

## APPLICATION

Study field "Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering" for assessment

Study field	<i>Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering</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 "Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering"

Profesionālās izglītības kompetences centrs "Rīgas Tehniskā koledža"

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# I - Information on the Higher Education Institution/College

## 1.1. Basic information on the higher education institution/ college and its strategic development directions, including the following information:

### 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 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.

<b>Fields of study</b>	<b>Study programme code, level-one vocational higher education study programme</b>
------------------------	--

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.

[1]

<https://likumi.lv/ta/id/153846-profesionalas-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

**1.2. Description of the management 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.

### **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, as well as the stakeholders involved in the development and improvement of the quality assurance system and their role in these processes.**

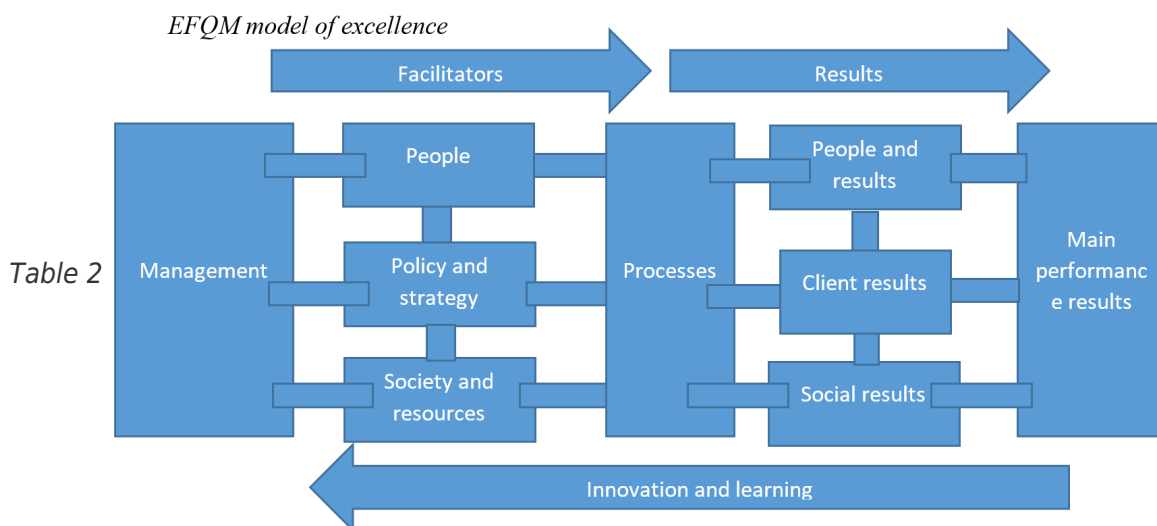
## 1. RTC quality policy and the mechanism for its execution

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.



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

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

**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 21 of the Law on Institutions of Higher Education 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 evidence for the full compliance, partial compliance or non-compliance.**

1.	The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.	Complies  Annual student, instructor and employer surveys. Timely identification and elimination of problems. Conception of the strategy: <a href="https://rtk.lv/?sadala=203">https://rtk.lv/?sadala=203</a> In additional document.
2.	A mechanism for the creation and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof has been developed.	Complies  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." <a href="https://muu.rtk.lv/pluginfile.php/21104/mod_resource/content/0/k%C4%81t%C4%81d%C4%81z0tiek%20lstr%C4%81d%C4%81s%20un%20pstprin%C4%81s%20iesnieg%C5%A1anal%20studiju%20programmas.pdf">https://muu.rtk.lv/pluginfile.php/21104/mod_resource/content/0/k%C4%81t%C4%81d%C4%81z0tiek%20lstr%C4%81d%C4%81s%20un%20pstprin%C4%81s%20iesnieg%C5%A1anal%20studiju%20programmas.pdf</a>
3.	The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and made public.	Complies  Governed by the internal 'Regulations on the principles and procedures for evaluating vocational higher education'. <a href="https://muu.rtk.lv/pluginfile.php/21911/mod_resource/content/0/Noteikum%20par%20augst%C4%81k%C4%81s%20profes%C4%81n%C4%81s%20izg%C4%81t%C4%81t%C4%81s%20v%C4%81s%20pamatprincipiem%20un%20k%C4%81rt%C4%81rt%C4%81rt%C4%81rt.pdf">https://muu.rtk.lv/pluginfile.php/21911/mod_resource/content/0/Noteikum%20par%20augst%C4%81k%C4%81s%20profes%C4%81n%C4%81s%20izg%C4%81t%C4%81t%C4%81s%20v%C4%81s%20pamatprincipiem%20un%20k%C4%81rt%C4%81rt%C4%81rt%C4%81rt.pdf</a>
4.	Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.	Complies  To get permanently high and oriented on newest technologies and tendencies based education. Complex of actions for qualification maintenance in academical stuff. <a href="https://muu.rtk.lv/pluginfile.php/18841/mod_resource/content/1/Doc%C4%93t%C4%81ju%20kgad%C4%93t%C4%81s%20darba%20kvall%C4%81tes%20izv%C4%93rt%C4%93t%C5%A1anas%20k%C4%81rt%C4%81rt%C4%81rt.pdf">https://muu.rtk.lv/pluginfile.php/18841/mod_resource/content/1/Doc%C4%93t%C4%81ju%20kgad%C4%93t%C4%81s%20darba%20kvall%C4%81tes%20izv%C4%93rt%C4%93t%C5%A1anas%20k%C4%81rt%C4%81rt%C4%81rt.pdf</a>
5.	The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available, and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.	Complies  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.  Information is available in RTK yearbooks, homepage.
6.	The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their quality assurance systems.	Complies  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.  See the annex - Study Program Board

## II - Description of the Study Direction (1. Management of the Study Direction)

**1.1. Economic and/or social grounds for the creation of the study direction and the relevant study programmes, the assessment of the interrelation among the study programmes, as well as the analysis of the significance (singularity) of the study programmes in comparison with other similar study programmes in Latvia and abroad.**

The programmes taught within the fields of study are orientated towards achieving Latvia's sustainability goals.

Given the development trends in the industry, it is critical to follow the industry and education goals and plans:

- the United Nations Sustainable Development Goals become a Standard: health; quality of education; clean energy; economic growth; development of industries, innovations and infrastructure; sustainable cities and territories; responsible production and consumption; climate protection; partnerships to achieve goals.
- Green Deal and EU climate goals: become climate-neutral by 2050; the European Climate Pact to include citizens and all of the general public in climate measures; the 2030 EU climate plan, as part of which there are already proposals to increase the target GHG reduction by 55%, with a plan to phase out fossil fuels and achieve a renewables proportion in consumption of up to 38%, also developing the field of circular economy.
- The 2021–2027 Latvian National Development Plan has the following principles:
- Knowledge and skills for personal and national growth: science for social development, economic growth and security; high-quality, accessible, inclusive education; quality of education and effective management of the education system; education for economic growth; adult education; inclusive education environment.
- Competitiveness and financial well-being of companies: productivity and innovation.
- High-quality living environment and development of territories: nature and environment, the Green Deal; technological environment and services (accessible, innovative and energy-efficient energy supply solutions leading to more self-reliance and decentralised production of energy).
- The dimensions of the 2021–2030 National Energy and Climate Plan are:
- decarbonisation; energy efficiency; renewable energy; energy security; educational services for the public; transport; expansion of the energy transmission infrastructure and development of new areas; research and innovations, etc.

A comparison of the goals of the field of study with the Latvian Sustainable Development Strategy shows that the field of study strengthens the main capital of Latvia, namely, the development of human abilities, knowledge and talents, creativity and ability to collaborate, by educating young people and enabling them to join both the local and the global job market.

The field of study is considered promising from the viewpoint of both the goals of higher education in Latvia, and the fields of activity specified in the 2020–2025 National Development Plan.

A number of courses at RTC were created taking into account the preferences and recommendations of employers, appropriate for the specialists in question on the Latvian and European job market.

A comparison with similar study programmes in Latvia shows that Mechatronics specialists have been trained at the Vidzeme University of Applied Sciences, as part of its 'Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Control and Computer Science', since 2008; the duration of the study programme there is 2 years (80 credits).

The duration of the RTC study programme is 2.5 years, because of the longer internships at the college and in businesses, as recommended by employers.

Mechanical Engineering specialist and level-one vocational higher education training in the fields of Refrigeration Engineering and Heat Power Engineering does not take place in any other universities and colleges in Latvia.

A Road Transport study programme is taught at Malnava College.

The field of study includes study programmes intended to train specialists capable of performing work in accordance with the requirements of applicable professional standards associated with the identification of problems, decision-making, formulation of goals, planning and execution of strategies and tactical approaches to achieve these goals, so that the specialists can find and keep a respectable job and be able to support themselves and their families, at the same time contributing to the development of the country; all of this requires a set of various competences, knowledge and attitudes. Lifelong development of competences promotes the improvement of the work productivity of a person in accordance with the needs of the job market.

The overall goals of the 'Mechanical engineering and metalworking, heat power engineering, heating equipment and machine studies' field of study are as follows:

- Educate specialists with level-one general education degrees in mechanical engineering and metalworking, heat power engineering, heating equipment and machine studies for the needs of the country
  - Provide high-quality learning, so that young specialists that complete the study programme in the speciality of their choice have professional knowledge that can be applied in practice and that meet the professional standard, are capable of competing in the professional environment in Latvia and abroad, are motivated to grow professionally and continue their education in the single European education area, are competent and promote the development of manufacturing and other industries in the country
  - Provide a study process that enables graduates to use the knowledge, skills and competences they learnt at the college in achieving professional success and be remunerated competitively
- Mutually beneficial cooperation increases the presence of RTC in tackling the regional development problems relevant to the regions.

RTC actively collaborates with other universities and colleges in Latvia and abroad.

In accordance with these general goals, the college has set its strategic objectives:

- provide high-quality level-one vocational higher education studies, preparing motivated and competitive specialists for the Latvian and European job market;
- improve and develop the studies and research taking place at the college.

Based on the economic growth and demographic situation scenarios, the Ministry of Economics has prepared forecasts for the supply and demand of workforce.<sup>[1]</sup> By 2027, the number of economically active population will fall both across the board, and in the 25–34 and 45–64 age groups; however, it will increase in the 35–44, 15–24 and 65–74 age groups (the latter two do not have a significant impact on the supply of workforce). The proportion of people with higher education degrees, and with only primary education or less will rise, while the number and proportion with secondary education (including secondary vocational education) will fall.<sup>[2]</sup>

The information report on mid- and long-term job market predictions for Latvia prepared by the Ministry of Economics clearly show an expectation of a lack of middle-level specialists. Specific measures to combat the shortage of highly qualified workforce with education in STEM fields are emphasised, such as expanding the provision of STEM education as part of level-one vocational higher education (in colleges) and STEM education for adults in higher education institutions, with the goal of updating and expanding knowledge in their speciality, and providing opportunities for people with higher education degrees to change their speciality. As measures to reduce the shortage of middle-qualification workforce<sup>[3]</sup>, the information report mentions promoting lifelong

education among graduates of vocational education institutions, strengthening the synergy between vocational secondary education programmes and level-one vocational higher education study programmes in colleges, and between college study programmes and the corresponding bachelor study programmes in universities. In a number of fields and industries today in Latvia, the situation is that colleges are the only education institutions where students can get appropriate professional qualifications and higher education degrees.

*Workforce supply and demand forecast for 2027, broken down by groups of study subjects*

Table 3

Education field	Education level	Demand in 2027 (in thousands)	Supply in 2027 (in thousands)	Supply/demand ratio, %
Natural Sciences, Mathematics and Information Technology	Higher education	29.1	23.7	123
Engineering Studies, Manufacturing and Construction	Higher education	64.2	55.9	115
Natural Sciences, Mathematics and Information Technology	Vocational secondary education	5.5	4.3	128
Engineering Studies, Manufacturing and Construction	Vocational secondary education	140.6	115.6	122

*Workforce supply and demand forecast for 2027, broken down by individual groups of professions<sup>[4]</sup>*

Table 4

Vidējais pieprasījums Kopā	94
21 Zinātnes un inženierzinātņu jomas vecākie speciālisti	100
25 Informācijas un komunikācijas tehnoloģiju jomas vecākie speciālisti	108
31 Zinātnes un inženierzinātņu speciālisti	102
35 Informācijas tehnoloģiju speciālisti	108
71 Būvnieki un tiem radniecīgu profesiju strādnieki (izņemot elektrikus)	108
72 Metālapstrādes, mašīnbūves un tām radniecīgu jomu strādnieki	103
74 Elektrisko un elektronisko iekārtu strādnieki	112
75 Pārtikas produktu pārstrādes un kokapstrādes strādnieki un amatnieki	108
81 Rūpniecisko iekārtu operatori	105
82 Montieri	102
83 Pašgājēju mašīnu un iekārtu vadītāji un ceļšanas iekārtu un mašīnu operatori	104

Average demand Total

21 Senior specialists in scientific and engineering fields

- 25 Senior specialists in information and communication technology fields
- 31 Specialists in scientific and engineering fields
- 35 Information technology specialists
- 71 Builders and workers in associated professions (except for electricians)
- 72 Workers in metalworking, mechanical engineering and related fields
- 74 Workers operating electrical and electronic machinery
- 75 Workers and artisans in food processing and wood processing
- 81 Industrial machinery operators
- 82 Electricians
- 83 Self-propelled machinery and device drivers, and lifting device and machine operators

Given the number of people who graduated from educational institutions in 2019, and provided that the structure of graduates does not change significantly, in 2027, there will be a deficit of 14,000 specialists with a university degree and 40,000 specialists with secondary vocational education in STEM fields; forecasts show that there will be a surplus of individuals not continuing their education after completing primary or secondary education, and those with higher education in other (non-STEM) fields, especially highly-qualified specialists in social sciences and humanities.'

The deficit of workers with vocational education is expected in almost all fields. It is to be the biggest in the fields associated with engineering, manufacturing and construction, such as mechanical engineering, metalworking, mechanics, food and textile technology and production, wood-processing and manufacturing. The lack of engineering, manufacturing and construction specialists with secondary education could be as high as 25 thousand by 2027.

The Ministry of Education forecast shows that all of the study programmes taught at RTC will provide graduates with good prospects on the job market, because by 2027, the demand for workforce in the corresponding fields of education will exceed the supply. A similar conclusion about what specialists trained by RTC expect on the job market can be drawn on the basis of the predicted workforce supply and demand ratios in the corresponding professions for 2027.

Prakse.lv and the Employers' Confederation of Latvia have praised RTC and it took first place among the colleges of the 2021 rating of top schools and studies recommended by employers. 2652 employers have provided their evaluations this year. <https://www.rtk.lv/?zina=8491>

[1] On mid- and long-term job market predictions. Information report. Riga: ME, 2020.

[2] Ibid. pp. 61-62.

[3] [https://em.gov.lv/files/tautsaimniecibas\\_attistiba/dsp/EMZino\\_06072018\\_full.pdf](https://em.gov.lv/files/tautsaimniecibas_attistiba/dsp/EMZino_06072018_full.pdf)

[4] Ibid. pp. 114-115.

## **1.2. Aims of the study direction and their compliance with the scope of activities of the higher education institution/ college, the strategic development directions, as well as the needs and the development trends of the society and the national economy.**

The programmes taught within the fields of study are orientated towards achieving Latvia's sustainability goals.

Given the development trends in the industry, it is critical to follow the industry and education goals and plans:

- the United Nations Sustainable Development Goals become a Standard: health; quality of education; clean energy; economic growth; development of industries, innovations and infrastructure; sustainable cities and territories; responsible production and consumption; climate protection; partnerships to achieve goals.
- Green Deal and EU climate goals: become climate-neutral by 2050; the European Climate Pact to include citizens and all of the general public in climate measures; the 2030 EU climate plan, as part of which there are already proposals to increase the target GHG reduction by 55%, with a plan to phase out fossil fuels and achieve a renewables proportion in consumption of up to 38%, also developing the field of circular economy.
- The 2021–2027 Latvian National Development Plan has the following principles:
- Knowledge and skills for personal and national growth: science for social development, economic growth and security; high-quality, accessible, inclusive education; quality of education and effective management of the education system; education for economic growth; adult education; inclusive education environment.
- Competitiveness and financial well-being of companies: productivity and innovation.
- High-quality living environment and development of territories: nature and environment, the Green Deal; technological environment and services (accessible, innovative and energy-efficient energy supply solutions leading to more self-reliance and decentralised production of energy).
- The dimensions of the 2021–2030 National Energy and Climate Plan are:
- decarbonisation; energy efficiency; renewable energy; energy security; educational services for the public; transport; expansion of the energy transmission infrastructure and development of new areas; research and innovations, etc.

A comparison of the goals of the field of study with the Latvian Sustainable Development Strategy shows that the field of study strengthens the main capital of Latvia, namely, the development of human abilities, knowledge and talents, creativity and ability to collaborate, by educating young people and enabling them to join both the local and the global job market.

The field of study is considered promising from the viewpoint of both the goals of higher education in Latvia, and the fields of activity specified in the 2020–2025 National Development Plan.

A number of courses at RTC were created taking into account the preferences and recommendations of employers, appropriate for the specialists in question on the Latvian and European job market.

**1.3. SWOT analysis of the study direction 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 direction 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 direction for the next assessment period shall be provided.**

### **Strengths:**

- Option to continue studies at a higher level of education;
- Quality is assured based on the recommendations of students, graduates and employers, in conjunction with professional industry associations;
- Ability to actively react to industry changes and the needs of the labour market, updating the study programme accordingly;
- Good collaboration with RTU, LULST, Latvian Maritime Academy, Daugavpils University in terms of hiring academic staff, using study laboratories and sharing teaching materials;
- Social partners participate in the study process, actively providing high-quality feedback and making it possible to critically assess the content and quality of study courses and internship;
- Departments employ instructors and assistants of different ages (40%, in the 35 to 40 range).
- Extensive, sustainable, long-term international collaboration, with partnership agreements and projects in progress:
- Use of the opportunities offered by the EU Lifelong Learning Programme Erasmus sub-programme for mobility and cooperation in higher education;
- Measures to boost the skills of the academic staff;
- Participation in international competitions;
- Participation of the students and academic staff in various projects and events;
- Instructors engaging in doctoral studies;
- Upgrading and expansion of laboratory equipment as part of the RTC STEM project.

### **Weaknesses:**

- Necessity for regular equipment updates, which involves significant costs;
- Research-related inertia among the academic staff;
- Staff lacking motivation in improving their foreign language skills that

would encourage them to actively participate in the international academic circle and collaborate in the development of study programmes;

- Student candidates seeking to study in a field that guarantees state-paid tuition, regardless of interests;
- Unclear attitude of the government in matters of education;
- Financial condition of the students' families (difficulty combining work and studies, families leaving to work abroad, family unemployment).

### **Threats:**

- Number of state-paid tuition positions falling every year, and given the economic situation in Latvia, there are fewer students who can afford to pay tuition;
- Influence of policy, legislation and external decisions on the future of the institution, its limited capacity to plan its own development and make its own decisions;
- Demand for narrowly specialised experts among employers;
- Low amount of government scholarships provided to students;
- Non-competitive wages in Latvia;
- Wages offered to new instructors are not sufficient to cover the needs of young families.

### **Opportunities**

- Continue improving the study programme;
- Promote research activities among the academic staff and the students;

- Develop new teaching materials (including digital ones), update current ones;
- Involve employers in the study process more actively and effectively;
- Conduct internal audits of the quality of studies through student and employer surveys;
- Develop study programmes taught in English;
- As part of the development of the Riga Technical College vocational education competence centre, its equipment may be used beyond the training of students;
- See opportunities for upgrading and expanding the equipment available to the institution, involving employers and professional associations in the process;

Update the content of study courses to match changes in professional standards.

**1.4. The structure of the management of the study direction and the relevant study programmes, and the analysis and assessment of the efficiency thereof, including the assessment of the role of the director of the study direction 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 direction.**

The Study Division conducts the strategic management of fields of studies and study programmes, as well as the supervision and monitoring of work activities.

The management of study programmes as part of the *'Mechanical engineering and metalworking, heat power engineering, heating equipment and machine studies'* field of study and the teaching of the study programmes in accordance with applicable laws and regulations is ensured by the head of the programmes.

The head of study programmes organises the development and updating of specific study programmes within fields of study in accordance with the Law on Higher Education Institutions and national education standard, prepares the approval of study programme descriptions by the college council, prepares documents for the licensing of study programmes and accrediting the field of study in accordance with Cabinet Regulations.

The head of study programmes prepares reports on activities during the previous academic year, drafts a report on improving the activities within the field of study and the study programme, and submits these reports for assessment at the department and approval by the council.

In conjunction with department heads, the head of study programmes organises the preparation of study course descriptions in accordance with the Law on Higher Education Institutions, consulting the instructors as part of this activity, assesses the compliance of the structure and content of study courses with the requirements of internal and external regulations.

In conjunction with department heads, the head of study programmes sets rates for instructors, prepares the study process schedule, determines the compatibility of the scope, content and evaluation of courses taught in other higher education institutions with the corresponding study programme, prepares reports on the study opportunities for interested individuals, and provides consultations on and prepares documents submitted by individuals for the recognition of study results achieved through prior education or professional experience, and forwards the documents to the Study Division for assessment.

The Study Division plans and coordinate the execution of the study programmes of the field of

study. The Study Division prepares and maintains a database on the students, study programmes, analysing student performance as part of the study programme. The head of the department and the head of the study programme foster the advanced training and improvement of professional skills among the teaching staff. The study programme directorate works in conjunction with the head and deputy heads. The council decides on the establishment, reorganisation or dissolution of departments.

A department represents a certain sub-programme/specialisation or profile defined within the field of study, and comprises all of the academic staff involved in conducting the study courses within the competence of the department, any invited instructors, as well as the students. Department heads are in charge of departments, responsible for ensuring that the tasks of the unit are performed in due manner, and that the resources available to the unit are used in an efficient and purposeful way. Department heads ensure the preparation of study course descriptions, preparation of work schedules for individual classes as part of study courses for students (professional specialisation study courses and teaching/assistance internships); in collaboration with heads of study programmes, they prepare study course contact hour resources for every academic years, set payment rates, compile lists of students taught as part of specific courses and inform the instructors accordingly, approve candidates for the positions of guest instructors, inform instructors at their departments about the requirements and procedure for organising the teaching of study course content, as well as the criteria, formats, types and methods for testing student competence, involve instructors in work performance self-assessments, ensure the objective evaluation of studies and creative activities, participate in evaluating the competence of students and prospective students as part of learning the study programme and the final tests within the study programme or study course, ensure that the content of study courses is taught in due manner, allocate funding for providing the equipment necessary to teach study courses, monitor and are responsible for the quality of the teaching of study courses, for professional career growth of the academic staff, for the progress and quality of learning the study programmes, for conducting tests, collaborate with the heads of other units at RTC, higher education institutions in Latvia and abroad, professional organisations in what pertains to teaching the study programmes/study courses.

Department heads report on their work to the RTC council. The head of the study programme reports on the study programme they are in charge of, providing a self-assessment that is included in the self-assessment for the field of study.

The following RTC units and partners participate in conducting study programmes:

General Studies and Management Studies Department;

Road Transport and Production Technology Department;

Information and Communication Technology Department.

Riga Technical University and other higher education institutions.

Industry associations

The departments are in charge of providing the theoretical and internship for the study course in question.

The following RTC auxiliary staff is involved in conducting study programmes: Study Division, teaching workshops for internships, Research and Method Development Division, Study Process Development Assurance Division, library, information centre, Accounting Division, student residence, cafeteria.

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.

**1.5. 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 the study period, professional experience, and the options for the students to have their previously acquired formal and non-formal education recognised within the study direction 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 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) (<http://www.rtk.lv/?sadala=132>); the e-mail address for admissions is: [uznemsana@kcrtk.lv](mailto: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](http://www.rtk.lv).

**1.6. 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.**

## **Assessment of the methods and procedures used in the evaluation of student performance**

The evaluation of student knowledge complies with Cabinet Regulation No. 141 on the national standard for level-one vocational higher education of 20 March 2001, Republic of Latvia Ministry of Education and Science Order No. 208 of 14 April 1998, and RTC decisions.

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](http://www.rtk.lv). Regular completion of study courses is encouraged by the participation in the colloquia and workshops included in the study programmes, as well as the development and defending of practical projects.

One of the key principles of evaluation is the principle of aggregating positive achievements.

Duties:

- foster the responsibility of students for the outcome to be achieved as part of the study process;
- motivate students to improve their academic performance through self-assessment;
- introduce necessary study process corrections to improve results.

To enable successful completion of the course, the students are familiarised with its content and assessment criteria. The evaluation as part of a study course takes place as the student fulfils the requirements set in the course programme. The expected learning outcomes are clearly presented; problem-solving skills are also developed in practical ways. Particular attention is paid to one of the most common study methods: case studies using factual information about local and foreign businesses.

The objectives of term papers and qualification papers include a comparison of various solutions/variants/opportunities with expected results, with the practical development of problem-solving skills.

Academic staff consultations and assistance are provided to students, with inspections of intermediate results, in order to ensure the achievement of the results of the study programme within the intended time, and increase the motivation to study.

Prior preparation of students is important when they begin a study course. The admission of students takes place in accordance with the 'Admission procedure' developed by RTC, in accordance with Sections 45, 46 and 83 of the Law on Higher Education Institutions.

Students may choose the topics of independent projects and research reports based on the problems they find relevant (if the student works in an appropriate company). During the presentation of their paper, other students are also able to familiarise themselves with the specific factories and companies in the industry.

This is why different forms of study are emphasised as part of the work: work in small groups, preparation of study papers and research projects, discussions in groups, and public defence of projects.

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 study programme qualification, taking the changing requirements of the job market into account, because changes enable the sustainability of the study programme.

The evaluation of activities takes place as part of the teaching process, through regular tests, and using traditional forms of evaluation: exams, final tests, term papers. The currently used grading system matches that of the other state educational institutions and complies with the evaluation system requirements specified in Cabinet Regulation No. 2 'Regulations for the national standard of academic education'.

