

# Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: Vocational education competence center "Riga Technical College"

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

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

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RTK offers an education programme in the field of Information Technology with a strong emphasis on professional and academic excellence and regional development. The study field (SF) has clear aims and objectives aligned with the needs of the society and the national economy. Regulations and other documents show deep commitment of the RTK management supporting the aims of the study programme (SP). The primary objective of the SP is to prepare proficient specialists in information technologies and RTK has a well-defined SP in the SF with attainable aims and which complies with the needs of society with a strong emphasis on developing professional skills and giving respective basic knowledge. Taught by the College members and industrial specialists, RTK ensures that students receive a comprehensive professional education, which allows them to start a professional career or continue their studies. SWOT analysis is performed in detail showing the strengths and weaknesses of the whole RTK. Expert meetings with the students indicate high satisfaction with the study process but there is a noticeable absence of explicit procedures for integrating student survey feedback into the Quality Assurance system. QAS at RTK represents a structured approach towards maintaining and improving the quality of education and its alignment with the needs of students, employers, and the broader educational standards. The system has a solid foundation with reliance on both external and internal normative documents and a procedural approach to self-assessment and feedback. Overall it should be mentioned that RTK management makes attempts to promote scientific research, and established some mechanisms targeted to involve students and teaching staff. But the results for now are minor, this creates an impression that existing mechanisms are not effective and should be revised. The Scientific Research and Innovation Development Strategy of RTK should become a working strategy, which is not only declared, but also regularly monitored and updated. Cooperation with institutions in Latvia and abroad is well-developed - various forms of cooperation with both educational institutions and organizations and strategic partnerships. The aim, tasks and learning outcomes and content of the study programme are described and correspond to the Latvian and internal documents. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient and support successful completion of the studies. The study results are focused on practical activities and this is fully in line with the goals of this professional qualification. Admission to studies is made according to external and internal regulations and supports both high school graduates and those wishing to obtain additional professional knowledge and skills in the field of IT. It shall be concluded that the presented study programme complies with the existing professional and academic standards. While after detailed analysis of the course descriptions a significant number of gaps have been identified. During the analysis it has been identified a limited number of elective courses and for some of them relevance to the programme is questionable. Analysis also demonstrated that RTK has well established the internship related processes, which shall be considered as a strong point of RTK. The study programme benefits from a well-qualified teaching staff and documented operational mechanisms, allowing the fulfillment of learning outcomes and maintaining programme quality.

## **I - Assessment of the Study Field**

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#### **1.1 Management of the Study Field**

##### **Analysis**

###### **1.1.1.**

Riga Technical College (RTK) is a state-founded professional higher education institution and it provides an opportunity to obtain short-cycle higher professional education (SAR p.4). Respective aims and goals of the SF “Information technology, computer engineering, electronics, telecommunication, computer management and computer science” containing the short-cycle professional higher education study programme “Information technologies” are defined and attainable in framework of the general aim of the RTK “To provide quality, dynamic and competitive vocational education and raise vocational qualification in engineering and technical (STEM) specialties throughout life in accordance with labor market demands.” (SAR p.5 and in Appendix 30.2 “Riga Technical College Strategy of Development and Investments 2021 – 2027”). Consequently the specific aim for the SF is “To offer and implement educational programmes in accordance with the development trends of the national economy and modern-day education” (SAR p.14). The meetings with the RTK management, SF and SP director, academic staff and employers confirmed that their activities are aligned with the strategic development directions and goals of RTK (Appendix 30.2 “Riga Technical College Strategy of Development and Investments 2021 – 2027”). The tasks of whole RTK and the SF are also defined, which include offering and implementing SF and SP in accordance with the development trends of the national economy and modern-day education, ensuring quality educational process involving competent educators who are oriented, towards consistently raising their qualifications and motivated students who are oriented towards acquiring education, providing opportunities for workers in the economic sector, other applicants and RTK teaching staff to acquire modern vocational education and raise their professional qualification (SAR p.5). Thus, providing an opportunity to obtain higher education and/or further education without interrupting their employment (SAR p.6). The SF and the relevant SP comply with the main directions of the strategic development of the RTK and meet the needs and development trends of the society and the national economy according to the trends of the Latvian and EU labor market (SAR p.14). The practical goals and respective steps of SF are defined in the strategy document (Appendix 30.2 “Riga Technical College Strategy of Development and Investments 2021 – 2027”) though quite generally. The document sets out a series of comprehensive strategic actions (13 in total) for the development of study programmes and learning in general to provide a step-by-step opportunity for acquiring education and/or vocational qualification.

The documents “Strategy for Development of Scientific Research and Innovation (Appendix 51.2) and “Development plan” (Appendix 19.2) are in line with the main RTK strategy document (Appendix 30.2 “Riga Technical College Strategy of Development and Investments 2021 – 2027”) and specify in more details the strategic aims and actions to support the goals. Thus the main strategic development goal and aim of the RTK is specified and specific aims and development plan for the SF are documented and acknowledged by the staff and students as well as by the employers. It is essential that the SF gives students the opportunity to acquire first education in the field of IT on this short-cycle programme to retain the consistency of the IT education in the region.

The SF is implemented in accordance with the regulatory enactments of the EU and the Republic of Latvia. As it is mentioned in the document “Riga Technical College Strategy of Development and Investments 2021 – 2027” (Appendix 30.2) one of the key directions is human workforce development to support local industry. The document emphasizes development of collaboration with higher education institutions, companies and organizations and involves field professionals in the implementation of the SP-s. The short-cycle study programme is based on the Latvian professional and educational standards and the SF complies with a number of different level development policies as: “Sustainable Development Strategy of Latvia until 2030”, “Latvian National Development Plan 2021-2027”, “Education Development Guidelines 2021-2027 “Future Skills for the Society of the Future”” and “Digital Transformation Guidelines 2021-2027”. RTK has also set an aim for development of lifelong learning in the field which is flexible with regard to market topicalities and this also complies with the SF tasks.

### 1.1.2.

RTK has identified and analyzed the strengths, weaknesses, opportunities, and threats of the SF in the SAR (SAR p.16) and more general and wider SWOT analysis has been included into the strategy document (Appendix 30.2 "Riga Technical College Strategy of Development and Investments 2021 – 2027"). The SWOT analysis of the SF and SP was carried out on the basis of discussions with lecturers, employers and industry representatives involved in the study programme, feedback from practice managers and results of student and graduate surveys (SAR p.15). Therefore all the stakeholders were involved in compiling the SWOT analysis. However, it was not mentioned in the self evaluation on the procedure detailing how this analysis influences the institution's quality management system. It should be mentioned that the analysis is thorough and many further steps are planned on the basis of the analysis. It has been noted in the SWOT analysis that main strengths are good contacts with employers in Latvia and the cooperation with industry associations as well as good international cooperation – ERASMUS+ student mobility internships in industry companies in Spain, Malta, Lithuania, etc. (SAR p.16). One of the weakest points revealed from the analysis is in some cases weak knowledge of the SP applicants in some subjects (SAR p.16). Good feedback from the graduates and employers of the SP greatest excellent opportunity to overcome the raised problems though the graduates and employers mentioned that they would be ready to contribute even more in discussions and planning activities (expert meetings with employers and graduates). Some future SF plans are described in the Annex 19.2 ("Development plan") where the main planned steps in next four year framework are to introduce into the current SP "Information Technologies" two specializations Computer systems and computer networks administrator and Information systems security specialist and to combine the current SP with the SP "Telecommunications" and additionally to add the SP "Electronics" with three specializations: Mechanical engineering, Mechatronics and Robotics.

In order to develop the SF "Information technologies, computer engineering, electronics, telecommunications, computer control and computer science" and overcome weaknesses and risks the RTK strategy (Appendix 30.2 "Riga Technical College Strategy of Development and Investments 2021 – 2027") specifies list of steps and KPI-s for coming years. It should be mentioned that the strategy document and the analysis there is thorough and many further steps are planned on the basis of the analysis. For example, RTK plans to reduce dropout rate, as well as the development of the internationalization and research activities of the staff and actively use opportunities for cooperation with employers and cooperation with the Universities in Latvia and utilize wider Erasmus+ opportunities. There are clear procedures for checking the quality of lectures and classes, since the student surveys are collected only once a year and the procedures and respective planning activities should be specified in respective documents. Even so, some more steps might be needed to increase the attractiveness and especially the preparation of new admitted students, promotion lectures and other activities to ensure that it accurately reflects the nature of the educational programme offered, especially making SP more attractive to the high school graduates (expert meetings with the RTK management and SF and SP directors). SAR emphasises that one of the tasks of RTK is to familiarize the local residents and students "with the study process and to interest the students and residents of the regional technical school in continuing their studies at RTK" (SAR p.4) . Despite the statement SAR does not provide any data about specific activities of RTK focused on promotion of the current SF and especially the SP among high-school students except career days and open door days (SAR p.45).

### 1.1.3.

The management structure of the SF and the corresponding SF is oriented towards the development of the SF and especially SP. The SAR provides information about the structure of the management of the SF and the relevant SP, which involves the Director of the SF who is also the Head of the Department of Information and Communication Technologies cooperating with the Director of the SP

and Personnel Department, Study Department, Department of Foreign Affairs and Department of IT Provision and Farm Department (SAR p.18 and Annex 49.2 “Administrative structure of studies”). The Head of the Department of Information and Communication Technologies is responsible for ensuring for update and improving the content of the SF; in cooperation with the director and the deputy director of the college, recruitment of the teaching staff and organization of the cooperation between teaching staff, as well as participation in evaluation of the teaching staff and monitoring the quality of the teaching process, strengthening the practical orientation of the study process, including organizing internships, promoting the research based study process and promoting cooperation with employers and with the support of Erasmus+ coordinator, promotion of international mobilities (SAR p.18 and Annex 49.2 “Administrative structure of studies”). The main tasks of the SP Director are to attract students, motivate them, eliminate shortcomings in the implementation of the programme and develop the programme according to the requirements of the labor market. (SAR p.18). RTK has established mechanisms for survey collection, and the insights and suggestions provided by students undergo annual analysis. Given the direct correlation between surveys and the quality of lectures, the study programme director can only conduct a formal evaluation and offer assistance to students once a year, while also devising solutions for future improvements. The Head of the Department of Information and Communication Technologies who is also the director of the SF, and he is responsible also for development, implementation, and improvement of the quality policy; the self-assessment of the SF and improvement of the quality of the SP, providing recommendations for the improvement of the College functions, and coordinates research and collaboration activity within the SF promoting collaboration with all the stakeholders, providing recommendations for the expansion and updating of material and technical resources according to the needs of the SP (expert meetings with the RKT management and Directors of SF and SP). This seems quite a lot of responsibilities for one person who performs both the roles of head of the department and director of the SF considering development plans to introduce some new specializations and programmes in coming years (Annex 19.2 (“Development plan”). The College Director performs the general management functions and the Head of Study Department is responsible for maintaining, motivating, organizing the study process (SAR p.18).

Therefore the SF management structure reflects organized distribution of responsibilities between different stakeholders. It conforms to a more or less classical approach of the SF and SP management and works well. Documentation and discussions during the assessment visit show that the administrative and technical support is sufficient. Comments from assessment visit of the lecturers and students show that they get sufficient technical and administrative support. Experts noticed during the visit and discussions with the teaching staff, students and employers that they are not aware about functions of the collegial decision bodies (College Council and regular department meetings) especially in connection with development and updating the SP and they are not participating in these decision bodies or only very few persons participated. There is a document approved only in the end of year 2023 at the College specifying respective SP management processes (Appendix 29.2 “Procedures for the Development and Submission of Study Programs for Approval”), but it seems the processes are not widely discussed with the teaching staff as well as the tasks of the RTK Council are unclear for the teaching staff though defined in the Appendix 32.2 (“RTK Regulations of Council Work”). Employees may become disengaged or hesitant to make decisions without clear support and guidance and clear understanding of the processes. Effective distribution of responsibility necessitates clear communication channels and a culture that fosters open communication. Employees may be reluctant to take on responsibilities if they fear lack assurance that their efforts will be recognized and appreciated or they do not know the regulations. Employers involvement in the SF management level is mainly on personal contacts and single representative participation plane (expert meetings with the employers and the SP Director) however wider employers involvement in SF development would bring more benefit. Experts noticed during the meetings with the employers and graduates and SF management that there are no

regular meetings at RTK with the employers to discuss the SF development and improvement issues.

#### 1.1.4.

A system has been set up and procedures developed for the admission of students, for the recognition of the study period, and for the assessment of students' achievements and learning outcomes and the respective detailed documents are accessible on the College website (<https://www.rtk.lv/?sadala=132>) both in Latvian and in English. The admission rules for the specific academic year are published on the RTK website and are available to everyone ("Enrollment (Admission) Procedure for the 2024/2025 Academic Year" and Appendix 37.2 "Matriculation Procedure for Academic Year 2024/2025"). The admission rules have been developed and admission proceeds in accordance with the Latvian Republic Law on Higher Education Institutions, Sections 45, 46, and 83. Admission to studies at RTK is without any additional entrance examinations on the basis of successful results of the total number of points obtained in two state exams: Latvian language and Mathematics or Physics, or English language. The detailed rules for calculating the total number of points are specified (SAR p.19-20). Outside the competition are admitted persons who have been ranked in the top three in international and national Olympiads in mathematics, physics, computer science, Latvian language or a foreign language in the last three years. Candidates who have obtained secondary education until 2004 or abroad, participate in the general competition and in these cases, the total number of competition points is calculated by adding: the average grade of the diploma; the score of two exams (if they are specified) or the scores of two final evaluations, at the choice of the candidate.

The Study Department offers prospective students consultations on the admission process, including admission requirements, contesting admission results, rights, and obligations of the applicants. Head of the Department of Information and Communication Technologies provides consultations on admission requirements. Expert meetings with the SP and SF Directors revealed that many students have still weakly prepared for the IT related SP and have low motivation to study on the SP. No specialty or motivation related tests are foreseen for the admittance at the moment. Therefore there is a question whether adding a motivation test might help to select better prepared students for the admittance.

The acknowledgement of previous education and professional experience is regulated by the document Appendix 54.2 "Recognition of previously completed study courses" and Appendix 36.2 "Regulations on the results achieved in previous education". Therefore, based on the information provided, it can be concluded that the system and procedures for the admission of students, and assessment of students' achievements and learning outcomes are logical and effective, and the involved stakeholders are informed about the system and this was confirmed by the students and graduates (expert meetings with the students and graduates).

