

APPLICATION

Study field "Power Industry, Electrical Engineering, and Electrical Technologies"
for assessment

Study field	<i>Power Industry, Electrical Engineering, and Electrical Technologies</i>
Title of the higher education institution	<i>Profesionālās izglītības kompetences centrs "Rīgas Tehniskā koledža"</i>
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Self-evaluation report

Study field "Power Industry, Electrical Engineering, and
Electrical Technologies"

Vocational education competence center "Riga Technical College"

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1. Information on the Higher Education Institution/College

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

General details about the college

RTC operates based on Cabinet Regulation No. 147 (Dated 27 February 2007) 'Statute of the vocational education competence centre "Riga Technical College"^[1]'.

The vocational education competence centre 'Riga Technical College' (RTC) is a state-founded educational institution supervised by the Ministry of Education and Science that makes it possible for individuals with secondary education to obtain a level-one vocational higher education degree, with level 4 of vocational qualification (LVQ4) and level 5 of the Latvian Qualifications Framework (LQF5).

In accordance with the Law on Higher Education Institutions and the Vocational Education Law, a college is an educational institution that offers level-one vocational higher education programmes and makes it possible for the students to get a level-four vocational qualification. Level-one vocational higher education programmes are provided for those who have completed secondary education; the duration of such programmes is two to three years.^[2] The purpose of vocational higher education is to teach detailed knowledge, skills and competences in a specific field, enabling the student to develop or improve systems, products, technologies and preparing them for creative, research and teaching activities in the field.

The role of short-cycle higher education was highlighted and confirmed as part of the Bologna Process in developing the Framework for Qualifications of the European Higher Education Area. Short-cycle higher education is an important stage in education that enables easier transition from secondary to higher education. This is an opportunity to advance through levels of education in achieving career goals, using the education gained during the previous stage of education (through its partial or full recognition).^[3] In Latvia, colleges are at the same time vocational education and higher education institutions.

The Bologna Process in higher education includes three cycles of education: bachelor studies, master studies and doctoral studies. In accordance with the Dublin Descriptors (list of learning outcomes characteristic to levels of study), which were defined in establishing the European Qualifications Framework, short-cycle higher education programmes are a part of the first cycle of higher education, corresponding to level 5 of the European Qualifications Framework. The 2018 Paris Communiqué emphasises the fact that in many of our systems, ECTS-based short-cycle qualifications have an increasingly important role in preparing students for employment and further studies, and in improving social cohesion, making access to higher education easier for those people who would otherwise not have had it. This is why in Latvia, short-cycle qualifications are included as separate ^[4] qualifications as part of the overarching Framework for Qualifications of the European Higher Education Area.^[5] So far, colleges have shown themselves ^[5] to be capable of quickly adapting to the needs of the job market, training highly-qualified workers in fields experiencing a severe deficit of such workers, and are able to relatively quickly make it possible to increase the professional qualifications of workers. In 2019, only 6.7% of Latvia's residents aged 25 to 64 engaged in lifelong education activities, with an EU average of 11.1%. In order for Latvia's population to be able to compete on the local and global job markets, Latvia must take significant efforts to encourage the public to engage in lifelong education, ensuring high quality of the

workforce. So far, colleges have demonstrated their capacity to contribute to progress in achieving this goal.

The main areas of RTC activities are as follows:

- Develop and teach level-one vocational higher education programmes in Engineering, Information Technology, Social Sciences and Transport Services.
- Conduct the study process, foster the personal development of its students and make it possible for them to obtain level-one vocational higher education degree and level-four vocational qualification (and issue level-one vocational higher education diplomas in the manner prescribed by law).
- Make it possible for its students to prepare for further education, in obtaining a level-two vocational higher education degree, and level-five vocational qualification (LQF6).
- Collaborate with industry organisations and businesses in performing the functions of an industry teaching centre, instructor advanced education centre, and a body assessing professional competence gained beyond the formal education system.

The RTC mission is to:

Provide high-quality, dynamic, competitive vocational education and vocational qualification development in STEM fields to students of all ages, in line with the job market demand.

RTC MAIN STRATEGIC GOAL (2027 VISION):

Become a leading STEM and interdisciplinary college in Latvia, guaranteeing the training of highly-qualified professionals

STRATEGIC PRIORITIES

1. Flexible education content and technologies, incl. digitisation
2. Competent instructors and motivated students
3. Lifelong education (for external and internal clients)
4. International, regional and institutional cooperation
5. Resource, infrastructure and process sustainability

<https://rtk.lv/?sadala=203>

RTC has become a leading vocational technical education institution, teaching level-one vocational higher education and vocational secondary education programmes. Consistent efforts to achieve academic and teaching excellence have resulted in a considerable increase in the visibility, attractiveness and prestige of RTC. People who graduate from RTC will be well-trained, professional, qualified specialists sought after on the job market, who in addition to good professional knowledge and skills have well-developed social, self-improvement, cultural and other general competences.

The study and training programmes taught at RTC cover the current and future needs of Latvia's and the region's industries and businesses representing them; there are interdisciplinary and cross-professional programmes, which involve the forward-looking preparation of specialists to meet the prerequisites necessary for restructuring the economy and for industrial growth.

At RTC, a person with a general or vocational secondary education can obtain a level-one vocational higher education degree as part of 11 study programmes and 5 fields of study.

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Fields of study	Study programme code, level-one vocational higher education study programme
17. Information technology, computer equipment, electronics, telecommunications, computer control, computer science	41 481, Information technology
	41 523, Electronics
	41 523, Telecommunications
18. Mechanical engineering and metalworking, heat power engineering, heating equipment and machine studies	41 521, Mechanical Engineering (qualifications obtained: Mechanical Engineering Specialist, Mechatronics Engineer)
	41 522, Heat power engineering
	41 526, Refrigeration Engineering
	41 521, Road transport
19. Energy engineering, electrical engineering, electrical technology	41 522, Electrical machinery
20. Manufacture and recycling	41 543, Wood processing
26. Transport Services	41 345, Telematics and Logistics

The study programmes are taught in Riga, and the accredited branches of RTC in Daugavpils, Kandava and Liepāja.

During the period between the 2009/2010 academic year and the 2013/2014 academic year, the number of students in level-one vocational higher education programmes was relatively stable. With the deterioration of the demographic situation in the country, the total of number of students has been falling since 2014/2015. The number of students who pay tuition has decreased significantly.

Since the establishment of RTC branches, the number of students has grown by an average of 15%, despite a small decrease in Riga.

Currently studying in Riga 29 + 13 + 24 (1 course + 2 course + 3 course), in Daugavpils 7 + 9 (1 course + 2 course) and in Kandava 8 + 9 + 13 (1 course + 2 course + 3 course).

Student trend

1. Table

Year of study	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
Number of students	766	746	696	726	725	676	598	574
Including those paying tuition	162	99	74	121	57	26	16	15

Number of students in branches

Study year	2013/2014	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
Number of students	96	112	143	179	212	224	190	128
Proportion of students, %	13	15	21	25	29	33	32	22

[1]

<https://likumi.lv/ta/id/153846-profionalas-izglitiba-kompetences-centra-rigas-tehniska-koledza-nolikums>

[2] <https://likumi.lv/ta/id/37967#p10.1>

[3]

<https://likumi.lv/ta/id/313034-par-konceptualo-zinojumu-par-augstskolu-ieksejas-parvaldibas-modela-mainu>

[4] ibid

[5] ibid

<https://rtk.lv/?sadala=203>

1.2. Description of the management structure of the higher education institution/ college, the main institutions involved in the decision-making process, their composition (percentage depending on the position, for instance, the academic staff, administrative staff members, students), and the powers of these institutions.

1. College management

The bodies in charge of representation, management and decision-making at RTC are the college council, the head of the college and the internal audit commission. The council is a joint RTC staff body that manages and makes decisions at the college. The head of the college is its top official, conducting the general administrative and economic management of the college, and representing the college with no special authorisation required. The Ministry of Education and Science is the top management and decision-making institution of RTC in all strategic, financial and economic matters.

The council consists of 15 members: director, deputy director, six academic staff representatives (RTC is their main employer), two general staff representatives, three student government representatives, two authorised employer or professional organisation representatives or representatives delegated by the Trilateral Vocational Education and Employment Cooperation Sub-Council. <https://www.rtk.lv/?sadala=76>

The council approves the RTC mid- and long-term operating strategy, its study programmes and fields of research, prepares proposals for the admission of students and implementation of new study programmes, makes decisions on the creation, reorganisation and dissolution of organisational units, approves the internal regulations of such units, approves the regulations on the academic and administrative positions at the college, approves the internal rules of conduct,

reviews the report of the audit commission, reviews the report of the head of the college, supports and fosters the activities of the student government and approves its internal regulations, and makes decisions on other matters.

The head of the college hires and dismisses the general and academic staff at RTC, approves the appointment of their deputies, issues binding orders to the college staff, makes decisions on the efficient use of RTC resources within the scope of their authority, sets up audit commissions and academic and administrative staff elections, submits RTC annual operations reports to the council and the Ministry of Education and Science, making it possible for the college staff to review it, is responsible for the use of RTC financial resources, and performs other tasks.

The three members of the audit commission are appointed by the RTC staff through a secret election. The audit commission consists of one elected representative of the academic staff, one elected representative of the general staff, and one elected representative of the student government. Representatives of the audit commission may only be elected from members of the corresponding groups of college staff. Employees holding a position in the management or the council of the college may not be a part of the audit commission.

The audit commission is entitled to inspect the compliance of RTC operations with applicable laws and regulations, its statute, decisions of the council and head of the college, and to review the BASIC, EDUCATION, STAFF, ACCOUNTING AND OTHER documents that pertain to the financial and business activities of RTC.

2. RTC quality policy and the mechanism for its execution

The purpose of quality management is to ensure that RTC operates in accordance with its development strategy, internal and external regulations, agreements, and the requirements of clients and employers.

At RTC, quality management is based on the EFQM model of excellence, and is conducted as continuous progress towards excellence. All of the college's units and staff members participate in the execution of its quality policy.

The model of excellence has nine criteria. Five of these cover the facilitators, and the other four, the outcomes. The facilitator criteria stand for what RTC does, and how, while the outcome criteria refer to its achievements. The outcomes are achieved thanks to the facilitators, while the facilitators are, in turn, improved based on the outcomes achieved. Effective outcomes can be achieved through management understanding and support, through consistent RTC strategy and policy progress attained with the successful participation of the staff, and with the help of fully-fledged partnerships, resource-saving approaches and effective process management.

The nine criteria of the model of excellence set requirements and provide guidelines, which if complied with completely, will foster the excellence of RTC and its progress towards success.

Main performance results

Facilitators

Innovation and learning

Results

Management

People

Policy and strategy

Society and resources

Processes

People and results

Client results

Social results

EFQM model of excellence

Table 2

The RTC quality management and assurance system is an organised structure of responsibilities, actions and resources that, put together, form procedures and methods for conducting the study process in accordance with the requirements of the client. The assurance of quality is set up within the system, and its goals and the assignment of responsibilities are clearly understood by all parties involved.

The RTC quality management and assurance system is based on eight principles of quality management that are necessary for continuous improvement of the study process, staff motivation, assurance of compliance with client requirements, and creating a positive effect on society:

- **FOCUS ON THE CLIENT:** RTC depends on its clients, which is why it is important to understand the client and the client's future needs, and to ensure the fulfilment of these needs, in an effort to pre-empt the client's expectations.
- **MANAGEMENT:** a complete development strategy sets general goals and the ways of achieving them.
- **INVOLVEMENT OF STAFF:** RTC creates a working environment that enables every staff member to participate in the achievement of goals.
- **PROCESS ORIENTATION:** all activities are managed as a single process.
- **SYSTEM MANAGEMENT:** a clear process system is created and managed to improve the efficiency of achieving goals.
- **CONTINUOUS IMPROVEMENT OF WORK:** work is improved continuously through ongoing analysis of the execution of processes and client requirements.
- **FACT-BASED DECISION-MAKING:** effective decisions are made based on the logical analysis of data and information.
- **MUTUALLY BENEFICIAL RELATIONS WITH EMPLOYER AND SOCIAL PARTNER ORGANISATIONS:** mutually beneficial relations increase the likelihood of getting better results.

RTC quality management and assurance:

- Based on external regulations (Education Law, Vocational Education Law, Law on Higher Education Institutions etc.).
- Based on internal regulations, including procedures.

If necessary, internal regulatory documents (including procedures) are updated once every academic year.

Quality monitoring is based-on:

- Interviews and surveys.
- Self-assessment reports (for instructors, programmes, units).

Evidence on quality is obtained through:

- State examination results
- Proportion of graduates
- Academic attrition proportion in total and for every programme individually
- Subsequent careers of graduates
- Student admissions results
- Employer feedback
- Participation in competitions, projects etc.
- Advanced career education of the teaching staff
- Teaching materials and/or publications prepared by the teaching staff
- Cooperation agreements with employers and social partners
- International cooperation

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

Compliance of the college internal quality assurance system with Section 5, Part 2.1 of the Law on Higher Education Institutions.

