientific networking activities (including payment of participation fees for services, materials, inventory, energy resources).

Funding for the student self-government is provided annually in the amount of at least one two hundred parts of the state funding for the study process and the income from the study fee, and fluctuates around twelve thousand euros per year, which are used in accordance with the estimates developed by the Student Council.

The most important items of expenditure for the provision of studies consist of:

Amount of study place costs per student (EUR) - 8570.00
Of this:

- Salary per student (EUR) - 4488.64,
- Employer's mandatory state social insurance contributions per student (EUR) - 1058.87,
- Costs of business trips and business trips per student (EUR) - 171.40,
- Service costs per student (EUR) - 428.51,
- Costs of materials, energy resources, water and equipment per student (EUR) - 599.91,
- The cost of buying books and magazines per student(EUR) - 257.11,
- Costs of purchase and modernisation of equipment per student (EUR) - 257.11.

The minimum number of students at RTU is determined by the rector's order No. 01000-1.2-e/66 of 8 August 2025 "On the minimum number of students in the study programme". It provides that in short-cycle study programmes, starting from the 2025/2026 academic year, the minimum number of students is 30 per group. If the number of students is smaller, at least 80% of the study volume of the program (excluding internships and qualification work) must be provided as joint study events with other programs, so that at least 16 students participate in each such event.

Since 11 students have been admitted to the study programme in 2025, several joint events with different level programmes are planned for the implementation of the study process:

- Common courses (18CP) are acquired together with other STEM study programmes in the RA: professional bachelor's study programmes "Mechatronics" and "Design Technologies", as well as the short-cycle study programme "Food Processing".
- Specialization courses (15CP) are intended to be implemented jointly with RTU first cycle (professional bachelor) IT study programmes to ensure efficient sharing of study resources. The choice of study courses selected for sharing is based on the following principles: correspondence of the amount of credits, similarity in content and capacity of RTU RA teaching staff to provide courses. In addition to the 3CP study course "Environmental, Labour and Civil Protection", studies take place together with the program "Design Technologies".
- An optional study course in the amount of 3CP can be freely chosen in a field corresponding to the student's interests at RTU or in another HEI.

Apart from internships and qualification work, currently, 57% overlap with other study programmes is ensured in the study programme. In order to ensure the integration of the remaining study courses, the coordination of the content of the study courses is necessary. This is especially important for the short-cycle study programme "Programming", so that within 12 months before the internship, students can acquire the necessary competences and successfully prepare for professional activity.

Based on the admission experience of the 2025/2026 academic year after the closure of the first cycle study program "Programming Engineer", as well as the student survey (see photo). Chapter 3.1.4), it can be concluded that in the future the study programme should strengthen the sharing of solutions of study courses with other study programmes, concurrently preserving the specifics of the labour market demand of the region and ensuring the possibility for students to continue their studies in RTU first-cycle study programmes. This promotes the integration of the study programme into the field of study, allows more efficient use of resources and ensures sustainable implementation of the programme.

3.4. Academic staff

3.4.1. Assessment of the conformity of the qualification of the teaching staff involved in the implementation of the study programme (academic staff, 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 of laws and regulations. Provide information on how the qualifications of teaching staff contribute to the achievement of study results.

Seventeen teaching staff members participate in the implementation of the study programme at RTU RA, of whom 8 (47%) are Doctors of Science and 9 (53%) are masters, ensuring the necessary academic competence for the implementation of higher education. One

lecturer is an applicant for a scientific degree in the field of IT, which confirms the provision of succession in raising the qualification of personnel.

Of all lecturers, 14 (82%) have been elected to academic positions in RTU RA, which guarantees the stability and continuity of the program. Elected staff with academically and scientifically proven competence provide the content of courses, take an active part in the strategic development of the program, the development of new courses and the accreditation process. Half of the elected academic staff are also involved in research, which strengthens the integration of studies and science, ensuring the topicality of the study content. The structure created in this way allows for balancing academic quality with the practical competences provided by the visiting staff, which complements the content of the Study Programme. 3 lecturers (18%) are visiting staff (unelected) who enrich the study content with specific knowledge (e.g. cloud computing, computer game development, labour protection), while maintaining the permissible proportion. The involvement of guest lecturers in the study process ensures up-to-date industry practice and a direct connection with labor market needs, strengthening learning outcomes S2 (software development and testing skills) and C2 (ability to perform professional duties and comply with security principles).