#### 1.1.5.

The methods, principles, and procedures for assessing achievements of students have been developed and defined. The basic principles of assessment methods and procedures for achieving the aims of the SP are defined (SAR p.21). Detailed methods, principles, and procedures for assessing students' achievements have been developed and are defined (Appendix 34.2 "Provisions on basic principles and procedures for the evaluation"). Section III of the document "Evaluation of students' study achievements" describes in detail the semester and final evaluation, the process and evaluation of session exams and tests and the examination process and knowledge assessment. The assessment methods and criteria of learning outcomes are included in the course descriptions and are available to students in the RKT Moodle e-learning system. Learning outcomes achieved in prior education or professional experience are recognized in accordance with the RTK documents

(Appendix 54.2 "Recognition of previously completed study courses" and Appendix 36.2 "Regulations on the results achieved in previous education") and the distant learning process is regulated (Appendix 52.1 "Regulations on Work in the Distance Learning Process"). The lecturers inform students about the knowledge assessment criteria and methods during the first class. The choice of assessment methods depends on the learning outcomes that a lecturer is planning to achieve. The applied methods are geared to the development of the students' abilities, specifically, to learning, creative use of knowledge, cooperation, self-evaluation, offering of alternative solutions to problems, to critical thinking and making responsible decisions. The lecturers use assignments that give the student the opportunity to test themselves and receive feedback (expert meeting with the students). The methods used in the SP contribute to the achievement of the objectives and learning outcomes of the courses and the programme, ensure student-centered learning, encourage students to take an active part in shaping the learning process, and ensure that students' performance is appropriately assessed. From the discussion with lecturers and students it seems that both parties understand them well, and allow students to assess results, give them timely feedback, and time to improve it if necessary. Moreover, the evaluation process takes place throughout the semester on exercises, homeworks and tests, stimulating regular study work. Majority of the students at RTK work alongside their studies to finance their education, which may negatively affect their academic performance and advancement. To support the students working in parallel and having problems taking part in daily classes RTK has introduced an option to use individual study plan with respective assessment regulation (Appendix 53.1 "Regulations on the Organization of Studies According to Individual Plans"). In general, the SP aims are met with AK methods, but a more systematic and attractive students involving approach might be useful - with clearly defined actions and measurable outcomes.

#### 1.1.6.

The study programmes in the field adhere to the principles of academic ethic and honesty in accordance with the documents "Code of Ethics" (Appendix 44.2), which defines the basic principles of ethics and conduct for administrative, teaching staff, as well as students, creating a favorable, respectful, and responsible working environment at RTK and „Regulations on academic honesty" (Appendix 42.2). The document is quite abstract and encompasses the admission mechanism as well, providing basic principles. RTK introduces students to the principles of academic integrity and adherence thereto during their studies, and any sanctions for non-compliance with these principles from the beginning of the study process in the first introductory lecture. The College joined the unified computerized plagiarism control system VDPKS@lanet.lv, which is maintained by the University of Latvia (SAR p.22). The regulations set out the procedures for identifying plagiarism in the papers of RTK students, including self-plagiarism, and the criteria on the identification of violation and on the applicable sanctions.

Thus, principles of academic integrity and mechanisms for their observance are properly defined and described in RTK and it is mandatory and stakeholders are informed properly (meeting with teaching staff and students).

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

The primary objective of the study field is to prepare proficient specialists in information technologies and RTK has a well-defined SP in the SF with attainable aims and which complies with the needs of society and the national economy with a strong emphasis on developing professional skills and giving respective basic knowledge. Taught by the College members and industrial specialists, RTK ensures that students receive a comprehensive professional education, which allows them to start a professional career or continue their studies. SWOT analysis is performed in detail. Expert meetings with the students indicate high satisfaction with the study process but there is a

noticeable absence of explicit procedures for integrating student survey feedback into the Quality Assurance system. A system for plagiarism detection as well as regulations are introduced, which allow to control plagiarism risks. However, experts found areas for further improvement which will be analyzed in more detail within the scope SP of this report.

#### Strengths

- The SP is aligned with current industry trends.
- The SF and SP directors demonstrated competence and active involvement in processes.
- There is clear support to SF and SP from both lecturers and employers from the point of need of the graduates and respective graduates' knowledge level.
- Clearly defined aims and goals of the SF and SP.
- Profound SWOT analysis.
- Supportive teaching and learning environment at RTK, colleagues, administration.

#### Weaknesses.

- In need of an improved and systematic quality assurance system of provided classes and SP and teaching materials and literature.
- Relatively low RTK SF and SP promotional activity within highschool graduates and no entry tests for admission.
- The role of the College Council and internal audit seems isolated, i.e. informing and participation of teachers and students is weak.

## 1.2. Efficiency of the Internal Quality Assurance System

### Analysis

#### 1.2.1.

The quality assurance system (QAS) at RTK is based on external normative documents and internal normative documents, including procedures. Links to quality related documents are available at the links (SAR p.23): <https://www.rtk.lv/?sadala=203>, <https://www.rtk.lv/?sadala=5082>, <https://www.rtk.lv/?sadala=132>, <https://www.rtk.lv/?sadala=175>, <https://www.rtk.lv/?sadala=706>, <https://www.rtk.lv/?sadala=470>.

However, it is needed to structure their presentation on the web-page more visible and user-friendly for Latvian and foreign users.

In general, QAS is developed in a satisfying manner. Procedurally, it relies mostly on:

- self-assessment reports (expert meetings with the academic staff, SF director, SP director)
- surveys for students, employees and graduates (expert meetings with the students, academic staff, and graduates)
- data about students' performance from information systems (expert meetings with the person responsible for QA)
- (mostly informal) communication with employers (expert meeting with the employers)

Although QAS contributes to the achievements of the aims and learning outcomes of the study field and the relevant study programme and ensures continuous improvement, development, and efficient performance of the study field and the relevant study programme, it could benefit from more formalized collaboration/communication with partner companies (employers), in order to ensure more precisely defined goals (KPIs) based on clearly articulated feedback from employers.

#### 1.2.2.

The procedures for the development and review of the relevant study programmes (SAR p.25) and the feedback mechanisms are logical (Appendix 29.2. - EN "Procedure in which study programmes



are developed and submitted for approval" and 41.2. - EN "Procedure in which study course programmes are developed and updated) and functioning. For example, after listening to the suggestions of the students, RTK has excluded „Latvia and Europe" from the study programme and included „Basics of research work" in the programme. Furthermore, the credit points of the study course „Database Technologies" have been reduced, the optional study „Engineering Graphics" and „Computer Use in Design" are included in the content (additional explanation provided by RTK related to 3.2.3. "Picture 3.docx" in list of additionally needed documents).

Employers and graduates did not express any issues with study programme (expert meeting with the employers, expert meeting with the graduates), but for further development and improvement of QAS it is necessary to have more structured and formal feedback and impact of a higher number of technologically diverse companies and employers, e.g. through established corresponding bodies (committee/board). Thereby, it is recommended to, if feasible, include employer representatives who are also alumni in the feedback process, ensuring that feedback encompasses both perspectives.

#### 1.2.3.

The consideration of complaints related to ethical behaviour at RTK is carried out in accordance with the internal normative document (Appendix 44.2.-EN "Code of Ethics").

When starting their studies at RTK, students are acquainted with the mechanism developed for submission of their general complaints (e.g. through anonymous e-mail) and suggestions (mostly in communication with teachers directly or with study programme director). Since the students are in general very satisfied with the study programme and RTK (expert meeting with the students), there are no significant examples of mechanism efficiency, i.e. all smaller issues are resolved in a quick and effective way, e.g. in direct communication with the study programme director. Nevertheless, it is recommended to define a document with an established procedure for handling general student complaints and suggestions, ensuring a structured and transparent approach to addressing concerns and implementing feedback.

#### 1.2.4.

Statistical data are being collected, but some numerical mismatchings have been observed. For example:

- not matching number of students per study programme with the total students number (SAR p.6-9),
- claiming that RTK is the TOP 1 college in the Prakse.lv's annual survey of employers without knowing the number of votes (SAR p.16, meeting with members of the group responsible for the preparation of Self-Assessment report and the person responsible for QA).

This may indicate insufficient analysis of the statistical data. Additionally, it has been noted that for some concerning data, for example:

- decrease in student numbers (SAR p.6),
- last year's occurrence of increased work outside the field (SAR p.68),
- reported weaker knowledge of applicants in certain subjects (SAR p.16)

some assumptions are articulated, for example (meeting with members of the group responsible for the preparation of Self-Assessment report and the person responsible for QA):

- general depopulation as a reason for student number decrease,
- weak secondary schools as a reason for lower level of knowledge of applicants

and some plans for the future, for example (meeting with the HEI management):

- internationalization and more emphasis on the education of adults to increase the number of students

However, no in-depth analysis was conducted, nor was an action plan, measures, and KPIs defined to address noticed problems, making it challenging to measure progress or demonstrate the impact

of interventions.

RTK's feedback mechanism engages students and alumni in the improvement of the study field through a combination of surveys and personal communication with the Study Programme Director and teachers (meeting with students, meeting with graduates). Additionally, communication with alumni continues often through their future role as employers.

However, employers mostly communicate in an informal way, with the teachers directly and with the Study Programme Director (meeting with employers). The informal approach to feedback collection from employers can lead to gaps in understanding the full spectrum of needed changes. Thus, a more structured way of communication is needed, e.g. through a board/committee specialized for representatives of employers.

#### 1.2.5.

The website's relevant information is managed and overseen by a variety of roles, including the website administrator, heads of each structural unit, and the study department's filing clerk (SAR p.29), resulting in a rather disorganized hierarchical structure. In general, it is rather complicated to find and check if website content corresponds to the information available in the official registers (VIIS and E-platform). Furthermore, students also have reported that the pages are difficult to navigate (expert meeting with students). Thus, it is needed to redesign the web page, as also announced in SAR (SAR p. 29) to make it easier to navigate for the students. An analysis of the efficiency and ease of use should be performed and clear web page structure specified for the future development.

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

QAS at RTK represents a structured approach towards maintaining and improving the quality of education and its alignment with the needs of students, employers, and the broader educational standards. The system has a solid foundation with reliance on both external and internal normative documents and a procedural approach to self-assessment and feedback. However, some areas could be enhanced to ensure a more effective and comprehensive QAS.

#### Strengths:

- The QAS is grounded in both external and internal normative documents, indicating a structured approach to quality assurance.
- Utilization of self-assessment reports, surveys from stakeholders, and data from information systems is a solid base for a thorough understanding of programme performance.
- There is an effective mechanism for the submission of complaints and suggestions, indicating responsiveness to students' needs.

#### Weaknesses:

- The reliance on mostly informal communication with employers and the noted lack of a formalized collaboration platform may limit the QAS's ability to align programmes with market needs.
- In official bodies/committees/boards there is a lack of a higher number of technologically diverse companies and employers to ensure a broad representation of industry needs.
- Observations of numerical mismatches and insufficient analysis of statistical data point to potential issues in data management and interpretation.
- The approach to addressing issues such as a decrease in student numbers lacks in-depth analysis and a detailed action plan with KPIs and measurable outcomes.
- Students (and external users in general, including the experts as well) have difficulties in

navigating the RTK pages and getting needed information in that way.

- Informal ways of communicating students' complaints and suggestions in the long-term can lead to inconsistency in addressing concerns and reduced transparency.

### **Assessment of the requirement [1]**

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

**Assessment of compliance:** Partially compliant

Students, graduates and employers are satisfied with RTK's work and its SP, and all basic elements of QAS are in place. However, it could be improved by involving a higher number of employers and by using statistical data more efficiently (e.g. by defining KPIs).

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

**Assessment of compliance:** Fully compliant

Policy is defined through the corresponding document (<https://www.rtk.lv/?sadala=5082> or see point 1.2. in Appendix 33.2. - EN). Procedures for assuring the quality of higher education are established (annual surveys and self-assessments) and confirmed in the meetings.

- 3 1.2 - A mechanism for the development and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof has been developed.

**Assessment of compliance:** Partially compliant

The mechanism is established (Appendix 29.2.-EN "Procedures for the development and submission of study programmes for approval"; Appendix 41.2.- EN "Procedures for the development and updating of course descriptions") and confirmed in the meetings, but it lacks more active involvement of a higher number of employers (partner companies) with diverse technological profiles.

- 4 1.3 - The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and published.

**Assessment of compliance:** Fully compliant

The criteria, conditions, and procedures for the evaluation of students' results are defined (Appendix 34.2.-EN "Principles and Procedures for Evaluating Higher Professional Education"), and students have not reported any issues related to the evaluation.

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

**Assessment of compliance:** Fully compliant

Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed (yearly self-assessment; salary depends on teacher's activities, Appendix 35.2 „Annual Evaluation of Teaching Quality”), and have been confirmed as efficient in the meeting with academic staff.

- 6 1.5 - The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.

**Assessment of compliance:** Partially compliant

The higher education institution/ college ensures the collection of all relevant data, but it lacks definition of KPIs and, consequently, in-depth analysis based on KPIs, as well as measures on how to reach the KPI values.

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

**Assessment of compliance:** Partially compliant

RTK has achieved satisfaction among students, graduates, and employers, and has established the foundational elements of its QAS. Enhancements could be made by increasing employer involvement and by leveraging statistical data more effectively, such as through the definition of KPIs.

### 1.3. Resources and Provision of the Study Field

#### Analysis

##### 1.3.1.

RTK is a state-founded professional higher education institution under the supervision of the Ministry of Education and Science of the Republic of Latvia. The legal status of RTK is a state-direct administrative institution (SAR p.4) and therefore abides by the applicable regulations including regarding systematic control of financial resources - budgeting, governance principles, and controls across the entire organization.

Funds provided to the institution are determined by student group sizes. According to the SAR (SAR p.29-30), there are currently 70 students enrolled in the study programme "Information Technology" (SAR p.29), and allocated finances are 354'200,00 EUR (5'060,00 EUR per student) per year (SAR p.29-30). The SAR indicates no funds are allocated for scientific and/or applied research and/or artistic creation activities. It also states that the available financial resources are inadequate. Additional funds are sought via participation in projects (as an example the SAR highlights 8.1.4.0/17/1/001 "Infrastructure development of Riga Technical College") (SAR p.30).