Table 3

No.	P [1] In accordance with Section 5, Part 2.1 of the Law on Higher Education Institutions, in implementing quality assurance systems, universities or colleges guarantee the continuous improvement, development and operating efficiency of the field of study:	Compliant	Partially compliant	Non-compliant	Explanation
1.	A policy and procedures for ensuring the quality of higher education established	x			Annual student, instructor and employer surveys. Timely identification and elimination of problems.
2.	A mechanism is developed for creating study programmes within the university/college, for their internal approval, supervision and regular inspections	x			The development of study programmes is regulated by the following internal regulatory documents: 'Procedure for developing study programmes and submitting them for approval.' 'Procedure for developing and updating study course descriptions.'

3.	Student performance evaluation criteria, conditions and procedures are created and published, making it possible to confirm that the planned study results are achieved	x	Governed by the internal 'Regulations on the principles and procedures for evaluating vocational higher education'.
4.	An internal procedure and mechanisms for ensuring the competence of academic staff and the quality of their work are created	x	
5.	It is ensured that information about student performance, graduate employment, student satisfaction with the study programme, work efficiency of the academic staff, available study assets and their costs, key operating indicators of the higher education institution is collected and analysed	x	RTC has a student performance database that undergoes continuous revisions. Performance is analysed at the end of every semester. Graduate surveys about their activities and employment post-graduation are conducted every year. Student and instructor surveys are conducted every year to identify problems.
6.	In implementing quality assurance systems, universities or colleges guarantee the continuous improvement, development and operating efficiency of the field of study	x	In accordance with RTC quality management, the desired outcomes are achieved thanks to the facilitators, while the facilitators are, in turn, improved based on the outcomes achieved.

Information about the RTC quality policy can be found at: www.rtk.lv/?sadala=5082

https://muu.rtk.lv/pluginfile.php/18841/mod_resource/content/1/Docētāju%20ikgadējās%20darba%20kvalitātes%20izvērtēšanas%20kārtība.pdf

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

1.	The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.	<p>RTK has established a quality management system policy aimed at:</p> <ul style="list-style-type: none"> • Development, improvement and implementation of study programs in accordance with external normative documents, process schedule "Study program administration" and internal normative documents. • Assessment of students' knowledge, in accordance with the internal normative document "Regulations on the basic principles and procedures for the assessment of higher professional education", as well as in accordance with specific requirements in each study course to achieve the desired study result. • Supervision of the quality of the work of the academic staff, in accordance with the internal normative document "Procedure for the evaluation of the annual work quality of lecturers", which includes self-evaluation, student surveys, observation and evaluation of classes. • Analysis of students' progress and reasons for exmatriculation. At the end of each semester, students' progress, reasons for exmatriculation, as well as evaluations of the defense of developed qualification papers in study programs are analyzed. • Collection and analysis of information on the further course of study program graduates. <p>https://www.rtk.lv/?sadala=203</p>
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www.rtk.lv. The purpose of all of the study programmes associated with electrical power engineering is to prepare specialists to work in energy and manufacturing companies with a well-developed energy infrastructure, as well as in agricultural production and processing enterprises, government and civic organisations. The qualification levels and scopes (durations) of the study programmes are different. As part of the 'Electrical equipment' study programme developed by RTC, we try to quickly (within 2.5 years) prepare mid-level specialists, with a strong practical focus. We believe that we are achieving this goal. This is demonstrated by our performance in graduation paper contests, in both the qualification paper and engineering project categories, by the feedback on interns provided by employers, and the work of our graduates in the field. It is worth noting that the graduates of the RTC Electrical Equipment study programme are the only participants of these contests that are graduates of a level-one vocational higher education programme. The main tasks of these specialists are associated with the installation and maintenance of low- and medium-voltage electrical facilities, with the management, planning and organising of this work, and the ability to develop simple electrical facility designs. Assessment of the field of study and the study programmes from the viewpoint of the interests of the Republic of Latvia. The purpose of the 'Electrical equipment' study programme is to prepare specialists working in Latvian energy and manufacturing companies with a well-developed energy infrastructure, as well as in agricultural production and processing enterprises, government and civic organisations. It is worth noting that due to changes in the law, requiring that starting from 2018, managers in electric power enterprises have to have a level-1 (college) degree, the demand for the study programme has grown significantly. Thus, RTC Kandava branch opened in the 2013/2014 academic year, and RTC Liepāja branch opened in the 2016/2017 academic year, both offering 'Electrical equipment' as one of their study programmes.

3. A survey of Latvia's biggest companies associated with electrical power engineering was carried out in order to determine the interest of employers in hiring the graduates of the study programme. All of the companies emphasised the demand for the graduates of the 'Electrical equipment' programme. The current situation is such that the college's graduates can only satisfy a small part of the employers' demand, as evidenced by the significant interest in the possibility of hiring our graduates or students that the employers express. Unfortunately, the likelihood of this demand being satisfied is very low. The availability of jobs and the demand for our graduates in this field is demonstrated by the fact that 100% of our 2020 graduates have been hired or already continue their work in fields associated with their specialisation. Leading instructors actively participate in the work of various professional associations as their members. These include the Latvian Association of Power Engineering and Power Construction, the Industry Expert Council. Collaboration with employers also takes place through student internships at companies such as: AS Latvenergo, AS 'Sadales tīkls', AS 'Augstsprieguma tīkls', AS Rīgas Siltums, AS 'Rīgas satiksme' etc. The recommendations provided by the employers in assessing student internships have been collected. More attention must be paid to the following: legal changes applicable to the industry; practical work skills. Learning tours to the above potential internship providers are arranged for the students, to foster improvements in the studies.

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

elaboration of the plan for the development of the study field for the next assessment period shall be provided.

Analysis of the strengths, weaknesses, opportunities and threats of the field of study.

Strengths of implementation of the field of study:

A professional standard for specialists in Electrical Equipment has been updated in conjunction with LEEA (Latvian Association of Power Engineering and Power Construction);

In accordance with the RTC 6-year strategy for the organisation of branches, the 'Electrical equipment' study programme was accredited in the branches, using the infrastructure of Kandava Agricultural Technical School and Liepāja State Technical School;

High marks were received as part of the ESF project 'Assessment of study programmes in higher education and proposals for improving their quality', and in June 2013, the programme was accredited for 6 years;

The interest of secondary school and vocational secondary school graduates, and especially those already working in various organisations in the 'Electrical equipment' study programme is relatively high;

Good level of equipment for the Energy System Automation, Programmable Controllers, Use of Computers in Energy Engineering Design, Electrical Installation courses;

High level of activity and interest in the study process among the instructors;

Both new and very experienced instructors participate in the teaching of the programme. Six instructors have a doctoral degree, and twenty-six, a master's degree;

Close cooperation with LEEA, employers (AS Latvenergo, AS 'Augstsprieguma tīkls', AS 'Sadales tīkls' and others), and RTU. As a result of this our students and graduates see much demand on the job market, and work in their field (100%);

Knowledgeable, leading specialists working at partner companies and in research institutions (RTU) participate in the implementation of the programme.

Weaknesses in implementing the field of study:

The computer equipment could be more modern;

In the Liepāja branch of RTC, almost all specialist courses are taught by instructors assigned from Riga, because there are no local human resources.

Threats:

Significant reduction in the number of students and their motivation to study are considered to be the main threats;

The level of preparation of incoming students is falling, which very negatively affects learning of the courses. It is worth noting that the students have poor prior knowledge not only of mathematics and physics, but also basic arithmetic.

Opportunities:

Hiring new instructors and obtaining new funding for the 'Electrical equipment' study programme in conjunction with the NEP (Industry Expert Council) and LEEA (Latvian Association of Power

Engineering and Power Construction), in order to ensure the continued existence of the programme;

Obtaining information about the latest technologies and demand in the field, with the purpose of improving the curricula of the study courses and providing them with technical infrastructure, in conjunction with employers, and especially graduates of the 'Electrical equipment' study programme;

Use the opportunities offered by various European projects, such as Erasmus+, as much as possible in order to improve the competences of the students and the teaching staff.

Set up new laboratory equipment using own means, through the internal financial capacity of RTC and the creative potential of its teaching staff. For example, M. Silarājs actively participates in the creation of the Electrical Equipment Laboratory: its technical infrastructure has already been implemented, and its testing as part of the study process has begun.

RTK branch in Liepaja and Kandava can use teachers from Riga. The students of the Liepāja branch will soon be taken over by the Kandava branch, it is planned to close the Liepāja branch and open a branch in Daugavpils.

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

The management is managed by the head of the Information and Communication Technology (ICT) Department. The head of the 'Electrical equipment' study programme is its direct subordinate. The course instructors coordinate the rules for cooperation with the department head. The head of the programme prepares the study plans and performs administrative functions. The head of the programme participates in the development of the professional standard. Most instructors teach courses in multiple departments.

See added documents

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

Description and assessment of the admission system and requirements.

The admission of student candidates to the study programmes of RTC takes place based on their grades for secondary general or secondary vocational education.

The candidates who want to study at RTC must submit documents confirming secondary general or secondary vocational education.

Student candidates who took one of the first three places in international and national competitions approved by the Latvian Ministry of Education and Science within the last three academic years, specifically in the fields of mathematics, physics, computer science, Latvian or foreign language, are admitted for a state-paid student position by bypassing the normal competition.

Student candidates who completed vocational secondary education in a related field and passed the national vocational qualification exam with a grade of 7 or higher, receive 2 additional points. Individuals with the status of a low-income person (producing the documents confirming such) are given priority in the case of equal scores.

The admission procedure of RTC is available on its website: www.rtk.lv (<http://www.rtk.lv/?sadala=132>); the e-mail address for admissions is: uznemsana@kcrtk.lv

If the student has a higher education degree, or has completed a part of it, then at the beginning of every semester, the information in the documents submitted by the student is compared to the requirements of the corresponding study programme. The results achieved as part of a study course completed during prior education are recognised if the number of credits specified is no less than the expected number of credits for the study course of the programme in one semester. In individual cases, if the study course names do not match, the student must provide descriptions of the study courses.

RTC has prepared its internal 'Regulations for the recognition of study results gained as part of prior education or professional activities'.

RTC follows the principles of academic fairness, including the use of equipment and procedures that prevent instances of plagiarism, fraud and unethical behaviour among its staff and students.

RTC has joined the plagiarism control system maintained by the University of Latvia.

When submitting their qualification papers, students must sign to confirm that the paper is not fraudulent or plagiarised.

The study programmes offered by RTC are mostly in engineering fields, where qualification exams require the development of projects, and so far the control system has detected instances of plagiarism.

The study programmes are taught in the official national language. Visit the website for detailed information about the study programmes offered: www.rtk.lv.

Students have the opportunity to receive tests in certain subjects by presenting educational documents on their previous education.

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

programmes and the needs of the students.

The requirements for the successful completion of every course of the level-one vocational higher education study programme were developed, along with an evaluation system and evaluation criteria. The assessment methods are different, depending on the content and objectives of the course. The assessment criteria are shown in the programmes for the courses. As a unifying approach we can point out Bloom's taxonomy for assessing academic performance.

1. Knowledge: remember, recognise, define;
2. Comprehension: clarify, find patterns;
3. Application: generalise, organise;
4. Analysis: compare, contrast, classify;
5. Synthesis: create, build, formulate;
6. Evaluation: discuss, provide arguments, draw conclusions.

At the beginning of the studies, the students are informed of how their knowledge and skills are to be assessed as part of every study course. The information obtained motivates students to study, makes it possible for them to assess themselves, and for the instructors to assess the study process in the student group.

Clear definitions of the goals and objectives of the courses and their assessment criteria are a mandatory part of the development of course programmes. Thus, as they begin with a course, the students are familiar with its content, the requirements for successfully completing it, as well as the assessment criteria. This significantly facilitates the subsequent cooperation between the instructors and the students, and eliminates the likelihood of problem situations. Course and qualification papers may present different variants for a solution, which should preferably be compared. Thus we also develop problem-solving skills in a practical manner.

In order to achieve the results of the study programme within the intended time as part of the study process, and to increase the motivation to study, academic staff office hours are assigned every semester, and can be found at www.rtk.lv. Regular completion of study courses is encouraged by participation in the colloquia and workshops included in the study programmes, as well as the development and defending of practical projects.

https://muu.rtk.lv/pluginfile.php/21911/mod_resource/content/0/Noteikumi%20par%20augstākās%20profesionālās%20izglītības%20vērtēšanas%20pamatprincipiem%20un%20kārtību.pdf

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

RTC has an internal communication system created to enable the circulation of information in both the horizontal and the vertical dimension. Important information involving changes in the work process is communicated to every employee in the form of a management order, which is also posted on the website of RTC. Regular circulation of information takes place within the divisions of the institution; its frequency depends on the needs of the division. Internal RTC e-mail, group e-mail

for students and Moodle are used for work and other internal communication.

An effective internal quality management system has been put in place to clearly define goals and responsibilities to all stakeholders, so that all activities are fully understood, documented and managed.