Instructors keep records of students in attendance.

Principles for evaluating student academic performance:

- adding of positive achievements;
- mandatory nature of the evaluation;
- variety of evaluation forms;
- transparency and clarity of evaluation criteria;
- compliance of the content of the examination with the content of the study programmes.

The purpose of student result evaluation and self-evaluation is improving the results. This is done with a specific goal, based on criteria known to the academic staff and the students. The testing methods, forms and assessment criteria are determined by the study course developer, based on the specific nature of the course.

Students take study course exams based on their study schedule. During the exam period, no more than 2 exams may take place per week. In disciplines that include term papers, laboratory or practical assignments, the student prepares reports and defends them. For defended term papers, the student receives a grade on a scale of 10; for practical assignments, a pass/fail grade.

As part of certain activities within the study programme and during internships, a two-level grading system is used:

'pass' or 'fail'.

For every completed study course and internship, one receives credits, provided that they receive a grade (using the 10-scale) that is equal to or higher than 4 ('almost satisfactory'), or a 'pass'.

As part of the Mechanical Engineering study programme, the knowledge of the students is assessed twice an academic year, during winter and spring exam periods.

The minimum volume of the study subject eligible for setting up an exam is 2 credits.

The students take the examinations included in the study programme in oral or written form. The examinations are based on prepared examination questions, or take the form of a test.

Students are informed about the form and requirements of the final examination for the study course at the beginning of the study course.

Process-orientated assessment is performed during the learning of the study content, in order to compare the expected student knowledge descriptions with real results. An important condition is acquainting the students with the expected result, with methods for analysing the results, the arguments used to justify conclusions on the main deficiencies and weaknesses in the students' papers, and the possible causes for such deficiencies. As a result, both the instructors and the students develop the ability to learn and organise information, to process it and to derive new knowledge from it, also encouraging the inclusion of the students in the responsibility for their own academic performance, and their compliance with the goals and objectives set as part of the study courses. An assessment of the results achieved as part of internships is carried out during every internship, with assessment criteria and documents that must be filled in during internships.

The completion of the internship programme is evaluated on a two-level scale ('pass' or 'fail'). The persons in charge of internships in companies and at the college handle the evaluation.

At the end of the programme, the students take a final state examination: a qualification exam, which is graded on a 10-point scale and includes the defence of a qualification paper.

A student that completes the study programme and passes the final state examination, with a grade of no less than 4 (almost satisfactory), receives a level-one vocational higher education diploma.

### *Description of knowledge and skill evaluations*

*Table 9*

Grade number and name		Knowledge and skill level
10	with distinction	Knowledge and skills in excess of the study course requirements, implying talent and creativity.
9	excellent	Complete fulfilment of study course requirements, ability to independently use what has been learnt, creativity in approach.
8	very good	Complete fulfilment of study course requirements, occasional lack of ability to independently use what has been learnt and develop it.
7	good	Study course requirements fulfilled; however, there are individual minor deficiencies in the knowledge and skills.
6	almost good	Study course requirements fulfilled; however, performance in certain important areas of the knowledge and skills is insufficiently stable or convincing.

5	satisfactory	Study course requirements largely fulfilled, despite insufficient stability and performance in a number of important areas of the knowledge in skills.
4	almost satisfactory	Study course requirements largely fulfilled, despite insufficient command and significant gaps in a number of important areas of knowledge in skills.
3	poor	The knowledge and skills taught as part of the study course acquired superficially, without the ability to use them in practice.
2	very poor	Only individual items of knowledge and skills learnt; no understanding of the requirements of the study course overall.
1	very, very poor	No understanding of the nature of the study course.

In order to make it possible to use the ECTS evaluation system as part of international cooperation, the procedure for the comparison of the two systems is used.

### *Competence evaluation comparison with ECTS*

Table 10

Performance level	Grade	Explanation	Approximate ECTS grade
very high	10	izcili (with distinction)	A
	9	teicami (excellent)	A
high	8	ļoti labi (very good)	B
	7	labi (good)	C
average	6	gandrīz labi (almost good)	D
	5	viduvēji (satisfactory)	E
	4	gandrīz viduvēji (almost satisfactory)	E/FX
low	3-1	negatīvs vērtējums (unsatisfactory)	Fail

### **Rights and duties of the student**

Rights:

- Obtain information about the testing procedure, the evaluation content and criteria;
- Demonstrate own knowledge and skills, freely demonstrate own competence;
- Receive an objective evaluation based on the content requirements of the study programme or course in question;
- Receive an explanation for competence evaluations;

- Right to equal testing conditions;
- Submit appeals if a breach of the student's rights is found.

Duties: comply with the procedure and requirements of the test.

### **Rights and duties of the examination committee (instructor)**

Rights:

- To ask additional questions after an answer by the student, to elaborate on the content on the answer;
- Not to accept the demonstration of competence by a student if the student has failed to comply with the examination procedure and requirements;
- To request the student to provide a written explanation of the breaches of examination procedures and requirements found.

Duties:

- To provide information about the procedure of the examination;
- To make it possible for the student to demonstrate their own knowledge and skills, freely demonstrate their own competence;
- To objectively assess the competence of the student, in accordance with the requirements of the study course;
- To provide an explanation for the evaluation of competence to the student;
- To provide equal examination conditions to all students;
- To report any violations found during the examination to the vice-rector for academic affairs;
- To immediately inform the vice-rector for academic affairs of any possible conflicts of interest or the possibility of a breach of ethical standards.

The grading criteria for student promotion are available on the website MOODLE: [Kurss: RTK normatīvie dokumenti](#)

### **1.7. Description and assessment of the academic integrity principles, the mechanisms for the 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.

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

On January 10, 2020 (No. 1.1-40 / 1), the Vocational Education Competence Center "Riga Technical College" (hereinafter - the College) has signed an AGREEMENT on the connection of the educational institution with the plagiarism control system with the University of Latvia. Unified computerized plagiarism control system - a set of technical, methodological and organizational elements for the examination of the work of university students against the work of students and other documents already accumulated in universities. The College uses a single computerized plagiarism control system to screen all qualifications that are being defended. The development of qualification papers is led by the supervisor and controlled by the director of the study program. All developed qualification papers are handed over to the control of plagiarism before the order is prepared for their defense at the State Examination Commission. The qualification papers are compared in the category "Bachelor's and Master's theses - RTK Engineering, IT, woodworking, logistics" with the works in the system. After the analysis of the work, the delegated employee of the College receives a report from VDPKS@lanet.lv. To date, the unified computerized plagiarism control system has not detected plagiarism in the college students' qualifications.

**1.8. Specify the websites (e.g. the homepage) on which the information on the study direction 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.**

<https://rtk.lv/?sadala=175>

<https://rtk.lv/?sadala=5021>

Arta Petaja

Inta Klotiņa

## **II - Description of the Study Direction (2. Efficiency of the Internal Quality Assurance System)**

**2.1. Assessment of the efficiency of the internal quality assurance system within the study direction 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 direction and the relevant study programmes.**

Based on the requirements of Part 1 *European Standards and Guidelines for Quality Assurance in Higher Education Institutions* of the European Association for Quality Assurance in Higher Education document *Standards and Guidelines for Quality Assurance in the European Higher Education*, RTC has developed a strategy for ensuring the internal quality of its study programmes.

Quality is defined as the main critical value for the field of study.

Delivering quality largely depends on the fact that work is performed at all levels of the college with the purpose of ensuring that there are clear and unambiguous results in the teaching of study programmes, that the instructors are prepared and capable of achieving the goals proposed for the learning of the study course, that the students are expected to perform well as part of their studies, and that the staff members who are excellent in performing their duties are rewarded.

The following forms of activities are used to assess the quality of conducting a study programme:

- study programme content analysis and assessment, through the preparation of self-assessment reports for the previous academic year. The data and conclusions thus obtained are reviewed during the meetings of the corresponding department and the council;
- monitoring and analysis of the study process and the quality of the teaching, regularly performed by the heads of study programmes, and by departments managers;
- surveys and analysis covering the professional skills of graduates and their suitability for the job market;
- student surveys to determine their opinions about the teaching of specific courses as part of study programmes, and about the compliance of the content and the form of teaching with the study requirements;
- use of external experts to assess the study process and the knowledge of students;
- strategic planning of the study process, analysing the weaknesses of the study programme, the elimination of these weaknesses, and the opportunities for developing the programme;
- instructors attending each other's lectures/classes, workshops/examinations, making it possible to assess each other's strengths and weaknesses;
- preparation of annual instructor reports on their academic, research and creative activities, publications, participation in scientific research and scientific conferences;
- promotion of international exchange among instructors, obtaining the financing of international funds, and making it possible for instructors to gain experience in foreign higher education institutions;

involvement of guest instructors in conducting guest classes.

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 RTC internal quality management 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, and for creating conditions that enable the achievement of the vision, the mission and the goals.

## **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 procedures for the development of new study programmes within the study direction (including the approval of study programmes), the review of the study programmes, the aims, and regularity, as**

**well as the stakeholders and their responsibilities. Description of the mechanism for obtaining and providing a feedback, including with regard to the work with the students, graduates, and employers.**

The Study Division conducts the strategic management of fields of studies and study programmes, as well as the supervision and monitoring of work activities.

The management of study programmes as part of the '*Mechanical engineering and metalworking, heat power engineering, heating equipment and machine studies*' field of study and the teaching of the study programmes in accordance with applicable laws and regulations is ensured by the head of the programmes.

The head of study programmes organises the development and updating of specific study programmes within fields of study in accordance with the Law on Higher Education Institutions and national education standard, prepares the approval of study programme descriptions by the college council, prepares documents for the licensing of study programmes and accrediting the field of study in accordance with Cabinet Regulations.

The head of study programmes prepares reports on activities during the previous academic year, drafts a report on improving the activities within the field of study and the study programme, and submits these reports for assessment at the department and approval by the council.

**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 direction 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.

In college is made Code of Ethics

[Ētikas kodekss.pdf \(rtk.lv\)](#)

**2.4. Provide information on the mechanism for collecting the statistical data, as developed by the higher education institution/ college. Specify the type of the data to be collected, the collection frequency, and the way the information is used to improve the study direction.**

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.

## **2.5. Description and assessment of the integration of the standards set forth in Part 1 of the ESG. Specify which of the standards are considered a challenge and which require special attention.**

The college has developed and uses a quality policy that sets the direction for the development of the college and guidelines for the European Higher Education Area (ESG) The standards and guidelines for ensuring quality included in Part 1 are implemented and integrated in the college management system, and the college's operations and procedures comply with standards.

Based on the requirements of Part 1 *European Standards and Guidelines for Quality Assurance in Higher Education Institutions* of the European Association for Quality Assurance in Higher Education document *Standards and Guidelines for Quality Assurance in the European Higher Education*, RTC has developed a strategy for ensuring the internal quality of its study programmes.

## **II - Description of the Study Direction (3. Resources and Provision of the Study Direction)**

**3.1. Provide information on the system developed by the higher education institution/college for determining the financial resources required for the implementation of the study direction and the relevant study programmes. Provide data on the available funding for the relevant study programmes, as well as the sources of the funding for the scientific research and/or artistic creation activities and their use for the development of the study direction. Provide information on the costs per one student (for each relevant study programme of the study direction) by specifying the headings indicated in the calculation of costs and the percentage of the funding among the indicated headings.**

## **Resources and assets of the field of**

# study

RTC (located at Braslas iela 16 and Lēdmanes iela 3) has renovated its teaching building, improving the study environment and delivering a higher-quality study process.

The Braslas iela 16 facility has a metal workshop with 30 workplaces and appropriate equipment for conducting metalworking internships, and an electrical wiring and measurement laboratory.

The laboratories at Lēdmanes iela 3 are used to conduct lab sessions and internships, as part of the respective study programmes. The laboratories for Heat Power Engineering and Refrigeration Engineering specialists are at Braslas iela 16.

The students are provided with the necessary equipment for the purposes of completing the study programme.

The financial resources enabling the teaching of the study programme can be found in All data for Riga Technical College (<http://www.aisp.ikvd.gov.lv>); the use of these resources undergoes annual inspections by the Audit Commission of the college whose conclusions are published in annual reports.

Equipment was expanded as part of an ERDF project.

The teaching laboratories of RTU and LULST Technical Faculty are used as part of the study process,

while the students of these universities use the equipment of RTC.

RTC funding consists of state subsidies, the college's own income from paid services, as well as funding obtained as part of international cooperation projects, and donations. State subsidies fully cover the cost of the study process. The amount of state subsidies is assigned and allocated based on the per-student costs and their distribution over individual positions determined in Latvian laws and regulations.

Information about the necessary infrastructure and equipment

*Improvements in the study materials and equipment necessary to complete study programmes, carried out in 2016–2020*

Table 8

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<b>Department</b>	<b>Programme name</b>	<b>Improvement type</b>	<b>Funding, EUR</b>	<b>Funding source</b>
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<b>Road Transport and Production Technology Department</b>	Mechatronics	Procurement of equipment	333167.36	National budget
	Mechatronics	Equipment packages	577030.12	ES project funding
	Metal processing	Procurement of equipment	32735.46	State budget
	Metalworking laboratory	Equipment packages	672009.87	ES project funding
	Road transport	Procurement of computer hardware and software, equipment	190584.65	National budget
	Training vehicle service laboratories and workshops	Equipment packages	707676.80	ES project funding
	Mechanical engineering	Procurement of software licences, equipment	123919.15	National budget
	Heat and refrigeration engineering laboratory	Equipment packages	324685.01	ES project funding

The state budget grant from the general revenue for the provision of studies is 1,625,525 euros, providing 4891.66 euros per student in the program. The funding provided for the study direction is 782665.60 euros. No separate funding has been allocated for research work. In accordance with Section 53 (4) of the Law on Higher Education Institutions, artistic activities and other activities initiated by the students' self-government are supported from state budget grants. 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 wages and salaries, 45% were fixed capital formation, 7% were goods and services, and 30% were compulsory employer social security contributions, social benefits and compensations. The study program "Engineering Mechanics" is implemented in the state language, in person. Duration of studies - 2.5 years. Number of state budget places in the program - 65. The minimum number of students allowed in the program is 18. The state budget grant from the general revenue in the amount of 317957.90 euros is intended for the provision of studies in the program "Engineering Mechanics". The study program "Road Transport" is implemented in the state language, in person. Duration of studies - 2.5 years. Number of state budget places in the program - 63. The minimum number of students allowed in the program is 18. The state budget grant from the general revenue in the amount of 308174.58 euros is intended for the provision of studies in the program "Road Transport". The study program "Thermal Energy" is implemented in the state language, in person. Duration of studies - 2.5 years. Number of state budget places in the program - 12. The minimum number of students allowed in the program is 10. The state budget grant from the general revenue

in the amount of 58699.92 euros is intended for the provision of studies in the program "Thermal Energy". The study program "Refrigeration Equipment" is implemented in the state language, in person. Duration of studies - 2 years. Number of state budget places in the program - 20. The minimum number of students allowed in the program is 18. The state budget grant from the general revenue in the amount of 97833.20 euros is intended for the provision of studies in the program "Refrigeration Equipment"

**3.2. Provide information on the infrastructure and the material and technical provision required for the implementation of the study direction and the relevant study programmes. Specify whether the required provision is available to the higher education institution/ college, availability to the students, and the teaching staff (the specific equipment required for the relevant study programme shall be indicated in Part III, Chapter 3 below the respective study programme).**

Equipment for studying process college own by it self. It consist of many buildings with all necessary equipment and workshops where are placed specific systems and equipment according to the study programmes. Showed in III, 3. part.

The infrastructure and material and technical base necessary for the implementation of the study field and the corresponding study programs are constantly being improved, taking into account the recommendations of industry representatives and lecturers. Great support was provided by project no. 8.1.4.0/17/I/001 Implementation of "Riga Technical College Infrastructure Development", during which material and technical equipment has been supplemented and / or renewed in all study programs. For example, in the study program "Road Transport" a car lift, cars for training Toyota YARIS and Volkswagen Passat were purchased; in the study program "Engineering Mechanics" mechatronics laboratory equipment, metalworking equipment; in the study program "Heat Power Engineering" heat energy laboratory simulation equipment, in the study program "Refrigeration Equipment" refrigeration equipment laboratory instruments, stands., in the study program "Electrical Equipment" electrical engineering laboratory measuring instruments, hand tools, measuring instruments; in the study program "Woodworking" woodworking equipment. Physics laboratory equipment, projection equipment and computer equipment have been purchased from the project funds for the implementation of all study programs. Funds from state grants for the implementation of study programs are regularly invested in the improvement of RTK infrastructure. For example, regular repairs are performed at Braslas Street 16, Lēdmanes Street 3 and the Service Hotel, computer equipment, communication and other office equipment are purchased.

**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 direction 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 direction, 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 options for the subscription to the databases.**

Details about the purchasing and improvement of teaching and information materials.

The RTC <https://www.rtk.lv/?sadala=432> library is a division of RTC operating in accordance with the internal regulations of the college. The platform comprises two elements: loan collection and reading room. The library contains more than 20,000 books and other items of information. The electronic catalogue makes it possible to search for and order books remotely.

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 reading room (117.4 m<sup>2</sup>) has 31 workstations, with computers and a multifunctional printer/photocopier. The library has a security gate as a measure to ensure the security of the books.

Students and instructors here have free access to reference literature, the latest literature in all fields, as well as fiction literature. The library has two rooms for its book collection (193 m<sup>2</sup>), 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.

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>*

The library has books, textbooks, audio-visual documents, periodicals, teaching materials. The reading room offers newspapers and magazines, as well as various statistical collections and reference publications. In the reading room, students can use computers with internet access, and are provided with printing and photocopying services.

Services available: A fee is charged for the printing and photocopying services, in accordance with Cabinet Regulation No. 888 'Regulations on the price list for the paid services provided by VECC Riga Technical College' of 17 September 2013. Readers at the library have access to a free wired and wireless internet connection. In the reading room, students and instructors have free access to reference literature, the latest literature in all fields, and fiction literature. Books and teaching materials in foreign languages (English, German, Russian) are available at the library.

The library is fully capable of enabling the study and research activities at the college, and provide bibliographic and information services to its students and instructors. The library regularly receives periodicals published in Latvia, as well as abroad.

The RTC library is a part of a single national library information system that enables one to conduct library processes through the SKOLU ALISE automated information system. Readers can search for the literature they seek both at the library, and remotely, online.

Britannica Academic is also available at: <http://academic.eb.com>. In 2017, an agreement on the use of the EBSCO database at the RTC library, and on working hours, was signed with the Cultural Information System Centre. Remote access link: <http://search.ebscohost.com>

RTC <https://www.rtk.lv/?sadala=432>

The students of the college have access to the libraries and databases of other higher education institutions: Riga Technical University, Daugavpils University, Latvian University of Life Sciences and Technology, Latvian Maritime Academy.

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.

The updating of information takes place on the basis of the recommendations of the study program lecturers and social partners, including employers, within the limits of the allocated funding.

### **3.4. 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.**

## **Information about the hiring and employment processes for teaching staff**

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.

A number of study courses are taught by guest instructors from businesses in the industry, such as the Mechanical Engineering Equipment, Devices and Tools, Programmable Controllers, Processing Theory and Processes, CNC Programming courses.

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

Cooperation with employers takes place in a systemic manner, with revisions and updates of the content of study programmes and courses appropriate to changes on the job market. The following study courses were updated: Fundamentals of Robotics, Production Process Automation, Material Studies, Power Tool internship, Hydraulics and Pneumatics, Programmable Controllers.

[https://muu.rtk.lv/pluginfile.php/22254/mod\\_resource/content/0/Nolikums%20par%20akadēmiskajiem%20amatiem.pdf](https://muu.rtk.lv/pluginfile.php/22254/mod_resource/content/0/Nolikums%20par%20akadēmiskajiem%20amatiem.pdf)

**3.5. 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 qualification (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.

RTK's academic staff consists of docents, lecturers and assistants, who are elected by the Council in an open competition for six years. The requirements for applicants for academic positions and the main tasks are determined by the internal regulatory document "Regulations on Academic

Positions". Election to an academic position is determined by the document "Regulations on Elections to Academic Positions". Both mentioned internal normative documents are attached to the electronic platform MOODLE (<https://muu.rtk.lv/course/view.php?id=702>). The academic staff actively uses the opportunities to attend various seminars. For example, participation in the RSU seminar "Academic Integrity and Ethics in Higher Education", Nordplus / Adult project's "Be Digital - Social Media Skills For 50+" conference, etc. The academic staff participates in professional and general competence development courses in order to improve their professional knowledge and skills. For example, RTU "Development of Interactive and Animated Drawing Teaching Aids", Kaunas University of Technology "Integrated smart education in robotics", Master training "Remote lecture management", SIA "Festo" "Programmable logic controllers, programming in CODESYS 3 environment", etc. Opportunities to participate in "ERASMUS + Staff Training Mobility" are used. Lecturers have done internships in Lithuania, Estonia, Malta, Greece, Germany, France, Sweden, Austria, etc. Lecturers also participate in various projects. For example, in the Intereg Central Baltic project CB36 "ITSVET - ICT Security in VET", in the cooperation project for the development and implementation of environmental policy "Development of training courses on alternative refrigerants", etc. The quality of the work of the academic staff is assessed in accordance with the internal normative document "Procedure for evaluating the annual quality of lecturers' work ". Every year, the director of the respective study program compiles the lecturers' self-assessments, the results of student surveys and the assessments of the lessons. The results of student surveys are very important, because they can be used to identify problems and eliminate them very quickly. The study department summarizes the evaluations and proposals of the study program directors for the improvement of the quality of work. The quality of the lecturers' annual work is evaluated by the commission, the aim of which is to promote the improvement of the lecturers' professional competencies by increasing the lecturers' responsibility for the study results. The remuneration of the academic staff is determined by the internal normative document "Procedure for the remuneration of the academic staff and employees and the procedure for granting benefits". Both mentioned internal normative documents are attached to the electronic platform MOODLE (<https://muu.rtk.lv/course/view.php?id=702>).

**3.6. Provide information on the number of the teaching staff members involved in the implementation of the relevant study programmes of the study direction, as well as the analysis and assessment of the academic and research workload. Provide the assessment of the incoming and outgoing mobility of the teaching staff over the reporting period, the mobility dynamics, and the issues which the higher education institution/ college must tackle with regard to the mobility of the teaching staff.**

During pandemic situation mabilite of teaching stuff was changed to remote lections. Also we had remote guest lections.

The remuneration of the academic staff is determined by the internal normative document "Procedure for the remuneration of the academic staff and employees and the procedure for granting benefits". The mentioned internal regulatory document is attached to the electronic platform MOODLE (<https://muu.rtk.lv/course/view.php?id=702>).

Opportunities to participate in "ERASMUS + Staff Training Mobility" are used. Lecturers have done internships in Lithuania, Estonia, Malta, Greece, Germany, France, Sweden, Austria, etc. Information can be found on the website: <https://www.rtk.lv/?sadala=460>

We have hosted guest lecturers with lectures from Lithuania, Estonia, Croatia, France, etc.

Visiting lecturers are happy to participate in the study process with lectures within the projects. Due to significant differences in the salaries of academic staff in different countries, we have not found a solution to attract visiting lecturers outside the projects.

### **3.7. 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 receive support in the study process from their tutor, who mostly provides informative support. Students receive career support in the form of personal knowledge and contacts from the curator, if necessary. Due to the nature of the college, students need career guidance very rarely.

## **II - Description of the Study Direction (4. Scientific Research and Artistic Creation)**

### **4.1. Description and assessment of the directions of scientific research and/or artistic creation in the study direction, their compliance with the aims of the higher education**

**institution/ college and the study direction, and the development level of scientific research and artistic creation (provide a separate description of the role of the doctoral study programmes, if applicable).**

## Scientific research and artistic creativity

The vocational education policy of the European Union emphasises vocational education and training (VET) as one of the key elements of the system of lifelong education. VET not only allows one to learn the skills, knowledge and competences necessary in STEM professions on the job market, but also makes it possible to meet the demand within the economy and provide students with important skills in personal growth and active civic participation. Level-one vocational higher education can also strengthen the activities, competitiveness, research and innovations of businesses, and it plays an important role in employment and social policies.

RTC has a key function: to make it possible for its students to learn the competences they need to engage in professional activities. RTC also has an important objective set by European Union regulations: to provide its students with important personal growth and active civic participation skills. RTC has a large number of students, and research in this field in the future could result in a significant contribution to the development of the college's theoretical and practical approach to teaching on the national and international level.

Every year, the teaching staff of RTC demonstrate their high competence in the fields of technology and teaching performance, so the public expects this to lead to further and more profound representation of the functionality of the college through the diverse spectrum of its activities.

([https://ec.europa.eu/education/policies/eu-policy-in-the-field-of-vocational-education-and-training-vet\\_lv](https://ec.europa.eu/education/policies/eu-policy-in-the-field-of-vocational-education-and-training-vet_lv))

<https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52016DC0381>

Once a year, an exhibition of term papers, independent projects and qualification papers takes place for all study programmes at the college; during it, academic staff can look into projects carried out by students and the work of their colleagues.

Research articles: <http://www.rtk.lv/?sadala=470>

International cooperation in research

In a time when the content, structure and specific implementations of vocational education are changing, it is very important for RTC to collaborate with international partners, in order to create and offer such forms of vocational education that encourage the quick learning of new technologies, increase the accessibility of vocational education, and enable lifelong education. One of such effective forms of education is the implementation of study programmes through the use of modules as part of a separate study programme, or as completely independent programmes.

Self-assessments: <http://www.rtk.lv/?sadala=265>

Involvement of teaching staff in research.

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.

Research articles: <http://www.rtk.lv/?sadala=470>

Involvement of students in research.