A review of the attached documents to the SAR doesn't identify any development criteria or indications of financial resources redistribution towards scientific / applied research / artistic creation activities within the SF development plan (Appendix 19.2 "Development plan - EN"). The Strategy for Development of Scientific Research and Innovation (Appendix 51.2 "The Strategy for Development of Scientific Research and Innovation - EN") outlines some focuses and defines a single performance indicator - a minimum of half of the teaching staff would be involved in the mentioned research activities. It also identifies the necessity of a performance management system (not indicating the deadline for its development and integration) that will include performance indicators contained in the RTK "Research agenda" which may or may not result in performance-based finance allocation. Therefore the strategy document (Appendix 51.2) is rather generic.

Experts conclude that there is no defined or implemented system for funding applied research within RTK.

##### 1.3.2.

SAR (SAR p.30-33) outlines a detailed list of material and technical support dedicated to the study

fields and programmes' study processes. Infrastructure resources and materials can be separated into categories - laboratory resources (available in Computer networks, Computer construction, and Operating systems laboratories) and study resources (available in classrooms and as a service).

In the laboratories (On-Site excursion around the premises and laboratories) experts could observe the available hardware tools (Cisco, Mikrotik network devices, HP server devices, Cisco telephony devices). Furthermore, it was indicated during meetings (Meeting with employers) that RTK participates in acquisition processes within the industry to acquire hardware elements that no longer qualify for use in a commercial context, but may still be effectively used in the study processes or a laboratory environment. The available hardware is sufficient for the SF and SP realization, however, periodic upgrades and safety inspections must take place.

Software-related provisions are available as licenses, database subscriptions, programmes, and a learning management system - Moodle. The provisions and tools that are currently in use are considered appropriate - industry standard/expectation (Virtualization, Windows servers, Linux servers, and others) (Meeting with employers, Meeting with alumni) for which RTK appears to have corresponding licenses and access procedures (On-Site excursion around the premises and laboratories).

It is important to note that RTK plans to reopen the previously existing, closed study programme "Electronics". Regarding this matter, experts visited electronic laboratories (On-Site excursion around the premises and laboratories), where RTK demonstrated modern and industry standard-level equipment (Soldering stations, oscilloscopes, power supplies, function generators, handheld digital multimeters, etc). Electronic laboratories had full ESD safety for the workplace and fume extraction. Teaching staff also mentioned they have plenty of components stored for students' work, some being bought on their own, and large amounts being donated by EMS companies in Latvia. The electronic systems laboratory had Edibon, Deno, and Festo workbenches set up for industry-specific education topics.

On-site resources and labs are available for students during workshops, and also in other pre-arranged time slots with the teaching staff. Premises are not available 24/7. This approach did not receive any negative feedback from students.

#### 1.3.3.

Experts were informed (Meeting with SF and SP directors) that the system for purchasing new provisions is as follows: the teaching staff are surveyed for needs and requirements; the results of the survey are then analyzed and decided upon in a department meeting (Katedras sēde), where most important items are usually approved for procurement.

Teaching staff expressed during the meeting that they can get the basic items they require to ensure the realization of study courses. Larger infrastructure upgrades have been recently done through alternative (project) financing.

The library seems to have both new industry-related materials, as well as older books, in Latvian, Russian, and English (SAR p.33-34). A digital catalog is available, and through it - access to various databases. Some databases are accessible only via a visit on-site to the library. In the visit to the library, experts were shown two specific approximately ~6 m<sup>2</sup> rooms built for noiseless studies (private study spaces) (On-Site excursion around the premises and laboratories), or small scale (less than 4 persons) group work, which in experts opinion is an excellent way to provide places for in-person group work. The librarian said that the rooms are occupied quite often. Acquiring new books is done regularly, based on teaching staff needs. In some study courses, there is less need to purchase paper books, as students and staff prefer to work with up-to-date online documentation, provided by vendors (Meeting with the teaching staff) (e.g. Mikrotik router documentation, Cisco documentation, Python programming language reference).

#### 1.3.4.

RTK provides information on used IT solutions for their study process (SAR p.34). They list these ICT solutions:

Moodle - Moodle platform is used to present study course descriptions, and materials, and also manage assignments for students. Analytics from Moodle is used by teaching staff. Moodle is set up with security enforced by the RTK IT department, to comply with GDPR and general safety requirements. Demonstrated contents for the Software Development study course were of good quality during the Moodle demonstration (On-Site excursion around the premises and laboratories).

Big blue button - RTK uses self-hosted open-source video conferencing software to accommodate students who cannot participate on-site. In some courses, the teacher always provides a big blue button video conferencing with recording, and afterward publishes the recording in Moodle, for the course, thus ensuring off-line repeatability of the study materials.

A hybrid video conferencing room is available with a room camera, a short throw-range projector, and a whiteboard that acts as a projector screen and as well can also be used to control the contents.

Overall experts would evaluate the proposed IT as a bare minimum for the modern study process, inviting the teaching staff to deploy automatic and unique test generation and evaluation and adopt other modern methods of using IT solutions in the study process.

#### 1.3.5.

The experts were provided a brief overview of RTK's human resources processes (SAR p.35). The RTK regulation on academic positions (Annex 47.1 "Nolikums par akadēmiskiem amatiem-LV", Appendix 47.2 "Regulations on academic positions-EN") is dated back to 2004, with the last changes in 2007, thus posing a risk of out-of-date documentation. The existing regulation mentions requirements for candidates, main tasks, duties, and rights of the academic staff. The regulation does not define the process for creating a new position within the RTK, and what are the efforts or procedures for attracting qualified teaching staff.

Open positions are announced in the state official publisher "Latvijas Vēstnesis" (SAR p.35) and also are published on the RTK website (<https://www.rtk.lv/?sadala=437>). A search on Google shows that RTK has also published openings in the NVA portal (<https://cvvp.nva.gov.lv>) where different salary amounts are mentioned compared to the RTK website, indicating that RTK website might have out-of-date information.

Experts understand that the requirement for publishing in "Latvijas Vestnesis" might come from regulations, and it is normal to publish one's open positions on one's website. Nevertheless, experts would suggest creating a strategy to promote these open positions in more popular job search portals, e.g. LinkedIn page, CV online, or other relevant positions for the academic staff. There are also specific teaching staff oriented job sites.

There is also an issue with attracting guest lecturers due to remuneration differences they can offer as college (Meeting with SF director), versus private sector. Experts understand this (e.g. DevOps engineer gross salary is 3000 - 5000 EUR, teaching staff gross salary per typical teaching hours (but not full time 40hrs/week) ("likme") is 1500 EUR ) and suggest trying to involve industry companies to co-sponsor teaching staff salaries for highly specific industry-related study courses or via a partnership with previously mentioned companies have them provide the teaching staff for such courses.

#### 1.3.6.

The needs of teaching staff are purposefully determined, by 1) a per-course students survey, and 2) yearly self-assessment reporting (SAR p.35-36, Meeting with the teaching staff).

The improvement measures are negotiated during review meetings, usually taking place in August/September. Some improvement measures that are discussed include participating in various conferences and seminars, applying for higher positions, and motivation to participate in such

events by increased salary or a bonus. Experts noticed during the meeting with the teaching staff that there is no systematic and regular professional and didactic development system at the RTK based on the assessment of the personal development of teaching staff.

Result and effectiveness evaluation is not carried out directly, thus KPI-based and systematic review and assessment process should be started. Indirectly, probably, the effectiveness of implemented measures could be seen in next year's student surveys and self-assessment reports.

#### 1.3.7.

The workload of the teaching staff is primarily focused on teaching their study courses (SAR p.36-39). The teaching staff themselves expressed that they would describe the workload balance as satisfactory (Meeting with the teaching staff).

Some of the teaching staff also perform some administrative duties (e.g. Igors Būmanis also carries out duties for RTK's IT department, setting up Moodle environment security, and so on) (On-Site excursion around the premises and laboratories).

This is expected, as no additional expenses are allocated for regular research activities. Nevertheless, the research results are one of the criteria teaching staff need to reach to apply for a higher position (e.g. docent), thus some of the teaching staff also pursue (and are motivated to) scientific activities, create publications, etc, but remuneration policy does not provide financing for such activities. Thus we can conclude the workload is balanced for college requirements.

One risk experts could point out is, based on teaching staff CVs (Appendix 4.2 "CV EN") and conversations (Meeting with the teaching staff), some of them are also working in other workplaces, e.g. Vitālijs Aksjonovs has a position in industry company, Nikolajs Breners has a position in Riga Technical University. On one hand, it is excellent that teaching staff are aware of industry trends (by working in industry), and hopefully, then bring in the industry trends to the RTK study courses, but on the other hand, there is a risk of situations or compelling offers from the industry that may increase the workload of a member of the teaching staff, thus reducing the efforts that one can provide to the RTK, therefore additional members of the teaching staff would have to be hired.

#### 1.3.8.

The RTK reports all student's problems have been solved, and teachers and administration are open to necessary support and solutions (SAR p.39).

Experts would also like to emphasize the specific position RTK has adopted in regards to study course planning. The study plan courses are implemented in three work days in afternoons, thus becoming very attractive to potential students who already have a workplace and/or family (Meeting with SF director, Meeting with students). This factor was emphasized multiple times as a big bonus (Meeting with employers, Meeting with students, Meeting with alumni). In experts opinion this is an excellent positioning for the local students.

In addition, RTK is using the Moodle and Big Blue Button to enable remote and hybrid study processes, as well as allows students to watch video recordings of lectures where they did not grasp contents during the actual lecture (SAR p.34, On-Site excursion around the premises and laboratories).

It was also said that it is possible to accommodate special planning needs for students via individual study plan, if such need arises (Meeting with SP director). RTK building has an elevator but no more means or arrangements to assure access to the onsite classes or offices for the students with special needs, which may make movement of respective students difficult.

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

It should be concluded, while RTK demonstrates strong support for infrastructure and student needs, there are areas for improvement, particularly in securing financial support for research activities,

enhancing ICT solutions, and evaluating the effectiveness of teaching staff development measures. Additionally, efforts should be made to ensure workload balance among teaching staff and to promote open teaching positions effectively to attract qualified candidates.

#### Strengths:

- RTK has identified and provided adequate infrastructure resources and material support for study fields and programmes, ensuring well-equipped laboratories and study resources.
- Procedures are in place for purchasing methodological and informative provisions based on teaching staff needs, ensuring access to diverse resources for teaching and learning.
- RTK utilizes essential ICT solutions such as Moodle and Big Blue Button for course management and remote learning, meeting basic requirements for the study process.

#### Weaknesses:

- RTK lacks a defined system for funding research activities, relying primarily on student group sizes for financial resources.
- There is a lack of evaluation mechanisms to assess the effectiveness of teaching staff development measures, hindering improvement efforts.
- RTK faces challenges in effectively promoting open teaching positions to attract qualified candidates, potentially impacting staff quality.

### **1.4. Scientific Research and Artistic Creation**

#### **Analysis**

##### 1.4.1.

The analysis is completed based on SAR section 2.4.1 and based on site visit and meeting with management of the RTK. As declared (SAR, p.39) the main objective of RTK scientific research and innovation is to contribute to the competitiveness of RTK and its study programmes by achieving the study outcomes set by the programmes in research and innovation, promoting the implementation of research-based studies, developing research competences and results of academic staff and students, especially in the field of applied research and innovation, as well as developing cooperation with employers and other stakeholders. SAR (SAR, p.40) also presents the RTK "Scientific Research and Innovation Development Strategy for 2021-2027, which is available online and also has been explored (<https://www.rtk.lv/?fails=1705586362.pdf>).

The presented strategy in many cases is generic and does not provide specific information, and only attempts to present a common, systematic approach to the development of the research and innovation. SAR (SAR, p.39), defines the 3 priorities: Strengthening research and innovation capacity; Developing research and creativity among staff and students; Cooperation with external stakeholders in research and innovation. Moreover SAR (SAR, p.40) states that the department identified the following research priorities: Use of information technology tools in the internal control system of companies; Application of information and communication technologies in solving business problems; Development perspectives of the information technology industry in Latvia. Should be stated that mentioned 3 priorities are generic and could be more specific and more linked with the study programme. During the meeting (meeting with SF director and study programme director) it has been provided more specific information, which states that in this direction, computer networks, its systems development, and cybersecurity could be the potential more specific directions of the RTK. Overall the directions of the scientific research corresponds to the development goals of RTK, while the Scientific Research and Innovation Development Strategy of RTK is too generic to be considered as useful development tool, because it 1) has lack of the SMART



objectives, 2) has lack of specific activities, 3) do not demonstrate specific KPIs which could be used for monitoring of the progress, 4) could be more targeted to applied research.

#### 1.4.2.

The analysis is completed based on SAR section 2.4.1, 2.4.2 and based on meetings with management, students and alumni of the RTK. The information provided in SAR 2.4.2 is very narrow, therefore to complete the analysis the data from section 2.4.1 has been also used. The SAR states several activities which could be considered as good examples of connection of scientific/applied research with the study process. To note SAR provides only facts, without any justification. One of the most important activities related to research is the preparation of the qualification papers based on industry requests, which could be considered as applied research. SAR (SAR, p. 40) states, that "At least half, and in some specialties 80-100%, of the qualification work themes are relevant to the requirements of the sector and its companies, and have been used to improve their performance". This could be considered as very important achievements in the frame of this activity. Alumni and industry representatives also confirmed this during the meeting.

As the second activity impacting much linkage of the study and research is two conferences which are organized by RTK. Since 2003, RTK organizes annual international scientific-practical conferences "Higher professional education in theory and practice", since 2017 RTK regularly holds scientific - practical conferences in which students, teaching staff and employers of the study programme "Information technologies" and "Electrical equipment" takes part. The following link <https://www.rtk.lv/?sadala=470> contains the list of the proceedings 2003-2021 for conference "Higher professional education in theory and practice". Analysis of the published conference proceedings ( <https://www.rtk.lv/?sadala=470> ) demonstrated that mostly staff of RTK is an origin of the publications. Also during the meeting ( meeting with students, meeting with alumni) it was confirmed that they have heard about the conferences, but did not participate, as they do not consider it as important and because of lack of time. This indicates the problem of creating positive motivation for the students to consider the applied research as a part of their study. Therefore more efforts should be put here by RTK to motivate students, at the same time thinking about changing the format of the conference, for example to organize it in collaboration with relevant colleges (as for example with Alberta College). In this case RTK could benefit from a wide spectrum of participants and more engagement topics for the students.

As a 3rd activity SAR (SAR, p.41) says "an exhibition of course papers, independent research papers, and qualification papers is held for all RTC study programmes". This activity creates a very positive linkage between generations of students and should create additional motivations. While, not alumni, not students have mentioned this activity.