RTC follows the principles of academic fairness, including the use of equipment and procedures that prevent instances of plagiarism, fraud and unethical behaviour among its staff and students.

RTC has joined the plagiarism control system maintained by the University of Latvia.

<https://muu.rtk.lv/course/view.php?id=702>

https://muu.rtk.lv/pluginfile.php/21919/mod_resource/content/0/Ētikas%20kodekss.pdf

2.2. Efficiency of the Internal Quality Assurance System

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

For the purposes of annually discussing the positive and negative features, changes, compliance and plans of the field of study and its study programmes, for conducting internal assessments and for the continuous operation of the quality improvement system, RTC has an internal quality management system that complies with the requirements of the ENQA Standards and Guidelines for Quality Assurance in European Higher Education. The quality of the study programme is assessed by the management of the study programme, by the departments that teach the study programme, and by other units involved, by the college's Council, professional associations, employers, and the student government.

The mechanism of ensuring the internal quality of level-one vocational higher education study programmes at RTC operates on a number of levels:

1. The Study Division conducts: Supervision of study courses at RTC, including their suitability for the higher education programme and its content; surveying of students at the level of the college. The purpose of the survey is to determine how well the students adapted to the college system and how satisfied they were with the study process, classes and practical activities. The survey results are available at the Study Division; provision of rooms and equipment for flow lectures (35-80 people); preparation of the study process schedule in accordance with the study plans and the current situation.
2. At the level of the department: once a year, the head of the study programme submits a report to the Study Division, previously assessed at a department meeting; students are involved in assessing the quality of the study programme through surveys, to determine the opinions of students, and to receive recommendations for improving the way the study programme is conducted, and identifying opportunities for the professional career development of instructors; the Utility Division of RTC ensures that the premises and their equipment comply with the latest standards, fostering the development of departments and increasing the quality of the teaching of study programmes.

3. At the level of the college and management: once a semester, a survey is conducted among the students of the study programme, concerning the performance of its instructors and the students' assessment of the study programme. The survey data are collected and the final results are discussed at the department meeting, the management meeting, and the Council meeting; the content of courses within the study programme, as well as the pertinent teaching materials, latest study literature, and teaching instructions for student research reports, internship reports and term papers are revised once an academic year. Thus, during the 2018/2019 academic year, all study course descriptions were fundamentally reworked. The academic staff can participate in courses and workshops covering the latest learning and teaching methods; their participation in advanced training courses as part of workshops and exhibitions organised by employers is encouraged. The academic staff and the management of the study programme participate in various experience-sharing events and projects; they cooperate with foreign higher education institutions and competence centres, meeting with representatives of the respective bodies and with social partners, to discuss the current events in the industry, analysing their results and introducing adjustments in the study programme.

Its 2018/19. ak.g. During this period, basically all descriptions of study courses were revised.

<https://muu.rtk.lv/mod/resource/view.php?id=4710>

<https://muu.rtk.lv/mod/resource/view.php?id=4709>

For example: N.Breners and J. Silarājs in the working group, participate in the development of the "Electrical Equipment Specialist" profession standard.

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

For the purposes of annually discussing the positive and negative features, changes, compliance and plans of the field of study and its study programmes, for conducting internal assessments and for the continuous operation of the quality improvement system, RTC has an internal quality management system that complies with the requirements of the ENQA Standards and Guidelines for Quality Assurance in European Higher Education. The quality of the study programme is assessed by the management of the study programme, by the departments that teach the study programme, and by other units involved, by the college's Council, professional associations, employers, and the student government.

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<https://muu.rtk.lv/mod/resource/view.php?id=4710>

<https://muu.rtk.lv/mod/resource/view.php?id=4709>

For example: N.Breners and J. Silarājs in the working group, participate in the development of the "Electrical Equipment Specialist" profession standard.

https://muu.rtk.lv/pluginfile.php/22103/mod_resource/content/0/Kārtība%2C%20kādā%20tiek%20aktualizētas%20studiju%20kursu%20programmas.pdf

https://muu.rtk.lv/pluginfile.php/22104/mod_resource/content/0/Kārtība%2C%20kādā%20tiek%20izstrādātas%20un%20apstiprinātas%20iesniegšanai%20studiju%20programmas.pdf

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

examples.

Appeals procedure

Students who have justified complaints regarding the evaluation of their tested skills and knowledge may submit a reasoned written request to revise the grade within one business day after the test results are announced.

Students can complain directly to the lecturer or to their tutor or another college official.

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

The grade data at the college are compiled at the end of every academic year in June; the data are presented to college staff (including instructors). The data are archived and available at: <https://www.rtk.lv/?sadala=460>.

The number of students is determined at the event of every semester, and presented to college staff (including instructors). These data are archived and available as necessary.

Student surveys take place at the beginning of every semester. Students from the first two years participate in the surveys. The data are collected and used to update, develop and correct study programmes.

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

<https://muu.rtk.lv/course/index.php?categoryid=96>

2.3. Resources and Provision of the Study Field

2.3.1. Provide information on the system developed by the higher education institution/ college for determining and redistribution of the financial resources required for the implementation of the study field and the relevant study programmes. Provide data on the

available funding for the scientific research and/or artistic creation activities, its sources and its use for the development of the study field.

The library is a division of RTC operating in accordance with the internal regulations of the college. The main purpose of the library is to supply the study process with the information resources and services it requires, based on study programme requirements, in all respective specialisations. Regular inventory, cataloguing of the collection, as well as the provision of information and bibliographical services to students, instructors and other staff take place. The students of the college have access to the libraries and databases of other higher education institutions: Riga Technical University, Latvian University of Life Sciences and Technology, Latvian Maritime Academy. The EBSCO and Britannica Academic databases are also available at: <http://academic.eb.com>. In 2017, an agreement on the use of the EBSCO database at the RTC library was signed with the Cultural Information System Centre. Online access link: <http://search.ebscohost.com> There is a digital database at the library of the College. The reading room (97 m²) has 27 workplaces, with 5 computers and a photocopier. Students and instructors here have free access to reference literature, the latest literature in all fields, as well as fiction literature. The library subscribes to 28 periodicals. It has two rooms for its book collection (193 m²), intended for study literature, fiction, an archive of periodicals, technical textbooks, teaching materials, Latvian National Standards. The library staff uses the 'Electronic Union Catalogue of the Libraries of National Importance'. The library uses the interlibrary loan service (SBA) of the National Library of Latvia (LNB) and Riga Technical University. It has been possible to order and issue literature electronically via LNB SBA since 2009. Books and teaching materials in foreign languages (English, German, Russian) are available at the library. Annual student surveys show that the students want the equipment of the field of study to be more modern and complete. This is also admitted by the staff working in the field of study, the RTC management, and the Expert Council. As a result, the expansion and updating of equipment takes place continuously. In particular, a pilot version of the Electrical Equipment Laboratory (by Mārtiņš Silarājs, and employer businesses), which has no equivalents in other schools and universities in Latvia, was created in 2018–2019.

Funding is within the study program, it is distributed according to its current situation, planning for the year ahead.

2.3.2. Provide information on the infrastructure and the material and technical provisions required for the implementation of the study field and the relevant study programmes. Specify whether the required provision is available to the higher education institution/college, available to the students, and the teaching staff.

All necessary equipment and study infrastructure is at the disposal of RTK.

There is only one study program within the study field.

The provision of the study direction is sufficient.

There is an equipped electrical engineering laboratory.

Power system automation laboratory.

Programmable controller laboratory.

Industrial electrical equipment laboratory.

Electrical installation training center.

All equipment is at the disposal of the college and is accessible for students.

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

The library is a structural unit of RTK and works in accordance with internal regulatory enactments. The main task of the library is to provide the study process with the necessary information resources and services in accordance with the requirements of the programs in all specialties. Regular collection inventory, cataloging, informative and bibliographic service of pupils, students, lecturers and employees are performed.

College students have access to libraries and databases of other universities: Riga Technical University, Latvia University of Agriculture and Latvian Maritime Academy.

The EBSCO database and Britannica Academic are also available via the link <http://academic.eb.com>. 2017 An agreement has been concluded with the Cultural Information Systems Center on the use of the EBSCO database in the RTK library. Remote access link: <http://search.ebscohost.com>

An electronic database has been created in the college library.

The reading room (97 m²) has 27 workplaces, 5 computers and a photocopier. Here, pupils, students and teachers have free access to reference editions, the latest editions, and fiction. The library subscribes to 28 publications. There are 2 book collection rooms (193 m²) for textbooks, fiction and periodicals archive, textbooks in technical specialties, methodological materials, Latvian State Standards.

The library staff uses the electronic joint catalog of 9 libraries of national significance. The library uses the Interlibrary Loan (SBA) services of the National Library of Latvia (LNL), Riga Technical University. From 2009, ordering and issuing LNB SBA literature is available electronically. Books and methodological aids in foreign languages are available in the library collection - English, German and Russian.

Libraries of the nearest higher education institutions are available in the branches - agreements have been concluded with them.

2.3.4. Provide a description and assessment of information and communication technology

solutions used in the study process (e.g., MOODLE). If the study programmes within the study field are implemented in distance learning, the tools specially adapted for this form of study must also be indicated.

Actively uses the MOODLE system and other distance learning platforms (ZOOM, Team, etc.). In addition, the MOODLE system is used to receive tasks.

The active use of digital platforms started only at the beginning of the apedema, previously distance learning platforms were rarely used.

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

The academic staff at the college is elected as part of an open competition in the manner prescribed in the Law on Higher Education Institutions, and in accordance with the 'Regulations on academic positions and their election procedure' adopted by the college council. In accordance with these regulations, the college determines the number of its academic staff positions to comply with the requirements of the Law on Higher Education Institutions, and the amount of state funding provided by the Ministry of Education and Science. Openings for academic positions are announced as part of an open competition, by publishing a notification in the Latvijas Vēstnesis gazette.

Candidates for the position of a 'docent' must have a doctoral degree, with publications appropriate for the sub-field in question, and must be capable of leading scientific research or artistic creation processes, and conducting educational activities. Candidates for the position of a 'lecturer' must have a master's or a doctoral degree, with scientific publications or published teaching materials appropriate for the field in question, and must be able to independently teach courses, conduct workshops and practical activities.

In accordance with Section 39 of the Law on Higher Education Institutions, taking into account the need to acquire practical skills and knowledge, a person with higher education without a scientific doctoral degree or without a professional doctor's degree in arts may hold the position of docent, lecturer and assistant in professional study programme profile subjects, if they have sufficient practical work experience. Lecturers without a scientific or academic degree must have at least five years of hands-on professional experience in the subject taught.

The election of the academic staff takes place in secret, during the council meeting that takes place at the soonest time after the 1-month period following the announcement of the competition expires. The academic staff is elected for a period of six years.

If the college has a vacant or temporarily vacant permanent docent or lecturer position, the college council may decide not to announce a competition, and instead to hire a guest docent or lecturer for a period of up to two years, granting them the same rights, duties and remuneration, as those of elected docents and lecturers.

<https://muu.rtk.lv/mod/resource/view.php?id=4808>

<https://muu.rtk.lv/mod/resource/view.php?id=4809>

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

The academic staff can participate in courses and workshops covering the latest learning and teaching methods; their participation in advanced training courses as part of workshops and exhibitions organised by employers is encouraged.

The academic staff and the management of the study programme participate in various experience-sharing events and projects; they cooperate with foreign higher education institutions and competence centres, meeting with representatives of the respective bodies and with social partners, to discuss the current events in the industry, analysing their results and introducing adjustments in the study programme.

Unlike universities, education at the college does not have an extensive theoretical component and the research work is performed by its academic staff and students; however, scientific research elements are gradually integrated into the study process, from resolving specific questions as part of unsupervised study activities, to comparing different variants in the context of term papers and qualification papers.

The academic staff actively participates in courses and workshops covering the latest learning and teaching methods; their participation in advanced training courses as part of workshops and exhibitions organised by employers is encouraged.

Zinātniski rakst -<http://www.rtk.lv/?sadala=470>

Attendance / completion of in-service teacher training courses is listed and followed.