The majority of the teaching staff (53%) represent IT and engineering, providing knowledge corresponding to the professional core of the study programme and the requirements of the labour market. In turn, 47% represent social sciences and humanities, providing general, interdisciplinary and communicative competences, which allows students to acquire not only technical knowledge but also soft skills that are important in the labor market. This proportion reflects the integrated nature of the study programme, which combines both professional and general skills.

The scientific activity of the teaching staff focuses on engineering and technology (83.3%), which corresponds to the profile of the study programme. The staff is actively involved in research, ensuring the transfer of up-to-date knowledge in the study process. (For a compilation of quantitative data on scientific and/or applied research activities corresponding to the study programme during the reporting period, see: Annex 19). Statistics show that in the period 2022-2025, the number of publications in highly cited (Q1-Q2) journals (from 4 to 14) has increased significantly, indicating the scientific qualifications and competence of teaching staff in the use of the latest technologies. Research projects (e.g. autonomous drone systems in fruit growing, digital twins in tourism, application of AI to reduce school catering waste) ensure the relevance of the content of study courses and allow students to engage in practical research solutions. Such integration of research into the study process shall be consistent with the study results of the study programme:

Knowledge (K1, K2) in IT and computer science, programming technologies, and information security: PhD holders and researchers with publications in Q1–Q2 journals on artificial intelligence, cyber-physical systems, and data analytics provide students with access to the latest scientific achievements and their practical applications.

Skills (S1, S2) to analyze, design, and develop IT solutions: Lecturers involved in applied research projects related to the development of autonomous system for fruit-growing, of digital twin for tourism, of AI for plate waste reducing. They integrate their experience into practical assignments and laboratory work, developing students' design and programming abilities.

Competences (C1, C2) to develop and maintain information systems and work in a team: Faculty members supervising student research projects and conferences ("Human. Environment. Technology") enhance students' ability to work collaboratively, present results, and integrate innovations into professional practice.

In Annex 16, see the basic information about the academic staff involved in the Study Programme.

In Annex 17, see the academic staff biographies in the Europass format.

In Annex 18, see the confirmation signed by the RTU Rector that the state language proficiency of the academic staff involved in the implementation of the Study Programme complies with the regulations on the scope of state language knowledge and the procedure for testing state language proficiency for the performance of professional and official duties.

3.4.2. Analysis and assessment of changes in the composition of teaching staff for the reporting period, and their impact on the quality of studies.

The changes that occurred during the reporting period affect the number and composition. If in the previous accreditation period 21 teaching staff participated in the implementation of the programme, then in the 2025/2026 academic year, 17 teaching staff. The numerical decrease is due to the optimisation of study courses, replacing small volume units with study courses of at least 3CP. As a result of these changes, the share of elected teaching staff has increased (from 71% to 82%) and the share of doctorates involved in the study programme has increased (from 43% to 47%), which has a positive impact on the quality of the study process and sustainable development.

Changes in the composition of the teaching staff are explained by several factors:

- **Change of the profile of the professional activity of the teaching staff**. The teaching staff of the study course "Security of Terminal Equipment" (3CP) changed the field of occupation; therefore, the course was replaced by a related study course "Information Systems Security" (3CP), which is taught by the RA elected Dr.sc.ing., professor with experience in the IT industry.
- **Restructuring of the block of general education courses. A** general human sciences course was excluded from the content of the program, instead including a new study course "Communication Technologies, Psychology and Ethics" (3CP), which strengthens students' communicative competences, self-presentation skills and ability to cooperate. Accordingly, the composition of the participating teaching staff also changed, attracting specialists with proven competence in the field of communication technologies.
- **The specification of study courses has been strengthened in accordance with the requirements of the IT sector.** Some study courses, such as "Introduction to Research and Data Science" (3CP) and "Introduction to Project Management" (3CP), were adapted to the specifics of the IT industry. Consequently, part of the teaching staff of social sciences and humanities was replaced by lecturers in the field of IT, which ensures a higher capacity for research and project implementation directly in the context of information technologies.

The changes made in the teaching staff have been made in order to promote the development of the study programme, are aimed at optimising the study content, increasing the academic and professional qualification of teaching staff and strengthening the quality of study results. The reduction in the number of teaching staff has not hurt the implementation of the programme but has contributed to a more efficient use of resources and a closer link to the requirements of the IT sector.