Finally to note, that a study programme included in this study direction, does not incorporate much of the research activities, probably due to the nature of the study programme (short cycle programme). Overall, RTK management, and corresponding departments are considering the research as a part of study process, but the nature of the programme (included into the study field) limits the success of implementation of traditional activities, which are in charge of linking scientific research and study. This means that different forms and activities should be evaluated and implemented to engage students.

#### 1.4.3.

The analysis is completed based on SAR section 2.4.3 and based on site visit and meeting with RTK management. The section 2.4.3 of the SAR provides very limited information about international cooperation in the field of research. While visiting (and also rest parts of the SAR), gives a bit more information. The following key points of the international collaboration could be mentioned.

Since 2003, RTK organizes annual international scientific-practical conferences "Higher professional education in theory and practice" and publishes collections of scientific articles. This could be a good

example of international collaboration, but analysis of the published proceedings demonstrates that more efforts should be made to make the conference really international level: 1) use of English language 2) more international editorial board 3) more international authors.

In addition, section 2.4.3 provides information about the international project "Central Baltic Sea Region INTERREG V-A cross-border cooperation programme project "ICT Security in VET" (CB36, ITSVET), which resulted in the development of requirements for the qualification "Information Systems Security Specialist," as well as a module plan that is integrated into the study programme "Information Technology," in collaboration with colleagues from Estonia and Finland." Also the section demonstrates the plan to collaborate with Estonian and Finnish colleagues in the joint implementation of the module. The more detailed description of the project can be found here <https://www.rtk.lv/?sadala=301>. No more international cooperation activities are reported in this section. Even the website does not contain the information about the collaboration partners (<https://www.rtk.lv/?sadala=255>). While as an example section of SAR 2.5.2 reports participation of RTK in EuroSkills and WorldSkills competitions (which actually supports the statement of the RTK "Scientific Research and Innovation Development Strategy for 2021-2027"), about preparation of students for competitions etc.

Overall it is clear that international collaboration in the domain of scientific research is limited and needs a lot of attention from the RTK management side. Participation in projects should become a strategic objective and should be included in strategy. This would allow it to create a network of international partners.

#### 1.4.4.

The analysis is completed based on SAR section 2.4.3 and based on site visit and meeting with RTK management. The section provides very limited information therefore as previously in addition all the rest section of the SAR will be used.

The SAR (SAR, p. 42), mentions several mechanisms which could be considered as a motivation scheme.

The first one is presented by the SAR, as a part of the regulatory document "Regulations on Academic Positions," (08.12.2004., Nr.01-05-209-RTC). This document sets the requirement for teachers to be elected to the position of associate professor or lecturer. The key point here is a requirement to develop publications or teaching materials appropriate to the subfield of science every three years.

Also during the meetings (meeting with teaching staff, meeting with RTK management) it has been mentioned annual evaluation of teaching staff performance, which also includes the criteria about research activities. This would impact a possible bonus, which could be paid to the teaching staff. SAR (Annex 35.1. "Docētāju ikgadējās darb kvalitātes izvērtēšanas kārtība-LV" provides the regulation of the assessment and Annex 35.1.1. ("Docētāja pašvērtējums-1.pielik") gives an impression about the content. Should be mentioned that scientific publications activity is included, but is one among many others. So it should be concluded that not looking at the fact that research is included in self-evaluation, its impact to the bonus system is minor.

In addition, the teaching staff also stated that if they would like to participate in conferences or make a publication they always are supported by the RTK management.

No more examples of the motivation mechanism were found in SAR or indicated during the meeting. Overall the mechanisms exist, and teaching staff are informed about them. But the effectiveness of the presented mechanism is under question, considering scientific outputs of the RTK (projects, publications).

#### 1.4.5.

The analysis is based on SAR section 2.4.5 and meetings with alumni and students of RTK. Several mechanisms are presented in SAR, and also mentioned during the meeting.

1) Every year, an exhibition of course papers, independent research papers, and qualification papers is held for all RTC study programmes, where all teachers and students can get acquainted with the developed works.

2) Since 2003, RTK has been organizing international scientific-practical conferences "Higher Professional Education in Theory and Practice" and publishes collections of scientific articles. The authors of the articles are teachers of Latvian and foreign universities, doctoral students, master's students, and RTC graduates.

3) SAR 2.5.2 reports participation of RTK in EuroSkills and WorldSkills competitions (which actually supports the statement of the RTK "Scientific Research and Innovation development Strategy for 2021-2027), about preparation of students for competitions etc.

4) Moreover, it has been stated and alumni confirmed that a significant part of the topics of the qualification papers has been proposed by the industry representatives.

During meetings (meeting with alumni, meeting with students), they (students and alumni) have demonstrated very minor motivation to participate in any scientific events, due lack of time (their statement). Therefore in overall it should be concluded that motivation mechanisms to promote the involvement of the students in scientific research exists, but their effectiveness is under question. As mainly proposed mechanisms are standard and probably do not consider the particularities of students and essence of the study programme.

#### 1.4.6.

The analysis is based on SAR section 2.4.6 and meetings (meeting with teaching staff). Most of the information provided in 2.4.6 describes the organization of the remote studies, using BigBlueButton (BBB), and other conferencing platforms, which of course could be considered as some sort of innovation. Moreover during the visit, we have been witnessing how it is happening in reality. In addition RTK has developed an internal regulatory document "Procedure for work in the remote study process" (12.10.2023, No. 1.1. 2/16, RTC), which sets up the key aspect of remote study usage in RTK. During the visit the Moodle platform of RTK was demonstrated. Teaching staff and students confirmed the intensive usage of the Moodle platform. While there are no regulations which set up the minimum requirements to the content of the Moodle based courses. Moreover it has been highlighted as one of the issues by the students, that courses are different by their content, some are really well developed, while there exist some of the courses which are not very developed. So, some sort of formalization is necessary here from the RTK administration side. During the visit it has been stated that RTK in many cases uses the basics of functionality of the Moodle, while there are some enthusiasts (from teaching staff) who promote Moodle usage. Existing Moodle is not integrated with existing information systems, which makes it a stand-alone tool. Further, more intensive development and utilization of the Moodle platform is recommended.

Behind SAR it has been mentioned that RTK is going to adopt Riga Technical University plagiarism detection system, which is adopted to the Latvian texts, and to the texts which were translated. Also the eDY365 system has been mentioned as a good example of the usage of modern IT solutions in the study process.

Unfortunately, not so much has been mentioned about innovative methodological study approaches. SAR does not have this information at all, while during the meeting (meeting with teaching staff) it has been mentioned by one person that she uses such approaches like flipped classes, learning by doing. The rest of the teaching staff did not provide information about any innovative study approaches. While all of them mentioned that they have methodological seminars/workshops on a regular basis. And they are usually dedicated, as example to Moodle features.

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

Overall it should be concluded that RTK management makes attempts to promote scientific

research, and established some mechanisms targeted to involve students and teaching staff. But the results for now are minor, this makes one think that existing mechanisms are not effective and should be revised. The Scientific Research and Innovation Development Strategy of RTK should become a working strategy, which is not only declared, but also regularly monitored and updated. To make it effective, strategy should define SMART objectives, specific actions and KPIs. The specific place of the strategy shall be dedicated to development of the network of international partners, as for now an international collaboration in the field of scientific research is weak.

#### Strengths:

- Majority of the students qualification papers are completed based on industry request (topics are provided by industry)
- RTK organizes its own conference "Higher professional education in theory and practice" with proceeding publishing.
- There are good examples of modern IT solutions usage, such as teleconferencing systems, eDY365, Moodle etc.

#### Weaknesses:

- Existing Scientific Research and Innovation Development Strategy of RTK is too generic to be a useful development tool.
- The international cooperation in the scientific research domain is limited and needs special attention from the RTK management side.
- Existing mechanisms of involvement of the teaching staff in scientific research are limited and their effectiveness is under question.
- Existing mechanisms to promote the involvement of the students in scientific research exist, but their effectiveness is under question.
- Lack of regulation regarding Moodle development and usage in RTK slows down this LMS integration and more intensive usage. This also limits RTK possibilities to use innovative solutions, like learning analytics etc.

### Assessment of the requirement [2]

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

#### **Assessment of compliance:** Partially compliant

Overall it should be stated that RTK research directions are aligned with the mission, vision of the RTK, while the Existing Scientific Research and Innovation Development Strategy of RTK is too generic to be a useful development tool. The strategy lacks the SMART objectives, specific activities, does not demonstrate specific KPIs which could be used for monitoring of the progress etc. This leads to the problem of not systematic development of the research activities in the frame of this direction. Moreover it is recommended to consider applied research as a target. The mechanism of the students and staff engagement to the research activities exists, but are classical and their effectiveness is under question. International collaborations seems to be the weakest point, and should be included in strategy as a specific objective, with specific set of activities, and KPIs.

### 1.5. Cooperation and Internationalisation

#### Analysis

#### 1.5.1.

RTK established cooperation with Daugavpils Technical School of Technology and Tourism, with SIA "Alberta koledža" (SAR p.44) and with Riga Technical University (RTU), Liepāja University and Daugavpils University to provide students with opportunities to continue their studies by transferring the appropriate credit points (SAR p.45). According to RTK, graduates have succession opportunities to continue studies in Latvia University of Life Sciences and Technologies (LBTU) - a signed agreement is mentioned in (Appendix 8.1 "Report on the implementation of recommendations"), although experts would expect to see the partnership mentioned also in (Appendix 5.2 "List of cooperation agreements"). Strategic partnership has been established with "Alberta koledža" and RTU (Appendix 38.2 "Alberta koledža - RTK agreement" and Appendix 38.2 "RTU RTK agreement IT", covering the methodology transfer, resource sharing, study continuation for college students, participation in joint projects etc. The essential fact from the point of keeping the finger on the pulse of the IT industry trends and requirements and developing the SF and SP is the cooperation with the Latvian Information and Communication Technology Association (LIKTA), Latvian Electrical Engineering and Electronics Industry Association (LETERA) and Confederation of Latvian Employers (LDDK) (SAR p.45). The RTK has established a wide cooperation network with local industry partners, which supports the study field, especially providing internship placements and further job opportunities for the students by implementing different types of the activities: delivery of industry introductory lectures, internship places, providing specific topics for the student qualification works. In framework of reviewing the qualification papers of the RTK students and participate in the work of the State Qualification Commission the collaboration has been developed with the University of Latvia, Tet SIA (formerly - Lattelecom SIA) and Children's Clinical University Hospital IT department, Narvesen SIA, Wonderlans Media SIA, If p&c insurance Latvian branches, Rīgas Veselības centrs SIA (SAR p.45). Experts noticed that this activity in reviewing the final works and participating in the final examination involves a very limited number of the companies and therefore this participation of the companies and organizations should be expanded (expert meetings with the employers and graduates). From the interviews with graduates, it is also worth mentioning their high willingness to be involved in the development of the field of study, for example by providing guest lectures, which is a positive and developable area of cooperation and resource for RTK. The expert meetings with the employers and graduates also revealed that the collaboration and participation in various activities is performed mainly through personal direct contacts and not so much as regular meetings and discussions.

Summarizing, RTK has wide cooperation links with educational institutions and organizations in Latvia, contributing to the achievement of aims and learning outcomes of the SF.

#### 1.5.2.

RTK has 13 running Erasmus+ agreements with educational institutions in Lithuania, Estonia, Finland, Sweden, and Denmark during the reporting period (SAR p.47). Active and successful participation in international programmes and projects is considered an important part of RTK's development concept (SAR p.46 and "Riga Technical College Strategy of Development and Investments 2021 – 2027"). The proof of this activity success is the "Wings 2019" quality award from the Erasmus+ programme for the project "Higher Education Student and Staff Mobility." and the award "Wings 2022" in the nomination Erasmus+ programme priority Environment and climate change prevention in the higher education sector for the project Higher Education Student and Staff Mobility that the RTK received (SAR p.46). In addition RTK was awarded the Erasmus+ Charter for Higher Education 2021-2027 (ECHE - Erasmus Charter for Higher Education) by the decision of the European Commission (SAR p.46). In total 16 RTK students participated as outgoing students and 3 RTK teachers as outgoing mobility teachers and RTK hosted 12 incoming mobility teachers during the reporting period (Appendix 27.2 "Mobility of students" and Appendix 28.2 "Mobility of lecturers"). Collaboration with the international companies, e.g. DAYTON, UAB Baltic Refrigeration

Group, Refrigeration Partner MB, HAAS, OSS NETWORKS, PROLUX, etc who offer employment of new specialists is without doubt a good support for the Erasmus+ activities (SAR p.47). A very important aspect in promoting international collaboration is the SF students participation in EuroSkills and WorldSkills competitions and other international competitions, whereas the teachers participate the same events as trainers and judges (SAR p.46).

As part of the RTK strategy document "Riga Technical College Strategy of Development and Investments 2021 – 2027" main principles of internationalization strategy are discussed and respective importance is stressed. Though there is no clear action plan neither KPIs set in this new strategy document nor any other document. This would be very essential to set benchmarks for coming period, such as participation in international projects and participation in international organizations, increasing the number of international mobility (both incoming and outgoing), development and implementation of non-formal education courses in English and introducing some English language course into the existing SP-s for improving the students specialty vocabulary, etc.

### 1.5.3.

Within the context of the ERASMUS+ programme, RTK has established an effective network of collaboration institutions in Europe. In total, the student and teacher mobility took place at 14 institutions in the framework of this SF during the reporting period (Appendix 28.2 "Mobility of lecturers" and Appendix 27.2 "Mobility of students"). During the reporting period, there were no incoming and 16 outgoing students and 12 incoming lecturers and 3 outgoing lecturers in the IT field in the ERASMUS+ mobility programme. The SF management believes that the opportunity to cooperate with experts-lecturers from foreign companies, specialists with practical work experience in innovative technologies is a significant advantage of the Erasmus+ programme (SAR p.49 and expert meeting with SF and SP directors). Erasmus+ guest lecturers demonstrated new and high-tech technical equipment to present novel knowledge and skills to both the students and also the RTK department (SAR p.48). Incoming mobility is also problematic, as RTK does not deliver SF related SP in English. The small number of RTK teachers in outgoing mobilities may be explained with the workload of lecturers and emotional and psychological barriers, Covid-19 restrictions and insufficient foreign language knowledge (SAR p.49). One of the biggest difficulties that RTK faces in the implementation of the outgoing mobility of teaching staff are the difficulties in rescheduling lecturers' classes during business trips due to the heavy workload and it might be a good idea to offer to the teaching staff some sabbatical period to get acquainted with novel teaching and research practices in abroad. Receiving the Europass mobility document as a proof of obtained knowledge and skills, as well as certificates from the companies is a great advantage for the students for outgoing mobility (SAR p.49). Incoming mobility is also problematic, as RTK does not deliver SF related SP in English. RTK takes part in the IT project "Security in VET CB36 ITS-VET" (SAR p.50) and this should be to improve mobility even more.