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

Nr.p.k.	Studiju kurss	KP	Vadošais mācībspēks	Akad. amats	Zin. grāds	Pamata vai blakusdarbs	Piesaistītie mācībspēki	Akad. amats	Zin. grāds	Pamata vai blakusdarbs	Piezīmes
1.	Augstākā matemātika	6	Margarita Viskova	Lekt.	Maģ.	Pamata	Elita Kazakēviča, Ingrīda Brokāne	Asist. Asist.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
2.	Fizika	3	Inta Klotiņa	Doc.	Dokt.	Pamata	Ivars Vēciņš, Andrejs Dortiņš	Asist. Asist.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
3.	Angļu valoda	3	Jekaterina Rakovska	Lekt.	Maģ.	Pamata	Aleksandra Pomitkina	Asist.	Maģ.	Blakusdarbs	
4.	Uzņēmējdarbības ekonomika	3	Solvita Martinsone - Liepiņa	Lekt.	Maģ.	Pamata	Dace Rozentāle Olga Iznova	Asist. Asist.	Bc. Maģ.	Blakusdarbs Blakusdarbs	
5.	Vides un civilā aizsardzība	2	Sandra Stūrīte,	Asist.	Maģ.	Pamata	Nikolajs Breners	Doc. Asist.	Dokt. Maģ.	Pamata Blakusdarbs	

6.	Organizāciju psiholoģija	2	Ingrīda Golubeva	Lekt.	Maģ.	Pamata	Sanita Eihmane	Asist. Asist.	Maģ. Bc..	Blakusdarbs Blakusdarbs
7.	Pētnieciskā darba pamati	1	Ingrīda Golubeva	Lekt.	Maģ.	Pamata	Sanita Eihmane	Asist. Doc.	Maģ. Dokt	Pamata Blakusdarbs
8.	Ievads specialitātē	1	Rafails Rauhmanis	Asist.	Bc.	Pamata	Gints Bernics – Berlans, Edvīns Sēpers	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs
9.	Elektrotehnika un elektriskie mērījumi	8	Laila Zemīte	Doc.	Dokt.	Blakusdarbs	Gints Bernics – Berlans,	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs
10.	Inženiergrafika	2	Kristiāns Štekelis	Doc..	Maģ.	Pamata	Jānis Vārns	Asist. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs
11.	Datormācība	2	Iveta Ulmane	Doc.	Maģ.	Pamata	Uldis Lukss Vineta Vēze	Asist. Lekt.	Maģ.	Blakusdarbs Blakusdarbs
12.	Elektriskās mašīnas	2	Rafails Rauhmanis	Asist.	Bc.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs
13.	Elektropiedziņa	2	Juris Silarājs	Doc.	Maģ.	Pamata	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs
14.	Elektriskie tīkli	3	Juris Silarājs	Doc.	Maģ.	Pamata	Gints Bernics - Berlans	Asist.	Bc.	Blakusdarbs
15.	Elektromontāža	2	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs
16.	Rūpnieciskās elektroiekārtas	3	Andrejs Bubovičs	Asist.	Maģ.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs
17.	Apgaismes ietaises	1	Andrejs Bubovičs	Asist.	Maģ.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs
18.	Apakšstaciju elektroiekārtas	4	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs				
19.	Rūpnieciskās automātikas elementi	3	Jevgeņijs Kozadajevs	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš Veronika Platkova	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs
20.	Energosistēmas automātika	3	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs				
21.	Elektriskās piedziņas automātika	2	Juris Silarājs	Doc.	Maģ.	Pamata				
22.	Pārvades elektriskie tīkli	2	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs				
23.	Elektroapgāde	6	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Gints Bernics – Berlans	Asist. Doc.	Bc. Dokt.	Blakusdarbs Blakusdarbs
24.	Darba aizsardzība un ugunsdrošība	2	Nikolajs Breners	Doc.	Dokt.	Pamata				
25.	Elektroiekārtu ekspluatācija un ekspluatācijas organizācija	3	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs
26.	Elektrodrošība	2	Nikolajs Breners	Doc.	Dokt.	Pamata	Arīlds Zibiņš Uldis Zaimis	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs
27.	Datoru izmantošana projektēšanā enerģētikā	2	Andrejs Bubovičs	Lekt.	Maģ.	Blakusdarbs	Andrejs Bubovičs	Lekt.	Maģ.	Blakusdarbs
28.	Sports	0	Gunārs Ruža	Asist.	Maģ.	Pamata	Juris Fomins Ieva Bubiēre	Asist. Asist.	Bc. Bc.	Blakusdarbs Blakusdarbs
29.	Ražošanas tehnoloģiskā prakse	5	Nikolajs Breners	Doc.	Dokt.	Pamata	Gints Bernics – Berlans Arturs Turlajs	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs
30.	Kvalifikācijas prakse	11	Nikolajs Breners	Doc.	Dokt.	Pamata	Arīlds Zibiņš Arturs Turlajs	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs

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

The discontinuation of students most commonly occurs due to absenteeism, failure to re-register after a break in studies, students also terminate their studies for family or other personal reasons. Students find it difficult to combine studies with their work and families. Students often have poor

prior knowledge in exact science courses and lack motivation to study.

In order to achieve the goal, the programme is intended to provide knowledge, to create and develop the knowledge, skills and attitudes necessary for performing professional activities, in accordance with qualifications.

The study programme and every study course clearly defines the knowledge, skills and competences that the student will learn as part of the programme and study course. The skills, knowledge and competences that one must learn and develop are associated with the competences and abilities specified in the professional standard for Mechanical Engineering Specialists and Mechatronics Engineers, taking into account the changing requirements of the job market, because changes enable the sustainability of the study programme.

The Mechanical Engineering Specialists and Mechatronics Engineers that have completed this study programme can work at various industrial enterprises, or continue their studies at Riga Technical University or other higher education institutions.

European Social Fund project 8.5.2 Professional standards are updated as part of 'Improvement of the industrial qualification system for developing vocational education and ensuring its quality' (Agreement No. 8.5.2.0/16/I/001).

Individuals with general secondary education or vocational secondary education may be admitted to the studies. Students are admitted to study programmes using a competition procedure, in accordance with admission regulations, both for state-paid and student-paid positions.

Students have the opportunity to communicate with the group curator. Curators explain to students their options at the college and give advice on a variety of issues. A tutor provides career assistance as well as help finding a job in a specialty (rarely requested).

2.4. Scientific Research and Artistic Creation

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

During the 2018-2021 academic years, our teaching staff participated in many practical research conferences, workshops, meetings and workgroups, providing them with a good understanding about what is happening in the field of electrical engineering and electrical power engineering abroad.

Our guest docent Laila Zemīte and guest lecturer Uldis Žaimis actively engage in scientific affairs.

The college participates in study and study projects. Research works take the form of student qualification papers.

2.4.2. The relation between scientific research and/or artistic creation and the study

process, including the description and assessment of the use of the outcomes in the study process.

2018./21. ak.g. During the year, our teaching staff has participated in many scientific-practical conferences, seminars, meetings and working groups, which provide a good overview of what is happening in the field of Electricity and Electrical Engineering abroad. Our guest lecturer Laila Zemīte and guest lecturer Uldis Žaimis are very active in the field of science.

Scientific research work in the college is manifested in students' qualification papers.

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

2.4.3. The study direction, whose instructors participate in various scientific projects and events, is 'Energy engineering, electrical engineering, electrical technology'.

These instructors plan to continue participating in scientific conferences in the future.

Scientific activity is manifested in students' qualification works (research, including scientific research, takes place in the process of elaboration of works). International cooperation in this field is reflected in the reviews of the work of other students at foreign universities.

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

The following scientific publications were prepared during the reporting period: Uldis Žaimis

1. "Computer-aided mechatronic devices: aesthetic design with an emphasis on generalized golden ratio", International Scientific Journal "Industry 4.0", Issue 2/2018, ISSN: PRINT 2535-0153, WEB 2535-0161
2. "Numerical modelling of flows along the nanostructured surface", International Scientific Journal "Material Science. Nonequilibrium phase transformations", Issue 4/2018, ISSN: PRINT 30 2367-749X, WEB 2534-8477
3. "Processed seaweed and winemaking waste co-fermentation for biogas extraction: a pilot study", proceedings of International Scientific conference "Engineering for Rural Development", 2018, SCOPUS database
4. "Software development for numerical simulation of formatting the periodic nanostructures after laser irradiation", International Scientific Journal "Mathematical Modeling", Issue 1/2018,

Mārtiņš Silarājs, Arīds Zībiņš and others.

1. Rīgas sabiedriskā transporta elektroapgādes īpatnības. Peculiarities of Riga Public Transport Electricity Supply. Mārtiņš Silarājs, Riga Technical College, ICT Department, Latvia, martins.silarajs@kcrtk.lv. Anda Širokova, Riga Technical College vocational education competence centre, ICT Department, Latvia, andashirokova@inbox.lv. RP SIA 'Rīgas satiksme', Riga Technical College vocational education competence centre, 2019. ISSN 2255-8497
2. Vilces apakšstacijas un to modernizēšanas nepieciešamība. Traction substations and their need for modernisation. Mārtiņš Silarājs, Riga Technical College, ICT Department, Latvia, martins.silarajs@kcrtk.lv. Aldis Nazarovs. Riga Technical College vocational education competence centre, ICT Department, Latvia, aldisonazarovs@gmail.com. Riga Technical College vocational education competence centre, 2019. ISSN 2255-849
3. Alternatīvo enerģijas avotu izmantošana privātmājas elektroapgādē. Power supply for a private property using alternative energy sources only. Arīds Zībiņš, Riga Technical College, ICT Department, Latvia, arīds.zibins@inbox.lv, Māris Hīners, Riga Technical College, ICT Department, Latvia, marishiners@gmail.com. Riga Technical College vocational education competence centre, 2019. ISSN 2255-8497
4. Gaisa kuģa stāvvietu elektriskā apgaismojuma izveidošanas principi. Aircraft Parking Electric Lighting Principles of Establishment. Māris Antiņš, Arīds Zībiņš. Riga Technical College vocational education competence centre, Information and Communication Technology Department, Latvia. Riga Technical College vocational education competence centre, 2019. ISSN 2255-8497

Laila Zemīte

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2. Zemīte, L., Bode, I., Zeltiņš, N., Kutjuns, A., Žbanovs, A. Analysis of the Damage Hazard from the Point of View of the Gas Supply System. No: *EEEIC 2018, Italy, Palermo, 12-15 June 2019*: 2018, pp. 1-6.
3. Zemīte, L., Utāns, A., Dolgicers, A., Zālītis, I. Adaption of Extended Virtual-Real Laboratory for Education in Electrical Engineering. No: *2018 IEEE International Conference on Environment and Electrical Engineering and 2018 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe)*, Itālija, Palermo, 12.-15. jūnijs, 2018. Piscataway: IEEE, 2018, 1.-4.lpp. ISBN 978-1-5386-5187-2. e-ISBN 978-1-5386-5186-5. Available at: doi:10.1109/EEEIC.2018.8494561
4. Kutjuns, A., Kovaļenko, S., Zemīte, L., Žbanovs, A. Analysis of Faults Impact on Gas and Electricity Systems. No: *Proceedings of the 2018 19th International Scientific Conference on Electric Power Engineering (EPE)*, Czech Republic, Brno, 16.-18. May, 2018. Brno: Brno University of 31 Technology, 2018, page 80-84 ISBN 978-1-5386-4611-3.
5. L. Zemīte, A. Sauhats, Ļ. Petričenko, J. Kozadajevs, D. Bezrukovs. NETO electric power system assessment and proposals for its improvement [online]. RTU, 2018. Available at: EM.
6. Sauhats, A., Zemīte, L., Petričenko, Ļ., Moškīns, I., Jasevičs, A. Estimating the Economic Impacts of Net Metering Schemes for Residential PV Systems with Profiling of Power Demand, Generation, and Market Prices. *Energies*, 2018, Vol.11, Iss.11, page 1.-19. ISSN 1996-1073. Available at : doi:10.3390/en11113222
7. Zemīte, L., Petričenko, Ļ., Sauhats, A., Jasevičs, A. Small-Scale Renewable Generation Support

in Latvia. RTUCON 2018, 2018, 1, page 1-6.

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9. Zemīte, L., Petričenko, Ļ., Sauhats, A., Linkevičs, O., Bočkarjova, G. A Comparative Assessment of the Small-Scale Distributed Generation Policies in the EU and Latvia. Solar & Wind Integration Workshop: E-Mobility Integration Symposium 2018, 2018, 1, page 1.-6.
10. Zemīte, L., Kutjuns, A., Bode, I., Kuņickis, M., Zeltiņš, N. Risk Treatment and System Recovery Analysis of Gas System of Gas and Electricity Network of Latvia. Latvian Journal of Physics and Technical Sciences, 2018, Vol.55, No. 5, page 3-14. ISSN 0868-8257.
11. L. Zemīte. Electrical power engineering [online]. Latvian National Encyclopaedia, 2018. Available at: <https://enciklopedija.lv/skirklis/4217>.

Ervīns Grebešs

20. I. Zikmanis, I. Oleinikova, A. Mutule, E. Grebesh, "Energy Management Modelling Under Realtime Approach," POWERTECH 2019, Milano.