Globalisation, growth of information technologies and diversity of values define today's world. This makes the work of young specialists in various fields even more varied and unforeseeable. Modern students must learn to live in a world that changes continuously, and must be prepared to create a completely new economic, political and cultural environment in the future. Currently, RTC students do well handling tasks that require remembering familiar situations and acting accordingly, and their instructors encourage them to delve deeper into and process various kinds of data, ask them to find solutions in non-standard situations, connecting their theoretical knowledge with real-life experience, analysing their achievements and setting goals for future work. RTC students must know how to work in a team and carry out their plans in new circumstances.

The basis of the management and arrangement of the study process at RTC consists of focusing on building competences, lifestyle, identity and behaviour changes caused by the digital age among younger generations, as well as different opinions of students pertaining to the value of education and the ways of gaining it. In planning the study process, the college views it as critical to understand and take into account the most prominent traits of younger generations, in order for the process to be goal-orientated and satisfying for both the students and the instructors.

#### **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.**

Once a year, an exhibition of term papers, independent projects and qualification papers takes place for all study programmes at the college; during it, academic staff can look into projects carried out by students and the work of their colleagues.

Research articles: <http://www.rtk.lv/?sadala=470>

International cooperation in research

In a time when the content, structure and specific implementations of vocational education are changing, it is very important for RTC to collaborate with international partners, in order to create and offer such forms of vocational education that encourage the quick learning of new technologies, increase the accessibility of vocational education, and enable lifelong education. One of such effective forms of education is the implementation of study programmes through the use of modules as part of a separate study programme, or as completely independent programmes.

Self-assessments: <http://www.rtk.lv/?sadala=265>

By creating scientific publications as teachers, the students involved supplement their knowledge.

**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.**

**Involvement of academic staff in research**

The creative activities of the academic staff are closely associated with the goals and objectives of the Mechanical Engineering study programme. Once a year, an exhibition of term papers, independent projects and qualification papers takes place for all study programmes at the college; during it, the academic staff and the students can look into projects carried out by students and the work of their colleagues. The International Practical Research Conference is organised every year, with student and academic staff presentations on their scientific research activities. The academic staff participate in international conferences, competitions, conduct lectures and evaluate the graduation papers of students in other higher education institutions.

During the 2019/2020 academic year, Victors Gutakovskis, a lecturer at the Mechanical Engineering study programme, conducted lectures as part of the following courses at the Kaunas University of Applied Engineering Sciences: Engineering Design CAD/CAM (Solidworks); Processing Theory and Processes.

ATRT docent Anda Kazuša and lecturer Artis Iesmiņš reviewed the graduation papers of students at Kaunas University of Applied Engineering Sciences.

Content changes were introduced in the industry study courses using Erasmus+ Strategic Partnership projects:

‘Erasmus+ Strategic Partnership, Integrated Smart Education in Robotics (INSMER)’

No.: 2016-1-EE01-KA202-017321 (Finland, Estonia, Latvia), and

Skills in Metal and Electro Industry, (skillME) ERASMUS+ PROGRAMME

554370-EEP-1-2014-1-SI-EPPKA2-SSA Three-year cooperation project for vocational education providers, government institutions and representatives of the metalworking and power engineering sectors in the following EU member states: Croatia, Latvia, Slovakia and Slovenia. The project goal was to determine key skill deficiencies in the field of metalworking and electrical engineering, with four education programmes developed to correct these deficiencies; RTC integrated the programme content developed in the industry courses of the Mechanical Engineering study programme.

We participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project ‘Development of interactive and animated drawing teaching aids’; materials available at: <https://liggd.lt/diad-tools/lv/learningMaterialsLV> 2019

College instructors prepared students for participation in international competitions

At the J. Gravogkas Best Material Processing Engineer International Competition, A-MB-2, two students took part and won first place, Lithuania 2019

Best Junior Material Processing Engineer International Competition A-MB-2, second place, Lithuania, 2018

Academic staff training

- MTS Mathematisch Technische Software-Entwicklung GmbH, Vācija internship course 'Production process programming for CNC workbenches using MTS TopTurn and TopMill software' Berlin, Germany
- Baltic CNC Technologies UAB, Lithuania, internship in 'Fundamentals of CNC workbench processing using MTS software'
- CNC KELLER GmbH, Germany, internship in 'SYM plus simulation software, 3D processing simulation (lathing and milling), for four levels of competence'
- EMCO Headquarters GmbH, Austria, internship in 'SIEMENS, FANUC, HEIDENHAIN, FAGOR metalworking workbench programming languages; development of parts using simulators and their production with a CNC milling machine'
- U.N.T. Gerätebau GmbH, Germany, internship in 'Using a laboratory bench'
- CNC training for instructors from the Baltic Region (Haas Automation Europe, SIA Abplanalp Baltic) Tallinn, Estonia

**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 direction by providing examples and the summary of the quantitative data on the activities in the field of scientific research and/or artistic creation relevant to the study direction over the reporting period, for instance, the publications, participation in conferences, activities in the field of artistic creation, participation in projects by the academic staff members, etc., by listing the aforementioned according to the relevance.**

#### **Involvement of academic staff in research**

The creative activities of the academic staff are closely associated with the goals and objectives of the Mechanical Engineering study programme. Once a year, an exhibition of term papers, independent projects and qualification papers takes place for all study programmes at the college; during it, the academic staff and the students can look into projects carried out by students and the work of their colleagues. The International Practical Research Conference is organised every year, with student and academic staff presentations on their scientific research activities. The academic staff participate in international conferences, competitions, conduct lectures and evaluate the graduation papers of students in other higher education institutions.

During the 2019/2020 academic year, Victors Gutakovskis, a lecturer at the Mechanical Engineering study programme, conducted lectures as part of the following courses at the Kaunas University of Applied Engineering Sciences: Engineering Design CAD/CAM (Solidworks); Processing Theory and Processes.

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No.: 2016-1-EE01-KA202-017321 (Finland, Estonia, Latvia), and

Skills in Metal and Electro Industry, (skillME) ERASMUS+ PROGRAMME

554370-EEP-1-2014-1-SI-EPPKA2-SSA Three-year cooperation project for vocational education providers, government institutions and representatives of the metalworking and power engineering sectors in the following EU member states: Croatia, Latvia, Slovakia and Slovenia. The project goal was to determine key skill deficiencies in the field of metalworking and electrical engineering, with four education programmes developed to correct these deficiencies; RTC integrated the programme content developed in the industry courses of the Mechanical Engineering study programme.

We participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project 'Development of interactive and animated drawing teaching aids'; materials available at: <https://liggd.lt/diad-tools/lv/learningMaterialsLV> 2019

College instructors prepared students for participation in international competitions

At the J. Gravrogkas Best Material Processing Engineer International Competition, A-MB-2, two students took part and won first place, Lithuania 2019

Best Junior Material Processing Engineer International Competition A-MB-2, second place, Lithuania, 2018

Academic staff training

- MTS Mathematisch Technische Software-Entwicklung GmbH, Vācija internship course 'Production process programming for CNC workbenches using MTS TopTurn and TopMill software' Berlin, Germany
- Baltic CNC Technologies UAB, Lithuania, internship in 'Fundamentals of CNC workbench processing using MTS software'
- CNC KELLER GmbH, Germany, internship in 'SYM plus simulation software, 3D processing simulation (lathing and milling), for four levels of competence'
- EMCO Headquarters GmbH, Austria, internship in 'SIEMENS, FANUC, HEIDENHAIN, FAGOR metalworking workbench programming languages; development of parts using simulators and their production with a CNC milling machine'
- U.N.T. Gerätebau GmbH, Germany, internship in 'Using a laboratory bench'
- CNC training for instructors from the Baltic Region (Haas Automation Europe, SIA Abplanalp Baltic) Tallinn, Estonia

**4.5. Specify how the involvement of the students in scientific 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 direction in scientific research and/or artistic creation activities by giving examples of the opportunities offered to and used by the students.**

Involvement of students in research.

Globalisation, growth of information technologies and diversity of values define today's world. This makes the work of young specialists in various fields even more varied and unforeseeable. Modern students must learn to live in a world that changes continuously, and must be prepared to create a completely new economic, political and cultural environment in the future. Currently, RTC students do well handling tasks that require remembering familiar situations and acting accordingly, and their instructors encourage them to delve deeper into and process various kinds of data, ask them

to find solutions in non-standard situations, connecting their theoretical knowledge with real-life experience, analysing their achievements and setting goals for future work. RTC students must know how to work in a team and carry out their plans in new circumstances.

Students participate in the production of scientific publications, or submit their own publications or suggest a topic for publication. (N.Danilovs, V.Gutakovskis, A.Kazuša Valve production with electro-settling technology) HIGHER PROFESSIONAL EDUCATION IN THEORY AND PRACTICE HIGHER PROFESSIONAL EDUCATION IN THEORY AND PRACTICE VOLUME 16, SIA "DRUKĀTAVA", RIGA 2019 RTK.

**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 study direction subject to the assessment, by giving the respective examples and assessing their impact on the study process.**

During the study process RTK is using newest versions of computer programs (CAD/CAM) and newest CNC machine control programs.

Student masterpapers as innovations:

AI using in mobile assistant design.

More and more technical tools are used to ensure the learning process.

For example, the "zoom" platform, MOODLE, extensive opportunities to use worldwide examples in practical training (youtube), the Moodle platform Big Blue Button.

## **II - Description of the Study Direction (5. Cooperation and Internationalisation)**

**5.1. Provide the assessment as to how the cooperation with different institutions from Latvia and abroad (higher education institutions/ colleges, employers, employers' organisations, municipalities, non-governmental organisations, scientific institutes, etc.) within the study direction contributes to the achievement of the aims and learning outcomes of the study direction. Specify the criteria by which the cooperation partners suitable for the study direction 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 employers.**

# **Cooperation and internationalisation**

The internationalisation strategy of VECC Riga Technical College is geared towards the general

development and modernisation of the institution, and the increasing of its teaching standards in accordance with the latest achievements in the field of vocational education in Europe, towards international cooperation, and academic and student mobility. Active and successful participation in international programmes and projects is considered an important component of the RTC development concept.

The goals of cooperation and internationalisation are to motivate and encourage the students and the staff to gain international experience in their studies or work, to improve the professional and personal competences of those participating in international programmes and activities, to promote the development and modernisation of the college, to establish and improve cooperation with EU colleges, universities and business, with the intention of updating the content of study programmes and integrating technology and method innovations in the study process.

The goals of European mobility and cooperation important to RTC are to motivate and encourage the students and the staff to gain international experience in their studies or work, to improve the professional and personal competences of those participating in international programmes and activities, to promote the development and modernisation of the college, to establish and improve cooperation with EU vocational education and training institutions, universities and business, with the intention of updating the content of study programmes and integrating technology and method innovations in the study process.

**5.2. Specify the system or mechanisms, which are used to attract the students and the teaching staff from abroad and provide a description of the dynamics of the number of the attracted students and the teaching staff.**

Criteria for selecting international partners: positive experience of the potential partner organisations in preparing young specialists and their achievements in developing and using modern technologies. The scope of partner organisations includes vocational education facilities abroad, including colleges, universities, training centres, as well as foreign companies and institutions. The geographic diversity of partner organisations enables the necessary understanding of the appropriate trends. The international cooperation of RTC is geared towards the general development and modernisation of the institution, and the increasing of its teaching standards in accordance with the latest achievements in the field of vocational education in Europe, towards international and interinstitutional cooperation, and academic and student mobility. Active and successful participation in international programmes and projects is considered an important component of RTC development.

More information on student and teacher mobility is available in the yearbooks for each year.

**5.3. In the event that the study programme entails a traineeship, provide a description of the traineeship options offered to the students, as well as the provision, and work organisation. Specify whether the higher education institution/ college provides assistance in finding traineeships.**

# Internships planned as part of study courses

The studies provided by RTC are in line with what takes place at companies in the industry. Practice training is planned taking into account the knowledge that the student must learn, including basic theoretical and conceptual knowledge, as well as knowledge and skills pertaining to the use of equipment and technologies. In order to enable high quality of the practice training, the following tasks are set to clearly determine the role and activities of each partner:

- Prepare a practice training programme for the students that applied for work, in which the working environment is geared towards the study process;
- Develop internship activities for students based on the vocational study programme and the company's manufacturing experience;
- Create a suitable evaluation system to determine the level of the student's knowledge and skills once the internship at the company is over.

Internships are organised in accordance with Cabinet Regulation No. 276 'Procedure for organising internships in education'. Studies are governed by the Statute of RTC, the study programme, the study plan, the study course programme and the study schedule.

Study program directors always help students find an internship place when needed. Study program managers have a wide range of acquaintance in the field of industry companies.

**5.4. In the event that joint study programmes are implemented in the study direction, provide the justification of the creation of the joint study programmes and a description and assessment of the selection of the partnering higher education institutions by including information on the principles and the procedures for the creation and implementation of these joint study programmes. In the event that no joint study programmes are implemented in the study direction, provide a description and assessment of the plans of the higher education institution/ college for the creation of such study programmes within the study direction.**

## Joint study programmes

No joint study programmes are currently being implemented. Currently there are plans to participate in the new 2021–2027 period of the Erasmus+ programme, and the opportunities for international cooperation and the mobility it provides in the fields of school education, vocational education, higher education and adult education.

One of RTC's partner higher education institutions has submitted an Erasmus+ project for the joint development of a module, which RTC will take part in.

So far, the study process has involved the use of teaching materials, training equipment and updated field-specific study courses developed as part of Erasmus+ strategic partnership projects.

ATRT instructors and students participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project 'Development of interactive and animated drawing teaching aids'; digital learning materials available at:

## **II - Description of the Study Direction (6. Implementation of the Recommendations Received During the Previous Assessment Procedures)**

**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 direction, 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 direction and the relevant study programmes.**

### **Implementation of recommendations provided during prior assessment procedures**

There were no significant negative comments during the previous accreditation of the field of study, and the recommendations provided by the experts have been implemented. The progress of implementation is shown in the tables in Annex

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

Changes were made in accordance with Section 12 of Cabinet Regulation No. 512 'Regulations on the national standard for vocational higher education', and the programme for the 2017/2018 academic year included courses in environmental protection and civil defence, with changes in the study courses of the programmes and in their content.

The Occupational Safety, Environmental Protection, Civil Defence study course was replaced with an Environmental Protection, Civil Defence course (2 credits), while occupational safety was moved to other industry-related courses (1 credit).

The study course has lost relevance in Europe and Latvia. A 'Research Methods' study course has been introduced to offer better knowledge of the drafting of research papers and to better train students to prepare their own term and qualification papers.

RTC participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project 'Development of interactive and animated drawing teaching aids'; materials available at: <https://liggd.lt/diad-tools/lv/learningMaterialsLV 2019>

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM', as part of which equipment for the Mechanical Engineering study programme was updated. Changes in the content of training internships, laboratory and practical assignments are being introduced in view of the new equipment, with instructors preparing teaching materials.

As part of the field of study, there is regular and active collaboration with companies, employers, professional association, with the purpose of being informed of the recent and important developments in the industry.

# Annexes

I. Information on the Higher Education Institution/ College		
List of the governing regulatory enactments and regulations of the higher education institution/ college	Akreditācijai-2021.docx	Akreditācijai-2021.docx
Information on the implementation of the study direction in the branches of the higher education institution/ college (if applicable)	Filiales_ENG.docx	Filiales.docx
Management structure of the higher education institution/ college	RTK_structure.png	RTK_struktura.png
II. Description of the Study Direction - 1. Management of the Study Direction		
Plan for the development of the study direction (if applicable)	Field of study development plan.docx	ATRT attīstība papildināts.docx
Management structure of the study direction	Table 6.png	Tabula 6.png
II. Description of the Study Direction - 3. Resources and Provision of the Study Direction		
Basic information on the teaching staff involved in the implementation of the study direction	Instructors involved.docx	Iesaistītie mācību spēki (1).docx
Biographies of the teaching staff members (in Europass Curriculum Vitae format)	Doc_kopaa.7z	Doc_kopaa.7z
Summary of the statistical data on the incoming and outgoing mobility of the teaching staff over the reporting period	Mobilitaate.docx	Mobilitaate.docx
II. Description of the Study Direction - 4. Scientific Research and Artistic Creation		
List of the publications, patents, and artistic creations of the teaching staff over the reporting period	Publications.docx	Publikācijas.docx
II. Description of the Study Direction - 5. Cooperation and Internationalisation		
List of cooperation agreements	Cooperation_agreements_internac.docx	Sadarbības_ligumu_internacionalizacija.docx
Statistical data on the teaching staff and the students from abroad	Mobility of foreign teaching staff.docx	Ārvalstu mācībspēku mobilitāte.docx
Statistical data on the mobility of students (by specifying the study programmes)	Student and recent graduate internships in companies abroad.docx	Studējošo un neseno absolventu prakse ārvalstu uzņēmumos.docx
Description of the organisation of the traineeship of the students	Mācību prakses organizēšana08092021134628.pdf	Mācību prakses organizēšana08092021134628.pdf
Information on the agreements and other documents confirming the traineeship of the students in companies	Cooperation agreement between RTK and MASOC.docx	MASOC_ligums.pdf
II. Description of the Study Direction - 6. Implementation of the Recommendations Received During the Previous Assessment Procedures		
Overview of the implementation of the provided recommendations	Report on the implementation of recommendations.docx	Rekomendāciju izpildes pārskats.docx
Description of the Study Programme - Other mandatory attachments		
Confirmation signed by the rector, director or the head of the study programme or the study direction of the higher education institution/ college which states that the official language proficiency of the teaching staff involved in the implementation of the relevant study programmes of the study direction complies with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.	AIC_51_LV_EN.docx	AIC_51.edoc
III. Description of the Study Programme - 1. Indicators Describing the Study Programme		
Compliance of the joint study programme with the provisions of the Law on Institutions of Higher Education (table)		
Statistics on the students over the reporting period		
III. Description of the Study Programme - 2. The Content of Studies and Implementation Thereof		
Compliance of the study programme with the State Education Standard		
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard (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		
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 Study Direction - Other mandatory attachments		
Sample of the diploma to be issued for the acquisition of the study programme.		
Description of the Study Programme - Other mandatory attachments		
Document confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued		
Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme		
Confirmation of the higher education institution/ college that the teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language according to European language levels (see the levels under www.europass.lv), if the study programme or any part thereof is to be implemented in a foreign language.		

<p>If the study programmes in the study direction subject to the assessment are doctoral study programmes, a confirmation that at least five teaching staff members with doctoral degree are among the academic staff of a doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field or sub-field of science, in which the study programme has intended to award a scientific degree.</p>		
<p>If academic study programmes are implemented within the study direction, a document confirming that the academic staff of the academic study programme complies with the provisions set out in Section 55, Paragraph one, Clause three of the Law on Institutions of Higher Education</p>		
<p>Sample (or samples) of the study agreement</p>		
<p>If academic study programmes for less than 250 full-time students are implemented within the study direction, the opinion of the Council for Higher Education shall be attached in compliance with Section 55, Paragraph two of the Law on Institutions of Higher Education.</p>		
<p>Description of the Study Direction - Other mandatory attachments</p>		
<p>Electronically signed application form for assessment of a study direction</p>	<p>Informācija līguma sagatavošanai par studiju virziena novērtēšanu.edoc</p>	<p>Informācija līguma sagatavošanai par studiju virziena novērtēšanu.edoc</p>

## Other annexes

Name of document	Document
Rekomendāciju izpildes pārskats.docx	Rekomendāciju izpildes pārskats.docx
Report on the implementation of recommendations.docx	Report on the implementation of recommendations.docx
PraksesOrgKartiba_LV_Eng.doc	PraksesOrgKartiba_LV_Eng.doc
Cooperation agreement between RTK and MASOC.docx	Cooperation agreement between RTK and MASOC.docx
Augstskolu likums_RTK.odt	Augstskolu likums_RTK.odt
STUDIJU PROGRAMMAS PĀRVALDE.doc	STUDIJU PROGRAMMAS PĀRVALDE.doc
Jautājumi -03.12.21..docx	Jautājumi -03.12.21..docx
SADARBĪBAS PILNVEIDE AR SOCIĀLAJĪEM PARTNERIEM.odt	SADARBĪBAS PILNVEIDE AR SOCIĀLAJĪEM PARTNERIEM.odt
MASOC_ligums.pdf	MASOC_ligums.pdf

# REFRIGERATION ENGINEERING (41526)

Study field	<i>Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering</i>
ProcedureStudyProgram.Name	<i>REFRIGERATION ENGINEERING</i>
Education classification code	<i>41526</i>
Type of the study programme	<i>Short-cycle professional higher education study programme</i>
Name of the study programme director	<i>Inna</i>
Surname of the study programme director	<i>Šaraņina</i>
E-mail of the study programme director	<i>inna.saranina@kcrtk.lv</i>
Title of the study programme director	<i>Pedagoģijas un psiholoģijas zinātņu maģistrs</i>
Phone of the study programme director	<i>+37126537310</i>
Goal of the study programme	<p><i>The aim of study programme is:</i></p> <ol style="list-style-type: none"> <li><i>1. To prepare students for working in refrigeration engineering profession according to 4. level of qualification of refrigeration engineering specialist profession standard and first level higher education requirements, that are capable to do service, can organise and manage stuff.</i></li> <li><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></li> <li><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></li> </ol>
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 refrigeration machines:</i></p> <ol style="list-style-type: none"> <li><i>1. to prepare qualified specialists, that are comprehensive, competitive in labour market refrigeration engineering area specialists, that are able to work in refrigeration machines maintenance and repair companies, diagnose centres and related companies.</i> <ul style="list-style-type: none"> <li><i>- to do refrigeration machines maintenance, diagnosis and repair.</i></li> <li><i>- to prevent damage of parts of refrigeration machines by doing exchange of parts and assemblies, by doing assemble and deassemble, by renewing parts or alignment, by doing locksmith operations.</i></li> <li><i>- to communicate with client and manage the stuff.</i></li> <li><i>- to know business economic and legislation, to manage refrigeration machines maintenance station or related companies department.</i></li> </ul> </li> <li><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></li> <li><i>3. To provide participation of employer in design of content of studies and organisation of qualification exam.</i></li> <li><i>4. To cooperate with related Latvian and foreign organisation and employers in professional education area.</i></li> <li><i>5. To make applied research in working field, organise student conferences and to publish the results.</i></li> <li><i>6. Optimise internship process for students according to modern labour market requirements.</i></li> </ol>

Results of the study programme

*The study program "Refrigeration 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 "Refrigeration Engineering" must have appropriate knowledge, skills and competence in the professional field.*

*Knowledge of:*

- Types of refrigeration equipment and refrigerants;*
- Regulated and legal requirements for the operation of refrigeration 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 hydraulic, pneumatic and strength testing of equipment.*
  - Able to operate refrigeration equipment, compressor units, condensers, receivers, evaporators, accessories, ammonia and water pumps.*
  - is able to control the technical condition of refrigeration equipment*
  - Is able to control the observance of safety equipment when using the refrigeration equipment.*
  - Make an assessment of the quantitative and qualitative operation of refrigeration equipment.*
  - is able to evaluate the building constructions of the company's refrigeration 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 refrigeration unit per refrigeration 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 refrigeration equipment;*
- Competence:*

- Able to control the technical condition of refrigeration 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 refrigeration equipment and auxiliary equipment.*
- Ability to control the technical condition of refrigeration 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 refrigeration equipment provides the competitiveness and professional growth opportunities of the graduates of the program in the field of refrigeration 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 - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	<i>2</i>
Duration in month	<i>0</i>
Language	<i>latvian</i>
Amount (CP)	<i>80</i>
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Does not exist</i>
Qualification to be obtained (in english)	<i>Refrigeration equipment specialist</i>

### Places of implementation

<b>Place name</b>	<b>City</b>	<b>Address</b>
Vocational education competence center "Riga Technical College"	RĪGA	BRASLAS IELA 16, VIDZEMES PRIEKŠPILSĒTA, RĪGA, LV-1084

### III - DESCRIPTION OF THE STUDY PROGRAMME (1. Indicators Describing the Study Programme)

#### 1.1. Description and analysis of changes in study programme parameters that have taken place since the issue of the previous accreditation certificate of study direction or the license of study programme if study programme is not included in the accreditation page of the study direction

The Refrigeration Engineering study programme was first accredited in 2014; the accreditation is in effect until July 2022.

It was acknowledged that the college might teach the Refrigeration Engineering level-one professional higher education programme, whose graduates are awarded the professional qualifications of a 'Refrigeration Engineering Specialist'.

The study programme was developed in accordance with the European Qualification Framework quality standards and guidelines, Cabinet Regulation No. 141 (dated 20 March 2001) 'Regulations for the national level-one vocational higher education standard', and the professional standard. The field of study and the programme were developed based on the guidelines for the development of the refrigeration industry and the job market demand for specialists with the qualifications in question.

#### *Refrigeration Engineering study programme*

Table 18

Study year	2013./2014	2014./2015	2015./2016	2016./2017	2017./2018	2018./2019	2019./2020	2020./2021
Number of students	0	31	36	37	45	34	31	34
Proportion of students, %	0	4	5	5	6	5	5	5

**There were no changes in the parameters of the study program.**

#### 1.2. Analysis and assessment of the 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 in the different study forms, types, and languages.

Study year	2013./2014	2014./2015	2015./2016	2016./2017	2017./2018	2018./2019	2019./2020	2020./2021
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Number of students	0	31	36	37	45	34	31	34
Proportion of students, %	0	4	5	5	6	5	5	5

**1.3. Analysis and assessment of the interrelation between the name of the study programme, the degree or professional qualification to be acquired or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements.**

The Refrigeration Engineering study programme was first accredited in 2014; the accreditation is in effect until July 2022.

It was acknowledged that the college might teach the Refrigeration Engineering level-one professional higher education programme, whose graduates are awarded the professional qualifications of a ‘Refrigeration Engineering Specialist’.