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

Cooperation with institutions in Latvia and abroad is well-developed - various forms of cooperation with both educational institutions and organizations and strategic partnerships. The RTK has a new ambitious strategy and it is now facing a task to develop a specific internationalization strategy for current SF including the respective KPIs.

### Strengths:

- Good and well developed collaboration network in Latvia and abroad.
- Relatively well functioning Erasmus student outgoing and teachers incoming mobility, which is strongly supported by the RTK management

Weaknesses:

- Low number of international collaboration projects in the field of IT and weak dissemination of the participation in the projects at RTK website
- Missing clear internationalization strategy with SF specified KPI-s for coming years
- Low teachers outgoing mobility

### Assessment of the requirement [3]

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

**Assessment of compliance:** Fully compliant

SAR (SAR p.44-50) lists Latvian and foreign institutions RTK has a good cooperation which is mainly on the ERASMUS+ mobility and providing practice places for students and which is working well and ensures the achievement of the aims of the study field but does not cover IT focused research or applied projects leaving room for future improvements.

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

#### Analysis

Previous accreditation process took place in 2013 and the Experts report appears to have recommended 19 actions. RTK provides a comprehensive table (Appendix 8.1 "Report on the implementation of recommendations") that lists provided recommendations, college activity, results to be achieved, deadline for implementation, and execution of the recommendation (status). In addition, SAR sections 2.6.1 and 2.6.2 provide extended description of implemented actions for some of the recommendations.

Experts opinion of implementation of the recommendations:

1. Make more use of e-learning methods and tools. - RTK has implemented the recommendation by providing study course materials, video recordings, and students can attend lectures remotely (SAR section 2.6.1).
2. Improve laboratory equipment, hardware and software tools. - Implemented - laboratory equipment and hardware was observed during excursion on premises, and it corresponds to SAR section 2.6.1 points. Laboratory equipment has been refreshed by the EU co funded project, industry donations, and provide up-to-date study contents.
3. Attract future students and boost demand for the programme. - RTK actions have not brought planned results (to attract future students). RTK focused efforts on implementing study programme in regions (which is a good way to proceed), and had opened SP in Daugavpils and Priekuli. They organized open days on site, and online. Current status of enrolled students in the study field is lower than of 2013/2014 (SAR section 3.1.4). 2013/2014: 134 students, 2022/2023: 85 students. And the trend is downwards in the last 5 years. This recommendation will be put forward for next period.
4. Strengthen ties with leading higher education and research institutions in Latvia. - Implemented - RTK has signed cooperation agreements with SIA "Alberta Koledža", (Annex 38.1), and within scope of studies RTK cooperates with Riga Technical University, Liepāja University and Daugavpils University. Universities undertake to provide students with opportunities to continue their studies by transferring the appropriate credit points. In total RTK lists in Appendix 5.1 "List of cooperation agreements" 9 Latvian educational institutions and 11 international educational institutions. Experts would suggest also having formalized cooperation agreements with industry partners.
5. A detailed description of knowledge and practical training is missing. - Implemented - course

descriptions have been revised (not perfect though), as seen in SAR 2.6.1 and provided study course descriptions.

6. The assessment criteria according to which students take the course in question are not clear. - Implemented, assessment criteria can now be seen in course descriptions.

7. Specify how conflicts are handled.- Partially implemented. RTK provides a recently updated code of ethics (Appendix 44.2 "Code of Ethics") document and (Appendix 43.2 "Internal regulations for students-EN.docx") regulations, but none of these documents shows a process on how to resolve conflicts. SAR section 2.2.3 reports that in most cases issues are solved via Study Programme director, and then escalated further if required. It is not clear for experts if this is something done after the previous accreditation or not. Nevertheless, according to learning in meetings with teaching staff, study director and students, it appears that the system to resolve conflicts works fine, as no real conflict example could be mentioned.

8. There is no regular feedback.- This recommendation is very vague from previous accreditation, as it is not clear for experts what kind of feedback is meant here. Experts noted various ways of students giving feedback to RTK (mainly through surveys), ways of alumni giving feedback to RTK (mainly through personal communication with Study Programme Director, ways of teaching staff giving feedback to the RTK administration (yearly self assessments), ways of students receiving feedback from teaching staff of their study performance. Thus experts cannot directly evaluate if this recommendation has been implemented or not.

9. The development plan execution plan is not used in the plans for the next development period. - According to RTK, the RTK action plan has been revised.

10. Academic staff should improve CVs - at courses, seminars, etc. - Implemented - RTK has informed and monitored that teaching staff participates in organized courses, seminars, and also offers paid courses seminars.

11. SWOT analysis should be performed annually. - Implemented - RTK claims to carry out annual SWOT analysis.

12. The conditions for teaching staff should be improved. - Implemented - RTK has carried out repairs for infrastructure. It appeared to be of average level during the visit on premises. More effort could be done in keeping cleanliness on premises (especially toilets).

13. Promoting lifelong learning for academic staff - Implemented - RTK has made efforts to inform and support academic staff to keep learning - we learned from meetings that RTK offers to pay for additional learning, thus motivating staff to undertake it.

14. Not enough books in English (library resources). - Implemented - RTK has improved the offering, also e-resources, but books should be refreshed regularly.

15. Modern scientific equipment is not available. - This corresponds to recommendation #2, and has been implemented, as several specialized computer hardware laboratories have been set up (seen in excursion on premises).

16. Students do not have the opportunity to learn individual modules in other Latvian institutions of higher education. - RTK reports that they have signed cooperation agreements with LBTU and RTU through which this is now a possibility.

17. Academic staff do not have enough knowledge of the English language. - Partially implemented - Due to the fact that an English - Latvian interpreter was present and helping out in all the meetings, experts conclude that the average administration and academic staff level of speaking English is not very high (or is not practiced daily). Nevertheless, RTK claims to have regularly informed the academic staff of new courses for English.

18. There are no regular plans to improve the knowledge of academic staff. - Partially implemented - from what experts heard in meetings with teaching staff and study field director, there are regular opportunities to improve knowledge, and some of the opportunities are obligatory for teaching staff to participate, also, annual self assessment reports and the follow-up discussion results in yearly plan (at least orally discussed) on improving the knowledge of academic staff.



19. Academic staff and other foreign study programmes are not involved in study the internal development of programme results. - Partially implemented, academic staff is involved in study programme internal development (experts learned of that in meetings with teaching staff and programme director). It is not clear to experts what is meant by “other foreign study programmes” in this context. Experts could assume that it meant reviewing European/USA top college level school programme contents in IT, and use it as reference for improving this programme. If so, such a topic was not discussed in any of the meetings.

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

Overall in 10 years RTK appears to have implemented most of the recommendations.

Statistics. Out of 19 recommendations:

13 have been implemented, and have observable results

1 have been implemented, but did not show expected results (number of students)

4 are partly implemented

1 was not evaluated as was too vaguely formulated by previous experts panel (#8)

Strengths:

- RTK has improved cooperation with other local HEI's.
- Moodle usage has improved.

Weaknesses:

- RTK actions have not brought planned results to attract more future students.
- None of the documents (Appendix 44.2 “Code of Ethics” and Appendix 43.2 “Internal regulations for students”) shows a process on how to resolve conflicts.
- There are quite a few regular plans to improve the knowledge of academic staff.

### **Assessment of the requirement [4]**

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

**Assessment of compliance:** Fully compliant

Justification: Most of the shortcomings have been addressed and executed. Although 4 out of 19 recommendations are partially implemented, the sheer number (19) recommendations does not reflect the importance. In the experts opinion, the top 5 are most important and have been implemented.

### **1.7. Recommendations for the Study Field**

#### **Short-term recommendations**

Carry out in-depth analysis for identified problems (e.g. decrease in student numbers, last year's occurrence of increased work outside the field, reported weaker knowledge of applicants in certain subjects), define action plan, measures, and KPIs for the solution of the problems.

Redesign RTK web-page making it more user friendly.

Establish a clearly defined procedure for handling general student complaints and suggestions, ensuring a structured and transparent approach to addressing concerns and implementing feedback.

Plan for a more aggressive and attractive marketing campaign for attracting students to the SF and SP to increase admission by 10% per year.

Develop a clear internationalization strategy with SF specified KPI-s for coming years.

Introduce regular SF support meetings/boards with companies/employers in the field, document discussions and suggestions with periodic analysis of the implementation of the suggestions and alignment of the SP with market needs.

Develop a regulation and plan regarding Moodle development and usage in RTK to introduce LMS integration, learning analytics etc.

Introduce a systematic monitoring system for the quality of provided classes and teaching materials incl. course literature.

Set the minimum number of the companies involved each year in the committees (at least 3 for example) and requirement for variation of the companies by years.

## Long-term recommendations

Attract future students and boost demand for the programme, e.g. consider study programmes offering in English (internationalization), distance learning, adult education, etc. - recommendation brought forward from previous accreditation. Last 5 year downward trend can become critical soon.

Strengthen ties with local industry partners (internship agreements, cooperation agreements, visits to companies, guest lecture, etc.), introduce respective KPI-s with clear increase at least 20% during next assessment period.

Define a body (committee/board) that would include technologically more diverse companies/employers that could systematically give recommendations and feedback on SF and students/graduates in general.

Existing committees that include companies (for example, the committee for qualification papers) should include more different companies with various profiles, which could enrich the committee's work with their specific expertise.

If feasible, in the new body and existing committees with employer representatives include persons who are also RTK's alumni, ensuring that feedback encompasses both perspectives (employer's and graduate's perspective).

The existing Scientific Research and Innovation Development Strategy of RTK should be revised. It should include SMART objectives, specific activities, KPIs and monitoring tools. In addition the strategy should be more concentrated around applied research.

The international collaboration in the scientific research domain should be included into "Scientific Research and Innovation Development Strategy of RTK" with specific KPI regarding implementation of international projects.

The existing mechanisms of involvement of the teaching staff & students should be revised and more effective activities should take place in RTK (as example for teaching staff more weight to research publications in self-evaluation; for students as example different formats of the conferences etc.).
Develop and introduce regulations and mechanisms for evaluating the effectiveness of teaching staff development measures, hindering improvement efforts.
Develop and introduce plans for regular improvement of the knowledge of teaching staff including English language.
Increase the teachers outgoing mobility at least 100% during the next assessment period.
The international cooperation in the applied research domain is limited and needs introducing specific action plan with the KPI-s, incl number of international collaboration projects should be increased at least by the number of 2 in the field of IT.
Include a clear SF related plan of the activities and KPI-s into the existing Scientific Research and Innovation Development Strategy focusing more on applied research.
Evaluation of teaching workload (including hours needed for preparation) is based on self-assessment of teachers, which could lead to ambiguities and disbalance. Thus, more objective evaluation mechanisms should be introduced.

## II - "Information Technologies" ASSESSMENT

### II - "Information Technologies" ASSESSMENT

#### 2.1. Indicators Describing the Study Programme

##### Analysis

##### 2.1.1.

The short cycle professional higher education study programme "Information technologies" (41483) is in compliance with the study field "Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Management, and Computer Science" as well as with the RTK strategy ("Riga Technical College Strategy of Development and Investments 2021 – 2027"). The SP is in accordance with the Cabinet of Ministers Regulations No. 322 dated June 13, 2017, titled "Regulations on the classification of education in Latvia." This classification aligns with short cycle professional higher education (fifth-level professional qualification) within the thematic field of computer science education, specifically in the group of computer systems, databases, and computer networks programmes (SAR p.64). The objectives, tasks, and structure of the short-cycle SP are in compliance with the Cabinet of Ministers' regulations No. 305 dated June 21, 2023, titled "Regulations on the standard of state professional higher education." After the approval of the new Professional Standard (June 8, 2022), the study programme was updated according to the new professional standard (SAR p.63).

This SP is offered only in Latvian as 2 years and 6 months full time 150 ECTS programme with 30 ECTS allocated to each semester and is conducted through face-to-face (in-class) learning. This short cycle SP covers a wide range of topics related to software development main principles, software design and structures and writing software code according to programming guidelines, network structures and protocols and communication. At the conclusion of every semester, students undergo examination sessions to assess their knowledge, skills, and competence. Throughout the programme, students are required to accumulate the specified number of credit points and

complete a qualification thesis, which must be defended. The SP fully meets its objectives and meets the formal requirements and meets the needs of the market/employers.

#### 2.1.2.

The short cycle SP "Information Technologies" is a short-cycle professional higher education programme with the code 41483 and it is designed to prepare professionally educated specialists in IT and especially computer systems and network administering specialists (SAR p.60). The short cycle SP is 2 years and 6 months full time 150 ECTS programme with the aim and objectives, as well as the learning outcomes and admission requirements, are all aligned with the professional qualification to be obtained, which is Computer Systems and Network Administrator. The primary objective of this programme is to deliver professional studies in the information technology sector that align with the needs of the Republic of Latvia. These studies aim to meet the professional standard required for computer systems and computer network administrators while emphasizing practical applicability. Key aims and tasks of the programme is to provide knowledge and develop the set of skills, abilities, and attitudes necessary for professional practice to perform computer system and/or network design, installation and/or maintenance tasks (SAR p.60).

The admission requirements are based on the Latvian Republic Law on Higher Education Institutions, Sections 45, 46, and 83 and the duration of the programme implementation 2 years and 6 months is reasonable and justified, as it is based on the normative acts, including the Law on Higher Education Institutions and the Cabinet of Ministers Regulation No. 846 of October 10, 2006 "On Requirements, Criteria and Procedures for Admission to Study Programmes". Admission to studies at RTK is without any additional entrance examinations on the basis of successful results of the total number of points obtained in two state exams - Latvian and Mathematics or Physics, or English and based on the average points in the grade report, after adding all points up (SAR 65). The detailed rules for calculating the total number of points are specified (SAR p.19-20). Outside the competition are admitted persons who have been ranked in the top three in international and national Olympiads in mathematics, physics, computer science, Latvian language or a foreign language in the last three years. The detailed admission information is accessible on the College website (<https://www.rtk.lv/?sadala=132>) both in Latvian and in English.