Participation in international workshops, conferences, fairs etc.:

Ervīns Grebešs

1. EUMETNET: Crowdsourcing and Quality Control workshops - March 2019, UK Exeter
2. Nordobs meeting in Lithuania 2019, Lithuania Vilnius, May
3. 5th User Workshop Satellite Application Facility on Climate Monitoring 3 – 5 June, Mainz, Germany
4. „EUMETSAT Advanced Training for CM SAF users“ 5 to 7 June 2019, Mainz, Germany

Laila Zemīte

1. IEEE International Conference on Environment and Electrical Engineering and 2018
2. 19th International Scientific Conference on Electric Power Engineering (EPE)
3. Solar & Wind Integration Workshop: E-Mobility Integration Symposium 2018
4. Dienas Bizness Enerģētika 2019 conference

Participation in international projects:

Laila Zemīte

1. Horizon 2020, Energy Engineering, 'European gas network supply' project manager
2. Fundamental and applied research project I-POWER, Latvian Council of Science
3. Ministry of Economics of the Republic of Latvia; project 'Trends, challenges and solutions in the development of Latvian gas infrastructure (LAGAS)', project No. VPP-EM-INFRA-2018/1-0003. Project manager
4. Ministry of Economics of the Republic of Latvia; project 'Sustainable development of the Latvian energy system and its integration in Europe (FutureProof)', project No. VPP-EM-INFRA-2018/1-0005. 32
5. Ministry of Economics of the Republic of Latvia; project 'Innovative smart grid technologies and their optimisation (INGRIDO)', project No. VPP-EM-INFRA-2018/1-0006
6. Contract with the Ministry of Economics, 'Hiring of an expert to inspect power plants'
7. Contract with the Ministry of Economics, 'Assessment of the net electric power metering system, and proposals for improving it'
8. Contract with the National Centre for Education, 'Development of learning materials for the field of energy engineering'
9. ERASMUS+ project 'Development of smart energy study programmes in universities in Russia

and Vietnam (ESSENCE)'

Participation in international meetings, workgroups:

Uldis Žaimis

1. 'Simple data approximation for computer and controller-aided devices' International practical scientific conference 'Society. Technologies. Solutions' Valmiera, Latvia, 25-26.04.2019
2. "Computer-aided mechatronic devices: aesthetic design with an emphasis on generalized golden ratio", III International Scientific conference Winter session "Industry 4.0" Borovets, Bulgaria, 12-15.12.2018
3. "Numerical modelling of flows along the nanostructured surface", XV International Scientific congress MTM-XIV, Varna, Bulgaria, 12-15.09.2018
4. "Processed seaweed and winemaking waste co-fermentation for biogas extraction: a pilot study", International Scientific conference "Engineering for Rural Development", Jelgava, Latvia, 23-25.05.2018
5. "Software development for numerical simulation of formatting the periodic nanostructures after laser irradiation", XV International Scientific Congress Winter session "Machines.Technologies.Materials", Borovec, Bulgaria, 14-17.03.2018

Ervīns Grebešs

1. NordObs: Site observations, Network communication between Nordic countries.
2. WIGOS: Observation and Monitoring group

It is clear that the instructors teaching in the field of study were very active in what pertains to science during the reporting period. A total of 20 articles were published, with participation in 8 conferences, 9 projects, and 7 international meetings.

We are particularly happy that the qualification paper advisors M. Silarājs and A. Zībiņš were able to involve the graduates they advise in their research. This collaboration resulted in four publications in the RTC collection of scientific articles for 2019.

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

Students participate in the preparation of research publications. These are published in the RTC 'Zinātniskie raksti' periodical.

Examples:

M. Delvers, A. Bērziņš, M. Silarājs, J. Silarājs

'Siltumapgādes sistēmas izveide karstā ūdens un centralizētās apkures nodrošināšanai.'
(Development of a heating supply system for the provision of a hot water and centralised heating supply')

D. Birze, M. Silarājs,

'Distancēti vadāmas (gudrās) mājas izveide.' (Development of a remotely controlled (smart)

home’).

The research activity of the college is manifested in the development of students' qualification papers. Scientific research takes place at a minimal level.

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

In 2019, during his collaboration with other students in setting up an electrical equipment teaching laboratory, and the preparation of his qualification paper,

Māris Zaks proposed a new solution for a tram traffic control algorithm.

The development of this work in the college allowed mainly the teaching staff and the student to expand their horizons, which allows to improve the quality of the taught courses.

2.5. Cooperation and Internationalisation

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

The partners that the 'Electrical equipment' study programme cooperates with most closely are the RTU Faculty of Electrical and Environmental Engineering and the Latvian Association of Power Engineering and Power Construction, whose members work at RTC, and thus have access to all of the latest information associated with electrical power engineering (this group is headed by Juris Silarājs). RTU docents Laila Zemīte and Nikolajs Breners (both with doctoral degrees in engineering) participate in the preparation of students. By participating in the graduation paper contests arranged by the Latvian Association of Power Engineering and Power Construction, SIA Schneider Electric Latvija, AS 'Augstsprieguma tīkls', AS Draka Keila Cables, and AS Latvenergo, we can compare the performance of our graduates with those of RTU and LULST. The head of the 'Electrical equipment' study programme Juris Silarājs and our docent Mārtiņš Silarājs have been on the jury of the graduation paper contests organised by the Latvian Association of Power Engineering and Power Construction, SIA Schneider Electric Latvija, AS 'Augstsprieguma tīkls' and AS Draka Keila Cables for years, and RTC has very good information on what these education institutions achieve.

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

Cooperation with employers takes place in different ways. Their representatives participate in the assessment of the knowledge and skills of graduates as part of the State Qualification Exam Commission, noting the strengths and weaknesses of their preparation. We try to involve their best specialists in managing courses and advising the qualification papers of the most capable and motivating students, because it is these specialists who are most familiar with modern technologies. The senior engineer of the relay service of AS 'Augstsprieguma tīkls' Mārtiņš Silarājs, and the senior engineer of AS 'Latvijas elektriskie tīkli' Nikolajs Brenets, both with doctoral degrees in engineering, as well as the project manager of AS 'Sadales tīkls' Andrejs Bubovičs, and the data analyst at the Latvian Environment, Geology and Meteorology Centre Ervīns Grebešs participate in the implementation of the study programme as instructors.

A total of 16 credit points are provided for student internships in businesses. At the end of the internships, feedback on the internships is provided including details on the preferences of employers, which we consider to be the main criterion in evaluating an internship. The principal businesses providing internships for students include AS Latvenergo, AS 'Sadales tīkls', AS 'Augstsprieguma tīkls', AS Rīgas Siltums, AS 'Rīgas satiksme', as well as other organisations fulfilling orders issued by these companies. Our students have also served as interns in other companies associated with electrical engineering.

It is worth separately mentioning our close cooperation with the Electrical Engineering and Electrical Power Engineering Expert Council, which has many graduates of our study programme as members.

RTU docent Laila Zemīte and doctoral student Ervīns Grebešs provide students with insights into science: they are also involved in the teaching of our programme.

With all of this, we have reasons to believe that the brand of a RTC Electrical Equipment graduate is well known and in-demand in Latvia.

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

Qualitative indicators for the international exchange of students and academic staff.

During the 2018–2019 academic years, our teaching staff participated in many practical research

conferences, workshops, meetings and workgroups (a total of 15, see p. 6), providing them with a good understanding about what is happening in the field of electrical engineering and electrical power engineering abroad.

As evidenced by student and graduate surveys, it is very common for students to go abroad to gain experience working in the field of electrical power engineering at their own initiative, which according to current consensus is good, and in my opinion, not so much. Unfortunately, this means our economy losing valuable specialists who move to another country once they graduate.

Mobility figures are summarized in the yearbooks:

<https://rtk.lv/?sadala=460>

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

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

Previous accreditation recommendations have been met. The implementation of the recommendations had a positive impact on the work of RTK.

Impact of recommendation in overall is positive.

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

In 2020, a working group consisting of lecturers of the study program and industry experts developed and updated the industry professional standard. Based on this standard, changes were made in the study program.

Order Nr. 1.1-08/4,_07.01.2021.

Annexes

I - Information on the Higher Education Institution/ College		
Information on the implementation of the study field in the branches of the higher education institution/ college (if applicable)	Teaching of the study programmes at the branches.docx	P1_filiales.zip
List of the governing regulatory enactments and regulations of the higher education institution/ college	Augstskolu likums_RTK.odt	Augstskolu likums_RTK.odt
The management structure of the higher education institution/ college	RTK_structure.png	RTK_struktura.png
II - Description of the Study Field - 2.1. Management of the Study Field		
Plan for the development of the study field (if applicable)	Field of study development plan.docx	Studiju virziena attīstības plāns.docx
The management structure of the study field	Studiju virziena un tam atbilstošu studiju programmu vadība.docx	Studiju virziena un tam atbilstošu studiju programmu vadība.docx
A document certifying that the higher education institution or college will provide students with opportunities to continue their education in another study programme or another higher education institution/ college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.	Sadarb_Univiv.zip	Sadarb_Univiv.zip
A document certifying that the higher education institution or college guarantees compensation for losses to students if the study programme is not accredited or the study programme license is revoked due to actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.	Kompens_neakr.docx	AIC_90.edoc
Standard sample of study agreement	Studiju_ligums.docx	Studiju_ligums.docx
II - Description of the Study Field - 2.2. Efficiency of the Internal Quality Assurance System		
Analysis of the results of surveys of students, graduates and employers	Absolventu apmierinātības ar studiju kvalitāti aptaujas rezultātu kopsavilkums.docx	Absolventu apmierinātības ar studiju kvalitāti aptaujas rezultātu kopsavilkums.docx
II - Description of the Study Field - 2.3. Resources and Provision of the Study Field		
Basic information on the teaching staff involved in the implementation of the study field	Iesaistītie mācību spēki.docx	Iesaistītie mācību spēki.docx
Biographies of the teaching staff members (Curriculum Vitae in Europass format)	CV_DOCĒTĀJI_1.zip	CV_DOCĒTĀJI_1.zip
A statement signed by the rector, director, head of the study programme or field that the knowledge of the state language of the teaching staff involved in the implementation of the study programmes within the study field complies with the regulations on the state language knowledge and state language proficiency test for professional and official duties.	AIC_S1.edoc	AIC_S1.edoc
A statement of the higher education institution/ college on the respective foreign language skills of the teaching staff involved in the implementation of the study programme at least at B2 level according to the European Language Proficiency Assessment levels (level distribution is available on the website www.europass.lv, if the study programme or part thereof is implemented)		
II - Description of the Study Field - 2.4. Scientific Research and Artistic Creation		
Summary of quantitative data on scientific and/ or applied research and/ or artistic creation activities corresponding to the study field in the reporting period.	Quantitative research data.docx	Kvantitatīvo datu apkopojums par studiju virzienam atbilstošām zinātniskās un_ vai lietišķās pētniecības un_ vai mākslinieciskās jaunrades aktivitātēm pārskata periodā.docx
List of the publications, patents, and artistic creations of the teaching staff over the reporting period.	Mācībspēku publikāciju, patentu, mākslinieciskās jaunrades darbu saraksts par pārskata periodu_EN.docx	Mācībspēku publikāciju, patentu, mākslinieciskās jaunrades darbu saraksts par pārskata periodu.docx
II - Description of the Study Field - 2.5. Cooperation and Internationalisation		
List of cooperation agreements, including the agreements for providing internship	Sadarbības_līgumi.docx	Sadarbības_līgumi.docx
Statistical data on the teaching staff and the students from abroad	Mac_speki_mobilitaate.docx	Mac_speki_mobilitaate.docx
Statistical data on the incoming and outgoing mobility of students (by specifying the study programmes)	Mac_speki_mobilitaate.docx	Mac_speki_mobilitaate.docx
Statistical data on the incoming and outgoing mobility of the teaching staff	Veiksmes stats.docx	Veiksmes stats.docx
II - Description of the Study Field - 2.6. Implementation of the Recommendations Received During the Previous Assessment Procedures		
Report on the implementation of the recommendations received both in the previous accreditation and/ or the licensing and/ or change assessment procedures and/ or the procedures for the inclusion of the study programme on the accreditation form of the study field.	Rekomendāciju_ieviešana_P3_EN.docx	Rekomendāciju_ieviešana_P3_LV.docx
An application for the evaluation of the study field signed with a secure electronic signature	Energetika_Informācija_liguma_sagatavošanai_par_studiju_virziena_novērtēšanu.edoc	Energetika_Informācija_liguma_sagatavošanai_par_studiju_virziena_novērtēšanu.edoc
III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme		
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period		
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P6_EN.docx	P6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)		
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme		
The curriculum of the study programme (for each type and form of the implementation of the study programme)		
Descriptions of the study courses/ modules		
Description of the organisation of the internship of the students (if applicable)		
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		