The study programme was developed in accordance with the European Qualification Framework quality standards and guidelines, Cabinet Regulation No. 141 (dated 20 March 2001) ‘Regulations for the national level-one vocational higher education standard’, and the professional standard. The field of study and the programme were developed based on the guidelines for the development of the refrigeration industry and the job market demand for specialists with the qualifications in question.

The title of the study program “Refrigeration Equipment” describes the sphere of activity and work specifics of the prepared specialists and indicates that the study program prepares refrigeration equipment specialists. The qualification to be obtained corresponds to the aims and tasks of the program and provides the necessary education and qualification for the award of a diploma in refrigeration technology. Both employers (refrigeration equipment companies) and supervisory organizations testify to the achievement of the goals and tasks of professional qualification: the Latvian State Environmental Service, the Latvian Association of Refrigeration Engineers. Admission conditions correspond to the aims and tasks of the study program.

### **III - DESCRIPTION OF THE STUDY PROGRAMME (2. The Content of Studies and Implementation Thereof)**

**2.1. Assessment of the relevance of the content of the study course/ module and the compliance with the needs of the relevant industry and labour market and with the trends in science. Provide information on how and whether the content of the study course/ module is updated in line with the development trends of the relevant industry, labour market, and science. In 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.**

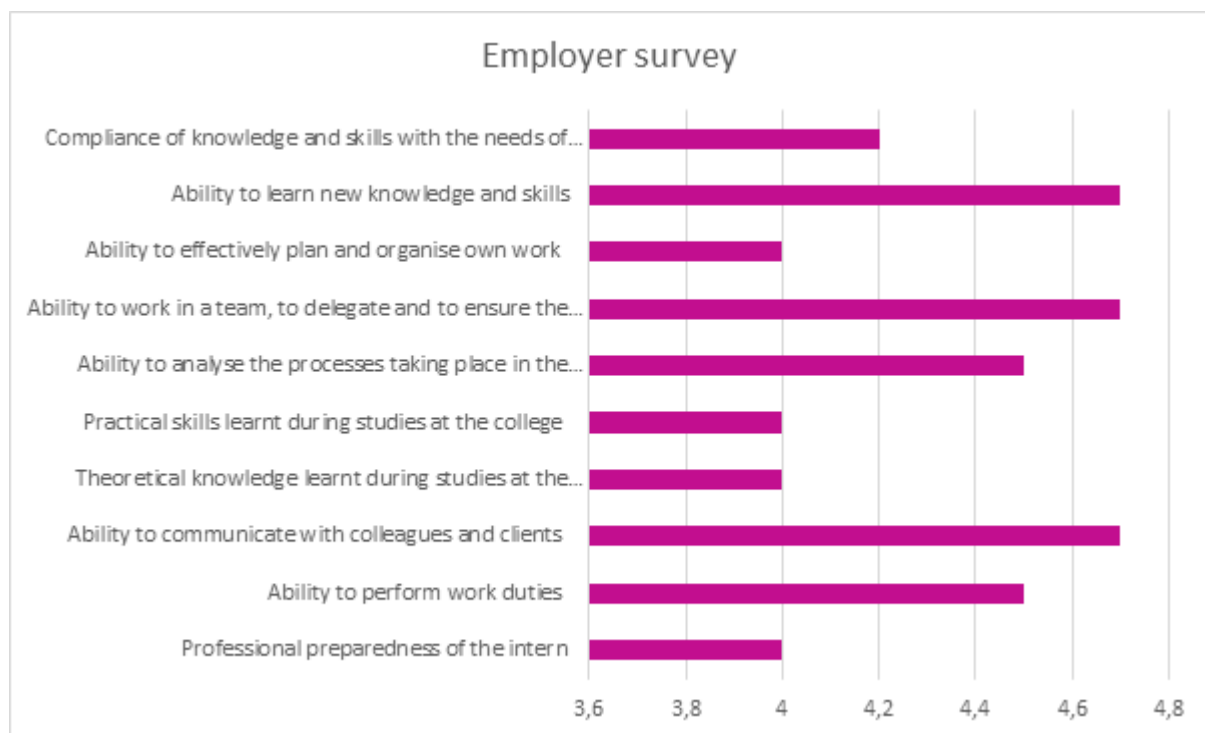
## Content and implementation of the studies

Collaboration with industry employers is one of the main ways for the study programme management to obtain information about the quality of the study programme and its compliance with the needs of the job market. Information about the employment prospects of the specialists trained within the field of study is largely obtained from the companies where students undergo internship.

In this academic year, the college arranged the most extensive employer surveys taken at the end of practice so far, requesting employers to assess the preparedness of the intern/employee for work, their competence, communication skills, theoretical knowledge and practical skills, ability to analyse the processes taking place in the working environment and to make appropriate decisions, ability to work in a team, ability to delegate and ensure the performance of tasks, ability to effectively plan and organise own work, ability to gain new knowledge and skills, compliance of the quality of the knowledge and skills with the needs of the job market.

All of the assessments were performed on a scale of 5, where 5 was the highest grade, and 1 was the lowest grade. The results of the survey and the statements by the participating internship managers show that refrigeration engineering specialists will still be sought after by businesses.

### *Employer requirements.*



The content of the study program “Refrigeration Equipment” is updated in accordance with the development trends of the industry, labor market and science once a year before the beginning of the current academic year. When updating the content of the study program, the recommendations of specialists in the field of refrigeration equipment and representatives of refrigeration equipment companies, as well as the latest trends in refrigeration equipment equipment technologies, as well as the latest International documents and instructions are taken into account. Compliance with the requirements of science is ensured by the participation of lecturers in international scientific conferences and the publication of research in scientific publications. Students of the program are also involved in scientific work.

**2.2. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators, the relation between the aims of the study course/ module and the aims and intended outcomes of the study programme. In 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.**

### **Study results to be achieved as part of the study programme**

The Refrigeration Engineering study programme involves the teaching of knowledge, skills and attitudes in accordance with the level-one professional higher education standard and the professional standard as part of lectures, workshops, practical activities, extramural internship.

The expected results of the study programme comply with the national standard for level-one vocational higher education, the professional standard, and are aligned with the European Qualification Framework (EQF). Graduates of the Refrigeration Engineering study programme must have the following knowledge, skills and competences in their professional field:

#### **Knowledge about:**

- Refrigeration processes, types of equipment and cooling media;
- Latvian and EU regulatory and legal requirements for operating refrigeration systems;
- General management, work planning and work management in small businesses;
- Environmental protection, occupational and fire safety, hygiene requirements.

#### **Skills:**

- Ability to prepare the layout of a refrigeration system in a company.
- Ability to install, remove and operate refrigeration systems.
- Ability to configure the operation of refrigeration systems and control their technical condition.
- Ability to calculate the prime cost of the individual units of a refrigeration system.
- Ability to assess legal documents and standards pertaining to environmental protection in the context of using refrigeration equipment.
- Ability to work in teams, take the lead and resolve problem situations.
- Ability to use professional terminology in the official national language and at least two foreign languages.
- Ability to work with office equipment and the software necessary for work.
- Understanding of and compliance with occupational and fire safety, hygiene requirements; ability to critically assess risk factors and propose solutions.

#### **Competence:**

- Ability to monitor the technical condition of refrigeration equipment and its compliance with operating requirements.
- Ability to monitor the technical condition of refrigeration equipment, and the quality of the corresponding installation and repairs.

- Ability to analyse weaknesses in production and assess the issues of planned, ongoing or already completed reconstructing of individual stages or company units.
- Ability to comply with the requirements for handling cooling media, to prevent any spills of such media.
- Ability to ensure compliance with the requirements of environmental protection and occupational safety laws and regulations.

**2.3. Assessment of the study implementation methods (including the evaluation methods) by providing the analysis of how the study implementation methods (including the evaluation methods) used in the study courses/ modules are selected, what they are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.**

**The programmes of study courses include the following methods for organising studies and controlling results:**

1. The methods for organising the studies include lectures, workshops, practical activities, consultations, conferences, independent student assignments at the library, internships.
2. The forms for controlling the learning outcomes include oral and written exams, test, essays, internships.

The academic performance of students is evaluated on a scale of 10, with the lowest passing grade being 4 (almost satisfactory).

The council of the study programme determines the evaluation methods in the study programme implementation plan.

Understanding the expected study results and the applicable evaluation criteria is important. These are explained at the beginning of a study course, so that the students understand the assignments and requirements set for the course. When choosing the criteria, instructors emphasise the evaluation of not only knowledge, but also skills and competences.

In developing the evaluation criteria, a broad spectrum of tasks is integrated, covering what should be developed in students, with an additional goal of encouraging students to operate in different situations.

The programme description of every study course specifies the expected study results.

At the beginning of study courses, the students are familiarised with the expected results of the studies. When consulting students and receiving assignments from them, instructors also use online and digital tools.

There is progress towards teaching the theoretical part of study courses in digital format.

Practical classes involve the use of various equipment: multimedia projectors, video cameras, sample collections, posters, diagrams.

At the beginning of a course, the students receive the learning materials prepared for them online, which significantly simplifies the learning of the content of the course.

In certain courses, practical activities involve various study methods, including work in small

groups, analysis and resolution of problem situations, role playing, and work in the digital library.

As part of the student's independent work, the instructor performs an organising, consulting and expert function.

The chosen study methods will encourage the development of independent, critical and creative thought in students. These must also foster the communication skills of students, their ability to work in a group, to overcome and resolve conflicts, to be confident and to take responsibility for decisions they make.

In their work, the academic staff use various types of teaching methods, such as lectures, workshops, group training, demonstrations, discussions, situation modelling etc.

Interactive studies not only result in an interesting study process, but also encourage the participants to use a creative approach, to think, to analyse the information they obtain, to understand it and to compare it to their personal experience.

The scope of the study programme includes research by students (reports, participation in conferences, preparation of study and qualification papers etc.), as well as the scientific and teaching activities of the academic staff in enabling the study process (preparation of scientific articles, participation in studies, conferences).

At the end of their studies, students prepare and defend a qualification paper. Students choose the topic of their qualification papers based on their field of studies, interests, recommendations of the employer and the Refrigeration System Engineer Association, as well as experience and groundwork formed during studies.

At the end of their studies, students prepare and defend a qualification paper. The paper is evaluated in accordance with the RTC Regulations on the study examination procedure.

The evaluation principles and procedures used as part of the Refrigeration Engineering study programme match those specified in the national standard.

Evaluation compliance principle: as part of the examination, one can demonstrate analytical and creative abilities, knowledge and skills in all the tasks and situations appropriate to all the levels of learning. The scope of the content included in examinations matches the content specified in the course descriptions and the knowledge and skill requirements set in the professional standard. The main form for evaluating performance as part of the programme is **the final exam or the final test**, which must be taken at the end of every study course. The form of examination is set in the study programme, the completion of the programme is evaluated using a scale of 10. For courses comprising no more than one credit, programme performance is evaluated with a 'pass' or a 'fail'.

The programme ends with a final national examination, during which the qualification paper is defended, and graded using a scale of 10.

The study programme includes an internship, with the interconnection of the student internship tasks included in the study programme with the study results to be achieved in the study programme. Specify how within the study programme, the higher education institution/college supports students to achieve the tasks set within their study internship.

Two internships are planned as part of the programme.

The goals and objectives of the internships are specified in the internship regulations, which the students are acquainted with when they are admitted to the college.

The objectives of the internships are associated with the expected results of the study programme, and enable its successful completion.

In accordance with the internship regulations, trilateral contracts are signed by RTC, the student and the organisation providing the internship position.

Internship location:

- Provides a workplace appropriate for the programme of the internship, and a person to be in charge of the internship.

At the end of an internship, the student prepares an internship report that includes details about the completion of the internship programme, signed by the person in charge of the internship at the internship organisation.

Students defend their internship reports in front of a commission, with an evaluation by their instructors and internship organisation representatives.

The programme's students also have access to international Erasmus+ internships.

Methods of organization of study work and forms of control of results provided in the study course programs: 1. methods of organizing study work are lectures, seminars, practical classes, consultations, conferences, students' independent studies in the library, practice. 2. The forms of control of study results are oral and written exams, tests, essays, practice description. Students' study work results are evaluated on a 10-point scale, considering the evaluation of study results - 4 points (almost average) as the lowest successful evaluation. Evaluation methods in the study program implementation plan are determined by the respective study program council. Clarity in the learning outcomes and assessment criteria is important. At the beginning of the study course, they are explained so that students have an understanding of the tasks and requirements. When developing criteria, lecturers emphasize not only the evaluation of knowledge, but also the inclusion of skills, abilities and competencies. The development of assessment criteria includes a wide range of tasks that students want to develop, as well as to encourage students to work in different situations. The description of the program of each study course indicates the expected study results. At the beginning of the study course, students are introduced to the expected study results. Lecturers also use the possibilities of the e-environment when advising students and accepting completed tasks. Progress is being made in the implementation of the theoretical part of study courses in the e-environment. Various technical means are used in the practical classes - multimedia projector, video camera, sample collections, posters and diagrams. A multimedia projector is used to defend the course and research work. In most study courses, students receive prepared methodological materials in the e-environment, which significantly facilitates the perception of the content of the study course. Various study methods will be used in the acquisition of separate study courses in practical classes - small group work, analysis and solutions of problem situations, role plays, as well as work in the electronic library. The lecturer has the function of an organizer, consultant and expert in the student's independent work process. The chosen study methods will promote the development of independent, critical and creative thinking for students. They should also promote students' communication skills, ability to work in a group, to overcome and resolve conflicts, to be confident and responsible in decision-making. Academic staff use various types of didactic methods in their work, such as lectures, seminars, group training, demonstrations, discussions, situation modeling, etc. Interactive methods are also used in the study process. Interactive studies are not only an interesting study process, but also encourage participants to take a creative approach, make them think, analyze the information obtained, understand it, compare it with their personal experience. The study program envisages both students' research activities (reports, participation in conferences, development of study and

qualification papers, etc.), as well as scientific and methodological activities of the academic staff to ensure the study process (development of scientific articles, participation in research, conferences). At the final stage of studies, students develop and defend a qualification paper. At the final stage of studies, students develop and defend a qualification paper. Students' work is evaluated in accordance with the RTK Regulations on the procedure for study examinations. The basic principles and procedures for the evaluation of the study program "Refrigeration Equipment" are in accordance with the state education standard. Basic principles of evaluation: 1. Compulsory assessment - education as an integral part of teaching and learning, in which students receive an assessment of the acquisition of the compulsory content of educational programs; 2. openness, clarity and accessibility of the content and criteria of assessment in accordance with the set goals and tasks of the educational program, as well as the goals and tasks of the study subject; 3. Summary of achievements - provision of reliable and useful information for students and teachers on student performance / work performance; 4. objectivity of assessment - in accordance with the requirements of a specific educational program or study subject program, the content of assessment, course conditions, assessment criteria are the same for all students. The principle of conformity of the assessment - the test paper provides an opportunity to confirm the analytical and creativity, knowledge, skills and abilities in tasks and situations corresponding to all levels of acquisition. The amount of content to be included in the examinations corresponds to the content specified in the course descriptions and the skills and knowledge requirements specified in the professional standard. The basic form of program acquisition evaluation is an exam or test, which must be taken at the end of each study course. The form of the examination is determined in the study program, the acquisition of the program is assessed with a mark on a 10-point evaluation scale. Acquisition of the program is assessed on a two-part assessment scale "passed" or "failed" for study courses, the amount of which does not exceed one credit point.

The evaluation of the practice achievements is on a 10-point scale. Acquisition of the program is completed by the state final examination, during which the qualification paper is defended and which is evaluated on a 10-point scale. In the qualification work, students must prove their professional and theoretical knowledge, as well as the ability to demonstrate both specific professional skills and the ability to find arguments and solve problems in the field of specialization. Students develop a qualification paper on a topical topic, which is selected from a list of qualification paper topics developed by the head of the SP and approved by the college council, or the student can suggest a topic for their qualification paper. The supervisor supervises and evaluates the work, later the reviewer evaluates the work. The college selects 5 reviewers who are highly qualified industry professionals with higher education. Reviewers can be from both employers and other higher education institutions of a related profile. The defense of the qualification paper takes place at the meeting of the state final examination commission. The commission consists of representatives of employers, representatives of academic staff from other universities, as well as representatives of the college. The diploma for the first level professional higher education, which also confirms the acquired fourth level of professional qualification, is received by the student who has acquired the educational program and defended the qualification paper, obtaining a grade of not less than 4 - "almost average".

**2.4. If the study programme entails a traineeship, provide the analysis and assessment of the relation between the tasks of the traineeship included in the study programme and the learning outcomes of the study programme. Specify how the higher education institution/ college supports the students within the study programme regarding the fulfilment of the tasks set for students during the traineeship.**

In accordance with Cabinet Regulation No. 141 "Regulations on the State Standard for First-Level Professional Higher Education", the program provides for two internships and totals 16 credit points. The goals and tasks of the internship are defined in the internship regulations, which students are introduced to when starting their studies. The tasks of the practice are related to the expected results of the study program and ensure their acquisition. In accordance with the regulations on the implementation of the internship, tripartite agreements are concluded between RTK, the student and the organization proposing the internship. Place of practice: • Provides the trainee with the requirements of occupational safety, fire safety and occupational hygiene of the relevant institution. • Provides a workplace and internship supervisor appropriate to the internship program. At the end of the internship, students prepare an internship report, which includes an internship diary and is signed by the internship supervisor from the organization. Students defend the internship in front of a commission and it is evaluated by a representative of the organization and the lecturer. International internships within the ERASMUS + program are also available to students of the program.

Internship documentation at the college was developed on the basis of March 20, 2001 by the Cabinet of Ministers Regulations No. 141 Regulations on the State of First Level Professional Higher Education standard. The organization of the internship takes place in accordance with the Regulations of the Cabinet of Ministers of the Republic of Latvia No. 276 "On internships organizational arrangements". Studies are regulated by RTK Regulations, study program, study plan, study course program and study process schedule. The internship is organized according to the study program "Engineering Mechanics", according to the study. The evaluation of the results achieved in practice is determined during each practice, anticipating evaluation criteria and documents to be completed during the placement. Students can participate in the exchange of experience in other universities of a similar level in Latvia or practice abroad (EU Lifelong Learning Program Erasmus sub - program for mobility and cooperation in higher education). The practices are related and correspond in content to the theoretical part. The study program includes acquisition of professional skills. The aim of the internship is to provide a link between those obtained in college knowledge and the real world of work, as well as to enable students to acquire practical work skills and knowledge. The task of the practice is to deepen and strengthen the theoretical knowledge using it in solving specific practical tasks, to develop the skills of a future specialist. The qualification practice is designed to enable students to prepare a qualification paper using real business unit work organization information, evaluate the company's production operation, production characteristics and perform production quality analysis. To provide practice for students of RTK study programs in "Cold Engineering" The Department of Road Transport and Production Technologies has established an extensive network of cooperation institutions and provides 100% internship opportunities. RTK has concluded a long-term cooperation agreement with the Latvian Association of Refrigeration Engineers, which provides opportunities for student internships in the institutions of the association. Agreements have been concluded with employers in the sector in Latvia on the provision of internships. The development of the network of practice institutions is also facilitated by the fact that the Latvian cold service provider graduates of RTK "Cold Engineering" study programs work in the institutions, with which the department has cooperation. RTK practice is provided and managed by RTK practice manager - a program representative who supervises the course of the student's internship in the particular Institution. The internship at the institution is managed by the head of the internship at the institution - An employee assigned by the head of the institution who has practical work experience. RTK offers the student an internship place. The student is also entitled to offer another internship place. The head of the internship or the director of the program evaluates its compliance with the requirements of

the study program. The goals and tasks of the internship are defined in the internship regulations, which are introduced to the students starting the study. The tasks of the practice are related to the expected results of the study program and ensures their acquisition. In accordance with the regulations on the implementation of the internship, tripartite agreements are concluded between RTK, the student and the organization proposing the internship. At the end of the internship, students prepare an internship report, which includes an internship diary and is signed by the internship supervisor from organizations. The professional internship takes place in accordance with the Internship program. The student performs an internship practical activities or research processes in order to fulfill the internship program. Practice The progress of the implementation and the findings are reflected in the Practice Report, which is prepared by the trainee and submitted in accordance with the College's guidelines. Internship instead of the program is followed by the internship supervisor, whose duties and responsibilities are stipulated in the internship agreement. Practice The progress of the implementation is supervised by the head of the practice - the lecturer of the College, thus identifying in time the likelihood of failure of the placement program and consider the necessary changes. According to the internship regulations, there are various organizations, such as: SIA "Vitrum Service" ; SIA "Caverion Latvia"; SIA & quot; MEGA STAR & quot; , SIA "Dayton" and others .

## **2.5. 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 evaluations of the final theses.**

### **Analysis and evaluation of the topics of students' final papers, their topicality in the field, including the job market, and the evaluation of the final papers**

The programme ends with a final national examination, during which the qualification paper is defended, and graded using a scale of 10.

In their qualification paper, the student must demonstrate their professional and theoretical knowledge, as well as their ability to demonstrate specific professional skills, to present their arguments and to solve problems in their field of specialisation.

Students prepare a qualification paper about a relevant topic chosen from a list of qualification paper topics prepared by the head of the study programme and approved by the college council; students may also propose their own topics for a qualification paper.

The research advisor provides consultations and assessments about the preparation of the paper, which is later evaluated by the reviewer. Reviewers can be provided by employers, as well as other higher education institutions working in related fields.

The defence of the qualification paper takes place at a meeting of the state final examination commission. The commission includes representatives of the college, employers, and academic staff from other higher education institutions.

Every year, the state examination commission assesses the appropriateness of the topics to the programme; the topics were deemed appropriate, with a comment on the high quality of the papers and their relevance to the latest developments in the industry.

The topics of students' qualification papers are chosen in close connection with the equipment and operation of refrigeration systems and equipment. The most frequently chosen topics are the

modernization of certain freezers, automation or the installation of new refrigeration equipment. In recent years, when developing a qualification paper, students also tend to create specific freezers. This helps the graduate to better demonstrate his / her abilities and knowledge and usually receives a high grade from the National Examination Commission. During the reporting period, the average evaluation of qualification papers was 7.8 points.

## **2.6. Analysis and assessment of the outcomes of the surveys conducted among the students, graduates, and employers, and the use of these outcomes for the improvement of the content and quality of studies by providing the respective examples.**

### **Summary of the results of the survey on the level of satisfaction of graduates with the quality of their studies**

A survey of 14 questions was conducted among the graduates of the study programme. A total of 17 graduates were surveyed

The results of the survey show that:

- the former students largely found out about the college from their friends, with 55%, as well as from mass media, 15%, online, 26%, and in a different way, 4%;
- 56% chose the study programme because it was interesting, 32% because the profession is in demand on the job market, 5% because of the future prospects, and 7% because the studies are tuition-free;
- 95% managed to fit in the new environment; 5% were able to do so partially, and 0% did not;
- positives: relationships among student group members, attitude of instructors towards students, class scheduling, friendly atmosphere, good gym;
- negatives: not everyone can get a scholarship;
- Of the new full-time students, 46% live with their parents during their studies, while 54% live elsewhere (rent, live with other relatives).

The graduates gave a positive overall assessment of the study programme as well as the knowledge and practical skills they learnt during their studies. The graduates praised the periods of internship, during which they could put the knowledge they gained during their studies into practice, become acquainted with the real business environment; they commented on employers' well-disposed attitude towards students, at the same time stating that employers did not trust students with any important tasks.

The graduates also praised the democratic and affable attitude of the academic staff towards the students, their personal approach, qualifications and ability to connect theoretical knowledge to real situations. The graduates recommended more use of the college's website and Moodle system, for better internal communication.

Graduates of the Refrigeration Engineering programme were highly satisfied with their studies at the college. Almost 90% of the graduates work in the field that they studied, demonstrating that the study programme is geared towards the needs of employers.

## **2.7. Provide the assessment of the options of the incoming and outgoing mobility of the**

**students, the dynamics of the number of the used opportunities, and the recognition of the study courses acquired during the mobility.**

The head of the study programme, in conjunction with the industry association and employers, handles the organising of instructor and student mobility at RTC; the task is also managed by the External Relations Division, created with the purpose of conducting international cooperation with organisations and associations from other countries in RTC.

As part of the Erasmus programme, students can obtain detailed information about the internship and its conditions on the website of the school in question, and meet partners offering employment opportunities.

Erasmus+ provides students of higher education institutions with the opportunity to gain international experience and knowledge while studying at one of partner higher education institutions or to work as interns in foreign companies or other relevant places of work.

The period of mobility is also mentioned in the diploma supplement.

RTC has an Erasmus+ programme, in which the following students participated this semester:

A-AT-2 group student Mārtiņš Podnieks (internship at Külmakomponentide OÜ, Igaunija)

A-AT-1 group student Elvijs Gudulis (internship at AB Dayton, Lietuva)

The External Relations Department of RTK organizes the mobility of teaching staff and students, which has been established with the aim of ensuring RTK's international cooperation with organizations and associations of other countries. The External Relations Department organizes student internships in foreign companies. Any RTK student can complete an internship in one of the EU countries within the Erasmus program and receive the scholarship provided for in the program. Each year, students have the opportunity to obtain detailed information about the internship and its conditions, as well as to meet with partners who offer employment opportunities. Students of Erasmus + educational institutions are given the opportunity to gain international experience and knowledge by studying in one of the partners to practice in foreign companies or other suitable jobs. The objectives of traineeship mobility are: • provide an opportunity for students and recent university graduates to gain practical experience in a company or organization in another European country; • to help students adapt to the requirements of the EU labor market; • provide opportunities for students and recent graduates to develop specific skills, including language skills, and to improve their understanding of economic and social culture; • to promote co-operation between universities and companies; • to promote the development of well-qualified, open and internationally experienced young people - future professionals. At the end of the mobility: • the host institution provides the student and RTK University with a transcript of records confirming that the agreed program has been completed; • The mobility period is also mentioned in the diploma supplement. RTK is an Erasmus + program that participated this semester A-AT-2 group student Mārtiņš Podnieks (place of practice was Külmakomponentide OÜ, Estonia) A-AT-2 group student Aivars Linkevičs (place of practice was AB Dayton, Lithuania) A-AT-1 group student Elvijs Gudulis (place of practice was AB Dayton, Lithuania) As you can see, students like to use both internships and study opportunities in exchange programs to different countries.