The report also notes that the content and implementation of the study programme are focused on students' skills in applying the main basic IT technologies and providing needfull for professional career soft skills and developing their competencies in line with the demands of the global labor market.

The SAR lists the aim, objectives, learning outcomes and admission requirements of the SP (SAR p.60-61), which are mutually agreed and developed in accordance with the Latvian Qualification Framework, the European Qualifications Framework, as well as the new Cabinet regulation No 305 . The SP is intended for individuals who have the goal of entering the labor market as soon as possible, and at the same time offering the students the option to continue professional bachelor's studies for instance in Riga Technical University, Liepāja University and Daugavpils University and students continue their studies also in University of Latvia, Latvia University of Life Sciences and Technologies (SAR p.52 and 66), thus gathering and motivating more potential students.

Overall, the programme's title, code, qualification to be obtained, aims, objectives, learning outcomes, and admission requirements are all interrelated and aligned with each other.

#### 2.1.3.

RTK decided to implement the SP only full-time intramural based on the decrease in the number of students and the demand (SAR p.63). Starting from the 2013/14 academic year, the College has expanded the SP offering in the RTK Daugavpils and Priekulji branches (Priekulji branch was closed in 2020 due to the small number of students in the SP) (SAR p.63). According to the new Vocational Education law, effective from April 1, 2022, the branches of RTK were reorganized. Approval of the

new Professional Standard (June 8, 2022), the SP was updated according to the new professional standard (SAR p.63). The implemented changes strengthen the competences of students. Covid pandemic caused some adjustments in the SP where part of the theoretical lessons were organized remotely, which helps working students to adjust their working hours to the study process (SAR p.63) and some options for more flexibility in studies organization were introduced (Appendix 53.1 "Individuālie plāni").

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

#### 2.1.4.

The short cycle SP is aligned with the Latvian Smart Specialization Strategy (RIS3) and the development plans of the Republic of Latvia, which highlight the need for specialists in the field of IT and with professional network administrator and computer systems skills. The growing demand for specialists in this field is also reflected in the projected labor shortage and number of graduates in the STEM field, where there is a significant shortage of IT specialists. The main target group of the SP is people who would like to update their knowledge in IT and who have graduated some other specialty and also recent graduates of high-schools who would like to start their education on the short cycle professional higher education programme.

The implementation of the short-cycle professional SP "Information Technologies" is important for both national and regional development interests. This programme plays a crucial role in fostering human resources and training qualified specialists for industry. The overall tendency for the number of students to decrease is determined by demographic processes - the population decreased by 20.51% from 2000 to 2021, the population aged 20 to 39 decreased by 30.89%, the population aged 40 to 59 decreased by 16.07% (Latvian Ministry of Education and Science webpage, [https://www.izm.gov.lv/lv/jaunums/publicets-parskats-par-latvijas-augstako-izglitiba-2021-gada?utm\\_source=https%3A%2F%2Fwww.google.com%2F](https://www.izm.gov.lv/lv/jaunums/publicets-parskats-par-latvijas-augstako-izglitiba-2021-gada?utm_source=https%3A%2F%2Fwww.google.com%2F)). During the reporting period, the number of students matriculated in the SP in the 1st year and the total number of students is decreasing, marking a trend related to the demographic situation in Latvia but the decrease shows some stabilization signs. According to the RTK statistics there were 71 first year students in 2013/14 and 49 first year students in 2022/23 and the graduates decrease was from 17 in 2013/14 to 13 in 2022/23 (SAR p.67 and Annex 9.2 "Statistics on students in the programme"). The dropout rate is relatively high - average, 23 % of students who have started their studies, are exmatriculated every year. Though the number is less than the Latvian average, which is 28% (SAR p.68). The reasons for the termination of the study process are basically the failure of students due to non-attendance of classes, lack of motivation to continue studies, financial problems, family circumstances, health problems, inability to combine studies with work. In order to reduce student dropout the RTK offers individual course lessons in the form of video recordings, allowing students to watch more difficult topics repeatedly, as well as free of charge individual tutorials during the study period, etc. (SAR p.68). The expert meetings with the graduates and employers bring out the idea that if the graduates could get some professional qualification certificate (Cisco certificate etc.) along with their studies it would make the SP more attractive for both new students and for employers too. On average, 90% of programme graduates work in their specialty, 8% continue their studies at other higher education institutions (University of Latvia, Latvia University of Life Sciences and Technologies, Riga Technical University), and 2% work in industry companies of EU member states (SAR p.66).

While only some lecturers are involved in research projects and activities, there could be more opportunities for the teaching staff to engage in research and innovation and to bring their findings and expertise into the classroom making the lessons more attractive.

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

The aim, tasks and learning outcomes and content of the study programme are described and correspond to the Latvian and internal documents. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient and support successful completion of the studies. The study results are focused on practical activities and this is fully in line with the goals of this professional qualification. Admission to studies is made according to external and internal regulations and supports both high school graduates and those wishing to obtain additional professional knowledge and skills in the field of IT. RTK has opened SP in Daugavpils despite this the overall student number is still low and aims and tasks do not reflect plans to attract more future students. As the teachers participation in research stays low there are low options for the students to have research oriented courses. One of the economic importance and success indicators is that 90% of the graduates work in the field of IT in Latvian industry.

### **Strengths**

- All indicators describing the SP are well and clearly prepared according to the Latvian and College regulations.
- Relatively stable number of graduates.
- Options for individual attending video lectures in Moodle and individual consultancies from the teachers.

### **Weaknesses**

- Motivation and preparation of some admitted students is low.
- Only one form of the SP, no part-time study option or cycle studies option to fit the SP even more according to the needs of the students working in parallel or who has a family.

## **2.2. The Content of Studies and Implementation Thereof**

### **Analysis**

#### **2.2.1.**

The analysis below is completed based on SAR section 3.2.1, annexes and based on answers received during meetings (meeting with study programme director, meeting with RTK industrial partners, meeting with alumni, meeting with students).

To note, the section 3.2.1 has significant numbers of inconsistency issues, which is making a confusion, therefore as a primary source of the information annexes were used. Few examples to support the statement:

Taking into account the results of the 2016 survey, from the general education course section, the study course "Latvia and Europe" was withdrawn. Instead, a study course Fundamentals of Research was introduced into the study plan." The Appendix 12.2. ("Mapping of the Study program" and "Studiju kursu apraksti") has a course with a title "Basics of Research Work" (not Fundamentals of Research). (SAR, p. 72). In Latvian version of the SAR (SAR, p.67) indicated title "Pētnieciskā darba pamati", in Appendix 12.1.pielikums Studiju kursu kartejums.docx and Studiju kursu apraksti LV.pdf the titles are the same.

"The names of several study courses have been updated, based on the latest tendencies in the industry or to correspond more precisely to the content of the course, for example, the course Economics now is called Fundamentals of Business." The Appendix 12.2. ("Mapping of the Study programme" and "Studiju kursu apraksti") has a course with a title "Entrepreneurial Economics" (not Fundamentals of Business ).(SAR, p. 72). In Latvian version of SAR (SAR, p.68) indicated title

“Uzņēmējdarbības pamati”, in Appendix Studiju kursu apraksti LV.pdf and 12.1.pielikums Studiju kursu kartejums.docx “Uzņēmējdarbības ekonomika”.

The study programme under consideration is the short cycle professional higher education study programme, whose goal according SAR (SAR, p. 61) is declared as “Prepare qualified specialists - computer systems and network administrators who ensure the optimal performance of computer hardware, software, and networks for the needs of users.” The stated goal corresponds to the RTK mission “To provide quality, dynamic and competitive vocational education and raise vocational qualification in engineering and technical (STEM) specialties throughout life in accordance with labor market requirements.”, according to SAR (SAR p. 4). Also it corresponds to the RTK vision “To become the leading STEM discipline and inter-discipline college in Latvia – guaranteed growth for qualified professionals.” While tasks of the study programme (SAR, p. 61), are not well defined and should be remastered. There are 9 learning outcomes indicated in the study programme description. Learning outcomes are well defined with the necessary level of detalisation. The indicated qualification, after successful completion of the study programme is indicated as “Computer Systems and Network Administrator ”.

The analysis of compliance with the state education standard has been completed based on Appendix 10.2. (“Compliance with the national educational standard”) provided by RTK. It shall be concluded that the presented study programme and its parameters in overall comply with the state education standard. The study plan includes set of compulsory general study courses in volume of 30CP, compulsory industry study courses in volume of 76CP, limited elective study courses in volume of 6CP, elective study courses in volume 6CP, internships in volume 24CP, and finally qualification paper in volume of 14CP. The total amount is 150CP. The amount of CP and duration fits to the state education standard. The presented study programme consists of several parts (general knowledge & field study), also an elective part of the programme is presented. The compulsory part has courses for the development of professional business competencies, like Business economics, Business Psychology, Basic Law and Standards, E-business.

Overall study courses volume is 75% of of 150CP, which corresponds to state education standard. The volume of courses for general knowledge is 30CP, which is inline with requirements (not less than 30CP). Field study courses 82CP, which is inline with requirements (not less than 54CP), internship 24CP, which is inline with requirements (not less than 24CP), qualification work is 14CP (9%), which is inline with requirements (not less than 12CP, but not more than 10% of the total volume of the study programme). Study programme includes Environmental and Civil Protection course (3CP), and Labor Protection (2CP), according to the requirements.

Experts found a minor discrepancy in numbers provided in Appendix 10.2 “Study programme’s “Information Technology” compliance with the national education standard. ” and Appendix 13.2 “SP plan - EN.xlsx”. The SP plan document depicts 30 ECTS for Compulsory General Study Courses, but the compliance document (2nd page) states 32 ECTS for Compulsory General Study Courses. Legislation requirement is 30 ECTS minimum, so it passes. Nevertheless it should be the same number in documents.

The analysis of compliance with the profession standard <https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-219.pdf> has been completed using Appendix 11.2. (“Compliance of the Studu Programme with the Standart”). It shall be concluded that the presented study programme and its parameters in overall comply with the profession standard. The concept level in professional knowledge, skills and competences is covered by the following courses in the presented study programme (E-business, Basics and standards of industry law, Environmental and civil protection, Entrepreneurial economics etc), in total 28CP. The level of understanding includes a set of courses, like Computer system structure and computer architecture, Computer networks, Local computer networks and administration etc) in total 74CP,

usage level includes for example such courses like Operating systems, Electrical engineering and electronics, Web technologies, in total 80CP.

The concept level in general knowledge, skills and competences is covered by the following courses in the presented study programme Higher mathematics, Basics of research work, Special Parts in Mathematics etc in total 32CP, at level of understanding following courses could be mentioned as example E-commerce, Organizational psychology, etc in total 37CP, and finally at usage level following courses from the study programme could be mentioned as examples Basics and Standards of Industry Law, Organizational psychology, etc in total 51CP.

The content (study courses) of the study programme is designed to cover all indicated learning outcomes (LOs). This is reflected in Annex 12.2. ("Mapping of the Study programme"), while more careful and specific mapping could be conducted here, as in many cases the mapping is questionable. As an example for course Higher Mathematics indicated skill is mapped with LO1, LO2, LO3, etc which in this case is not relevant. But overall experts shall agree that presented content of the study programme covers indicated programme LOs and contributes to the goal of the study programme. Also the study programme according to the feedback from industry partners and alumni provides necessary knowledge, skills and competences for students to be demanded in the job market. Some of the RTK industrial partners indicated (meeting with RTK industrial partners) that they prefer to have RTK students for internships. Also it is clear and supported with different statistics that Latvia's job market has a lack of IT specialists. Therefore the study programme contributes to the job market by providing qualified specialists.

In the same time, it is recommended to complete careful revision of the study programme related documentation and consider following comments:

It would be recommended to revise some of the titles to make them more attractive and specific. For example "Programming Languages", could be changed to "Programming", "Use of Computers in Design", could be changed to "Computer Aided Design" (CAD), "Basics of Research Work", could be changed to "Research Fundamentals" etc. But as the programme is planned to be implemented only in Latvian it can be assumed that titles in Latvian are more correct and more attractive. Probably it would be useful to have an industry expert to assist with correct and attractive titles.

Also it should be noted, that in many cases the study courses LOs are not following the scheme K-knowledge, S-Skills, C-competences. So probably some of the learning outcomes could be reformulated. For example, for the course "Environmental and Civil Protection" knowledge starts with the wording "explain", which is a higher level learning outcome which can not be referenced just with "knowledge" etc. Revision of the wording for LOs is recommended.

The study course descriptions are presented in Annex "Studiju kursu apraksti" and provides detailed description. Before going to conclusions and findings it should be stated that used course description form should be revised to follow regulation <https://likumi.lv/ta/id/37967-augstskolu-likums> in the aspect that provided forms do not have information about study course calendar. Also the overall view on course form is confusing as in many cases it is really complicated to recognize the requirements for obtaining credits. If the course description is delivered to students in such a form, it could be complicated for students to understand the requirements. More uniform and standardized form is recommended.

The following conclusions and findings could be presented

- In many cases LO's presented in course descriptions are formulated slightly in different ways (also by amount) compared to what is indicated in Appendix 12.2. ("Mapping of the Study programme"). See for example course description "Operating Systems".
- In many cases the list of the literature is outdated (even compulsory), or indicated literature is not relevant in terms of study language. See for example course descriptions "Operating Systems", "Computer System Structure and Computer Architecture" etc.
- In some cases, the indicated results of study are not feasible with current content of the courses, as example see "Programming Languages" course, which content is concentrated around python



programming language, without covering different types of programming languages (as indicated in LO). Also “Web Technologies” in LO indicates PHP, while content of the course concentrated around HTML, CSS, JavaScript.

- In some cases topics included in the content of the course are confusing and can not be referenced to the course. For example see “Database Technologies” course, in which one of the topics is “Generating pseudo-random numbers in MS Excel”.

- In some cases course content requires more modern vision on its content, for example course “Peripheral Devices” is missing discussion of modern data media (like SSD), while discussing HDD, etc. Also it would be great to include here an overview of different types of sensors etc. Also it would be recommended to include topics dedicated to GDPR in course “Basics and standards of Industry Law”.

- In some cases the topics overlapping are identified, for example courses “Application Software” and “Use of Computers in Design” etc.