Other annexes

Name of document	Document
Tabula 2.png	Tabula 2.png
Table 2.png	Table 2.png
ERASMUS+ DOCĒTĀJU MOBILITĀTES 2015. GADA 24.-25. MARTĀ-1.pdf	ERASMUS+ DOCĒTĀJU MOBILITĀTES 2015. GADA 24.-25. MARTĀ-1.pdf
Augstskolu likums_RTK.odt	Augstskolu likums_RTK.odt
STUDIJU PROGRAMMAS PĀRVALDE.doc	STUDIJU PROGRAMMAS PĀRVALDE.doc
STUDIJU PROGRAMMAS PĀRVALDE (1).doc	STUDIJU PROGRAMMAS PĀRVALDE (1).doc
SADARBĪBAS PILNVEIDE AR SOCIĀLAJĪEM PARTNERIEM (1).odt	SADARBĪBAS PILNVEIDE AR SOCIĀLAJĪEM PARTNERIEM (1).odt
110.list of laboratory equipment.docx	110. laboratorijas iekārtu saraksts-ENG.docx
graduate surveys 2022.doc	absolventu aptauja 2022.doc
ATSKAITE par E aprīkojumu ENG.docx	ATSKAITE par E aprīkojumu ENG.docx
CV_Eng.7z	CV-E-angļu va.7z
List of teachers working at Daugavpils branch.docx	Daugavpils - Annez 5.docx
Diploma pielikums_paraugs-E_LV.docx	Diploma pielikums_paraugs-E.docx
Diploms_RTK28022022181221.pdf	Diploms_RTK28022022181221.pdf
Izglītība_un_prof_pilnveide_Energētika_ENG- Annex 1.xls	Izglītība_un_prof_pilnveide_Energētika_ENG-Annex 1.xls
List of teaching staff in Kandava branch.docx	Kandava - Annex 4.docx
Courses.docx	Kursu_saraksts_E-Annex 2.docx
Courses 2.docx	Kursu_saraksts_E-Annex 2.docx
Courses_E - piesaistītie - Annex 3.docx	Kursu_saraksts_E - piesaistītie - Annex 3.docx
List of the enterprises the students get their internship.odt	List of the enterprises the students get their internship.odt
Process of improvement of material technical and methodological base_ENG.docx	Materiāli tehniskās un metodiskās bāzes pilnveides process_ENG.docx
Studiju kursu apraksti - E - angļu val.7z	Studiju kursu apraksti - E - angļu val.7z
STUDIJU PROGRAMMAS PĀRVALDE-E-1.doc	STUDIJU PROGRAMMAS PĀRVALDE-E-1.doc
Development plan for a study field	Studiju virziena attīstības plāns ENG.docx

Electrical Equipment (41522)

Study field	<i>Power Industry, Electrical Engineering, and Electrical Technologies</i>
ProcedureStudyProgram.Name	<i>Electrical Equipment</i>
Education classification code	<i>41522</i>
Type of the study programme	<i>First level professional higher education study programme</i>
Name of the study programme director	<i>Nikolajs</i>
Surname of the study programme director	<i>Breners</i>
E-mail of the study programme director	<i>nikolajs.breners@kcrtk.lv</i>
Title of the study programme director	<i>Maģistrs</i>
Phone of the study programme director	<i>+37126783116</i>
Goal of the study programme	<p><i>The aim of study programme is:</i></p> <ol style="list-style-type: none"> <i>1. To prepare students for working in Electro equipment specialist profession according to 4. level of qualification of electro equipment profession standard and first level higher education requirements, that are capable to do service, can organise and manage stuff.</i> <i>2. Promote skill and knowledge acquiring, attitude formation, that provides for student to get qualification and promotes their competitiveness in variable social and economical circumstances.</i> <i>3. Create motivation for professional development and continuing education in engineering or other area and to give for student possibility to get higher professional education.</i>
Tasks of the study programme	<p><i>Task of study programme is to give theoretical knowledges and practical skills in area that is connected with exploitation and maintenance of electro equipment:</i></p> <ol style="list-style-type: none"> <i>1. to prepare qualified specialists, that are comprehensive, competitive in labour market electro energy area specialists, that are able to work in electro equipment maintenance and repair companies, diagnose centres and related companies.</i> <ul style="list-style-type: none"> <i>- to do electro equipment, diagnosis and repair.</i> <i>- to prevent damage of parts of electro equipment by doing exchange of parts and assemblies, by doing assemble and disassemble, by renewing parts or alignment, by doing locksmith operations.</i> <i>- to communicate with client and manage the stuff.</i> <i>- to know business economic and legislation, to manage auto car maintenance station or related companies department.</i> <i>2. To provide process of studies with metodic material, to develop material and technical basis with modern technical equipment and modern equipment for repair and diagnosis.</i> <i>3. To provide participation of employer in design of content of studies and organisation of qualification exam.</i> <i>4. To cooperate with related Latvian and foreign organisation and employers in professional education area.</i> <i>5. To make applied research in energy suppliment field, organise student conferences and to publish the results.</i> <i>6. Optimise internship process for students according to modern labour market requirements.</i>

Results of the study programme

iedzamie studiju rezultāti (angļu valodā) The study program "Electrical Equipment" envisages the acquisition of knowledge, skills and attitudes in accordance with the state first level professional higher education standard and the professional standard in lectures, seminars, practical classes, internships outside the educational institution.

The results obtained in the study program are in accordance with the state first level professional higher education standard and professional standard and are linked to the European Qualification Framework (EQF). Graduates of the study program "Electrical Equipment" must have appropriate knowledge, skills and competence in the professional field.

Knowledge of:

- Electrical equipment;*
- Regulated and legal requirements for the operation of electrical equipment in Latvia and the European Union;*
- small business organization, work planning and management;*
- environmental protection, occupational safety, fire safety and hygiene requirements.*

Skills:

- Can read technical documentation and evaluate equipment specifications.*
- Able to perform strength and safety testing of electrical equipment.*
- Able to operate electrical equipment.*
- is able to control the technical condition of electrical equipment*
- Is able to control the observance of safety equipment when using it.*
- Make an assessment of the quantitative and qualitative operation of electrical equipment.*
- is able to evaluate the building constructions of the company's electrical equipment structural unit and to compile a plan for the location of the main equipment and auxiliary equipment in the structural unit;*
- Is able to calculate the unit cost of a electrical equipment unit per energy unit.*
- is able to critically evaluate risk factors and offer solutions;*
- is able to evaluate the laws and regulations related to the protection of the environment in connection with the use of electrical equipment;*

Competence:

- Able to control the technical condition of electrical equipment and compliance with its operating rules.*
- Ability to make the right decisions quickly in specific production situations.*
- Ability to plan and organize the repair of basic electrical equipment and auxiliary equipment.*
- Ability to control the technical condition of electrical equipment, the quality of installation and repair work.*
- Ability to analyze production bottlenecks and assess the expected, ongoing or completed reconstruction of individual stages or business units.*
- Ability to ensure compliance with environmental and labor protection legislation.*

The study program of electrical equipment provides the competitiveness and professional growth opportunities of the graduates of the program in the field of electrical equipment operation, work in the development and improvement of new systems, products and technologies and applied research and pedagogy, as well as continuing education for a bachelor's degree.

Final examination upon the completion of the study programme	<i>Qualification paper</i>
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Study programme forms

Full time studies - 2 years, 6 months - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>2</i>
Duration in month	<i>6</i>
Language	<i>latvian</i>
Amount (CP)	<i>100</i>
Admission requirements (in English)	<i>Secondary or secondary professional education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Degree is not awarded</i>
Qualification to be obtained (in english)	<i>Electrical equipment specialist</i>

Places of implementation

Place name	City	Address
Kandava branch of Vocational education competence center "Riga Technical College"	KANDAVA	VALTERU IELA 6, KANDAVA, TUKUMA NOVADS, LV-3120
Vocational education competence center "Riga Technical College"	RĪGA	BRASLAS IELA 16, VIDZEMES PRIEKŠPILSĒTA, RĪGA, LV-1084
Daugavpils branch of Vocational education competence center "Riga Technical College"	DAUGAVPILS	STRĀDNIEKU IELA 16, DAUGAVPILS, LV-5404

3.1. Indicators Describing the Study Programme

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

The professional standard was changed and updated. The study programme was modified in accordance with the standard.

A course on electrical safety was introduced. The electronics course was removed from the programme, and this subject was included in the electrical drive course (expanding it).

The 'Maintenance of electrical equipment' course was replaced with the course 'Operation and organising the operation of electrical equipment'.

Changes in the program did not affect changes in training time. Duration of training remains: 2.5 years.

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

Evaluation of the study program.

First level higher professional education study program "Electrical Equipment",

Upon successful completion of the study program, the qualification Electrical Equipment is awarded specialist, the fourth level of education in Latvia, (LQF level 5) main goal:

- To prepare students for work in the field of electricity;
- To promote the acquisition of knowledge and skills that ensure the learner 's organizing talent and development of abilities for the work of a middle-level manager;
- To provide an opportunity for the learner to prepare for continuing education at a higher level of study programs and to raise professional qualifications in courses and seminars.

Tasks: to provide basic knowledge and professional competencies, as well as to prepare persons independent highly qualified work in the field of electricity related to equipment and devices design, manufacture, installation, operation and maintenance.

To achieve this goal, the program aims to provide knowledge, build and develop professional the

set of knowledge, skills and attitudes required to perform the activity, as appropriate qualifications. Knowledge, skills and competencies are clearly formulated in the study program and in each study course, which the student will acquire within the program and study course.

Skills, knowledge and competences which must be mastered in turn are related to those specified in the Electrical Equipment Specialist Standard competencies and abilities in the face of changing labor market requirements, as change takes place the sustainability of the study program is ensured.

Electrical equipment specialists who have mastered this study program can work in different industrial enterprises, or to continue studies at Riga Technical University or other higher education institutions educational institutions. Persons with general secondary education or secondary professional education can start studies.

Students in the programs are matriculated on a competitive basis, in accordance with the matriculation regulations both in publicly funded budget places or for self-financing.

<https://muu.rtk.lv/course/view.php?id=4625>,

<https://muu.rtk.lv/mod/resource/view.php?id=4631>

The specification of the study program did not affect the implementation of the program and the results to be achieved.

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

The study program prepares specialists necessary for the national economy and in close cooperation with LDDK (Latvian Employers' Confederation) and in accordance with the professional standard.

100% of study graduates are employed and about 95% or more graduates work in the specialty.

In 2019, 36 graduates made up 100%;

In 2020, 31 graduates made up 100%;

In 2021, 26 graduates made up 100%.

The unusually high employment and loyalty of graduates can be explained by the specifics of RTK studies.

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

Number of students

Number of students in the study program Electrical Equipment A-E - (1st, 2nd, 3rd year), K-E- (1st,

2nd, 3rd year) (Kandava branch) and L-E- (1st, 2nd, 3rd year) (Liepāja branch) groups and changes in the number of students in the program are shown in the table:

	Studentu skaits			Piezīmes
	Māc. gada sākumā	Eksmatrikulēti	Māc. gada beigās	
A-E-1	23	9	10	-4 - studiju pārtraukums
A-E-2	13	0	10	-3 - studiju pārtraukums
A-E-3	26	27=(5+22D)	0	+3 - atjaunoti, -2 - studiju pārtraukums
K-E-1	11	2	10	+1 - papildus imatrikulēts
K-E-2	13	2	10	-1 studiju pārtraukums
K-E-3	13	12=(2+10D)	0	-1 studiju pārtraukums
L-E-1	12	5	7	-
L-E-2	8	0	8	-
L-E-3	4	4=4D	0	-
Kopā:	123	61=(25+36D)	55	-11; studiju pārtraukums, +4; atjaunoti

19.7% of the student contingent were expelled for failure.

5.2. the number of students matriculated in the first study year

Number of first-year matriculated students from Riga and other cities and districts of the Republic Specialty of Electrical Equipment, A-E-1, K-E-1 and L-E-1 groups -46 students.

Number of ex-matriculated (from matriculated) in the first-year groups A-E-1, K-E-1 and L-E-1: - 16 students (34.8%).

The reason: non-attendance, which actually means a lack of motivation, especially because students are mainly accredited during the 1st semester.

It should be noted that this can be considered as an average over a number of years.

5.3. number of graduates (if any)

The VKEK worked in accordance with the order No. 1.1. - 08/1 of the Director of PIKC "RTK" from 14.01.2019, February 4 and 5, 2019 in Riga, February 7 in Kandava and February 8 in Liepāja. Qualification papers were defended by 36 full-time students of the study program (22 in Riga, 10 in Kandava and 4 in Liepāja) with the following results:

	A-E-3 (Rīgā)	K-E-3 (Kandavā)	L-E-3 (Liepājā)	Kopā
10 (izcili),	3 studenti	1 students 10%,	-	4 studenti
9 (teicami),	13.6%	2 studenti 20%,	1 students 25%	11.1%
8 (ļoti labi),	4 studenti	3 studenti 30%,	2 studenti 50%	7 studenti
7 (labi),	18.2%	4 studenti 40%,	1 students 25%	19.4%
6 (gandrīz labi)	8 studenti			13 studenti
	36.4%			36.1%
	6 studenti			11 studenti
	27.3%			30.6%
	1 students			1 students
	4.5%			2.8%
Vidējā atzīme:	8.1	8,0	8.0	8.0

The qualification works were performed, in accordance with the tasks of the qualification works, at a very good technical level. All 36 students were awarded the qualification of an electrical equipment specialist in the specialty 4152203.

Reviews of qualification papers objectively reflect the quality of qualification papers. The general preparation of students was very good, the organization of the defense of qualification papers was good, the NCC worked without delays. The topics of the qualification papers are related to specific problems of the national economy of the Republic of Latvia, and their content corresponds to the level of technical development in the specialty of the Republic of Latvia.