### **III - DESCRIPTION OF THE STUDY PROGRAMME (3. Resources and Provision of the Study Programme)**

**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. Whilst carrying out the assessment, it is possible to refer to the information provided for in the criteria set forth in Part II, Chapter 3, sub-paragraphs 3.1 to 3.3.**

The college is an educational institution established by the state. It mainly receives funding through the national budget. The resources currently available enable the implementation of the field of study, are appropriate for the content of the studies, and make it possible to organise the study process. The development of the college is subject to regular planning.

The study process takes place in the classrooms at Braslas iela 16 in Riga, and at the internship locations.

A modern study process cannot be imagined without using information and communication technologies: the college makes it possible to work in classrooms with video presentation equipment, digital multimedia projectors and portable computers. The college has classrooms with fixed presentation equipment, an internet connection and an interactive whiteboard. All of the classrooms have fixed computers with an internet connection and the possibility of connecting them to a portable digital projector. The equipment enables a modern, high-quality study process, helping students learn better. The computer rooms at the college are equipped with modern computers. The computers have MS Windows 7, MS Windows 8 operating systems and MS Office Professional 2007, 2010 and AUTOCAD 2014 software installed. Students may use the computers when not used for classes, to prepare their independent projects, term papers, internship reports or qualification papers. The college provides an internal wireless Wi-Fi connection offering free internet access to students and instructors.

The professional study course laboratories are equipped with the necessary equipment. The teaching of professional study courses is enabled through the following laboratories: welding laboratory, refrigeration equipment laboratory and air conditioning laboratory. Professional internships also take place in the mechanical and welding workshops. The workshops have the equipment necessary for completing the workshop internship and the study programme.

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

### **III - DESCRIPTION OF THE STUDY PROGRAMME (4. Teaching Staff)**

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

As instructors are replaced, there has been a notable trend towards improvement in the quality of studies in recent years. This is explained by the fact that the new instructors are younger, more energetic and have an up-to-date, modern knowledge base. This has been confirmed through student surveys and feedback on the quality of education.

Statistical data based on the college's yearbook show that an average of 95% of graduates work in a profession that is within the field of the study programme they completed.

A total of 16 lecturers are involved in the implementation of the study program, 3 of whom have a doctoral degree (18.75%), 7 a master's degree and 6 a bachelor's degree. Out of 7 teachers of professional subjects, 4 have an instructor-assessor certificate. The teaching staff performs in-service training (courses, internships in cold-related companies, lectures and internships at foreign universities) according to a plan. During the reporting period, 2 teachers of professional subjects, Armands Daubergs and Aivars Linkevičs did internships in cold-related companies. The above-mentioned activities help to maintain and increase the qualification of the teaching staff, to compare the qualification of the teaching staff of the study program with the qualification of the teaching staff of similar universities and to create training courses according to the needs of the cold industry. The mutual cooperation of the teaching staff is good and the issues of connection of the study courses are regularly discussed both in the department meetings and when the teaching staff meet individually. In the study program 2020/21. ak. 31 students studied and 16 lecturers were involved in its implementation, so the ratio is 1.93 students per 1 lecturer. Faculty members constantly develop their qualifications and professional competence in various seminars, courses, conferences, master classes, etc., as well as in all kinds of international mobility projects, thus ensuring sufficiently high study results.

#### **4.2. 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 actively participates in the improvement of the study program, updating of study courses, methodological work, as well as constantly improving itself in further education courses, seminars, further studies, participates in scientific research, conferences, projects. The results of scientific activity are incorporated into study courses, introducing students to the latest trends in the field. All abilities, skills and knowledge provided for in the standard of professions are included in the content of the study courses of the respective study program, both in preparing the theoretical framework of which, in developing independent studies and examinations, and in organizing professional practice.

**4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of the 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 may be additionally specified (if applicable).**

**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).**

**4.5. Provide examples of the involvement of the academic staff in the scientific research and/or artistic creation activities both at national and at international level (in the fields related to the content of the study programme), as well as the use of the obtained information in the study process.**

1. Tatjana Reznika 2020.g.izstrādā DIGITĀLAIS MĀCĪBU LĪDZEKLIS "SILTUMAPMAIŅAS PROCESI ĶĪMISKĀS RŪPNIECĪBAS UN TĀS SASKARNOZARU UZŅĒMUMOS"

2. Inna Saraņina 2020.g.izstrādā "Metodiskie norādījumi par RTKun RTU kursa darba izstrādi priekšmetā "Saldētavas būves"(Sadaļa " SALDĒTAVAS SILTUMA DAUDZUMA APRĒĶINS")

### **3. Sadarbībā ar VARAM Vides aizsardzības departamentu un RTK**

**lektoriem(I.Šaraņina,I.Klotiņa,A.Daubergs)izveidots un novadīts 16 stundu mācību kurss praktizējošiem tehniķiem "CO<sub>2</sub> kā aukstumaģenta izmantošana" (praktiskā un teorētiskā daļa).**

Research results, incl. scientific articles in the field of conditioning became the basis for A.Boiko's doctoral dissertations (already defended dissertation), where one of the novelties of these works is the development of the theoretical basis and methodology for evaluating the competitiveness of secondary school students and students as future specialists Lecturers of RTK study program "Refrigeration Equipment" (A.Boiko; I.Šaraņina; A.Daubergs; T.Reznika) are trained in Danfoss, Alfa laval courses on the use of alternative refrigerants. They are needed to train refrigeration professionals and make the use of increasingly used and climate-friendly refrigerants (CO<sub>2</sub>) in refrigeration worldwide more accessible. Lecturer A.Daubergs deals with the diagnostics of compressor equipment, creating experimental equipment. Senior students are also involved in this work, who develop study work within this topic. The equipment operation model developed by students is further used for training other students. Artistic activity A.Linkevičs. - Arrangement of the exhibition stand "Rīga Food" (2019,2020). Name of the stand - exposition "Refrigeration

automation devices"

**4.6. 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 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).**

Department heads report on their work to the RTC council. The head of the study programme reports on the study programme they are in charge of, providing a self-assessment that is included in the self-assessment for the field of study.

The following RTC units and partners participate in conducting study programmes:

General Studies and Management Studies Department;

Road Transport and Production Technology Department;

Information and Communication Technology Department.

Riga Technical University and other higher education institutions.

Industry associations

The departments are in charge of providing the theoretical and internship for the study course in question.

The following RTC auxiliary staff is involved in conducting study programmes: Study Division, teaching workshops for internships, Research and Method Development Division, Study Process Development Assurance Division, library, information centre, Accounting Division, student residence, cafeteria.

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.

In order to promote the connection of study courses, the teaching staff of the study program conducts regular discussions and discussions on topical issues of the content of their and colleagues' study courses, coordinating the topics, as well as discusses the latest development trends in the respective field of technology.

# Annexes

III. Description of the Study Programme - 1. Indicators Describing the Study Programme		
Compliance of the joint study programme with the provisions of the Law on Institutions of Higher Education (table)		
Statistics on the students over the reporting period	Refrigeration Engineering study programme.docx	Aukstumn_dinamika.docx
III. Description of the Study Programme - 2. The Content of Studies and Implementation Thereof		
Compliance of the study programme with the State Education Standard	Aukstums_Pielikuma paraugs_nr6_ENG.docx	Aukstums_Pielikuma paraugs_nr6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard (if applicable)	Aukstums_standarts_Eng.docx	Aukstums_standarts.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	Studiju programma AUKSTUMTEHNIKA (1).docx	Studiju programma AUKSTUMTEHNIKA.docx
Curriculum of the study programme (for each type and form of the implementation of the study programme)	Studiju programma AUKSTUMTEHNIKA (1).docx	Studiju programma AUKSTUMTEHNIKA.docx
Descriptions of the study courses/ modules	AUKSTUMS KURSU APRAKSTI.docx	AUKSTUMS KURSU APRAKSTI.docx
Description of the Study Direction - Other mandatory attachments		
Sample of the diploma to be issued for the acquisition of the study programme.	Diploms.zip	Diploms.zip
Description of the Study Programme - Other mandatory attachments		
Document confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued	Sadarb_Univ.zip	Sadarb_Univ.zip
Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme	Kompens_neakr.docx	AIC_90.edoc
Confirmation of the higher education institution/ college that the teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language according to European language levels (see the levels under <a href="http://www.europass.lv">www.europass.lv</a> ), if the study programme or any part thereof is to be implemented in a foreign language.		
If the study programmes in the study direction subject to the assessment are doctoral study programmes, a confirmation that at least five teaching staff members with doctoral degree are among the academic staff of a doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field or sub-field of science, in which the study programme has intended to award a scientific degree.		
If academic study programmes are implemented within the study direction, a document confirming that the academic staff of the academic study programme complies with the provisions set out in Section 55, Paragraph one, Clause three of the Law on Institutions of Higher Education		
Sample (or samples) of the study agreement	2020_A-AT.doc	2020_A-AT.doc
If academic study programmes for less than 250 full-time students are implemented within the study direction, the opinion of the Council for Higher Education shall be attached in compliance with Section 55, Paragraph two of the Law on Institutions of Higher Education.		

# Engineering Mechanics (41521)

Study field	<i>Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering</i>
ProcedureStudyProgram.Name	<i>Engineering Mechanics</i>
Education classification code	<i>41521</i>
Type of the study programme	<i>Short-cycle professional higher education study programme</i>
Name of the study programme director	<i>Anda</i>
Surname of the study programme director	<i>Kazuša</i>
E-mail of the study programme director	<i>anda.kazusa@kcrtk.lv</i>
Title of the study programme director	<i>Inženierzinātņu maģistrs</i>
Phone of the study programme director	<i>+37126464283</i>
Goal of the study programme	<p><i>The aim of study programme is:</i></p> <ol style="list-style-type: none"> <li><i>1. To prepare students for working in mechanical engineer profession according to 4. level of qualification of mechanical engineer profession standard and first level higher education requirements, that are capable to do service, can organise and manage stuff.</i></li> <li><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></li> <li><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></li> </ol>
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 mechanical engineering machines:</i></p> <ol style="list-style-type: none"> <li><i>1. to prepare qualified specialists, that are comprehensive, competitive in labour market mechanical engineering area specialists, that are able to work in engineering companies, diagnose centres and related companies.</i> <ul style="list-style-type: none"> <li><i>- to do mechanical engineering machines maintenance, diagnosis and repair.</i></li> <li><i>- to prevent damage of parts of machines by doing exchange of parts and assemblies, by doing assemble and deassemble, by renewing parts or alignment, by doing locksmith operations.</i></li> <li><i>- to communicate with client and manage the stuff.</i></li> <li><i>- to know business economic and legislation, to manage engineering establishment or related companies department.</i></li> </ul> </li> <li><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></li> <li><i>3. To provide participation of employer in design of content of studies and organisation of qualification exam.</i></li> <li><i>4. To cooperate with related Latvian and foreign organisation and employers in professional education area.</i></li> <li><i>5. To make applied research in working field, organise student conferences and to publish the results.</i></li> <li><i>6. Optimise internship process for students according to modern labour market requirements.</i></li> </ol>

Results of the study programme	<p>The study program "Engineering Mechanics" 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.</p> <p>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 "Engineering Mechanics" must have appropriate knowledge, skills and competence in the professional field.</p> <p>Knowledge of:</p> <ul style="list-style-type: none"> <li>• Construction and types of industrial, automatic equipment;</li> <li>• Regulated and legal requirements for the operation of industrial and automatic equipment in Latvia and the European Union;</li> <li>• small business organization, work planning and management;</li> <li>• environmental protection, occupational safety, fire safety and hygiene requirements.</li> </ul> <p>Skills:</p> <ul style="list-style-type: none"> <li>• Can read technical documentation and evaluate equipment specifications. .</li> <li>• Knows the peculiarities and parameters of industrial, automatic equipment operation.</li> <li>• Can control the technical condition of equipment</li> <li>• Is able to control the observance of safety equipment when using the equipment.</li> <li>• To compile an assessment of the quantitative and qualitative operation of industrial and automatic equipment.</li> <li>• Is able to calculate the operating cost of industrial, automatic equipment and determine efficiency.</li> <li>• is able to critically evaluate risk factors and offer solutions;</li> <li>• is able to evaluate the laws and regulations related to environmental protection in connection with the operation of industrial, automatic equipment;</li> </ul> <p>Competence:</p> <ul style="list-style-type: none"> <li>• Able to control the technical condition of industrial, automatic equipment and compliance with its operating regulations.</li> <li>• Ability to make the right decisions quickly in specific work situations.</li> <li>• Ability to plan and organize diagnostics or repairs of industrial, automatic equipment repair equipment.</li> <li>• Ability to control the technical condition of the equipment, the quality of installation and repair work to be performed.</li> <li>• Ability to analyze production bottlenecks and assess the expected, ongoing or completed reconstruction of individual stages or business units.</li> <li>• Ability to ensure compliance with environmental and labor protection legislation.</li> </ul> <p>The study program of Engineering Mechanics provides competitiveness and professional growth opportunities for the graduates of the program in the field of operation of industrial and automatic equipment, work in the development and improvement of new systems, products and technologies and applied research and pedagogy, as well as continuing education for bachelor's degree.</p>
Final examination upon the completion of the study programme	Qualification paper

# Study programme forms

## Full time studies - 2 years, 6 months - latvian

Study type and form	<i>Full time studies</i>
Duration in full years	2
Duration in month	6
Language	<i>latvian</i>
Amount (CP)	100
Admission requirements (in English)	<i>Secondary education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Does not exist</i>
Qualification to be obtained (in english)	<i>Mechanical engineer. Mechatronic</i>

## Places of implementation

<b>Place name</b>	<b>City</b>	<b>Address</b>
Daugavpils branch of Vocational education competence center "Riga Technical College"	DAUGAVPILS	STRĀDNIEKU IELA 16, DAUGAVPILS, LV-5404
Vocational education competence center "Riga Technical College"	RĪGA	BRASLAS IELA 16, VIDZEMES PRIEKŠPILSĒTA, RĪGA, LV-1084
Liepāja branch of Vocational education competence center "Riga Technical College"	LIEPĀJA	VENTSPILS IELA 51, LIEPĀJA, LV-3405

### **III - DESCRIPTION OF THE STUDY PROGRAMME (1. Indicators Describing the Study Programme)**

#### **1.1. Description and analysis of changes in study programme parameters that have taken place since the issue of the previous accreditation certificate of study direction or the license of study programme if study programme is not included in the accreditation page of the study direction**

RTC implemented its Mechanical Engineering study programme in 2001 (with graduates receiving the qualification of a mechatronics engineer); the study programme was updated in 2010.

The Mechanical Engineering study programme was merged with a similar study programme, optimised, resulting in a shared programme with multiple specialisations.

Given that Mechatronics Engineers and Mechanical Engineering Specialists share a number of study courses, there are two possible qualifications for those graduating from the Mechanical Engineering study programme: Mechanical Engineering Specialist and Mechatronics Engineer.

The duration of the Mechanical Engineering study programme (full-time) is 2.5 years, with 100 credits (150 ECTS).

Both of the specialisations of the Mechanical Engineering study programme share mandatory general education courses (20 credits) and field-specific study courses (24 credits), while 31 credits are assigned based on the respective professional competences of Mechatronics Engineers and Mechanical Engineering Specialists.

Changes were made in accordance with Section 12 of Cabinet Regulation 512 'Regulations on the national standard for level-two vocational higher education', and the programme for the 2017/2018 academic year included courses in environmental protection and civil defence, with changes in the study courses of the programmes and in their content.

The Occupational Safety, Environmental Protection, Civil Defence study course was replaced with an Environmental Protection, Civil Defence course (2 credits), while occupational safety was moved to other industry-related courses (1 credit).

The study course has lost relevance in Europe and Latvia. A 'Research Methods' study course has been introduced to offer better knowledge of the drafting of research papers and to better train students to prepare their own term and qualification papers.

#### **1.2. Analysis and assessment of the 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 in the different study forms, types, and languages.**

##### **Statistical data about study programme students**

*Student trend*

Table 13

Study year	2013./2014	2014./2015	2015./2016	2016./2017	2017./2018	2018./2019	2019./2020	2020./2021
Number of students	95	92	75	86	102	122	104	122
Proportion of students, %	12	12	11	12	15	17	16	17

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.

There is only one type of study - Full-time.

### **1.3. Analysis and assessment of the interrelation between the name of the study programme, the degree or professional qualification to be acquired or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements.**

The main goal of the first level higher professional education study program "Engineering Mechanics", the successful completion of the study program is awarded by the qualification Mechatronics or Mechanical Engineering Specialist, the fourth level of education in Latvia (LQF level 5):

- To prepare students for work in the field of metalworking and / or mechanical engineering;
- To promote the acquisition of knowledge and skills that ensure the development of the learner's talents and abilities for the work of a middle-level manager;
- To provide an opportunity for the learner to prepare for continuing education in higher level study programs and to increase professional qualification in courses and seminars.

Tasks: to provide basic knowledge and professional competencies, as well as to prepare persons for independent highly qualified work in the field of metalworking and mechanical engineering, which is related to the design, manufacture, installation and maintenance of equipment and devices.

In order to achieve the set goal, the program envisages the provision of knowledge, the creation and development of a set of knowledge, skills and attitudes necessary for the performance of professional activities in accordance with the qualification. The knowledge, skills and competencies that the student will acquire within the program and the study course are clearly formulated in the study program and in each study course. The skills, knowledge and competencies to be acquired, in turn, are related to the competencies and abilities specified in the Mechanical Engineering Specialist and Mechatronics standard, taking into account the changing requirements of the labor market, as changes ensure the sustainability of the study program.

Mechanical engineering specialists and Mechatronics who have mastered this study program can work in various industrial companies or continue their studies at Riga Technical University or other higher education institutions.

European Social Fund project 8.5.2. Within the framework of "Improvement of the Sectoral Qualification System for the Development and Quality Assurance of Vocational Education" (Agreement No. 8.5.2.0 / 16 / I / 001), the professional standards are updated.

Persons with general secondary education or secondary professional education can start studies. Students are matriculated in the programs on a competitive basis, in accordance with the matriculation regulations both in state-funded budget places or for self-financing.

The field of study is based on study programs, which in turn are based on standards. College education focuses on the acquisition of practical skills for students, including internships.

### **III - DESCRIPTION OF THE STUDY PROGRAMME (2. The Content of Studies and Implementation Thereof)**

**2.1. Assessment of the relevance of the content of the study course/ module and the compliance with the needs of the relevant industry and labour market and with the trends in science. Provide information on how and whether the content of the study course/ module is updated in line with the development trends of the relevant industry, labour market, and science. In 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.**

#### **Assessment of the relevance of the content of study courses/modules and compliance with the needs of the industry, labour market and scientific trends**

The study programme complies with Cabinet Regulation No. 141 'Regulations for the national level-one vocational higher education standard'.

<https://likumi.lv/ta/id/6397-noteikumi-par-pirma-limena-profesionalas-augstakas-izglitibas-valsts-standardu>

The scope of the study programme is 100 credits/150 ECTS, according to the national standard for level 1 vocational higher education, with study courses taking up 75 credits (with 20 credits (30 ECTS) in general education courses, 24 credits in field-specific courses, 32 credits in mechatronics or mechanical engineering courses), internship taking up 16 credits, and the qualification paper, 9 credits. Overall, theory accounts for 37% of the total number of contact hours in the study programme (2500 h), practical assignments for 23%, internship for 25%, preparation of the qualification paper, for 15%. This allocation of hours is appropriate for the achievement of the goals of the vocational study programme.

Duration of the study programme: 2.5 years full-time, whereby one credit corresponds to 40 weekly work hours of the student; for a full-time programme, this means 20 contact hours and 20 hours of unsupervised work. Internship for the students takes 40 hours a week. The study programme and the study plan determine the study courses to be taught, their forms, scope, sequence and distribution by semester. The study process schedule specifies the deadlines for the academic year. The study course programmes specify the topics of the studies and internship. As part of the programme, students take 10 exams, 23 graded tests and 17 ungraded tests, and prepare 5 term papers. The field-specific study courses are appropriate for the profession of a mechatronics

engineer or mechanical engineering specialist.

The main study methods include classes, workshops, practical activities, tests, study visits to businesses, factories, preparation of term papers. Guest instructors are invited for teaching certain topics, and practitioners from businesses/organisations are invited to manage practical activities.

A major role in enabling connections between students, academic staff and programme management is played by the student government (RTC council meeting minutes No. 40-2008 of 2 December 2008), which reviews student proposals, collects them and reports them to programme management, to jointly find solutions and improve the study process.

In order to improve the quality of studies and make it possible for students to submit proposals and complaints concerning various matters pertaining to their studies, Riga Technical College has organised the submission and review of student proposals and complaints in accordance with the 'Standards and Guidelines for Quality Assurance in the European Higher Education Area' (2015; approved at the meeting of ministers of the Bologna Process in Yerevan on 15 May 2015). Whistle-blower section specified by the Ministry of Education and Science on the website of RTC:

<http://www.rtk.lv/?sadala=5082>

As part of the field of study, the college collaborates with industry associations and companies, RTC is a member of the Association of Mechanical Engineering and Metalworking Industries (MASOC) representing 162 companies, and the Latvian Electrical Engineering and Electronics Industry Association (LETERA) representing 60 companies.

A number of study courses are taught by guest instructors from businesses in the industry, such as the Mechanical Engineering Equipment, Devices and Tools, Programmable Controllers, Processing Theory and Processes, CNC Programming courses.

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

Cooperation with employers takes place in a systemic manner, with revisions and updates of the content of study programmes and courses appropriate to changes on the job market. The following study courses were updated: Fundamentals of Robotics, Production Process Automation, Material Studies, Power Tool internship, Hydraulics and Pneumatics, Programmable Controllers.

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM, as part of which equipment for the Mechanical Engineering study programme was updated. Changes in the content of training internships, laboratory and practical assignments are being introduced in view of the new equipment, with instructors preparing teaching materials.

Content changes were introduced in the industry study courses using Erasmus+ Strategic Partnership projects:

'Erasmus+ Strategic Partnership, Integrated Smart Education in Robotics (INSMER)'

No.: 2016-1-EE01-KA202-017321 (Finland, Estonia, Latvia), and

Skills in Metal and Electro Industry - (skillME) ERASMUS+ PROGRAMME554370-EEP-1-2014-1-SI-EPPKA2-SSA Three-year cooperation project for vocational education providers, government institutions and representatives of the metalworking and power engineering sectors in the following EU member states: Croatia, Latvia, Slovakia and Slovenia. The project goal was to determine key skill deficiencies in the field of metalworking and electrical engineering, with four education

programmes developed to correct these deficiencies; RTC integrated the programme content developed in the industry courses of the Mechanical Engineering study programme.

RTC participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project 'Development of interactive and animated drawing teaching aids'; materials available at: <https://liggd.lt/diad-tools/iv/learningMaterialsLV> 2019

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM', as part of which equipment for the Mechanical Engineering study programme was updated. Changes in the content of training internships, laboratory and practical assignments are being introduced in view of the new equipment, with instructors preparing teaching materials.

As part of the field of study, there is regular and active collaboration with companies, employers, professional association, with the purpose of being informed of the recent and important developments in the industry.

The technical base of RTK studies is constantly updated with the latest achievements in the field (desks and stands), as well as with the latest versions of software.

**2.2. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators, the relation between the aims of the study course/ module and the aims and intended outcomes of the study programme. In 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.**

**Interrelation of information included in the study courses/modules, learning outcomes, set goals, and other indicators**

The methods for organising the studies include lectures, workshops, practical activities, consultations, conferences, independent student assignments at the library, internships.

2. The forms for controlling the learning outcomes include oral and written exams, test, essays, internships.

The academic performance of students is evaluated on a scale of 10, with the lowest passing grade being 4 (almost satisfactory).

The council of the study programme determines the evaluation methods in the study programme implementation plan.

Understanding the expected study results and the applicable evaluation criteria is important. These are explained at the beginning of a study course, so that the students understand the assignments and requirements set for the course. When choosing the criteria, instructors emphasise the evaluation of not only knowledge, but also skills and competences.

In developing the evaluation criteria, a broad spectrum of tasks is integrated, covering what should be developed in students, with an additional goal of encouraging students to operate in different situations.

The programme description of every study course specifies the expected study results.

At the beginning of study courses, the students are familiarised with the expected results of the studies. When consulting students and receiving assignments from them, instructors also use online and digital tools.

There is progress towards teaching the theoretical part of study courses in digital format.

**2.3. Assessment of the study implementation methods (including the evaluation methods) by providing the analysis of how the study implementation methods (including the evaluation methods) used in the study courses/ modules are selected, what they are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.**

• **Assessment of methods for conducting studies (including evaluation methods)**

The evaluation of student knowledge complies with Cabinet Regulation No. 141 on the national standard for level-one vocational higher education of 20 March 2001, Republic of Latvia Ministry of Education and Science Order No. 208 of 14 April 1998, and RTC decisions.

One of the key principles of evaluation is the principle of aggregating positive achievements.

Duties:

- foster the responsibility of students for the outcome to be achieved as part of the study process;
- motivate students to improve their academic performance through self-assessment;
- introduce necessary study process corrections to improve results.

At the beginning of the course, the students are familiarised with its content and assessment criteria. The evaluation as part of a study course takes place as the student fulfils the requirements set in the course programme. Particular attention is paid to the study method of case studies using the factual information about local and foreign businesses.

The objectives of term papers and qualification papers include a comparison of various solutions/variants/opportunities with expected results, with the practical development of problem-solving skills.

Academic staff consultations and assistance are provided to students, with inspections of intermediate results, in order to ensure the achievement of the results of the study programme within the intended time, and increase the motivation to study.