- In many cases specific courses are setting different requirements for attendance, which could be confusing for students. It is recommended to streamline the requirements for attendance by removing it from course description to the higher level documents and setup uniform requirements, as example in “Labour Protection” course 50% is mentioned, “Computer System Structure and Computer Architecture” course 70% is mentioned, “Peripheral Devices” course 75% is mentioned etc.

- The role of course “Engineering Graphics” in the frame of the study programme is not clear, even looking at the fact that course is elective. It is recommended to study programme director to explore with help of industrial partners what kind of new courses could be offered to students to enrich study programme, maybe something about modern IT/IS technologies, or Artificial Intelligence (see as example <https://www.elementsofai.com/>), or some course dedicated to the CyberSecurity (explore free CISCO courses), or something related to DevOps. In addition it is also recommended to substitute the elective “Special parts in Mathematics”) with a more attractive to students course (see some ideas above).

Overall should be concluded, that not looking to the fact that proposed study programme corresponds to the state education standard and corresponds to the professional standards analysis of the course descriptions indicated significant number of gaps, as outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content etc. Presented gaps are subject to further improvements.

### 2.2.3.

The analysis has been completed using SAR section 3.2.1 and 3.2.2 and based on information received during the meeting (meeting with teaching staff, meeting with study programme director, meetings with students and alumni). SAR (SAR p. 72) describes the following key points of the study programme as follows “In the study programme: a student-centered approach is implemented; there is a focus on study results; interdisciplinarity is introduced ...”. The same section informs “Lecture is the main form of studies at college. Lectures are held as face-to-face classes with students. The student's working hours consist of in-person classes and independent work. Besides lectures, the study course also consists of practical works, discussions, and case studies. Lectures are held for all students together, if necessary, the group of students is divided. Practical works are organized in accordance with the study programme; the work is carried out in the computer laboratories.”

The indicated implementation methods are relevant, while during meetings (meeting with students, meeting with teaching staff) it has been provided information that some part of the classes happens in online mode, which again seems a relevant approach, considering the profile of the students. SAR (SAR p. 73) describes principles of evaluation as “accumulation of positive achievements; compulsory assessment of the acquisition of the compulsory content included in the main parts of the study programme; openness and clarity of requirements regarding the set of basic requirements

for the evaluation of the acquired education, in accordance with the aims and tasks of the study programmes and study courses; the variety of test methods used in the assessment; compliance of the assessment with the students' analytical and creative abilities, knowledge, skills and abilities; the basic forms of study programme acquisition evaluation are an exam and a test; in the exam the acquisition of the study course is assessed in a 10-point system; the completion of a study course is evaluated both on a 10-point scale and a pass/fail scale.". The described evaluation principles correspond to the traditional practices and are relevant. SAR (SAR p. 74) also underlines and provides information on how principles of student-centered education are established at RTK. The described principles are relevant and their real presence has been confirmed during meetings with students and alumni.

Overall shall be concluded that selected methods of delivery are relevant and contribute to the achievements of the study programme goal. Students and alumni are satisfied with the level of the support from teaching staff and RTK administration. While it is recommended to pay attention to the system of the feedback regarding received grades (during meeting students indicated that they are receiving feedback and explanation of the grade based on personal request). It is recommended to adopt grading rubrics and grading scales and use them in Moodle.

#### 2.2.4.

Analysis is performed based on information provided in SAR section 3.2.4, and during meetings(meeting with alumni, meeting with students, meeting with industry partners of RTK) and Appendix 6.2 ("Organization on intership").

Study programme provides 2 internship possibilities for students. SAR (SAR, p. 75) indicates "A 8-credit internship in a company is provided in the 4th semester of the study programme. The qualification practice is designed for the 5th semester and consists of 16 credit points". The internship in a company aims to help students become familiar with the duties of a computer system and network administrator in companies/institutions; to become familiar with information technology capabilities, basic principles of computer systems and network operations. While the qualification practice aims to prepare materials for the explanatory and practical part of the qualification work. The indicated internships contribute to the goal of the study programme "prepare qualified specialists - computer systems and network administrators who ensure the optimal performance of computer hardware, software, and networks for the needs of users." SAR (SAR p. 75 -76) describes how the process is organized and shall be underlined that students are searching the internship places by themselves, while , if they are unable to find a suitable placement, the college provides guidance on finding an internship place. Following statement has been confirmed by students and alumni during the meeting. And overall feedback regarding internship has been very positive (from students and alumni). Also industrial partners confirmed that they are receiving RTK students for internships and underlined successful collaboration in this field with RTK. RTK established a clear scheme of supervising students having internships and the responsible person is always in contact with the company. As a great benefit RTK industrial partners mentioned usage of the information system to manage internships data and reports (eDY36).

Overall it should be concluded that internships is a strong side of the study programme and RTK is successful in establishing close collaboration with industry.

#### 2.2.5.

N/A

#### 2.2.6.

The analysis is completed based on SAR section 3.2.6 and demonstrated qualification papers of the students (during visits). As has been stated during the meeting (meeting with the study programme director), the majority of the topics are provided by the industrial partners of RTK during the

internship of the students. These statements aligned well with information provided in SAR (SAR p. 72) "qualification practice aims to prepare materials for the explanatory and practical part of the qualification work". During meeting with industrial partners it has been confirmed that in many cases during internship students are selecting topics and receiving the necessary information. In SAR section 3.2.6 RTK provided statistics about defended papers, as well the titles of some papers. The titles correspond to the study programme and study field direction Several examples of titles "Improvement of Network Infrastructure in "Stream Network", Ltd.". 2. "Implementation of Computer Management Systems". 3. "Comparison of Network Management Programmes". 4. "Selection and Implementation of Cloud Computing Technologies". 5. "Security of Wireless WiFi Network". 6. "Creation and Configuration of Server Cluster for Enterprise". Also during the meeting with RTK alumni, it has been confirmed that they are satisfied, how the qualification papers preparation process is established in RTK.

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

It shall be concluded that the presented study programme complies with the existing professional and state standards. While after detailed analysis of the course descriptions a significant number of gaps have been identified. Mainly identified gaps are related with outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content. Considering the results analysis it could be assumed that existing study programme management procedures, including preparation and update procedures of the study courses are not well established or RTK responsible staff is not monitoring them. In addition during analysis it has been identified a limited number of elective courses and for some of them relevance to the programme is questionable. Analysis also demonstrated that RTK has well established the internship related processes, which shall be considered as a strong point of RTK.

#### **Strengths:**

- Well established scheme of internships, which is satisfying the needs of students and RTK industrial partners.
- Well prepared qualification papers, which are based on collaboration with industrial partners.

#### **Weaknesses:**

- The list of the elective courses is very limited, and presented elective courses' attractiveness to the students is under question, as well as their role in the programme.
- The presented course descriptions (form and content), has a significant number of gaps (outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content).
- Study programme management processes, including study course description preparation and update are not working or are not well monitored from responsible RTK staff.

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

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

**Assessment of compliance:** Not relevant

N/A

## 2.3. Resources and Provision of the Study Programme

### Analysis

#### 2.3.1.

SAR (SAR p.77-80) outlines a detailed list of material and technical support dedicated to the study programmes' study processes. Infrastructure resources and materials can be separated into categories - laboratory resources (available in Computer networks, Computer construction, and Operating systems laboratories) and study resources (available in classrooms and as a service).

In the laboratories (On-Site excursion around the premises and laboratories) experts could observe the available hardware tools (Cisco, Mikrotik network devices, HP server devices, Cisco telephony devices). Furthermore, it was indicated during meetings (Meeting with employers) that RTK participates in acquisition processes within the industry to acquire hardware elements that no longer qualify for use in a commercial context, but may still be effectively used in the study processes or a laboratory environment. The available hardware is sufficient for the SP realization, however, periodic upgrades and safety inspections must take place.

Software-related provisions are available as licenses, database subscriptions, programmes, and a learning management system - Moodle. The provisions and tools that are currently in use are considered appropriate - industry standard/expectation (Virtualization, Windows servers, Linux servers, and others) (Meeting with employers, Meeting with alumni) for which RTK appears to have corresponding licenses and access procedures (On-Site excursion around the premises and laboratories).

On-site resources and labs are available for students during workshops, and also in other pre-arranged time slots with the teaching staff. Premises are not available 24/7. This approach did not receive any negative feedback from students.

#### 2.3.3.

RTK currently has 352 students, and out of those, 70 are studying in the IT programme (SAR p.80-81). RTK mentions that this ensures the profitability of the programme. It is not clear from the SAR, what is the minimum number of students, under which the programme becomes unprofitable, and thus, exposed to the risk of being closed. The budget table shows that expenses for 352 students are 1'781'112,00 EUR, and divided linearly for 70 IT students results in 354'200,00 EUR (or 5'060,00 EUR per student) (SAR p.80-81). These expenses are broken down to 82 % (used for working capital (remuneration and employers tax)), 11% (for RTK Products and Services), 0% (for research), 1% (for new assets), and 6% (for social transfers).

Remuneration takes 82 % of the expenses, which is the biggest position. The remuneration amount was not highlighted as an issue (Meeting with the teaching staff), so experts can assume that the allocated amount is sufficient, although, it was mentioned that remuneration offered from RTK is not of interest to professionals working in the industry to provide teaching services and lectures (Meeting with study field director). Experts conclude that remuneration is on average sufficient to attract and keep talented teaching staff.

Expense allocation for assets is 1% or 3'248,00 EUR for 70 students. Assuming the IT asset is useful for 5 (potentially a maximum of 10) years, experts can calculate that the RTK can provide 16'210,00 EUR ( $5 \times 3'248,00$  EUR) worth of assets at any given moment. This is not sufficient to refresh the equipment, for example, one workplace in a laboratory with a PC, capable router, Wifi tools, and telephony, would cost around 3'500,00 EUR (on average 2'000,00 EUR for PC, 1'000,00 EUR for enterprise-grade network router, 200,00 EUR or Wifi-6e Access Point, 250,00 EUR for IP telephony) + servers, switches, etc. The amount for assets should be at least one order of magnitude higher.

Some equipment is refreshed in RTK by donations (it could be speculated that donated equipment is no longer of use in the industry and while still valuable to the study processes it will no longer provide equivalent insights as new industry-standard equipment) (Meeting with the teaching staff).

SAR mentions a refresh of infrastructure from EU co-funded project 8.1.4.0/17/1/001 "Infrastructure development of Riga Technical College" (SAR p.80-81).

No funds are directly allocated for research purposes, and, although not a primary goal for college teaching staff and students, in experts opinion some funding should be allocated for applied sciences, to keep up with the worldwide trends (especially for those who are not involved in industry).

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

In conclusion, RTK demonstrates strengths in providing appropriate infrastructure and software provisions, ensuring a high-quality study process with readily available resources for students. However, weaknesses exist in the insufficient funding for equipment refreshment, risking the adequacy of hardware tools and the sustainability of the IT programme's profitability. Clear guidelines on minimum student thresholds for profitability and strategic planning for equipment acquisition are necessary to address these weaknesses and further enhance the institution's effectiveness in delivering quality education.

#### **Strengths:**

- Part of the infrastructure and provisions were recently refreshed due to attracting EU-funded projects.
- Limited financial provisions are focused on employing motivated and highly qualified teaching staff.
- Currently RTK provides appropriate infrastructure and software support, including industry-standard hardware tools and software licenses like Moodle. The available resources meet the requirements for the study programmes, ensuring a high-quality study process.
- On-site resources and labs are readily available to students during workshops and pre-arranged time slots, contributing to a positive student experience without negative feedback.

#### **Weaknesses:**

- Reliance on donated equipment for the study process is risky, not methodical, and can result in outdated equipment used for the study process.
- Very limited expenses can be allocated for refreshing the assets. Reliance on co-funded projects requires additional administrative efforts (preparing project applications, reporting, financial reporting).
- No allocated expenses for research are provided by the state, thus limiting any research possibilities.

### **Assessment of the requirement [6]**

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

#### **Assessment of compliance:** Fully compliant

The institution's compliance is primarily evident in its comprehensive provision of material, technical, and software resources, aligning with the requirements for effective study programme implementation. The detailed inventory of infrastructure resources, including laboratory equipment and software licenses, demonstrates a conducive learning environment for students. Moreover, the institution's proactive approach to acquiring industry-standard hardware elements

through collaboration with external partners underscores its commitment to staying current with technological advancements. However, the assessment also highlights areas of concern, particularly regarding the adequacy of funding for equipment refreshment. The disparity between allocated funds and the actual cost of necessary assets poses a risk to the sustainability and effectiveness of the study programmes, especially in the long term. Therefore, while the institution demonstrates compliance, addressing the financial shortfall for equipment refreshment is essential to ensure continued programme quality and effectiveness.

## **2.4. Teaching Staff**

### **Analysis**

#### **2.4.1.**

The study programme is provided by sixteen college-elected academic staff members and seven guest lecturers. Thereby, five have a doctor's degree in science, twelve lecturers have a master's degree (SAR p.36-38). The qualification of the teaching staff generally complies with the requirements and the professional development of teachers is supervised by the RTK Personnel Department, in accordance with "Regulations on the education and professional qualification of teachers and the procedure for improving the professional competence of teachers". Additionally, students, graduates and employers expressed general satisfaction with teaching staff and have confirmed that teachers' qualifications enable the achievement of the learning outcomes (expert meetings with students, graduates and employers). Teachers have reported that financial benefits based on their extra effort (project participation, writing scientific papers, etc.) is a satisfactory motivation mechanism (meeting with academic staff). However, certain elements of teachers' professional development could be improved, e.g. Erasmus mobilities (Appendix 28.2 - EN "Statistical data on the incoming and outgoing mobility of the teaching staff").

#### **2.4.2.**

Since the last accreditation of the study programme, six new faculty members have been recruited (SAR p.83), ensuring the quality of the implementation of the study programme and the compliance of the study programme with the requirements. Teachers and students have reported that also unexpected changes in the composition of the teaching staff (e.g. medical leave of absence) do not negatively affect the quality of the implementation of the study programme, i.e. replacements are easily found within the existing staff or by hiring external staff (expert meeting with students and academic staff). Thereby, teachers also contact their graduates, which is a good mechanism and opportunity for collaboration also after the students finish their studies.