In order to improve the quality of training of specialists, the VKEK recommends:

1. To pay attention to the performance of higher quality and more specific qualification work tasks and technical-economic substantiation, to observe the graphic standard more precisely, in accordance with LVS IEC 60617: 2015;
2. In connection with the specific topic, the works emphasize references to the sources of formulas, coefficients and regulatory requirements, e.g. Cabinet Regulation No. 50 "Electricity Trade and Use Regulations". Cabinet Regulation No. 238 "Fire Safety Regulations", which enters into force on 01.09.2016;
3. Work safety issues are more closely related to the object under consideration and the planned works. Pay more attention to the organizational issues of project implementation, work schedules.

Pay attention to the documentation and measurements required for the commissioning of the objects, e.g. Cabinet Regulation No. 294. It should be noted that the best projects addressed these issues;

4. It is desirable to look in more detail at the lightning protection and surge protection solutions, to show the design of "N" and "PE" conductors in the wiring diagrams (eg connections to earth circuit); We recommend strengthening the topics of construction and construction supervision of electrical installations, because in accordance with Cabinet Regulation No. 610 "Electrical Equipment Specialist", after achieving the relevant criteria, he can work in the regulated sphere of electricity.

Positive:

1. The diversity of the topics of the qualification papers, in the descriptive part there is an individual approach to the specific solution of the issues considered in the projects;
2. During the elaboration of the works, literature in English and Russian was used, as well as special computer programs for electricity issues, eg "DIALUX Light". A brief description of the computer programs used would be desirable;

As the best qualification work we can mark and recommend the final thesis competitions: Alvis Leka's work:

1. "Construction of 330 kV overhead power transmission line Ventspils - Riga", supervisor: Mārtiņš Silarājs (Riga);
2. Kristaps Ozols' work: "External power supply of individual residential houses in Ikšķīle, Gobu Street", supervisor: Juris Silarājs (Riga);
3. Elmars Ziemelis' work: "External power supply of individual residential houses in Jelgava region", supervisor: Juris Silarājs (Riga);
4. Yuri Bihanov's work: "Dwelling house in Marupe, Ūdru street 19, electrical installation", supervisor: Arīlds Zībiņš (Kandava).

It should be noted that in 2017. The results of the competition were as follows:

The following prizes in the competition of engineering projects in the nomination of engineering projects of the Latvian Association of Electricians and Energy Builders, SIA "Schneider Electric Latvija" and "Draka Keila Cables"

1. Anda Širokova's work: „Reconstruction of RP SIA,, Rīgas satiksme "traction substation 10 kV switchgear", manager: Mārtiņš Silarājs (Riga) - Winner's prize;
2. Work of Māris Antiņš: "Development of aircraft parking wiring", supervisor: Arīlds Zībiņš (Kandava);

The following prizes were awarded in the final thesis competition announced by Latvenergo AS:

1. Work of Alda Nazarov: „Replacement of traction substation No. 14 TNr 1, TNr 2 and TNr 3 of RP SIA,, Rīgas satiksme """, manager: Mārtiņš Silarājs (Riga);
2. The work of Māris Hīners: "Use of alternative energy in the electricity supply of private houses", supervisor: Arīlds Zībiņš (Kandava);

There are no statistical data on Daugavpils branch, as its opening is planned.

3.1.5. Substantiation of the development of the joint study programme and description and evaluation of the choice of partner universities, including information on the development and implementation of the joint study programme (if applicable).

3.2. The Content of Studies and Implementation Thereof

3.2.1. Analysis of the content of the study programme. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators with the aims of the study course/ module and the aims and intended outcomes of the study programme. Assessment of the relevance of the content of the study courses/ modules and compliance with the needs of the relevant industry, labour market and with the trends in science on how and whether the content of the study courses/ modules is updated in line with the development trends of the relevant industry, labour market, and science.

Study field development strategy, common goals and their connection with the overall strategy of the university or college.

The Vocational Education Competence Center “Riga Technical College” (hereinafter - RTK) has developed a development strategy concept for 2014-2020. The developed document contains the main visions and settings that must be implemented in the Riga Technical College during the mentioned period. The document has been prepared in accordance with the forecasts of the leading companies of the interested economic sectors on their development trends and needs. During its preparation, consultations were held with companies and industry associations representing them, as well as with the management of Riga Technical College at various levels: senior management, management of specialties and programs, management of departments. This document has been developed by leading RTK employees: Director Jānis Rozenblats and Deputy Director for Studies and Research under Jānis Nipers. It contains three sub-programs: “Development of Studies and Curricula”, “Improvement of Cooperation with Social Partners” and “Institutional Development”. The document is available in detail at www.rtk.lv.

The aim of all study programs related to electricity is to prepare specialists for energy and industrial companies with highly developed energy management, agricultural production and processing companies, state and public organizations. Qualification levels and study program volumes (implementation times) are different. In the Electrical Equipment study program created by RTK, we try to prepare middle-level specialists with a very practical orientation in a short period of time (2.5 years). We believe that we are achieving this goal. This is evidenced by our results in the final thesis competitions in the nomination of both qualification papers and engineering projects, the characteristics of trainees provided by employers and the further activity of graduates in the specialty. It should be noted that the graduates of the RTK Electrical Equipment study program are the only graduates of the 1st level professional higher education programs - participants of this competition.

The main tasks of the specialists are related to the maintenance and installation of low-voltage and

medium-voltage electrical installations, management, planning and organization of these works, as well as the ability to develop simple electrical installation projects.

3.2.2. In the case of master's and doctoral study programmes, specify and provide the justification as to whether the degrees are awarded in view of the developments and findings in the field of science or artistic creation. In the case of a doctoral study programme, provide a description of the main research roadmaps and the impact of the study programme on research and other education levels (if applicable).

No master's or doctoral degrees are awarded in the study program.

3.2.3. Assessment of the study programme including the study course/ module implementation methods by indicating what the methods are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. In the case of a joint study programme, or in case the study programme is implemented in a foreign language or in the form of distance learning, describe in detail the methods used to deliver such a study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.

Practical implementation of the study programme (methods and forms of teaching used, use of distance learning).

As part of our study courses we choose and use such methods and forms of teaching that connect the knowledge and skills learnt during previous courses with new knowledge. Because students have different levels of knowledge skills and ability, we use different teaching methods, the suitability of which we check after the completion of individual topics, in accordance with the study course descriptions. We use interactive teaching methods, in which the instructor formulates a goal, recommends the sources of information and offers ways to process information. Students can process this information using their own approaches and at their own pace. Whenever possible, we use a range of audio-visual materials. If the students wish to do so, they may independently prepare reports on the topics important to them (associated with their work and specific courses), which are then defended during workshops. Thus, the students learn to independently find the information they need, and to defend the qualification paper. Improvements in this field have also been noted by the State Qualification Examination Commission.

Course projects (papers) are prepared in specialisation courses such as Industrial Electrical Equipment, Electrical Equipment of Substations, and Business Economics. The purpose of the preparation of the course projects (papers) is to consolidate theoretical knowledge, learn the basic skills of creative research and experimentation, and to assess the knowledge and skills of the students as part of the course in question. A course project (paper) involves the handling of a specific problem, supervised by the instructor of the course. The instructor of the course also assigns the subject and assignment for the course project (paper) to the student. The student may also choose their own subject that is appropriate for the course, as approved by the instructor. This option is relevant because many students combine studies with work in some of Latvia's leading

companies. The student defends the course project publicly, and it is graded on a scale of 10.

Students must strengthen and demonstrate their theoretical knowledge through practical work. This is why the programme includes 2 internships in Latvian companies:

Production/technology internship, 5 credit points (5 weeks) in the 4th semester:

Qualification internship, 11 credit points (11 weeks) in the 5th semester.

Production and qualification internships take place in leading companies in the sector (Latvenergo, LEC, RECK etc.). The internship is managed by a college instructor who supervises its course, preparing internship assignments and providing consultations in conjunction with the expected qualification paper advisor. Thus, the student effectively begins preparing their qualification paper during their internship. At the workplace, the student has an internship supervisor, who is one of the specialists at the company. The student completes an individual assignment during their internship. At the end of their internship, the student submits the internship supervisor their internship report sheet, the feedback of the internship supervisor at the company and a report on the individual assignment. The completion of the internship programme is assessed by the internship supervisor at the college, taking into account the feedback by the supervisor at the company, and the expected qualification paper advisor. This is assessed as a 'pass' or 'fail' without a grade.

At the end of the study programme (end of the 5th semester for full-time, and the 6th semester, for part-time students), the students prepare and defend a **qualification paper**, in accordance with the 'Regulations for the preparation of qualification papers', developed in 2008 and expanded in 2017. It is available on the website of RTC, at www.rtk.lv. The student may choose their own subject for their qualification paper.

The sequence for the preparation of a qualification paper is as follows:

formulating the task;

analysing the problem and choosing the possible solutions;

implementing the task in practice using effective solution technologies;

assessing the results obtained.

The preparation and defence of the qualification paper demonstrates the student's compliance with the knowledge and practical skills required for qualification.

An individual approach towards students is used during the study programme:

If the students wish to do so, they may independently prepare reports on the topics important to them (associated with their work and specific courses), which are then defended during workshops. Thus, the students learn to independently find the information they need, and to defend the qualification paper.

The students may choose their own subjects for course papers, based on the content of the course, as approved by the instructor. This option is relevant because many students combine studies with work in some of Latvia's leading companies.

During their internship, the student carries out their individual assignment, and at the end of the internship submits the internship supervisor their internship report sheet, the feedback of the internship supervisor at the company and a report on the individual assignment.

The student is free to choose their own qualification paper subject.

The defence of these papers takes place on an individual basis, thus enabling an individual approach to the student and allowing feedback.

The overall purpose of the internships is to consolidate and expand the knowledge and skills obtained during the courses, and to prepare for the high-quality preparation of the qualification paper. The goals and objectives of internships are as follows:

1. Production internship

Goals:

gain practical knowledge and skills in the profession of choice;

make a preliminary choice of the subject of the qualification paper and the advisor for it

Objectives:

acquaint oneself with the electrical infrastructure of a company;

learn the technical processes of the work of an electrician and the way this work is organised at the workplace;

learn the structure of electrical equipment, the principles for their operation and the way their operation is organised;

make a preliminary choice of the subject of the qualification paper and the advisor for it;

collect the materials necessary for an internship report, and prepare the report.

2. Qualification internship.

Goals:

Expand practical knowledge and skills in the speciality of choice;

determine the subject of the qualification paper and, in consultation with the advisor, the task of the qualification paper;

familiarise oneself with the possible future job after graduation.

Objectives:

acquaint oneself with the problems associated with the electrical infrastructure of a company;

finalise the subject of the qualification paper;

determine the matters to be covered in the qualification paper;

conduct practical work in accordance with the company's business profile;

describe the work technology used in the internship;

manage the matters of the qualification paper assignment in accordance with the instructions of the advisor.

Production and qualification internships take place at leading companies in the sector in Latvia (AS Latvenergo, SIA LEC, RECK etc.), and in other countries as part of the Erasmus Plus programme. The entirety of the study programme content is geared towards the needs of these specific employers. This is why in terms of its content, the theoretical part matches the practical needs.

All the student groups within the study programme have their own e-mail address that the teaching staff use to post the materials necessary to learn the study courses. Furthermore, students can

send their papers to the e-mail address of the instructor, to receive feedback and consultations. Every year, this method of communication sees more and more use by students, especially during the preparation of term and qualification papers.

Students also have access to the EBSCO and Britannica Academic databases.

3.2.4. If the study programme envisages an internship, describe the internship opportunities offered to students, provision and work organization, including whether the higher education institution/ college helps students to find an internship place. If the study programme is implemented in a foreign language, provide information on how internship opportunities are provided in a foreign language, including for foreign students. To provide analysis and evaluation of the connection of the tasks set for students during the internship included in the study programme with the learning outcomes of the study programme (if applicable).

Students are allowed to find and choose where to serve as interns, and many employers encourage this. In such a case, the college signs a trilateral agreement.

RTC also offers internships within the college, or with an employer selected by the college. The college has partners interested in interns and finding potential employees.

3.2.5. Evaluation and description of the promotion opportunities and the promotion process provided to the students of the doctoral study programme (if applicable).

3.2.6. Analysis and assessment of the topics of the final theses of the students, their relevance in the respective field, including the labour market, and the marks of the final theses.

The topics of the final work are mostly the reconstruction or modernization of power supply objects or new project power supply objects. Accordingly, students offer to apply the most current trends in the field of power supply in the final work projects.

	A-E-3 (Rīgā)	K-E-3 (Kandavā)	L-E-3 (Liepājā)	Kopā
10 (izcili),	3 studenti 13.6%	1 students 10%,	-	4 studenti 11.1%
9 (teicami),	4 studenti 18.2%	2 studenti 20%,	1 students 25%	7 studenti 19.4%
8 (ļoti labi),	8 studenti 36.4%	3 studenti 30%,	2 studenti 50%	13 studenti 36.1%
7 (labi),	6 studenti 27.3%	4 studenti 40%,	1 students 25%	11 studenti 30.6%
6 (gandrīz labi)	1 students 4.5%			1 students 2.8%
Vidējā atzīme:	8.1	8,0	8.0	8.0

3.3. Resources and Provision of the Study Programme

3.3.1. Assessment of the compliance of the resources and provision (study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision) with the conditions for the implementation of the study programme and the learning outcomes to be achieved by providing the respective examples.