Prior preparation of students is important when they begin a study course. The admission of students takes place in accordance with the 'Admission procedure' developed by RTC, in accordance with Sections 45, 46 and 83 of the Law on Higher Education Institutions.

Students may choose the topics of independent projects and research reports based on the topics they find relevant (if the student works in an appropriate company). During the presentation of their paper, other students are also able to familiarise themselves with the specific factories and companies in the industry.

This is why different forms of study are emphasised as part of the work: work in small groups, preparation of study papers and research projects, discussions in groups, and public defence of

projects.

The dialogue between the student and the instructor is a special form of study activities, the purpose of which is to create a working environment characterised by team spirit, mutual understanding and tolerance, and to enable the transfer of knowledge and practical experience from the instructor to the student in a way that is as optimal as possible. The following forms of dialogue were created during the execution of the study programme: familiarisation of students with detailed course descriptions; studies in small groups that make it possible to involve every student in conversation; public defence and evaluation of the qualification paper; weekly individual consultations; cumulative study performance evaluation system and result analysis; public defence of internships and their results; assessment of internships, involving students and internship managers; arrangement of student surveys about the courses of the study programme.

The study process is designed to be active and engaging for the students. Foreign languages are being integrated into study courses, by encouraging students to use literature published in foreign languages, and inviting guest instructors from abroad.

Process-orientated assessment is performed during the learning of the study content, in order to compare the expected student knowledge descriptions with real results. An important condition is acquainting the students with the expected result, with methods for analysing the results, the arguments used to justify conclusions on the main deficiencies and weaknesses in the students' papers, and the possible causes for such deficiencies. As a result, both the instructors and the students develop the ability to learn and organise information, to process it and to derive new knowledge from it, also encouraging the inclusion of the students in the responsibility for their own academic performance, and their compliance with the goals and objectives set as part of the study courses.

In conducting the study process, we use student-orientated teaching and teaching principles: respect towards the students as a group and towards the diversity of their needs, developing appropriate teaching methods and goals, and a large variety of teaching methods are used whenever possible and if the conditions allow it. During the study process, the student is encouraged to be independent, while the supervision and support of instructors is provided as well. Mutual respect is fostered between the instructor and the student.

In order to determine the mutual relations between the management staff, academic staff and the students, lecturer E. Tože (Džeksone) developed the RTC Code of Ethics based on a document of the Council of the European Schools, the Education Law, the Latvian Administrative Violations Code, and the internal rules of conduct of RTC. It is available to all RTC students, instructors and other staff at the RTC library, and is also kept by the group supervisor and the deputy head in charge of education.

The purpose of the Code of Ethics is to encourage the college's students, academic and other staff to be fair, honest and reliable, to perform their immediate duties responsibly and in good faith, and to follow ethical principles in communication and conduct.<sup>1</sup> E. Tože. 'Implementation of a code of ethics in the work of RTC students, instructors and other staff'.

**2.4. If the study programme entails a traineeship, provide the analysis and assessment of the relation between the tasks of the traineeship included in the study programme and the learning outcomes of the study programme. Specify how the higher education institution/ college supports the students within the study programme regarding the fulfilment of the tasks set for students during the traineeship.**

## Linking of the tasks of internships to the learning outcomes of the study programme

Internship documentation at the college was developed using Cabinet Regulation No. 141 'Regulations for the national level-one vocational higher education standard' of 20 March 2001.

Internships are organised in accordance with Cabinet Regulation No. 276 'Procedure for organising internships in education'. Studies are governed by the Statute of RTC, the study programme, the study plan, the study course programme and the study schedule.

Internships are organised in accordance with the Mechanical Engineering study programme and the study schedule. An assessment of the results achieved as part of internships is carried out during every internship, with assessment criteria and documents that must be filled in during internships.

Students can participate in experience-sharing activities in other higher education institutions of a similar level in Latvia, or join internships abroad (EU Lifelong Learning Programme Erasmus sub-programme for mobility and cooperation in higher education).

The internships are associated with the theoretical part of the programme, and comply with it in terms of their content. The study programme includes the learning of professional skills. The purpose of internship is to create a link between the knowledge gained at the college and the actual working environment, enabling the students to gain practical working skills and expertise. The task of internship is to expand and strengthen theoretical knowledge by using it in handling practical tasks, and to develop the skills of the future specialist.

*The internships and the qualification internship planned as part of the study programme are as follows:*

Table 14

Internship name/speciality	Fitter internship	Machine tool internship	Electric wiring and measurement internship	Internship at a company	Qualification internship
Mechatronics engineers	2 credits	2 credits	3 credits	4 credits	5 credits
Mechanical Engineering Specialist	2 credits	4 credits		5 credits	5 credits

Internship at a company is intended to take place after the completion of theoretical studies, within the units of a company/organisation. The purpose of this internship is to reinforce the knowledge and to apply it in a working environment. During their internships, students prepare an internship report, which they submit and defend once the internship ends. Production and qualification practice training is organised at leading companies in the sector, such as: SIA TTS ('Transporta tehnoloģiskās sistēmas'), SIA Silkeborg Spaantagning Baltic, SIA LSEZ Jensen Metal, SIA Peruza, AS 'Daugavpils lokomotīvu remonta rūpnīca', SIA EAST METAL, SIA RODLEN, HF Hydraulics, SIA Bucher Municipal, SIA 'Hansa Flex hidraulika', SIA City Playgrounds, SIA In-Metal, AE Partner SIA FE.ELEKTRONIC.

The purpose of qualification practice is to make it possible for students to prepare their qualification

paper, by using information about the organisation of work in a division of a real company, assessing the manufacturing activities of the company and the specific nature of its production process, and analysing the quality of production.

The completion of the internship programme is evaluated on a two-level scale ('pass' or 'fail'). The persons in charge of internships in companies and at the college handle the evaluation.

Cooperation agreements have been concluded between RTC, MASOC and Letera. Currently, the association has more than 160 mechanical engineering and metalworking companies and companies in related fields. The companies that are a member of MASOC employ a total of some 10,000 people, with a total turnover exceeding EUR 730 million.

RTK staff uses the concluded agreements on the allocation of internships, as well as personally addresses entrepreneurs (mostly RTK graduates) to find internships for students. A large number of students study while working in the specialty.

## 2.5. 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 evaluations of the final theses.

### Evaluation of qualification exams

*Qualification exam results for the 2020/2021 academic year*

Table 15

Education programme	Qualification to be awarded	Exam taken	Average score	Evaluation score					
				5	6	7	8	9	10
Mechanical engineering	Mechanical Engineering Specialist	16	8,13	-	-	5	5	5	5
Mechanical engineering	Mechatronics Engineer	14	8,00	1	1	3	4	2	3

Employer representatives and leading instructors of the study programme and the college participate in the assessment of the results of the study process. The State Qualification Commission for Mechatronics Engineers consists of:

Chairman: Oskars LINIŅŠ, professor at RTU Instrument Engineering Department, Dr.sc.ing.

Deputy chairman: Jānis NIPERS, deputy head of RTC for studies and research, Mg.sc.ing, mg.sc. in Environmental Engineering

Edgars Metuzāls, Caljan representative, Master's degree in Power Engineering and Computerised Control

Jānis Spoģis, head of SIA FESTO, Mg.sc.ing.

The State Qualification Commission for Mechanical Engineering Specialists consists of:

Chairman: Juris Krizbergs, professor at RTU Instrument Engineering Department, Dr.sc.ing.

Deputy chairman: Jānis NIPERS, deputy head of RTC for studies and research, Mg.sc.ing, mg.sc. in Environmental Engineering

Toms Grīnfelds, board chairman of the Association of Mechanical Engineering and Metalworking Industries (MASOC), Mg.sc.ing.

Members: Arnis Petrānis, board chairman of Peruza and council chairman of MASOC

The qualification paper results, the deficiencies and successes in student performance are shown in SQC reports:

SQC mechanical engineering specialist feedback about the qualification papers was prepared in accordance with the tasks issued, at a good technical level, the scope of topics was appropriate to the qualifications to be awarded and to the real needs of the economy.

The feedback by the qualification paper advisors and the reviews by the reviewers offered a sufficiently objective representation of the quality of the papers. The overall student performance was good. The work of the SQC took place in a coordinated and unimpeded manner, without any significant disagreements in assessing the papers.

The SQC noted the following overall positive elements in the qualification papers:

- All of the results of these papers can be implemented in manufacturing, and the products thus obtained can see practical use;
- The students prepared presentations of their qualification papers, and prototypes of the products they had designed;
- The formatting of the papers complies with the regulations of VECC RTC.

The SQC recommends:

As part of the studies, paying more attention to learning various materials in mechanical engineering, to the precision of structures and parts, to the quality of surfaces, and to the use of international standards in preparing drawings.

Enclosed:

- Compliance of the study programme with the state education standard, Annex 5.
- Compliance of the study programme with the industry-specific regulations, Annex 6.

See the mapping of study courses for achieving learning outcomes of the study programme (recommended)

- Study programme plan, Annex 7.

Final paper topics:

- Prototype of automated plant watering equipment
- Design of metal chip briquetting equipment
- Automated control system for pallet storage equipment.

## **2.6. Analysis and assessment of the outcomes of the surveys conducted among the**

**students, graduates, and employers, and the use of these outcomes for the improvement of the content and quality of studies by providing the respective examples.**

### **Results of graduate and employer surveys**

The qualification paper results, the deficiencies and successes in student performance are shown in SQC reports. We see the deficiencies as goals for improving the quality of the study process.

A number of study courses are taught by guest instructors from businesses in the industry, such as the Mechanical Engineering Equipment, Devices and Tools, Programmable Controllers, Processing Theory and Processes, CNC Programming courses. Graduates offer internship positions to students, with opportunities to familiarise themselves with the latest technologies, as used in the industry, and for the instructors, to participate in workshops and international fairs.

Very successful cooperation has been achieved with the Association of Mechanical Engineering and Metalworking Industries, specifically in conducting internships, evaluating student qualification papers, updating the content of study courses, and updating professional standards.

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

The Employers' Confederation of Latvia (LDDK) carried out the Erasmus+ strategic partnership project 'Premium quality internships for the labour market' (No. 2014-1-LV01-KA202-000522), in which RTC was a project partner. <https://rtk.lv/?sadala=5652>

For 10 years, RTC has been among the top ten schools and studies most recommended by employers, according to a survey by LDDK and the [prakse.lv](http://prakse.lv) online portal, and ranks first among colleges and vocational secondary schools.

### **2.7. Provide the assessment of the options of the incoming and outgoing mobility of the students, the dynamics of the number of the used opportunities, and the recognition of the study courses acquired during the mobility.**

In order to encourage and expand the use of the Erasmus+ programme at RTC, the college has established partnerships and signed cross-institutional cooperation agreements with vocational education and higher education bodies in Lithuania, Estonia, Finland, Sweden and Denmark.

In executing level-one vocational higher education study programmes, it is particularly important to collaborate with foreign companies, in which RTC students undergo Erasmus+ internship, and to provide education mobility for instructors and administrative staff. Active, regular collaboration with foreign companies operating in a number of tech fields has been built up.

Information on the mobility of teachers and students is summarized in the RTK yearbooks.

[www.rtk.lv/?sadala=460](http://www.rtk.lv/?sadala=460)

### **III - DESCRIPTION OF THE STUDY PROGRAMME (3. Resources and Provision of the Study Programme)**

**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. Whilst carrying out the assessment, it is possible to refer to the information provided for in the criteria set forth in Part II, Chapter 3, sub-paragraphs 3.1 to 3.3.**

#### **Resource assessment**

In making an assessment, one can include a reference to Part II Section 3 Paragraph 3.1. -

Information about the RTC library <https://www.rtk.lv/?sadala=432>

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM, as part of which equipment for the Mechanical Engineering study programme was updated, with a total cost of EUR 1,258,128.' The equipment specifications were approved by MASOC and the Industry Expert Council (NEP)

Equipment was expanded for mechanical engineering specialists: (EUR 683,136.00, with VAT, applied for as part of the project)

Laboratory 1. CNC workbench production programming: training simulators with SIEMENS, FANUC, HEIDEHAIN, FAGOR software, as well as CNC metalworking training milling machine, CNC metalworking lathe, MTS software, Hass CNC lathing system and simulators, 11 pcs, CNC vertical processing milling system with a Heidehain TNC 620 control system.

Laboratory 2. Computer-aided design systems, CAD/CAM/CAE

Mastercam EDU CAM system updating to the current version: CAM Mastercam in Riga and a branch. SYM plus simulation software

Laboratory 3. Metalworking workbenches: universal metalworking lathe (in procurement), CNC folding press

The students of the college have access to the libraries and databases of other higher education institutions, training laboratories: Riga Technical University, Latvian University of Life Sciences and Technology, Latvian Maritime Academy

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

### III - DESCRIPTION OF THE STUDY PROGRAMME (4. Teaching Staff)

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

As instructors are replaced, there has been a notable trend towards improvement in the quality of studies in recent years. This is explained by the fact that the new instructors coming from the industry and other higher education facilities have modern knowledge and international experience. This has been confirmed through student surveys and feedback.

RTC actively collaborates with other higher education facilities in Latvia and abroad. Bilateral cooperation agreements have been concluded with Riga Technical University, Lapland Technical College in Finland, Bradford University in the UK, and Technical Education Copenhagen Centre in Denmark.

Statistical data based on the college's yearbook show that an average of 95% of graduates work in a profession that is within the field of the study programme they completed.

During the reporting period, 2 lecturers left the study program and joined 7, which allowed to increase the topicality of the study program.

#### **4.2. 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 qualification of the instructors (local and guest instructors) involved in the teaching of the study programme is sufficient for the requirements for the teaching of the study programme and applicable laws and regulations, specifically the provisions of Cabinet Regulation No. 569 'Regulations on the required education and professional qualification of instructors, and the procedure for improving the professional competence of teachers' of 11 September 2018.

The teaching staff involved in the implementation of the Mechanical Engineering study programme have the following degrees in their respective fields: 6 with doctoral, 16 with master's, 4 with professional bachelor's degrees.

The academic staff is involved in research, the topic of which is relevant and related to the interests of the region and the content and future development of the study programme. Research papers have been published in internationally available journals and databases. The results of research and creative work are used in practice and integrated in innovations.

The creative activities of the academic staff are closely associated with the goals and objectives of the Mechanical Engineering study programme. The college plans and carries out activities to

improve the professional competence of its academic staff:

- Regular self-education for the purpose of being competent;
- Participation in practical scientific conferences for the academic staff of the college;
- Professional career development, advanced training as part of courses and workshops;
- Management of professional career development, advanced training courses and workshops;
- Development of new and modern teaching materials (hand-out materials, quizzes, tests, tasks, digitisation of study materials for e-learning);
- Participation in the preparation of new teaching materials and book;
- Meetings and discussions with leading industry specialists and experts;
- Attendance of professional fairs and presentations in Latvia and abroad;
- Improvement of foreign language skills;
- Collaboration with companies, employers, professional association, with the purpose of being informed of the recent and important developments in the industry.

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

Faculty members with practical work experience are able to teach study courses faster and easier. Students have a better understanding of the material taught by lecturers with practical work experience.

**4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of the 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 may be additionally specified (if applicable).**

**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).**

**4.5. Provide examples of the involvement of the academic staff in the scientific research and/or artistic creation activities both at national and at international level (in the fields related to the content of the study programme), as well as the use of the obtained information in the study process.**

## Involvement of academic staff in research

The creative activities of the academic staff are closely associated with the goals and objectives of the Mechanical Engineering study programme. Once a year, an exhibition of term papers, independent projects and qualification papers takes place for all study programmes at the college; during it, the academic staff and the students can look into projects carried out by students and the work of their colleagues. The International Practical Research Conference is organised every year, with student and academic staff presentations on their scientific research activities. The academic staff participate in international conferences, competitions, conduct lectures and evaluate the graduation papers of students in other higher education institutions.

During the 2019/2020 academic year, Victor Gutakovskis, a lecturer at the Mechanical Engineering study programme, conducted lectures as part of the following courses at the Kaunas University of Applied Engineering Sciences: Engineering Design CAD/CAM (Solidworks); Processing Theory and Processes.

ATRT docent Anda Kazuša and lecturer Artis Iesmiņš reviewed the graduation papers of students at Kaunas University of Applied Engineering Sciences.

Content changes were introduced in the industry study courses using Erasmus+ Strategic Partnership projects:

‘Erasmus+ Strategic Partnership, Integrated Smart Education in Robotics (INSMER)’

No.: 2016-1-EE01-KA202-017321 (Finland, Estonia, Latvia), and

Skills in Metal and Electro Industry, (skillME) ERASMUS+ PROGRAMME

554370-EEP-1-2014-1-SI-EPPKA2-SSA Three-year cooperation project for vocational education providers, government institutions and representatives of the metalworking and power engineering sectors in the following EU member states: Croatia, Latvia, Slovakia and Slovenia. The project goal was to determine key skill deficiencies in the field of metalworking and electrical engineering, with four education programmes developed to correct these deficiencies; RTC integrated the programme content developed in the industry courses of the Mechanical Engineering study programme.

We participated in the testing of the project results as part of the Erasmus+ Strategic Partnership (KA2) innovation support project ‘Development of interactive and animated drawing teaching aids’; materials available at: <https://liggd.lt/diad-tools/lv/learningMaterialsLV> 2019

College instructors prepared students for participation in international competitions

At the J. Gravrogkas Best Material Processing Engineer International Competition, A-MB-2, two students took part and won first place, Lithuania 2019

Best Junior Material Processing Engineer International Competition A-MB-2, second place, Lithuania, 2018

Academic staff training

- MTS Mathematisch Technische Software-Entwicklung GmbH, Vācija internship course ‘Production process programming for CNC workbenches using MTS TopTurn and TopMill software’ Berlin, Germany
- Baltic CNC Technologies UAB, Lithuania, internship in ‘Fundamentals of CNC workbench processing using MTS software’
- CNC KELLER GmbH, Germany, internship in ‘SYM plus simulation software, 3D processing simulation (lathing and milling), for four levels of competence’
- EMCO Headquarters GmbH, Austria, internship in ‘SIEMENS, FANUC, HEIDENHAIN, FAGOR

metalworking workbench programming languages; development of parts using simulators and their production with a CNC milling machine’

- U.N.T. Gerätebau GmbH, Germany, internship in ‘Using a laboratory bench’
- CNC training for instructors from the Baltic Region (Haas Automation Europe, SIA Abplanalp Baltic) Tallinn, Estonia

*ERASMUS+ teaching mobility activities*

Table 16

<b>ERASMUS+ teaching mobility activities</b>			
Study Programme	Assigning institution, country	Hosting institution, country	Number of teaching activities
Mechanical engineering	SUEZ Trading Europe, France	VECC Riga Technical College, Latvia	1
Mechanical engineering	Kaunas University of Technology, Lithuania	VECC Riga Technical College, Latvia	4
<b>Total:</b>			<b>5</b>

In February 2019, a student survey was carried out to answer questions important to the academic staff and pertaining to the quality of organising studies, and to obtain feedback about study proceedings and attitudes towards knowledge and skill evaluations. 50 students participated in the survey, including those in the Daugavpils and Liepāja branches.

One of the main goals was to find out what students thought about the way the study programme was implemented.

The scope of the study courses was positively assessed by all the respondents.

Overall, 46 out of 50 had a positive view of the academic staff and the objectivity of instructors, and only four were partially dissatisfied, meaning that the result was achieved, and the requirement for instructors to prepare and submit final tests and exams will remain in place. There was positive progress, compared to the previous year, in the way that the students answered questions pertaining to the professional training of the academic staff, as well as their attitude towards students.

Detailed results of the survey for MECHANICAL ENGINEERING are provided in an annex

1. In learning, which study course caused you the most difficulty, why?
2. In learning, which study course was easiest for you, why?
3. Are you satisfied with the class schedule? If your answer is ‘no’, what would you suggest to improve it?
4. Do you use specialist literature and the internet to learn as part of study courses?
5. What do you think should be changed in the college?

**4.6. 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 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).**

Department heads report on their work to the RTC council. The head of the study programme reports on the study programme they are in charge of, providing a self-assessment that is included in the self-assessment for the field of study.

The following RTC units and partners participate in conducting study programmes:

General Studies and Management Studies Department;

Road Transport and Production Technology Department;

Information and Communication Technology Department.

Riga Technical University and other higher education institutions.

Industry associations

The departments are in charge of providing the theoretical and internship for the study course in question.

The following RTC auxiliary staff is involved in conducting study programmes: Study Division, teaching workshops for internships, Research and Method Development Division, Study Process Development Assurance Division, library, information centre, Accounting Division, student residence, cafeteria.

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.

The approximate proportion of students and teachers is 122, with 24 teachers.

# Annexes

III. Description of the Study Programme - 1. Indicators Describing the Study Programme		
Compliance of the joint study programme with the provisions of the Law on Institutions of Higher Education (table)		
Statistics on the students over the reporting period	Changes in the number of students.docx	Studentu kontingenta izmaiņas un eksmatkulācijas iemesli.docx
III. Description of the Study Programme - 2. The Content of Studies and Implementation Thereof		
Compliance of the study programme with the State Education Standard	Inženiermehānika_Pielikuma paraugs_nr6_ENG.docx	Inženiermeh_Pielikuma paraugs_nr6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard (if applicable)	Compliance of the Mechanical Engineering study programme with the professional standard.docx	Inženiermehānika_atb_standartam.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	Studiju kursu kartejums_MB_08.docx	Studiju kursu kartejums_MB_08.docx
Curriculum of the study programme (for each type and form of the implementation of the study programme)	Studiju programma INŽENIERMEHĀNIKA (1).docx	Studiju programma INŽENIERMEHĀNIKA.docx
Descriptions of the study courses/ modules	SP INŽENIERMEHĀNIKA APRAKSTI 2021 AKRED .pdf	SP INŽENIERMEHĀNIKA APRAKSTI 2021 AKRED .pdf
Description of the Study Direction - Other mandatory attachments		
Sample of the diploma to be issued for the acquisition of the study programme.	Diploms.zip	Diploms.zip
Description of the Study Programme - Other mandatory attachments		
Document confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued	Sadarb_Univ.zip	Sadarb_Univ.zip
Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme	Kompens_neakr.docx	AIC_90.edoc
Confirmation of the higher education institution/ college that the teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language according to European language levels (see the levels under www.europass.lv), if the study programme or any part thereof is to be implemented in a foreign language.		
If the study programmes in the study direction subject to the assessment are doctoral study programmes, a confirmation that at least five teaching staff members with doctoral degree are among the academic staff of a doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field or sub-field of science, in which the study programme has intended to award a scientific degree.		
If academic study programmes are implemented within the study direction, a document confirming that the academic staff of the academic study programme complies with the provisions set out in Section 55, Paragraph one, Clause three of the Law on Institutions of Higher Education		
Sample (or samples) of the study agreement	2020_Inženiermehānika.doc	2020_Inženiermehānika.doc
If academic study programmes for less than 250 full-time students are implemented within the study direction, the opinion of the Council for Higher Education shall be attached in compliance with Section 55, Paragraph two of the Law on Institutions of Higher Education.		

# Automotive Transport (41521)

Study field	<i>Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering</i>
ProcedureStudyProgram.Name	<i>Automotive Transport</i>
Education classification code	<i>41521</i>
Type of the study programme	<i>Short-cycle professional higher education study programme</i>
Name of the study programme director	<i>Sanita</i>
Surname of the study programme director	<i>Eihmane</i>
E-mail of the study programme director	<i>sanita.eihmane@kcrtk.lv</i>
Title of the study programme director	<i>Maģistrs</i>
Phone of the study programme director	<i>+37129487684</i>
Goal of the study programme	<p><i>The aim of study programme is:</i></p> <ol style="list-style-type: none"> <li><i>1. To prepare students for working in automotive maintenance profession according to 4. level of qualification of automotive mechanic profession standard and first level higher education requirements, that are capable to do service, can organise and manage stuff.</i></li> <li><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></li> <li><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></li> </ol>
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 automotive transport:</i></p> <ol style="list-style-type: none"> <li><i>1. to prepare qualified specialists, that are comprehensive, competitive in labour market automotive area specialists, that are able to work in automotive maintenance and repair companies, diagnose centres and related companies.</i> <ul style="list-style-type: none"> <li><i>- to do auto car maintenance, diagnosis and repair.</i></li> <li><i>- to prevent damage of parts of auto car by doing exchange of parts and assemblies, by doing assemble and deassemble, by renewing parts or alignment, by doing locksmith operations.</i></li> <li><i>- to communicate with client and manage the stuff.</i></li> <li><i>- to know business economic and legislation, to manage auto car maintenance station or related companies department.</i></li> </ul> </li> <li><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></li> <li><i>3. To provide participation of employer in design of content of studies and organisation of qualification exam.</i></li> <li><i>4. To cooperate with related Latvian and foreign organisation and employers in professional education area.</i></li> <li><i>5. To make applied research in working field, organise student conferences and to publish the results.</i></li> <li><i>6. Optimise internship process for students according to modern labour market requirements.</i></li> </ol>

Results of the study programme

The study program "Road Transport" envisages the acquisition of knowledge, skills and attitudes in accordance with the state first level professional higher education standard and professional standard in lectures, seminars, practical classes, and 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 "Road Transport" must have appropriate knowledge, skills and competence in the professional field.

Knowledge of:

- The structure and types of road transport;
- Regulated and legal requirements for road transport operation 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. .
- Knows the peculiarities and parameters of vehicle operation.
- is able to control the technical condition of equipment
- Is able to control the observance of safety equipment when using the equipment.
- To compile an assessment of the quantitative and qualitative performance of road transport.
- Is able to calculate the cost of road transport operation and determine efficiency.
- is able to critically evaluate risk factors and offer solutions;
- is able to evaluate the laws and regulations related to environmental protection in connection with the repair and operation of road transport;

Competence:

- Able to control the technical condition of vehicles and compliance with their operating regulations.
- Ability to make the right decisions quickly in specific work situations.
- Ability to plan and organize diagnostics or repairs of vehicle repair equipment.
- Ability to control the technical condition of the equipment, the quality of installation and repair work to be performed.
- 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 road transport provides competitiveness and professional growth opportunities for the graduates of the program in the field of road transport 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.