#### **2.4.4.**

Only five teaching staff members (J. Kuzmina, I. Bumanis, O. Rasnačs, E. Kopeika, N. Karatun) have published papers in international conferences and/or journals (Additional document 21. "More detailed categorization of scientific production"). Thereby, the international character of some conferences is questionable, e.g. "PIKC "Rīgas Tehniskā koledža". Zinātnisko rakstu krājums, 2020.". Although for a college scientific production is not a priority, RTK should consider, in collaboration with partner companies, which aspects of scientific research should be supported as possible benefit in collaboration with companies, i.e. as part of companies' R&D activities. There is certainly potential for such collaboration, also due to the fact that 12 teachers did not report any kind of publications (Additional document 21. "More detailed categorization of scientific production").

Nine teaching staff members have experience outside the educational institutions (I. Pučurs, N. Breners, A. Petaja, O. Rasnačs, V. Aksjonovs, R. Rauhmanis, M. Ivancovs, A. Jaunkalns, A. Bubovičs), which is beneficial for the students and transfer of knowledge. Thus, this kind of practical experience should be supported even more, for a higher number of teachers, e.g. through joint R&D projects

with companies.

#### 2.4.5.

Mutual cooperation of the teaching staff is mostly based on their monthly chair meetings (meeting with academic staff). Teachers did not report any problems in establishing consensus about the study programme content. However, teachers view the Council and the Internal Audit, both crucial at the institutional level, as entities that carry out their procedures routinely and teachers did not show interest in influencing these bodies through discussions or similar means (meeting with academic staff). It is important to mention that this is at the moment not perceived as a problem, due to a healthy and positive working environment and good relationships between RTK employees in general, but in the long-term it is important to cultivate a feeling among teachers that their contributions matter for those two bodies as well.

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

The study programme benefits from a well-qualified teaching staff and documented operational mechanisms, allowing the fulfillment of learning outcomes and maintaining programme quality. However, there are areas for improvement, particularly in enhancing teacher engagement with institutional governance and professional development opportunities, including Erasmus and joint R&D projects with companies.

#### Strengths

- Students, graduates, and employers express general satisfaction with the teaching staff, confirming that the qualifications of teachers support the achievement of learning outcomes.
- Financial incentives tied to additional efforts like project participation and scientific research.
- Effective mechanisms for finding replacements and involving graduates in teaching roles.
- Positive working environment and good relationships among teaching staff.

#### Weaknesses:

- Erasmus mobilities are not sufficiently used for networking and professional development.
- Teachers are not informed and involved at discussing the work and decisions of the Council and Internal Audit.
- A substantial number of teachers lack the publications or practical experience (except for experience in the implementation of the study programme, i.e. in education) that could serve as indicators of potential for successfully meeting the ever-changing demands of companies in fast-paced sectors like IT.

### **Assessment of the requirement [7]**

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

#### **Assessment of compliance:** Fully compliant

The qualifications of the academic and visiting staff at the institution meet the necessary conditions and regulatory requirements for implementing the study programme, as evidenced by the satisfaction of students, graduates, and employers.

## 2.5. Assessment of the Compliance

### Requirements

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

**Assessment of compliance:** Fully compliant

RTK provided documents (Appendix 10.1 "Studiju programmas „Informācijas tehnoloģijas” atbilstība valsts izglītības standartam”, 10.2 "Study programme's "Information Technology" compliance with the national education standard. ") describes compliance to the state standard, and documents (Appendix 13.1 "SP plāns \_ LV.xlsx" and 13.2 "SP plan - EN.xlsx") provides a plan how credit points are laid out in time. Study programme complies with the standard.

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

**Assessment of compliance:** Fully compliant

Provided document (Appendix 11.1 "Studiju programmas „Informācijas tehnoloģijas” atbilstība profesijas standartam”, 11.2 "Compliance of the "Information Technologies" Study Programme with the Profession Standard ") describe compliance of the study programme to the professional standard PS-219 (<https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-219.pdf>) (DATORSISTĒMU UN DATORTĪKLU ADMINISTRATORS - Computer systems and computer network administrator). Noteworthy that RTK staff has participated in preparing and approving this professional standard.

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

**Assessment of compliance:** Partially compliant

According to Study programme parameters, it is implemented in Latvian language. Study course descriptions are provided for evaluation commission in two languages: Latvian and English (Annex Studiju kursu apraksti LV.pdf, Studiju kursu apraksti EN.pdf ). Study materials are prepared in Latvian, although some study courses use English references for reading. Knowing that the IT sector's de facto language is English, it is positive that students practice studying from original sources.

Procedure on study programme adjustments (provided in Appendix 41.1 "Kārtība, kādā tiek izstrādātas un aktualizētas studiju kursu programmas-LV.docx", 41.2 "Procedures for developing and updating study course programs-EN.docx") complies with requirement in HEI law, section 56.1.

Study course description template and study course description (Appendix 41.1.1 "Studiju kursa apraksts - LV.docx", 41.2.1 "Description of the study course-EN.docx" partially comply with requirements in HEI law Section 56.1, Paragraph two. Course template lacks a clear study course calendar (although it does have a plan section).

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

**Assessment of compliance:** Fully compliant



Provided diploma samples and template (Appendix "A-IT diploma pielikuma paraugs.docx", "DIPLOMS A-IT (īsā cikla augst.izgl.).pdf", Appendix 50 "Diploms un pielikums.7z") complies with regulations set forward in (Cab.Reg.No 202, <https://likumi.lv/doc.php?id=256157>).

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

**Assessment of compliance:** Not relevant

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

**Assessment of compliance:** Not relevant

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

**Assessment of compliance:** Not relevant

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

**Assessment of compliance:** Fully compliant

RTK provided 23 CV's of the teaching staff members (Appendix 4.2 "CV EN.zip"). Experts checked the provided CV's of the staff by the following algorithm: 1) if Latvian language is native, 2) at least C1 level. 22 CV's mentioned Latvian language proficiency at the required level, except one, Mr. Nikolajs Berners. Nikolajs Breners CV does not list Latvian language as native language, nor provide proficiency level of the language. but he does speak latvian as experts were able to witness during the on-site meeting with the teaching staff. Requirement compliance is also ensured by the provided document, signed by RTK director, confirming that the knowledge of the state language of the faculty members involved in the implementation of the study programmes corresponding to the field of study complies with the regulations (Appendix 23 "23.pielikums.edoc").

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

**Assessment of compliance:** Not relevant

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

**Assessment of compliance:** Fully compliant

Provided study agreement templates (Appendix 39.2 "A-IT state budget-EN.docx", 40.1 "A-IT-pašfinansējums.doc", 40.2 "A-IT-self-financing\_EN.docx") for state budget and self-financed appear complies partially with requirements set forward in Cabinet regulations No 70

“Mandatory Provisions to be Included in the Study Agreement”

(<https://likumi.lv/ta/id/152072-studiju-liguma-obligati-ietveramie-noteikumi>).

As per recent legislation changes, where Latvia adopted the ECTS CP volumes, the agreements should state 150 CP.

RTK provided explanation to the experts that this was a misprint in the document presented initially and the correct document with 150 CP was presented.

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

**Assessment of compliance:** Fully compliant

Confirmation is provided in a form of agreements with other higher education institutions in Latvia, providing continuation of studies for students in case of events described in the criteria.

RTK has such agreements with Riga Technical University and Alberta College (Appendix 38.2

“RTU RTK agreement IT-EN.docx”, 38.1 “Alberta koledža - RTK vienošanās - LV.pdf”, 38.2

“Alberta koledža - RTK agreement-EN.pdf”. Note that agreements were provided in .docx and

.pdf file types, not .edoc, or other e-signed formats. These agreements should be registered and listed for everyone in AIKA e-platforma and RTK website so students can see them.

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

**Assessment of compliance:** Fully compliant

RTK has not provided a single signed document for this criteria, rather college has provided explanation why the college considers it unnecessary.

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

**Assessment of compliance:** Not relevant

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

**Assessment of compliance:** Not relevant

## **Assessment of the requirement [8]**

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

**Assessment of compliance:** Fully compliant

The document Appendix 16.2. Vocational Educational Competence Centre „Riga Tehnical College” Students Union regulations' includes respective regulations though this document was only available in Latvian at the time of the experts' visit. The RTK support to the activities of the Students' Union was discussed during the expert meeting with the RTK management. Missing the "calendar plan with contents per semester week" does not violate actual assessment of R8 as Compliant.

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

The aim, tasks and learning outcomes and content of the study programme are described and correspond to the Latvian and internal documents. The study results are focused on practical activities and this is fully in line with the goals of this professional qualification. The SP complies with the existing professional and academic standards. RTK has well established the internship related processes, which shall be considered as a strong point. The SP is provided by experienced teaching staff, and graduates are sought after in the industry. RTK demonstrates strengths in providing appropriate infrastructure and software provisions, ensuring a high-quality study process with readily available resources for students. In experts opinion, the SP has a good position in the professional training market, by providing studies in the afternoon, thus enabling combining studies with work and family more easily. Excellent and unified feedback from employers indicate that the study programme is a good time investment, and should be promoted as such for the potential students.

Identified gaps are related with outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content. During analysis it has been identified a limited number of elective courses and for some of them relevance to the programme is questionable. There are areas for improvement, particularly in enhancing teacher engagement with institutional governance and professional development opportunities, including Erasmus and joint R&D projects with companies. Partial compliance found for very minor aspects - study courses have plan sections, instead of calendar sections, as required by HEI law Section 56.1, Paragraph two.

### **Strengths:**

- All indicators describing the SP are well and clearly prepared according to the Latvian and College regulations.
- Relatively stable number of graduates
- Options for individual attending video lectures in Moodle and individual consultancies from the teachers
- Well established scheme of internships, which satisfies the needs of students and RTK industrial partners.
- Well prepared qualification works, which are based on collaboration with industrial partners.
- Part of the infrastructure and provisions were recently refreshed due to attracting EU-funded projects.
- Limited financial provisions are focused on employing motivated and highly qualified teaching staff.
- On-site resources and labs are on a good level and readily available to students during workshops and pre-arranged time slots, contributing to a positive student experience without negative feedback.
- Students, graduates, and employers express general satisfaction with the teaching staff, confirming that the qualifications of teachers support the achievement of learning outcomes.
- Financial incentives tied to additional efforts like project participation and scientific research.
- Effective mechanisms for involving graduates in teaching roles.
- Positive working environment and good relationships among teaching staff.

### **Weaknesses:**

- Motivation and preparation of some admitted students is low.
- Only one form of the SP, no part-time or cycle study option.

- The list of the elective courses is very limited, and presented elective courses' attractiveness to the students is under question, as well as their role in the programme.
- The presented course descriptions (form and content), has a significant number of gaps (outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content).
- Study programme management processes, including study course description preparation and update are not working or are not well monitored from responsible RTK staff.
- Very limited expenses can be allocated for refreshing the assets. Reliance on co-funded projects requires additional administrative efforts (preparing project applications, reporting, financial reporting).
- Erasmus mobilities are not sufficiently used for lecturers for networking and professional development.
- Teachers show weak interest in influencing work and decisions of the Council and Internal Audit as teachers' regular involvement and discussions in these decision bodies are weakly organized.
- A substantial number of teachers lack the publications or practical experience (except for experience in the implementation of the study programme, i.e. in education) that could serve as indicators of potential for successfully meeting the ever-changing demands of companies in fast-paced sectors like IT.

## **Evaluation of the study programme "Information Technologies"**

Evaluation of the study programme:

Average

## **2.6. Recommendations for the Study Programme "Information Technologies"**

### **Short-term recommendations**

Emphasize the importance of the Council and Internal Audit among teachers and their possibilities to impact the work of those two bodies, introduce regular teaching staff information meetings or information e-letters.

Revise and renew course descriptions (form and content), as current versions have a significant number of gaps (outdated and not study language relevant literature; complex description of the assessment strategy; outdated, overlapping or irrelevant course content).

The list of elective courses should be extended, with relevant and attractive courses.

It is recommended to streamline the requirements for attendance by removing it from course description to the higher level documents and setup uniform requirements.

Introduce some course giving a IT field professional certificate (Cisco or any other).

Introduce some entrance test as part of the admittance process to test motivation and preparation of admitted students, introduce some preparatory classes before the admittance.

Introduce personal guidance/tutoring for first year weaker students.

### **Long-term recommendations**

Carry out analysis, define action plan, measures and KPIs for increasing usage of Erasmus mobilities for improving networking and professional development of teachers.

Initiate joint applied R&D and/or development projects involving teachers and IT companies. These collaborations would provide teachers with direct exposure to the latest industry challenges and innovations, thereby enhancing their practical experience and contributing to their research output.

Introduce a process of monitoring the courses renewal and evaluating course description (including list of literature) by the management of RTK.

Increase the administrative efforts (preparing project applications, reporting, financial reporting) to improve study courses assets, prepare at least 2 new projects during the next assessment period.

Develop a plan with clear KPI-s to increase the number of the IT related publications of teaching staff.

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

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

##### **Assessment of the Requirements for the Study Field**

<b>Requirements</b>	<b>Requirement Evaluation</b>		<b>Comment</b>
R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:		Partially compliant	Students, graduates and employers are satisfied with RTK's work and its SP, and all basic elements of QAS are in place. However, it could be improved by involving a higher number of employers and by using statistical data more efficiently (e.g. by defining KPIs).

Requirements	Requirement Evaluation		Comment
R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)		Partially compliant	Overall it should be stated that RTK research directions are aligned with the mission, vision of the RTK, while the Existing Scientific Research and Innovation Development Strategy of RTK is too generic to be a useful development tool. The strategy lacks the SMART objectives, specific activities, does not demonstrate specific KPIs which could be used for monitoring of the progress etc. This leads to the problem of not systematic development of the research activities in the frame of this direction. Moreover it is recommended to consider applied research as a target. The mechanism of the students and staff engagement to the research activities exists, but are classical and their effectiveness is under question. International collaborations seems to be the weakest point, and should be included in strategy as a specific objective, with specific set of activities, and KPIs.
R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.	Fully compliant		SAR (SAR p.44-50) lists Latvian and foreign institutions RTK has a good cooperation which is mainly on the ERASMUS+ mobility and providing practice places for students and which is working well and ensures the achievement of the aims of the study field but does not cover IT focused research or applied projects leaving room for future improvements.
R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.	Fully compliant		Justification: Most of the shortcomings have been addressed and executed. Although 4 out of 19 recommendations are partially implemented, the sheer number (19) recommendations does not reflect the importance. In the experts opinion, the top 5 are most important and have been implemented.

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

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)
1	Information Technologies (41483)	Not relevant	Fully compliant	Fully compliant	Fully compliant	Average

### The Dissenting Opinions of the Experts

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