The provision of the study direction is sufficient.

There is an equipped electrical engineering laboratory.

Power system automation laboratory.

Programmable controller laboratory.

Laboratory of industrial electrical equipment.

Electrical installation training center.

The library is a structural unit of RTK and works in accordance with internal regulatory enactments. The main task of the library is to provide the study process with the necessary information resources and services in accordance with the requirements of the programs in all specialties. Regular collection inventory, cataloging, informative and bibliographic service of pupils, students, lecturers and employees are performed.

College students have access to libraries and databases of other universities: Riga Technical University, Latvia University of Agriculture and Latvian Maritime Academy.

The EBSCO database and Britannica Academic are also available via the link <http://academic.eb.com>. 2017 An agreement has been concluded with the Cultural Information Systems Center on the use of the EBSCO database in the RTK library. Remote access link: <http://search.ebscohost.com>

An electronic database has been created in the college library.

The reading room (97 m²) has 27 workplaces, 5 computers and a photocopier. Here, pupils, students and teachers have free access to reference editions, the latest editions, and fiction. The library subscribes to 28 publications. There are 2 book collection rooms (193 m²) for textbooks, fiction and periodicals archive, textbooks in technical specialties, methodological materials, Latvian State Standards.

The library staff uses the electronic joint catalog of 9 libraries of national significance. The library uses the Interlibrary Loan (SBA) services of the National Library of Latvia (LNL), Riga Technical University. From 2009, ordering and issuing LNB SBA literature is available electronically. Books and methodological aids in foreign languages are available in the library collection - English, German and Russian.

The annual student surveys show that the students would like more modern and complete material and technical support of the study field. The academic staff involved in the implementation of the study field, the RTK administration and the Council of Industry Experts are also aware of this. Therefore, the material base is constantly replenished and renewed. Specifically 2018-2019. ak.g.

During the 19th century, a “pilot variant” of the Electrical Equipment Laboratory (Mārtiņš Silarājs, employers) was created, which has no analogues in the educational institutions of the Republic of Latvia.

3.3.2. Assessment of the study provision and scientific base support, including the resources provided within the framework of cooperation with other science institutes and higher education institutions (applicable to doctoral study programmes) (if applicable).

3.3.3. Indicate data on the available funding for the corresponding study programme, its funding sources and their use for the development of the study programme. Provide information on the costs per one student within this study programme, indicating the items included in the cost calculation and the percentage distribution of funding between the specified items. The minimum number of students in the study programme in order to ensure the profitability of the study programme (indicating separately the information on each language, type and form of the study programme implementation).

The study program "Electrical Equipment" is implemented in the state language, in person.
Duration of studies - 2.5 years.

Number of state budget places in the program - 80.

The minimum number of students allowed in the program - 18.

The state budget grant from the general revenue for the provision of studies is 1,625,525 euros, of which 391,332.72 euros are provided for the provision of studies in the program “Electrical Equipment”, providing 4891.66 euros per student in the program.

In 2020, 48% of all funding for studies amounted to 3,149,644 euros from the EU structural funds, 0.5% from tuition fees, 1.5% from foreign financial assistance and others.

Of all expenses, 18% were salaries, 45% - fixed capital formation, 7% - goods and services, 30% - employer's mandatory state social insurance contributions, social benefits and compensations.

3.4. Teaching Staff

3.4.1. Assessment of the compliance of the qualification of the teaching staff members (academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants) involved in the implementation of the study programme with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments. Provide information on how the qualification of the teaching staff members contributes to the achievement of the learning outcomes.

The teaching staff within the study program is mostly masters, including 5 doctors (academic degrees).

There are a total of 30 teachers (the number can vary).

Nr.p.k.	Studiju kurss	KP	Vadošais mācībspēks	Akad. amats	Zin. grāds	Pamata vai blakusdarbs	Piesaistītie mācībspēki	Akad. amats	Zin. grāds	Pamata vai blakusdarbs	Piezīmes
1.	Augstākā matemātika	6	Margarita Viskova	Lekt.	Maģ.	Pamata	Elita Kazakēviča, Ingrīda Brokāne	Asist. Asist.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
2.	Fizika	3	Inta Klotiņa	Doc.	Dokt.	Pamata	Ivars Vēciņš, Andrejs Dortiņš	Asist. Asist.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
3.	Angļu valoda	3	Jekaterina Rakovska	Lekt.	Maģ.	Pamata	Aleksandra Pomitkina	Asist.	Maģ.	Blakusdarbs	
4.	Uzņēmējdarbības ekonomika	3	Solvita Martinsons - Liepiņa	Lekt.	Maģ.	Pamata	Dace Rozentāle Olga Iznova	Asist. Asist.	Bc. Maģ.	Blakusdarbs Blakusdarbs	
5.	Vides un civilā aizsardzība	2	Sandra Stūrīte,	Asist.	Maģ.	Pamata	Nikolajs Breners	Doc. Asist.	Dokt. Maģ.	Pamata Blakusdarbs	
6.	Organizāciju psiholoģija	2	Ingrīda Golubeva	Lekt.	Maģ.	Pamata	Sanita Eihmane	Asist. Asist.	Maģ. Bc..	Blakusdarbs Blakusdarbs	
7.	Pētnieciskā darba pamati	1	Ingrīda Golubeva	Lekt.	Maģ.	Pamata	Sanita Eihmane	Asist. Doc.	Maģ. Dokt.	Pamata Blakusdarbs	
8.	Ievads specialitātē	1	Rafails Rauhmanis	Asist.	Bc.	Pamata	Gints Bernics - Berlans, Edvīns Šēpers	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs	
9.	Elektrotehnika un elektriskie mērījumi	8	Laila Zemīte	Doc.	Dokt.	Blakusdarbs	Gints Bernics - Berlans,	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs	
10.	Inženiergrafika	2	Kristiāns Štekelis	Doc..	Maģ.	Pamata	Jānis Vārna	Asist. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
11.	Datormācība	2	Iveta Ulmane	Doc.	Maģ.	Pamata	Uldis Lukss Vineta Vēze	Asist. Lekt.	Maģ.	Blakusdarbs Blakusdarbs	
12.	Elektriskās mašīnas	2	Rafails Rauhmanis	Asist.	Bc.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs	
13.	Elektropiedziņa	2	Juris Silarājs	Doc.	Maģ.	Pamata	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs	
14.	Elektriskie tīkli	3	Juris Silarājs	Doc.	Maģ.	Pamata	Gints Bernics - Berlans	Asist.	Bc.	Blakusdarbs	
15.	Elektromontāža	2	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs	
16.	Rūpniecību elektroiekārtas	3	Andrejs Bubovičs	Asist.	Maģ.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs	
17.	Apgāismes ietaises	1	Andrejs Bubovičs	Asist.	Maģ.	Pamata	Arīlds Zibiņš Nikolajs Breners	Lekt. Doc.	Maģ. Dokt.	Blakusdarbs Blakusdarbs	
18.	Apakšstacijas elektroiekārtas	4	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs					
19.	Rūpniecību automātikas elementi	3	Jevgeņijs Kozadajevs	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš Veronika Platkova	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
20.	Enerģosistēmas automātika	3	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs					
21.	Elektriskās piedziņas automātika	2	Juris Silarājs	Doc.	Maģ.	Pamata					
22.	Pārvades elektriskie tīkli	2	Mārtiņš Silarājs	Doc.	Dokt.	Blakusdarbs					
23.	Elektroapgāde	6	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Gints Bernics - Berlans	Asist. Doc.	Bc. Dokt.	Blakusdarbs Blakusdarbs	
24.	Darba aizsardzība un ugunsdrošība	2	Nikolajs Breners	Doc.	Dokt.	Pamata					
25.	Elektroiekārtu ekspluatācija un ekspluatācijas organizācija	3	Nikolajs Breners	Doc.	Dokt.	Blakusdarbs	Arīlds Zibiņš	Lekt.	Maģ.	Blakusdarbs	
26.	Elektrodrošība	2	Nikolajs Breners	Doc.	Dokt.	Pamata	Arīlds Zibiņš Uldis Žaimis	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs	
27.	Datoru izmantošana projektēšanā enerģētikā	2	Andrejs Bubovičs	Lekt.	Maģ.	Blakusdarbs	Andrejs Bubovičs	Lekt.	Maģ.	Blakusdarbs	
28.	Sports	0	Gunārs Ruža	Asist.	Maģ.	Pamata	Juris Fomins Ieva Bubiere	Asist. Asist.	Bc. Bc.	Blakusdarbs Blakusdarbs	

29.	Ražošanas tehnoloģiskā prakse	5	Nikolajs Breners	Doc.	Dokt.	Pamata	Gints Bernics – Berlans Arturs Turlajs	Asist. Lekt.	Bc. Maģ.	Blakusdarbs Blakusdarbs
30.	Kvalifikācijas prakse	11	Nikolajs Breners	Doc.	Dokt.	Pamata	Ariids Zibiņš Arturs Turlajs	Lekt. Lekt.	Maģ. Maģ.	Blakusdarbs Blakusdarbs

3.4.2. Analysis and assessment of the changes to the composition of the teaching staff over the reporting period and their impact on the study quality.

During the reporting period, one doctor was hired as a visiting docent (Jevgenijs Kozadajevs) and one starts full-time work at RTK (Nikolajs Breners).

Faculty members with extensive experience and cold scientific qualifications increase the quality of studies, both in supervised subjects and well influenced by the quality of the work of other faculty members.

Guest assistant Andrejs Bubovičs has started working as a lecturer, teaches the subject "Lighting equipment", "Factory electrical equipment", "Use of computers in energy". Leading engineer with extensive practical experience. Master.

Two guest doctors have been hired:

Jevgeny Kozodayev,

Laila Zemite.

3.4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of doctoral study programme, as published during the reporting period by listing the most significant publications published in Scopus or WoS CC indexed journals. As for the social sciences, humanitarian sciences, and the science of art, the scientific publications published in ERIH+ indexed journals or peer-reviewed monographs may be additionally specified. Information on the teaching staff included in the database of experts of the Latvian Council of Science in the relevant field of science (total number, name of the lecturer, field of science in which the teaching staff has the status of an expert and expiration date of the Latvian Council of Science expert) (if applicable).

3.4.4. Information on the participation of the academic staff, involved in the implementation of the doctoral study programme, in scientific projects as project managers or prime contractors/ subproject managers/ leading researchers by specifying the name of the relevant project, as well as the source and the amount of the funding. Provide information on the reporting period (if applicable).

3.4.5. Assessment of the cooperation between the teaching staff members by specifying the mechanisms used to promote the cooperation and ensure the interrelation between the study programme and study courses/ modules. Specify also the proportion of the number of the students and the teaching staff within the study programme (at the moment of the submission of the Self-Assessment Report).

Most instructors teach courses in a number of fields of study, and in other educational institutions. Heads of programmes and fields of study collaborate and are as supportive as possible in what pertains to the growth and opportunities of the teaching staff.

Annexes

III - Description of the Study Programme - 3.1. Indicators Describing the Study Programme		
Sample of the diploma and its supplement to be issued for completing the study programme	Diploms.zip	Diploms.zip
For academic study programmes - Opinion of the Council of Higher Education in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions (if applicable)		
Compliance of the joint study programme with the provisions of the Law on Higher Education Institutions (table) (if applicable)		
Statistics on the students in the reporting period	Studeejosho statistika_EN.docx	Studeejosho statistika.docx
III - Description of the Study Programme - 3.2. The Content of Studies and Implementation Thereof		
Compliance with the study programme with the State Education Standard	P6_EN.docx	P6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard or the requirements for professional qualification (if applicable)	P7_EN.docx	P7.docx
Compliance of the study programme with the specific regulatory framework applicable to the relevant field (if applicable)		
Mapping of the study courses/ modules for the achievement of the learning outcomes of the study programme	Kartejums_EN.docx	Studiju kursu kartējums EL.docx
The curriculum of the study programme (for each type and form of the implementation of the study programme)	Rik_izmainas_elektriskas_iekartas.pdf	Rik_izmainas_elektriskas_iekartas.pdf
Descriptions of the study courses/ modules	Kursu_apraksti_1.zip	Kursu_apraksti_1.zip
Description of the organisation of the internship of the students (if applicable)	Mācību prakses organizēšana08092021134628.pdf	Mācību prakses organizēšana08092021134628.pdf
III - Description of the Study Programme - 3.4. Teaching Staff		
Confirmation that the academic staff of the doctoral study programme includes not less than five doctors, of which at least three are experts approved by the Latvian Council of Science in the branch or sub-branch of science in which the study programme intends to award a scientific degree (if applicable)		
Confirmation that the academic staff of the academic study programme complies with the requirements specified in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions (if applicable)		