Vairāk par šo avottekstuLai iegūtu papildu tulkojuma informāciju, jāievada avotteksts

Sūtīt atsaukmes

Sānu panelī

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 education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Does not exist</i>
Qualification to be obtained (in english)	<i>Automotive transport maintenance specialist</i>

### Places of implementation

<b>Place name</b>	<b>City</b>	<b>Address</b>
Kandava branch of Vocational education competence center "Riga Technical College"	KANDAĻA	VALTERU IELA 6, KANDAĻA, TUKUMA NOVADS, LV-3120
Vocational education competence center "Riga Technical College"	RĪĢA	BRASLAS IELA 16, VIDZEMES PRIEKŠPILSĒTA, RĪĢA, LV-1084
Liepāja branch of Vocational education competence center "Riga Technical College"	LIEPĀJA	VENTSPILS IELA 51, LIEPĀJA, LV-3405

### **III - DESCRIPTION OF THE STUDY PROGRAMME (1. Indicators Describing the Study Programme)**

**1.1. Description and analysis of changes in study programme parameters that have taken place since the issue of the previous accreditation certificate of study direction or the license of study programme if study programme is not included in the accreditation page of the study direction**

## **Characteristic parameters of the study programme**

Ministry of Education and Science order No. 58 'Automotive service specialist' of 7 February 2002

Accredited on 14 June 2013, commission decision No. 163, and 6 July 2016, No. 14-A

Cabinet Regulation 794 'Automotive maintenance specialist' of 22 December 2015

Changes were made in accordance with Section 12 of Cabinet Regulation No. 512 'Regulations on the national standard for level-two vocational higher education', and the programme for the 2017/2018 academic year included courses in environmental protection and civil defence, with changes in the study courses of the programmes and in their content.

The Occupational Safety, Environmental Protection, Civil Defence study course was replaced with an Environmental Protection, Civil Defence course (2 credits), while occupational safety was moved to other industry-related courses (1 credit).

The study course has lost relevance in Europe and Latvia. A 'Research Methods' study course has been introduced to offer better knowledge of the drafting of research papers and to better train students to prepare their own term and qualification papers.

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM, as part of which equipment for the Mechanical Engineering study programme was updated. Changes in the content of training internships, laboratory and practical assignments are being introduced in view of the new equipment, with instructors preparing teaching materials.

**1.2. Analysis and assessment of the 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 in the different study forms, types, and languages.**

**Studējošo skaita dinamika.**

*SP "Autotransports"*

*SP "Autotransports"*

*Atskaitīšanas iemesli no aptaujām un citiem informācijas avotiem uzrāda sekojošu tendenci:*

*90% studentu zaudē motivāciju studēt apvienojot studijas ar darbu (brīvā laika trūkums, nogurums)*

*10% studenti dzīvojot un studējot Rīgā nespēj rast finansējumu studijām - raksturīgi studējošiem Rīgā, pašiem studentiem esot no laukiem.*

<b>Studiju gads</b>	<b>2013 /2014</b>	<b>2014 /2015</b>	<b>2015 /2016</b>	<b>2016 /2017</b>	<b>2017 /2018</b>	<b>2018/2019</b>	<b>2019/2020</b>	<b>2020/2021</b>
Studējošo skaits	170	140	126	132	118	120	102	120
Studējošo īpatsvars, %	22	19	18	18	16	18	17	18

**1.3. Analysis and assessment of the interrelation between the name of the study programme, the degree or professional qualification to be acquired or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the admission requirements.**

#### **Assessment of the professional qualification goals and objectives of the study programme**

European Social Fund project 8.5.2 The professional standard is 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).

The study program is modified according to the standard and changes in the field (modernization)

### **III - DESCRIPTION OF THE STUDY PROGRAMME (2. The Content of Studies and Implementation Thereof)**

**2.1. Assessment of the relevance of the content of the study course/ module and the compliance with the needs of the relevant industry and labour market and with the trends in science. Provide information on how and whether the content of the study course/ module is updated in line with the development trends of the relevant industry, labour market, and science. In 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.**

# Content and implementation of studies

**2.1** The revision of programmes takes place based on recommendations by RTC students and instructors, employers and professional organisations, always taking the current needs of the industry into account.

The descriptions of all study courses see regular updates, with the addition of latest technical information and recent trends (see study course descriptions enclosed). The descriptions are updated by the instructors of the study courses, in conjunction with the head of the field of study. In order to ensure that the studies meet the needs of the job markets, the recommendations of employers and students are taken into account in updating study course descriptions.

The Automotive Maintenance Specialist study programme involves the teaching of knowledge, skills and attitudes in accordance with the level-one professional higher education standard and the professional standard as part of lectures, workshops, practical activities, extramural internship.

The resources included in the study programme are consistently prepared to achieve the expected study results. For more details, see <https://rtk.lv/?sadala=175>.

The study courses included in the study programme correspond to its goals: first, the programme contains all the mandatory courses that provide the student with the professional competences that are required by the professional standard of an automotive maintenance specialist; second, general education courses are included to improve the business and research competence of the student.

Every study course of the study programme has a specific goal and results to be achieved (knowledge, skills and competences that the student gains once they complete the course in accordance with the professional standard). The student achieves the goals and results of the study programme if they successfully complete all the courses of the study programme.

Car maintenance specialists are taught the maintenance of modern cars, including hybrid cars.

The material and technical base has been renewed within the framework of European projects in coordination with MASOC.

**2.2. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators, the relation between the aims of the study course/ module and the aims and intended outcomes of the study programme. In 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.**

The Automotive Maintenance Specialist study programme involves the teaching of knowledge, skills and attitudes in accordance with the level-one professional higher education standard and the professional standard as part of lectures, workshops, practical activities, extramural internship.

The resources included in the study programme are consistently prepared to achieve the expected study results. For more details, see <https://rtk.lv/?sadala=175>.

The study courses included in the study programme correspond to its goals: first, the programme contains all the mandatory courses that provide the student with the professional competences that are required by the professional standard of an automotive maintenance specialist; second, general

education courses are included to improve the business and research competence of the student.

Every study course of the study programme has a specific goal and results to be achieved (knowledge, skills and competences that the student gains once they complete the course in accordance with the professional standard). The student achieves the goals and results of the study programme if they successfully complete all the courses of the study programme.

The connection between the set goals and study results can be seen in the mapping of study courses.

**2.3. Assessment of the study implementation methods (including the evaluation methods) by providing the analysis of how the study implementation methods (including the evaluation methods) used in the study courses/ modules are selected, what they are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.**

**Assessment of methods for conducting studies (including evaluation methods)**

The main form for evaluating performance as part of the programme is the **exam or the test**, which must be taken at the end of every study course. The form of examination is set in the study programme, the completion of the programme is evaluated using a scale of 10. For courses comprising no more than one credit, programme performance is evaluated using a two-level scale, with a 'pass' or a 'fail'. **Internship** performance is evaluated on a scale of 10.

The programme ends with a final national examination, during which the qualification paper is defended. In their qualification paper, the student must demonstrate their professional and theoretical knowledge, as well as their ability to demonstrate specific professional skills, to present their arguments and to solve problems in the field of their specialisation. Students prepare a qualification paper about a relevant topic chosen from a list of qualification paper topics; students may also propose their own topic for a qualification paper. The research advisor provides consultations and assessments about the preparation of the paper, which is later evaluated by the reviewer. Reviewers can be provided by employers, as well as other higher education institutions working in related fields.

The defence of the qualification paper takes place at a meeting of the state final examination commission. The commission includes representatives of the college, employers, and academic staff from other higher education institutions.

Students have the opportunity to study according to an individually compiled plan.

[Nolikums par studiju organizāciju pēc individuālajiem plāniem.pdf \(rtk.lv\)](#)

**2.4. If the study programme entails a traineeship, provide the analysis and assessment of the relation between the tasks of the traineeship included in the study programme and the learning outcomes of the study programme. Specify how the higher education institution/ college supports the students within the study programme regarding the fulfilment of the tasks set for students during the traineeship.**

## **Internship planned as part of the study programme**

The goal of the 'Automotive Maintenance Specialist' study programme is to provide the students with a set of theoretical knowledge and practical skills enabling them to gain the competence required by the professional standard and necessary to obtain a level-one vocational higher education degree, promoting competitiveness in changing socioeconomic conditions, motivating to engage in further education, and making it possible for the student to prepare for level-two vocational higher education and level-six vocational qualifications.

The programme includes two internships: installation, assembly and diagnostics of electrical devices, and qualification internship. The goals and objectives of the internships are specified in their respective programmes.

The objectives of the internships comply with the expected results of the study programme, and enable its successful completion. Students can have an individual internship assignment, e.g. associated with the preparation of a term paper or qualification paper.

In accordance with the internship regulations, trilateral contracts are signed by RTC, the student and the organisation providing the internship position.

Internship location:

- Provides a workplace appropriate for the programme of the internship, and a person to be in charge of the internship.

At the end of an internship, the student prepares an internship report that includes details about the completion of the internship programme, signed by the person in charge of the internship at the internship organisation.

The programme's students also have access to international Erasmus+ internships, in line with the funding provided.

At the beginning of the internship, the student receives an internship assignment, for the achievement of which the student writes an internship report at the end of the internship, which is then evaluated by the lecturer or the internship supervisor.

## **2.5. 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 evaluations of the final theses.**

### **Analysis and evaluation of the topics of students' final papers, their topicality in the field, including the job market, and the evaluation of the final papers**

The programme ends with a final national examination, during which the qualification paper is defended, and graded using a scale of 10.

In their qualification paper, the student must demonstrate their professional and theoretical knowledge, as well as their ability to demonstrate specific professional skills, to present their arguments and to solve problems in their field of specialisation.

Students prepare a qualification paper about a relevant topic chosen from a list of qualification

paper topics prepared by the head of the study programme and approved by the college council; students may also propose their own topics for a qualification paper.

The research advisor provides consultations and assessments about the preparation of the paper, which is later evaluated by the reviewer.

The defence of the qualification paper takes place at a meeting of the state final examination commission. The commission includes representatives of the college, employers, and academic staff from other higher education institutions.

Enclosed:

- Compliance of the study programme with the state education standard, Annex 5.

· Study programme plan,

Topics of qualification papers:

Flow meter for gas distribution mechanism Visual aid for autonomous car heating equipment  
Increasing the power of the car's original audio system

Transmission Stand for Volvo 940 Techniques for dynamic pressure measurement in an engine cylinder

Restoration of the motorcycle JAWA 350 638/103 Front-wheel drive training stand

Operation of the common rail injection system in different modes VW Caddy 1981 body restoration

Preparation of VW Golf Mk 2 for rally competition

## **2.6. Analysis and assessment of the outcomes of the surveys conducted among the students, graduates, and employers, and the use of these outcomes for the improvement of the content and quality of studies by providing the respective examples.**

### **Results of graduate and employer surveys**

The quality control of the study programme takes place regularly. One of the methods for monitoring are student surveys on matters important for students: quality of the study process, study programme content, organisation of studies, work of instructors, living conditions, social activities, internships, plans for the future. Surveys reveal a student assessment of the study process and extracurricular activities, highlighting the strengths and weaknesses of the study process.

The information is summarised every year in self-assessment reports, see <https://rtk.lv/?sadala=265>

As every year, in the winter of 2020, a survey of graduates was conducted to find out the issues that are relevant to the academic staff for the organization of quality studies and to obtain their assessment of the study process, to find out the attitude towards the assessment of knowledge and skills.

One of the main tasks is to find out the thoughts of the graduates about the organization of the study program implementation. The volume of study courses was positively assessed by all

respondents.

Summarizing the results of the graduates' survey on cooperation with the academic staff, the objectivity of the lecturers has been positively assessed by 18 students and only one dissatisfied - so the result has been achieved - the requirement for lecturers to prepare and submit session tests and exam papers will remain valid. There is also a positive growth in the answers of students to the questions about the professional training of the academic staff and the attitude towards students, compared to the results of the previous year's survey.

The survey of graduates included the question **What do you value most in the teaching staff?**

The answers of the graduates to this question were:

- 1) Professional knowledge
- 2) Erudition (versatile knowledge)
- 3) Ability to arouse interest in study courses
- 4) Manage your audience
- 5) Strictly requires compliance with the requirements

**To what extent are you satisfied with the “number of hours for learning each study subject** - 17 respondents are satisfied partially satisfied. 2 respondents

**If you had the opportunity to change the study program, which subjects:**

You would cross out - higher mathematics, technical mechanics

You would add - Body painting, increased number of practical hours / lessons

**To what extent are you satisfied with the internship periods -**

Satisfies 17 respondents partially satisfied.

2 respondents

Suggestions - more practice in the second year

**Do you plan to work (or are you already working) abroad?**

Yes 1 respondents

Analyzing the answers to the question about the forms of independent work, half of the respondents liked the performance of specific tasks. After explaining that research and analytical work is an investment in the development of term papers and qualification papers, this form was recognized as the best by all students, as it already prepares graduates for the development of a diploma paper.

Every year, a survey of employers is conducted, inviting them to fill in a statement from the internship supervisor, the aim of which is to find out the trainee's skills assessment at the internship site and to find out the future perspectives of the profession.

Employers indicate in the practice documentation that in addition to professional knowledge, communication and planning skills, planning and time management skills are no less important. Potential employers are mostly road transport companies. In general, potential employers have given students a high rating, noting that students have good theoretical and practical training, students are able to immediately perform their duties independently. Employers also want students to have more specific, in-depth knowledge in one of the areas, such as diagnostics, body painting.

Summarizing the results of the employer survey, it can be concluded that the knowledge, skills and competencies provided by the study program to their students are considered important and necessary by employers, which means that the study program is well thought out and focused on good results.

## **2.7. Provide the assessment of the options of the incoming and outgoing mobility of the students, the dynamics of the number of the used opportunities, and the recognition of the study courses acquired during the mobility.**

### **Incoming and outgoing mobility opportunities for students**

The organising of instructor and student mobility at RTC takes place in conjunction with the External Relations Division, created with the purpose of conducting international cooperation with organisations and associations from other countries at RTC.

Throughout their study period, any RTC student can participate in an internship in an EU country as part of the Erasmus programme and receive a scholarship provided by the programme.

Every year, students can obtain detailed information about the internship and its conditions, and meet partners offering employment opportunities.

Erasmus+ provides students of higher education institutions with the opportunity to gain international experience and knowledge while studying at one of partner higher education institutions or to work as interns in foreign companies or other relevant places of work.

After the mobility:

- The host institution provides the student and RTC with a transcript of records attesting that the approved programme was completed;
- The period of mobility is also mentioned in the diploma supplement.

Info about mobilities are summarized in Year books.

[www.rtk.lv/?sadala=460](http://www.rtk.lv/?sadala=460)

## **III - DESCRIPTION OF THE STUDY PROGRAMME (3. Resources and Provision of the Study Programme)**

**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. Whilst carrying out the assessment, it is possible to refer to the information provided for in the criteria set forth in Part II, Chapter 3, sub-paragraphs 3.1 to 3.3.**

RTC library <https://www.rtk.lv/?sadala=432SP>

As part of the European Regional Development Fund action programme Growth and Jobs specific support goal 8.1.4 'Improve level-one vocational higher education STEM, including medical and creative industries, and the study environment in colleges' project 'Development of infrastructure at Riga Technical College' (No. 8.1.4.0/17/I/001), RTC updated the equipment and materials for the Road Transport study programme: a vehicle lift, vehicle repair tools and gear, 'diesel engines', 'suspension', 'vehicle body' laboratory training stands, a vehicle for a total of EUR 707,676.80.

Procurement of computer hardware and software, equipment using national budget funding, for a total of EUR 190,584.65.

The budget of the college is planned for a period of 5 years, encompassing all of its study programmes; the budget undergoes revisions every year, and is updated based on the materials and equipment available to the college.

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

## **III - DESCRIPTION OF THE STUDY PROGRAMME (4. Teaching Staff)**

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

As instructors are replaced, there has been a notable trend towards improvement in the quality of studies in recent years. This is explained by the fact that the new instructors are younger, more energetic and have an up-to-date, modern knowledge base. This has been confirmed through student surveys and feedback on the quality of education.

Linking of research with the study process.

Scientific research in the field of road transport and information management takes place by introducing a research and creativity-based study process as one of the components of high-quality education. Its linking to the study process takes place when planning the scope of term paper and qualification paper topics, in accordance with industry trends and the content of study courses.

Research activities (identification of digitisation opportunities) are included in the content of the studies with the goal of encouraging student innovation skills in developing high-added-value services for the industry. As a result, the content of the practical research performed as part of term papers and study courses demonstrates the ability of students to analyse problems in their fields, to survey professionals to determine possible scenarios for solving problems, and to offer opinions on possible alternatives.

During the reporting period, 3 people have dropped out of the study program and 2 have joined.

**4.2. 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 qualification of the instructors (local and guest instructors) involved in the teaching of the study programme is sufficient for the requirements for the teaching of the study programme and applicable laws and regulations, specifically the provisions of Cabinet Regulation No. 569 'Regulations on the required education and professional qualification of instructors, and the procedure for improving the professional competence of teachers' of 11 September 2018.

Instructors continuously improve their qualifications and professional competence through various workshops, courses, conferences and international projects.

Instructors collaborate on an individual, departmental and cross-departmental level. This collaboration is assessed as positive. Also specify the proportion of the number of students and teaching staff within the study programme (at the time of the submission of the self-assessment report).

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

**4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of the 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 may be additionally specified (if applicable).**

**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).**

**4.5. Provide examples of the involvement of the academic staff in the scientific research and/or artistic creation activities both at national and at international level (in the fields related to the content of the study programme), as well as the use of the obtained information in the study process.**

Since 2019, M. Žugs and S. Eihmane have been reviewing the final works in the car maintenance program at Kaunas Technical College. Edvīns Žugs gave lectures to road transport students at Kaunas Technical College in 2019.

The review of final theses allows to get ideas for the development of new qualification work topics at RTK, which has also been successfully implemented.

**4.6. 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 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).**

Department heads report on their work to the RTC council. The head of the study programme reports on the study programme they are in charge of, providing a self-assessment that is included in the self-assessment for the field of study.

The following RTC units and partners participate in conducting study programmes:

General Studies and Management Studies Department;

Road Transport and Production Technology Department;

Information and Communication Technology Department.

Riga Technical University and other higher education institutions.

Industry associations

The departments are in charge of providing the theoretical and internship for the study course in question.

The following RTC auxiliary staff is involved in conducting study programmes: Study Division, teaching workshops for internships, Research and Method Development Division, Study Process Development Assurance Division, library, information centre, Accounting Division, student residence, cafeteria.

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.

The co-operation between the study courses is usually excellent.

The approximate proportion of students and faculty is 21 per 99 students.

# Annexes

III. Description of the Study Programme - 1. Indicators Describing the Study Programme		
Compliance of the joint study programme with the provisions of the Law on Institutions of Higher Education (table)		
Statistics on the students over the reporting period	Studējošo skaita dinamika_Auto.docx	Student number trend_Auto.docx
III. Description of the Study Programme - 2. The Content of Studies and Implementation Thereof		
Compliance of the study programme with the State Education Standard	SV - Pielikuma paraugs - nr6_ENG.docx	SV - Pielikuma paraugs - nr6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard (if applicable)	Autotransports_standarts_ENG.docx	Autotransports_standarts.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	Studiju kursu kartējums.docx	Studiju kursu kartējums.docx
Curriculum of the study programme (for each type and form of the implementation of the study programme)	Studiju programma AUTOTRANSPORTS (1).docx	Studiju programma AUTOTRANSPORTS.docx
Descriptions of the study courses/ modules	Autotransports.docx	Autotransports.docx
Description of the Study Direction - Other mandatory attachments		
Sample of the diploma to be issued for the acquisition of the study programme.	Diploms.zip	Diploms.zip
Description of the Study Programme - Other mandatory attachments		
Document confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued	Sadarb_Univ.zip	Sadarb_Univ.zip
Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme	Kompens_neakr.docx	AIC_90.edoc
Confirmation of the higher education institution/ college that the teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language according to European language levels (see the levels under <a href="http://www.europass.lv">www.europass.lv</a> ), if the study programme or any part thereof is to be implemented in a foreign language.		
If the study programmes in the study direction subject to the assessment are doctoral study programmes, a confirmation that at least five teaching staff members with doctoral degree are among the academic staff of a doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field or sub-field of science, in which the study programme has intended to award a scientific degree.		
If academic study programmes are implemented within the study direction, a document confirming that the academic staff of the academic study programme complies with the provisions set out in Section 55, Paragraph one, Clause three of the Law on Institutions of Higher Education		
Sample (or samples) of the study agreement	2020_A-A.doc	2020_A-A.doc
If academic study programmes for less than 250 full-time students are implemented within the study direction, the opinion of the Council for Higher Education shall be attached in compliance with Section 55, Paragraph two of the Law on Institutions of Higher Education.		

# Heat Power Engineering (41522)

Study field	<i>Mechanics and Metal Processing, Heat Power Engineering, Heat Technology, and Mechanical Engineering</i>
ProcedureStudyProgram.Name	<i>Heat Power Engineering</i>
Education classification code	<i>41522</i>
Type of the study programme	<i>Short-cycle professional higher education study programme</i>
Name of the study programme director	<i>Viktors</i>
Surname of the study programme director	<i>Grišins</i>
E-mail of the study programme director	<i>viktors.grisins@kcrtk.lv</i>
Title of the study programme director	<i>Inženierzinātņu maģistrs</i>
Phone of the study programme director	<i>+37122334302</i>
Goal of the study programme	<p><i>The goal of study programme is:</i></p> <ol style="list-style-type: none"> <li><i>1. To prepare students for working in heat energy specialist profession according to 4. level of qualification of Heat energy specialist profession standard and first level higher education requirements, that are capable to do service, can organise and manage stuff.</i></li> <li><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></li> <li><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></li> </ol>
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 heat energy machines:</i></p> <ol style="list-style-type: none"> <li><i>1. to prepare qualified specialists, that are comprehensive, competitive in labour market heat engineering area specialists, that are able to work in heat engineering companies, diagnose centres and related companies.</i></li> <li><i>- to do heat engineering machines maintenance, diagnosis and repair.</i></li> <li><i>- to prevent damage of parts of heat engineering machines by doing exchange of parts and assemblies, by doing assemble and deassemble, by renewing parts or alignment, by doing locksmith operations.</i></li> <li><i>- to communicate with client and manage the stuff.</i></li> <li><i>- to know business economic and legislation, to manage engineering establishment or related companies department.</i></li> <li><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></li> <li><i>3. To provide participation of employer in design of content of studies and organisation of qualification exam.</i></li> <li><i>4. To cooperate with related Latvian and foreign organisation and employers in professional education area.</i></li> <li><i>5. To make applied research in working field, organise student conferences and to publish the results.</i></li> <li><i>6. Optimise internship process for students according to modern labour market requirements.</i></li> </ol>

Results of the study programme

*The study program "Thermal Energy" 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 "Thermal Power Engineering" must have appropriate knowledge, skills and competence in the professional field.*

*Knowledge of:*

- Types and construction of heat production equipment;*
- Regulated and legal requirements for the operation of thermal energy 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 hydraulic, pneumatic and strength testing of equipment.*
- Able to operate refrigeration equipment, compressor units, condensers, receivers, evaporators, accessories.*
- is able to control the technical condition of equipment*
- Is able to control the observance of safety equipment when using the equipment.*
- To compile an assessment of the quantitative and qualitative operation of heat production equipment.*
- Is able to calculate the unit cost of equipment per unit of heat energy.*
- is able to critically evaluate risk factors and offer solutions;*
- is able to evaluate laws and regulations related to environmental protection in connection with the use of thermal energy equipment;*

*Competence:*

- Able to control the technical condition of 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 heating and auxiliary equipment.*
- Ability to control the technical condition of the equipment, the quality of installation and repair work to be performed.*
- 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 thermal energy provides competitiveness and professional growth opportunities for the graduates of the program in the field of operation of thermal energy equipment, work in development and improvement of new systems, products and technologies and applied research and pedagogy, as well as continuing education for 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 education</i>
Degree to be acquired or professional qualification, or degree to be acquired and professional qualification (in english)	<i>Does not exist</i>
Qualification to be obtained (in english)	<i>Heat power engineering specialist</i>

### Places of implementation

<b>Place name</b>	<b>City</b>	<b>Address</b>
Vocational education competence center "Riga Technical College"	RĪGA	BRASLAS IELA 16, VIDZEMES PRIEKŠPILSĒTA, RĪGA, LV-1084

### III - DESCRIPTION OF THE STUDY PROGRAMME (1. Indicators Describing the Study Programme)

#### 1.1. Description and analysis of changes in study programme parameters that have taken place since the issue of the previous accreditation certificate of study direction or the license of study programme if study programme is not included in the accreditation page of the study direction

Changes were made in accordance with Section 12 of Cabinet Regulation No. 512 'Regulations on the national standard for vocational higher education', and the programme for the 2017/2018 academic year included courses in environmental protection and civil defence, with changes in the study courses of the programmes and in their content.

The Occupational Safety, Environmental Protection, Civil Defence study course was replaced with an Environmental Protection, Civil Defence course (2 credits), while occupational safety was moved to other industry-related courses (1 credit).

The study course has lost relevance in Europe and Latvia. A 'Research Methods' study course has been introduced to offer better knowledge of the drafting of research papers and to better train students to prepare their own term and qualification papers.

In 2017, RTC began the implementation of the project 'Employment and growth' within specific aid goal 8.1.4 'Improve level-one vocational higher education in STEM, as part of which equipment for the Mechanical Engineering study programme was updated. Changes in the content of training internships, laboratory and practical assignments are being introduced in view of the new equipment, with instructors preparing teaching materials.