In Annex 16, see the basic information about the academic staff involved in the Study Programme.

In Annex 17, see the academic staff biographies in the Europass format.

In Annex 18, see the confirmation signed by the RTU Rector that the state language proficiency of the academic staff involved in the implementation of the Study Programme

complies with the regulations on the scope of state language knowledge and the procedure for testing state language proficiency for the performance of professional and official duties.

3.4.3. Information on the number of scientific publications of academic staff involved in the implementation of the doctoral study programme during the reporting period, adding a list of the most important publications published in journals indexed in databases Scopus or WoS CC. In the social sciences and humanities, and arts, scientific publications in journals indexed by ERIH+ and peer-reviewed monographs can be additionally counted. Information on teaching staff included in the expert database of the Latvian Council of Science in the relevant field of science (total number, given name/surname of the teaching staff, field of science in which the teaching staff has the status of an expert and the expiry date of the right of an expert of the Latvian Council of Science) (if applicable).

Not applicable.

3.4.4. Information on the involvement of the academic staff implementing the doctoral study programme in research projects as project managers or main performers/ sub-project managers/ lead researchers, indicating the name of the relevant project, source of funding, and amount of financing. To provide information on the reporting period (if applicable).

Not applicable.

3.4.5. Assessment of cooperation between teaching staff, indicating mechanisms for promoting cooperation in the implementation of the study programme and ensuring interconnection of study courses/modules. Also, indicate the ratio of the number of students and teaching staff within the framework of the study programme (at the time of submitting the self-assessment report).

The teaching staff involved in the implementation of the study programme cooperate on several levels, ensuring both the improvement of the quality of the programme and the interconnection of study courses and modules. The main cooperation mechanisms are:

1. **Adoption of RTU good practice.** After consolidation, RTU RA takes over RTU's good practice in the organization of the study process. For example, for RTU study courses, both the responsible teaching staff and the lecturer are determined. Upon taking over the RTU study course, the lecturer cooperates and consults with the responsible teaching staff on the implementation of the study course, thus ensuring effective communication, exchange of thoughts and experience. The hospitalization procedure introduced by RTU, which will promote the professional development of teaching staff, will allow for the identification and implementation of good pedagogical practices, as well as promote the compliance of the study process with the established academic standards.
2. **Study programme development meetings** (for example, meeting of 11.01.2024 with academic staff, employers, graduates and students), where the content of study courses is evaluated, changes are agreed, and course fragmentation is reduced. Starting from April 1, 2025, active communication (online meetings, communication via e-mails, visits) takes place with the programme directors of the RTU study direction

"Information Technologies, Computer Engineering, Electronics, Telecommunications, Computer Management and Computer Science" regarding the conformity of the study programme with the study field development plan, coordination of the implementation of study courses and further development of the programme.

3. **Regular consultations and communication between lecturers** via RTU platform (ORTUS), e-mail and face-to-face meetings. Each semester, the timing and formats of consultations are clarified, offering students a convenient solution.
4. **Coordination of the content of study courses** – meetings to avoid overlapping of content (e.g. integration of IT topical content "Introduction to project management" (3CP), combining small study courses in volume into larger ones). This allows you to ensure a deeper acquisition of knowledge and systematic progress of studies.
5. **The Quality Improvement Cycle** (Plan–Do–Check–Act) is implemented by analysing survey results and feedback provided by students, as well as, if necessary, adjusting the content and methods of study courses. For example, it was found that students who, for objective reasons, do not go through an internship on time are forced to take advantage of a break from their studies. To eliminate this problem, the possibility of extending the duration of the study program to 2.5 years was considered. However, based on the results of the student survey, where the majority of respondents rejected such a solution, a decision was made to strengthen student support mechanisms in providing internships. Another example is regular student surveys at the end of the semester. In the comments provided by the students, several proposals were highlighted, for example: "In the future, master technologies such as Docker", "Remote lectures", "Add resume creation courses", "It is pleasant when the courses are remote", "English could be taught in the study program". According to these recommendations, the study program includes the course “The English Language” (6CP), the study course "Algorithms and Data Structures" (6CP) integrates aspects of CV development and career planning, the course "Linux and System Management" learns Docker technology, while lecturers provide recordings of lectures *in the MS Teams* environment.
6. **Joint projects and external involvements** – guest lectures by industry representatives and graduates, as well as opportunities for students to present their works at conferences and seminars, which promote the connection of lecturers and external experts with the study process.
7. **Use of the digital environment** – all lecturers use the RTU e-learning platform, providing access to study materials and tasks in a single environment, which promotes a coordinated methodology and student support.
8. **Ensuring the linkage of study courses and modules** – the introduction of new study courses ("NoSQL databases", "Introduction to research and data science") and the combination of study courses allows for a logical continuation of the acquisition of knowledge, linking basic knowledge with specialised skills.
9. **Programming courses** ("Basics of Programming", "Object-Oriented Modelling and Development", "Web Technologies: Front-end/Back-end" courses) form a sequential development of competencies that complement each other and conclude with the development of a qualification work.
10. **The course content uses manufacturers’ documentation** (Google, Microsoft, etc.), which ensures topicality and connection between different study units and the needs of the industry.