#### 1.2. Analysis and assessment of the 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 in the different study forms, types, and languages.

##### Statistical data about study programme students

###### *Student trend*

Table 17

Study year	2013./2014.	2014./2015.	2015./2016.	2016./2017.	2017./2018.	2018./2019.	2019./2020.	2020./2021.
Number of students	58	48	49	57	56	28	25	28
Proportion of students, %	8	6	7	8	8	4	4	4

#### 1.3. Analysis and assessment of the interrelation between the name of the study programme, the degree or professional qualification to be acquired or the degree and professional qualification to be acquired, the aims, objectives, learning outcomes, and the

## **admission requirements.**

### **Links among the aims and tasks of the professional qualification, learning outcomes, and admission requirements**

Successful completion of the Heat Power Engineering level-one vocational higher education study programme results in the award of the qualification of a Heat Power Engineering Specialist, corresponding to the fourth level of education in Latvia (level LQF5); the main purpose of the study programme is to:

- Prepare the student for working in the field of heat power engineering;
- Foster the learning of knowledge and skills enabling the student to develop the capacity of working as a middle-level manager;
- Make it possible for the student to prepare to continue their education as part of higher-level study programmes and improve their professional qualifications through courses and workshops.

Objectives: provide basic knowledge and develop professional competences, and prepare individuals for independent high-quality work in the field of heat power engineering, associated with designing, manufacturing, configuring and maintaining equipment and devices.

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 Heat Power Engineering Specialists, taking the changing requirements of the job market into account, because changes enable the sustainability of the study programme.

The students that have completed this study programme can work at various companies, 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/l/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.

The study program is based on professional standards and the requirements of employers. The study program prepares required specialists.

## **III - DESCRIPTION OF THE STUDY PROGRAMME (2. The Content of Studies and Implementation Thereof)**

**2.1. Assessment of the relevance of the content of the study course/ module and the compliance with the needs of the relevant industry and labour market and with the trends in science. Provide information on how and whether the content of the study course/ module is updated in line with the development trends of the relevant industry, labour market, and science. In 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.**

**Assessment of the relevance of the content of study courses/modules and compliance with the needs of the industry, labour market and scientific trends**

Collaboration with industry employers is one of the main ways for the study programme management to obtain information about the quality of the study programme and its compliance with the needs of the job market. Information about the employment prospects of the specialists trained within the field of study is largely obtained from the companies where students undergo internship.

The objectives of term papers and qualification papers include a comparison of various solutions/variants/opportunities with expected results, with the practical development of problem-solving skills.

During the academic year, the college arranged the most extensive employer surveys taken at the end of practice so far, requesting employers to assess the preparedness of the intern/employee for work, their competence, communication skills, theoretical knowledge and practical skills, ability to analyse the processes taking place in the working environment and to make appropriate decisions, the ability to work in a team, ability to delegate and ensure the performance of tasks, ability to effectively plan and organise own work, ability to gain new knowledge and skills, compliance of the quality of the knowledge and skills with the needs of the job market.

Graduates of the study program receive well-paid job offers every year.

**2.2. Assessment of the interrelation between the information included in the study courses/ modules, the intended learning outcomes, the set aims and other indicators, the relation between the aims of the study course/ module and the aims and intended outcomes of the study programme. In 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.**

The expected results of the Heat Power Engineering study programme include the acquisition of knowledge, skills and attitudes in accordance with the level-one professional higher education standard and the professional standard as part of lectures, workshops, practical activities, extramural internship.

The expected results of the study programme comply with the national standard for level-one vocational higher education, the professional standard, and are aligned with the European Qualification Framework (EQF). Graduates of the Heat Power Engineering study programme must have the following knowledge, skills and competences in their professional field:

#### Knowledge about:

- Types of heat power production equipment;
- Physical processes taking place in heat power production equipment;
- Technical documentation and heating equipment specifications;
- Technological, occupational, environmental and economic risk factors;
- Latvian and EU regulatory and legal requirements for operating heating systems;
- General management, work planning and work management in small businesses;
- Environmental protection, occupational and fire safety, hygiene requirements.

#### Skills:

The purpose of the study programme is provide its graduates with the following professional competences necessary for performing their professional tasks:

1. Ability to communicate in the official national language and at least two foreign languages
2. Ability to arrange heating equipment and heating line inspections
3. Ability to maintain modern mechanisms, devices and instruments
4. Ability to organise and manage subordinates for the rapid and high quality elimination of breakdowns and failures
5. Ability to prepare all the documentation necessary for regular operating, ongoing and overhaul repairs
6. Ability to organise the inspection of consumer heating devices, the connection of additional heating capacity, in compliance with technical standards and consumer requirements
7. Ability to comply with the instructions of equipment manufacturers, ensuring the correct and high-quality installation, configuration and operation of heating equipment
8. Ability to organise and manage ongoing and overhaul repairs in heating supply systems
9. Ability to use production equipment as part of repairs and to expand it if necessary
10. Ability to perform preventive inspections and measurements on heating supply systems, and if necessary, immediately correct any defects, or report any necessary disconnections to on-duty staff
11. Ability to check heating source diagrams based on the drawings provided
12. Ability to prepare technical documentation pertaining to inspections
13. Ability to arrange measurements for the technical parameters of equipment and operating modes
14. Ability to organise and manage a production or public service facility
15. Ability to organise and manage the installation of heating supply systems in multi-apartment buildings and detached houses
16. Ability to choose appropriate project documentation
17. Ability to develop heating supply system project
18. Ability to prepare material and equipment specifications
19. Ability to prepare local and general cost estimates
20. Ability to coordinate project documentation with stakeholder organisations
21. Ability to inspect the compliance of cost estimates with the project order
22. Ability to use computer design, processing, printing, work with information media and working online

#### Competence:

- Ability to monitor compliance with the occupational safety requirements pertaining to the use of heating equipment
- Ability to monitor the technical condition of heating equipment and its compliance with operating requirements

- Ability to plan and organise the repairs of main and auxiliary heating equipment
- Ability to analyse weaknesses in production and assess the issues of planned, ongoing or already completed reconstructing of individual stages or company units.
- Ability to comply with the requirements for handling heat conducting media, to prevent any spills of such media
- Ability to monitor the technical condition of heating equipment, and the quality of the corresponding installation and repairs
- Ability to quickly make correct decisions in specific production situation.
- Ability to ensure compliance with the requirements of environmental protection and occupational safety laws and regulations.

Every study course of the study programme has a specific goal and results to be achieved (knowledge, skills and competences that the student gains once they complete the course in accordance with the professional standard). The student achieves the goals and results of the study programme if they successfully complete all the courses of the study programme.

The connection between the set goals and study results can be seen in the mapping of study courses.

**2.3. Assessment of the study implementation methods (including the evaluation methods) by providing the analysis of how the study implementation methods (including the evaluation methods) used in the study courses/ modules are selected, what they are, and how they contribute to the achievement of the learning outcomes of the study courses and the aims of the study programme. Provide an explanation of how the student-centred principles are taken into account in the implementation of the study process.**

The programmes of study courses include the following methods for organising studies and controlling results:

1. The methods for organising the studies include lectures, workshops, practical activities, consultations, conferences, independent student assignments at the library, internships.
2. The forms for controlling the learning outcomes include oral and written exams, test, essays, internships.

The academic performance of students is evaluated on a scale of 10, with the lowest passing grade being 4 (almost satisfactory).

The council of the study programme determines the evaluation methods in the study programme implementation plan. These are explained at the beginning of a study course, so that the students understand the assignments and requirements set for the course. When choosing the criteria, instructors emphasise the evaluation of not only knowledge, but also skills and competences.

The programme description of every study course specifies the expected study results.

At the beginning of study courses, the students are familiarised with the expected results of the studies. When consulting students and receiving assignments from them, instructors also use online and digital tools.

There is progress towards the digitisation of study courses online.

Practical classes involve the use of various equipment: multimedia projectors, video cameras,

sample collections, posters, diagrams.

At the beginning of a course, the students receive the learning materials prepared for them online, which significantly simplifies the acquisition of the content of the course.

In certain courses, practical activities involve various study methods, including work in small groups, analysis and resolution of problem situations, role playing, unsupervised tasks.

As part of the student's independent work, the instructor performs an organising, consulting and expert function.

The chosen study methods will encourage the development of independent, critical and creative thought in students. These must also foster the communication skills of students, their ability to work in a group, to overcome and resolve conflicts, to be confident and to take responsibility for decisions they make.

In their work, the academic staff use various types of teaching methods, such as lectures, workshops, group training, demonstrations, discussions, situation modelling etc.

Interactive methods are also used as part of the study process. Interactive studies not only result in an interesting study process, but also encourage the participants to use a creative approach, to think, to analyse the information they obtain and to compare it to their personal experience.

The scope of the study programme includes research by students (reports, participation in conferences, preparation of study and qualification papers etc.), as well as the scientific and teaching activities of academic staff in enabling the study process (preparation of scientific articles, participation in studies, conferences).

At the end of their studies, students prepare and defend a qualification paper.

At the end of their studies, students prepare and defend a qualification paper. The paper is evaluated in accordance with the ***RTC Regulations on the study examination procedure***.

The evaluation principles and procedures used as part of the Heat Power Engineering study programme match those specified in the national standard.

Evaluation principles:

1. Mandatory nature of evaluation as an integral component of teaching, whereby the students receive a grade for learning the required content of the study programme;
2. Transparency and clarity of the evaluation content and criteria, in accordance with the set goals and objectives of the study programme, as well as those of the field of study in question;
3. Aggregation of achievements: provision of reliable and useful information about the performance/completion of activities by the student to students and instructors;
4. Objectivity in evaluation: based on the requirements of the study programme or study field programme, the content, conditions and criteria of evaluation are the same for all students.

Evaluation compliance principle: as part of the examination, one can demonstrate analytical and creative abilities, knowledge and skills in all the tasks and situations appropriate to all the levels of learning. The scope of content included in tests matches the content specified in the course descriptions and the knowledge and skill requirements set in the professional standard.

The main form for evaluating performance as part of the programme is the exam or the test, which must be taken at the end of every study course. The form of examination is set in the study programme, the completion of the programme is evaluated using a scale of 10. For courses

comprising no more than one credit, programme performance is evaluated using a two-level scale, with a 'pass' or a 'fail'. Internship performance is evaluated on a scale of 10.

The programme ends with a final national examination, during which the qualification paper is defended, and graded using a scale of 10. In their qualification paper, the student must demonstrate their professional and theoretical knowledge, as well as their ability to demonstrate specific professional skills, to present their arguments and to solve problems in their field of specialisation. Students prepare a qualification paper about a relevant topic chosen from a list of qualification paper topics prepared by the head of the study programme and approved by the college council; students may also propose their own topics for a qualification paper. The research advisor provides consultations and assessments about the preparation of the paper, which is later evaluated by the reviewer. The college chooses 5 reviewers who are highly-qualified specialists with a higher-education degree. Reviewers can be provided by employers, as well as other higher education institutions.

The defence of the qualification paper takes place at a meeting of the state final examination commission. The commission includes representatives of the college, employers, and academic staff from other higher education institutions.

Students have the opportunity to study according to an individually compiled plan.

[Nolikums par studiju organizāciju pēc individuālajiem plāniem.pdf \(rtk.lv\)](#)

**2.4. If the study programme entails a traineeship, provide the analysis and assessment of the relation between the tasks of the traineeship included in the study programme and the learning outcomes of the study programme. Specify how the higher education institution/ college supports the students within the study programme regarding the fulfilment of the tasks set for students during the traineeship.**

**Interconnection of the student internship tasks included in the study programme with the study results to be achieved in the study programme**

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 credits (5 weeks) in the 4th semester:

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

The goals and objectives of the internships are specified in their respective programme.

The objectives of the internships are associated with the expected results of the study programme, and enable its successful completion. In accordance with the internship regulations, trilateral contracts are signed by RTC, the student and the organisation providing the internship position.

Internship location:

- Provides a workplace appropriate for the programme of the internship, and a person to be in charge of the internship.

At the end of an internship, the student prepares an internship report that includes details about the content of the internship programme, signed by the person in charge of the internship at the internship organisation.

Students present and defend their internships in front of a commission, and they are assessed by the supervisor of the internship at the company, and the supervisor of the internship at RTC.

The programme's students also have access to international Erasmus+ internships.

If necessary (there were no such cases during the reporting period), it is possible to change the practice task, which also corresponds to the previously set main task.

## **2.5. 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 evaluations of the final theses.**

### **Analysis and evaluation of the topics of students' final papers, their topicality in the field, including the job market, and the evaluation of the final papers**

The programme ends with a final national examination, during which the qualification paper is defended, and graded using a scale of 10.

We recommend students to choose the topic of their qualification paper during their second year, at the beginning of the 3rd semester.

A student may take a final test/exam if:

- Their learning of the study course (as specified in the programme) is evaluated as positive;
- The internship reports have been positively evaluated;
- The term papers have been positively evaluated;
- All the obligations specified in the study agreement have been met.

In their qualification paper, the student must demonstrate their professional and theoretical knowledge, as well as their ability to demonstrate specific professional skills, to present their arguments and to solve problems in their field of specialisation.

Students prepare a qualification paper about a relevant topic chosen from a list of qualification paper topics prepared by the head of the study programme in conjunction with companies from the industry; students may also propose their own topics for a qualification paper, based on their workplace.

The research advisor and consultants provide consultations about the preparation of the qualification paper, which is later evaluated by the reviewer. Reviewers can be industry specialists with higher education degrees, or represent other higher education institutions working in related fields.

The defence of the qualification paper takes place at a meeting of the state final examination commission. The commission includes representatives of the college, employers, and academic staff from other higher education institutions.

Every year, the state examination commission assesses the appropriateness of the topics to the programme; the topics were deemed appropriate and relevant to the latest developments in the industry.

Most of the topics of the qualification papers are related to the establishment and maintenance of a modern heating system.

Examples of topics:

Calculation of heat loss for a building. The right choice of radiators. The right choice of heat source. Hydraulic system calculation.

Heating track design.

## **2.6. Analysis and assessment of the outcomes of the surveys conducted among the students, graduates, and employers, and the use of these outcomes for the improvement of the content and quality of studies by providing the respective examples.**

### **Analysis and evaluation of the results of surveys of students, graduates and employers, their use in the improvement of study content and quality by providing examples.**

The information is included in annual self-assessments and yearbooks, see:

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

The A-S-1 group was not formed for the 2018/2019 academic year.

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

The opinion of the VKEK commission notes that:

1. The presentation of qualification papers and answers to reviewers' questions have improved, therefore the consultant should continue to be supported in the use of computer equipment and preparation of papers;
2. Compared to last year's student qualification papers, the overall level of this year's qualification papers is higher.
3. The topics of students' qualification papers were chosen in accordance with the requirements of modern life.
3. Qualifications should make more use of the latest advances in science and technology
4. Use the best qualification papers as examples for future qualification papers development process.

Chairman of the VKEK: Egīls Dzelzītis RTU professor, Dr.hab.sc.ing. Chairman of the Board of JSC "Lafipa"

All suggestions have been responded to.

## **2.7. Provide the assessment of the options of the incoming and outgoing mobility of the students, the dynamics of the number of the used opportunities, and the recognition of the study courses acquired during the mobility.**

### **Incoming and outgoing mobility opportunities for students.**

In order to encourage and expand the use of the Erasmus+ programme at RTC, the college has established partnerships and signed cross-institutional cooperation agreements with vocational

education and higher education bodies in Lithuania, Estonia, Finland, Sweden and Denmark.

In executing level-one vocational higher education study programmes, it is particularly important to collaborate with foreign companies, in which RTC students undergo Erasmus+ internship, and to provide education mobility for instructors and administrative staff. Active, regular collaboration with foreign companies operating in a number of tech fields has been built up.

More info at:

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

### **III - DESCRIPTION OF THE STUDY PROGRAMME (3. Resources and Provision of the Study Programme)**

**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. Whilst carrying out the assessment, it is possible to refer to the information provided for in the criteria set forth in Part II, Chapter 3, sub-paragraphs 3.1 to 3.3.**

The college is a state-founded educational institution. Its main financing is the state budget. The existing, available resources allow to implement the study direction and are in accordance with the study content and allow to organize the study process. The development of the college is regularly planned. The physical environment of studies consists of auditoriums, laboratories and an electronic library with the necessary equipment for learning study subjects. RTK service hotel in Riga is available for students. The study process is organized in the auditoriums at Braslas Street 16, Riga and in practice places. A modern study process is unthinkable without the use of information communication technologies - the college provides opportunities to work in classrooms with video presentation equipment, using digital multimedia projectors and laptops. The college has auditoriums with stationary presentation equipment, internet connection and an interactive whiteboard. All auditoriums have desktop computers with internet access and the possibility to connect a portable digital projector. The equipment ensures a modern and high-quality study process, helps students to better acquire both knowledge. The college is equipped with computer rooms with modern computers. The computer equipment is equipped with MS Windows 7, MS Windows 8 operating systems and MS Office Professional 2007 and 2010; AUTOCAD 2014 software. Students can use computers in their free time to develop independent work, or to prepare study papers, practice reports or qualification papers. The college has built-in Wi-Fi, allowing students and faculty to use their laptops freely to access the Internet. All rooms at the college have been refurbished and modernly furnished. Laboratories of professional study courses are equipped with the necessary technical means. The acquisition of professional study courses is ensured by the following laboratories: welding laboratory, laboratories for refrigeration equipment and conditioning equipment. Professional practice is provided by mechanical and welding workshops. The tools necessary for learning the program are available in the workshops. An important resource in the study process is the library. It consists of two parts - a subscription and a reading room. The library

has more than 10,000 copies of books and other information items. The electronic catalog allows you to search and order books remotely. It is difficult to renew book collections, because book prices are constantly rising, but the state budget allocates insufficient funds for the purchase of new books, however, the college finds opportunities to supplement the range of textbooks and periodicals needed to ensure the implementation of the study process. The library allows to fully ensure the college study process and scientific-practical activities, as well as to provide students and lecturers with bibliographic and informative services. The library regularly receives periodicals published both in Latvia and abroad. Newspapers and magazines are available in the reading room, as well as various statistical collections and reference publications. Computers with Internet access, printing and copying facilities are located in the reading room for the convenience of students. It is also possible to work with laptops.

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

## **III - DESCRIPTION OF THE STUDY PROGRAMME (4. Teaching Staff)**

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

As instructors are replaced, there has been a notable trend towards improvement in the quality of studies in recent years. This is explained by the fact that the new instructors coming from the industry and other higher education facilities have modern knowledge and international experience. This has been confirmed through student surveys and feedback.

RTC actively collaborates with other higher education facilities in Latvia and abroad. Bilateral cooperation agreements have been concluded with Riga Technical University, Lapland Technical College in Finland, Bradford University in the UK, and Technical Education Copenhagen Centre in Denmark.

Statistical data based on the college's yearbook show that an average of 95% of graduates work in a profession that is within the field of the study programme they completed.

During the last 6 years, 2 lecturers have left the program and 2 lecturers (doctor) have joined the program. The quality of studies improved.

### **4.2. 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 qualification of the instructors (local and guest instructors) involved in the teaching of the study programme is sufficient for the requirements for the teaching of the study programme and applicable laws and regulations, specifically the provisions of Cabinet Regulation No. 569 'Regulations on the required education and professional qualification of instructors, and the procedure for improving the professional competence of teachers' of 11 September 2018.

The teaching staff involved in the implementation of the Mechanical Engineering study programme have the following degrees in their respective fields: 2 with doctoral, 12 with master's.

The academic staff is involved in research, the topic of which is relevant and related to the interests of the region and the content and future development of the study programme. Research papers have been published in internationally available journals and databases. The results of research and creative work are used in practice and integrated in innovations.

The creative activities of the academic staff are closely associated with the goals and objectives of the Mechanical Engineering study programme. The college plans and carries out activities to improve the professional competence of its academic staff:

- Regular self-education for the purpose of being competent;
- Participation in practical scientific conferences for the academic staff of the college;
- Professional career development, advanced training as part of courses and workshops;
- Management of professional career development, advanced training courses and workshops;
- Development of new and modern teaching materials (hand-out materials, quizzes, tests, tasks, digitisation of study materials for e-learning);
- Participation in the preparation of new teaching materials and book;
- Meetings and discussions with leading industry specialists and experts;
- Attendance of professional fairs and presentations in Latvia and abroad;
- Improvement of foreign language skills;
- Collaboration with companies, employers, professional association, with the purpose of being informed of the recent and important developments in the industry.

Cooperation agreements include cooperation in research education, experience sharing trips by instructors and other specialists, making it possible to become acquainted with the education system of the partner state, to conduct student exchange, and to enable participation in international research and education projects.

**4.3. Information on the number of the scientific publications of the academic staff members, involved in the implementation of the 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 may be additionally specified (if applicable).**

**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).**

**4.5. Provide examples of the involvement of the academic staff in the scientific research and/or artistic creation activities both at national and at international level (in the fields related to the content of the study programme), as well as the use of the obtained information in the study process.**

Within the study field, the academic staff basically works in three directions in their professional activities - in scientific research, pedagogical and organizational activities. The research activities of the academic staff provide feedback for the transfer of knowledge from the field of scientific research to the pedagogical and organizational fields, providing an opportunity to increase the quality of studies.

The lecturers of the college participate in international scientific conferences, seminars and discussions in Latvia and abroad as speakers and listeners. The latest information obtained is used in the management of study courses and works, as well as in the preparation of teaching aids;

The research process must be based on the creative ideas of a particular student in order to create and develop the research potential and independent thinking of the future specialist, the ability to strategically and analytically formulate and achieve goals, communicating in an international professional environment, and improve their skills and knowledge.

Unlike university-type education, college education does not have a large part of academic knowledge and related research work of academic staff and students, however, elements of scientific work are gradually introduced in the study process, from solving independent work issues to comparing different options in study work and qualification paper.

The academic staff of the study field is involved in research work together with students and develops research topics.

2019/2020 During the year, students completed qualification papers, which can also be used as teaching aids in the study process.

The academic staff of the college compiles handouts and information materials in his / her study course, performs work on the improvement of methodological provision, participates in the development of study methodological provision in study courses, manages study and qualification works.

Exercises, tasks, design of study papers, execution of documents. This is important because specialists are trained according to the professional standard and the needs of the labor market.

The academic staff develops the final test of the study course content, and its form generally meets the requirements of study programs. The thematic distribution of the study courses and the description of the courses envisage the proportion of independent work in the final assessment.

Scientific and practical conferences of the academic staff have taken place at the College.

Representatives of the labor market, as well as the college's cooperation partners from Germany also take an active part in the conferences.

College lecturers conduct guest lectures at partner colleges under the Erasmus mobility program.

**4.6. 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 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).**

Department heads report on their work to the RTC council. The head of the study programme reports on the study programme they are in charge of, providing a self-assessment that is included in the self-assessment for the field of study.

The following RTC units and partners participate in conducting study programmes:

General Studies and Management Studies Department;

Road Transport and Production Technology Department;

Information and Communication Technology Department.

Riga Technical University and other higher education institutions.

Industry associations

The departments are in charge of providing the theoretical and internship for the study course in question.

The following RTC auxiliary staff is involved in conducting study programmes: Study Division, teaching workshops for internships, Research and Method Development Division, Study Process Development Assurance Division, library, information centre, Accounting Division, student residence, cafeteria.

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.

There are 13 lecturers per 190 students.

# Annexes

III. Description of the Study Programme - 1. Indicators Describing the Study Programme		
Compliance of the joint study programme with the provisions of the Law on Institutions of Higher Education (table)		
Statistics on the students over the reporting period	Statistical data about study programme students_heat.docx	Statistikas dati par studējošajiem studiju programmā_Siltums.docx
III. Description of the Study Programme - 2. The Content of Studies and Implementation Thereof		
Compliance of the study programme with the State Education Standard	Siltumtehnika_Pielikuma paraugs_nr6_ENG.docx	Siltumtehnika_Pielikuma paraugs_nr6.docx
Compliance of the qualification to be acquired upon completion of the study programme with the professional standard (if applicable)	Compliance of the Heat Power Engineering study programme with the professional standard.docx	Siltums_standarts.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	Studiju programma SILTUMENERĢĒTIKA (1).docx	Studiju programma SILTUMENERĢĒTIKA.docx
Curriculum of the study programme (for each type and form of the implementation of the study programme)	Studiju programma SILTUMENERĢĒTIKA (1).docx	Studiju programma SILTUMENERĢĒTIKA.docx
Descriptions of the study courses/ modules	Siltums_Kursu_apraksti.pdf	Siltums_Kursu_apraksti.pdf
Description of the Study Direction - Other mandatory attachments		
Sample of the diploma to be issued for the acquisition of the study programme.	Diploms.zip	Diploms.zip
Description of the Study Programme - Other mandatory attachments		
Document confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued	Sadarb_Univ.zip	Sadarb_Univ.zip
Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme	Kompens_neakr.docx	AIC_90.edoc
Confirmation of the higher education institution/ college that the teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language according to European language levels (see the levels under www.europass.lv), if the study programme or any part thereof is to be implemented in a foreign language.		
If the study programmes in the study direction subject to the assessment are doctoral study programmes, a confirmation that at least five teaching staff members with doctoral degree are among the academic staff of a doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field or sub-field of science, in which the study programme has intended to award a scientific degree.		
If academic study programmes are implemented within the study direction, a document confirming that the academic staff of the academic study programme complies with the provisions set out in Section 55, Paragraph one, Clause three of the Law on Institutions of Higher Education		
Sample (or samples) of the study agreement	Siltums_ligums.doc	Siltums_ligums.doc
If academic study programmes for less than 250 full-time students are implemented within the study direction, the opinion of the Council for Higher Education shall be attached in compliance with Section 55, Paragraph two of the Law on Institutions of Higher Education.		