In general, faculty cooperation is systematic, based on regular meetings, analysis of

student surveys and the use of a single digital platform. By interlinking study courses, a logical progression from basic knowledge to professional competencies is achieved, ensuring the compliance of the program with the requirements of the labour market and the needs of students.

The ratio of students and teaching staff in the study programme to the moment of submitting the self-assessment report is **12**. This indicator is determined by dividing the full-time equivalent of students of the Study Programme (11.2) by the full-time equivalent of the teaching staff employed in the Study Programme (0.94). Compared to the average for short-cycle study programmes in OECD countries (**15)** (see *Education at a Glance 2025. OECD Indicators,* tab. D5.1, p. 439), this indicator is lower, however, slightly above the Latvian average **of 11**. In general, such a student-faculty ratio reflects a good balance between resource efficiency and student support. In order to maintain quality and reduce risks, it is important to monitor this relationship in the future, especially when the number of students increases or the workload of the teaching staff changes.

Number of academic staff – 17 persons (see Appendix P-16); the average number of students from 2020/2021 to 2024/2025 is 45 persons (see Appendix P-07). After the reorganization (2025/2026) – 28 persons, that is due to the closure of the study program "Programming Engineer" and the launch of the study program "Computer Systems". A potential instrument of influence is to implement overlap of programs by restoring the possibility for students to transfer to later courses.

ANNEXES IV

01	Implementation of the recommendations provided by the expert group during the assessment of the study programme "Programming" and implementation of the recommendations provided by the Higher Education Quality Commission
02	Sample of the diploma to be issued for the acquisition of the study programme and its annexes
03	Sample study agreement
04	Information on the possibilities of continuing studies in case this study programme is closed
05	A document confirming that RTU students are guaranteed compensation for losses if the study programme/s at RTU is not accredited due to the actions (actions or omissions) of RTU or its licensing is revoked, and the student does not wish to continue studies in another study programme/s
06	List of cooperation agreements
07	Statistics on students during the reporting period
08	Statistical data on foreign students in the study programme, as well as mobility indicators
09	Compliance of the study programme with the State education standard
10	The conformity of the qualification to be obtained in the study programme (and sub-programme, if any) with the professional standard or professional qualification requirements
11	Study programme plan (for each type and form of implementation of the study programme)
12	Descriptions of study courses/modules
13	Mapping of study courses/modules for the achievement of the study programme results
14	Description of the student internship organization
15	Other certifications regarding the provision of student internships for students
16	Basic information about the teaching staff involved in the study programme
17	Biographies of teaching staff (in Curriculum Vitae Europass format)
18	A certification signed by the rector of RTU or the head of the study programme/u or direction that the knowledge of the official language of the teaching staff involved in the implementation of the study programme/s complies with the regulations regarding the amount of knowledge of the official language and the procedures for the examination of proficiency in the official language for the performance of professional and official duties
19	Compilation of quantitative data on scientific and/or applied research and/or artistic creation activities corresponding to the study programme(s) during the reporting period
20	List of publications, patents, and works of artistic creation by faculty members for the last 6 years
21	Statistical data on foreign teaching staff in the study programme, as well as mobility indicators
22	Compilation of student surveys and data analysis
23	RTU Study Direction "Information Technologies, Computer Engineering, Electronics, Telecommunications, Computer Management and Computer Science" Development Plan
24	Graduate survey analytical overview
25	Guest lecture journal