



## **FACULTY OF ENGINEERING**

Study direction

# **PRODUCTION AND PROCESSING**

First cycle professional higher education  
bachelor study programme

## **“DESIGN TECHNOLOGIES”**

### **REPORT FOR THE INCLUSION OF A LICENSED PROGRAM OF STUDIES INTO THE ACCREDITATION PAGE OF THE DIRECTION**

Director of the Study Programme: Mg. design, Mg. art, Mg. paed., prof. docent Diāna Apele  
Study direction accredited until October 05, 2028.

APPROVED

Senate meeting of Rezekne Academy of Technologies 30.01.2024.

Decision of the senate meeting No.1

APPROVED

Council meeting of the Faculty of Engineering 17.01.2024.

Decision of the council meeting No. 14.1/17

Rezekne, 2024



Republic of Latvia  
Ministry of Education and Science  
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Rezekne

APPLICATION

To Academic Information Centre

Application for a licensed study programme “**Design Technologies**” inclusion in an accredited direction of study “Production and processing”

Name of the Institution of Higher Education	Rezekne Academy of Technologies
Number of the registration certificate of the Register of Educational Institutions	3194001444
Legal address of the Higher Education Institution	Atbrivosanas aleja 115, Rezekne, LV-4601
Name of the study programme	First cycle professional higher education bachelor study programme “Design Technologies” (42214 un 42548)
Date of licensing of the study programme	29.06.2023.
Date of commencement of the implementation of the study programme	01.09.2023.
Name of the study direction	“Production and processing”
Term of accreditation of the study direction	05.10.2028.
Person authorised by the higher education institution to handle issues related to this assessment	<i>Silvija Mežinska Mg. sc. ing., Mg. design, Mg. paed. lektore</i> <a href="mailto:Silvija.Mezinska@rta.lv">Silvija.Mezinska@rta.lv</a> , +371 29716353

I certify that the application and report for the inclusion of a licensed study programme in the accreditation page of the study direction shall be considered as a commitment to comply with the conditions and obligations laid down in the Methodology for the inclusion of a licensed study programme in the accreditation page of the study direction and the guidelines and legal acts referred to therein.

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# I. INFORMATION ABOUT THE STUDY DIRECTION

## 1.1. Aims and objectives of the study direction

The objectives of the study direction "Production and Processing" are defined on the basis of strategic planning documents of the EU and Latvia, Latgale region and RTA: „Europa2030”, Program for the modernisation of Europe's higher education systems”, „Latvija 2030”, „Strategy of Latgale 2030” „Guidelines for the Development of Education for 2021-2027”, „RTA actions and development strategy 2016-2025”, as well as in consultation with students, employers, professional organizations and discussing in the Council of Faculty of Engineering and Senate of RTA.

The strategic direction of activity of the study direction is coordinated with the goals and objectives of the Faculty of Engineering and the strategic goals of RTA:

1) to ensure purposeful, coordinated and consistent implementation of the resource-intensive study direction aimed at the acquisition, application and development of innovative technologies in the Latgale region;

2) preparing the specialists necessary for the growth of Latgalian, Latvian, European economy, promoting the involvement of young specialists in science and research;

3) to offer research-based interdisciplinary study programmes focused on the acquisition, application and development of innovative technologies, attractive and modern study and research environment, preparing competitive specialists for the regional, national and international labour market and increasing the quality of studies;

4) to introduce the principle of unity of pedagogical and research work, to develop the scientific research capacity of RTA academic staff, ensuring technological excellence and transfer for the development of the business environment and the economy;

5) develop the attractiveness of the region, involving RTA academic staff, students in the social, cultural and economic life of Latgale, sustainable use of resources, preservation and circulation of cultural and historical values of the region.

The study direction "Production and Processing" at RTA has been realized since the academic year 2012/2013, when the implementation of the short-cycle professional higher education study program "Fashion Design and Technology" was started.

### **Aims and objectives of the study direction:**

**1. To offer high-quality study programmes that provide studies in production and processing-related industries and inter-sectors, training of competent, qualified professional specialists who meet the requirements of the labour market and the national economy for the regional, national and international labour market, activity and competitiveness in a changing socio-economic context, creating motivation for further education, first cycle professional higher education and fifth level professional qualification.**

Characteristics and assessment of the process of implementation of the aim:

- improvement of the content of study programmes is carried out in accordance with the requirements of the labour market of the national economy, in accordance with the profession standard, in cooperation with internships, employers;

- development of interdisciplinarity, establishment and expansion of international cooperation with Latvian and foreign universities is important for ensuring the improvement of study programmes;

- development of the study field by developing a new integrated, interdisciplinary study programme and /or study modules, expands study opportunities for Latvian and foreign students, ensures full use of the academic potential of lecturers, ensuring succession of higher education acquisition.

**2. To develop the scientific research activities of the academic staff, ensuring technological excellence and transfer for business development.**

Characteristics and assessment of the process of implementation of the aim:

- ensuring the connection of research with the development of the industry, development of technology transfer and innovations, involvement in international projects, improvement of study quality and material and technical support;
- promotion of patenting of scientific results and the introduction of innovative products into production;
- improvement of the content of study courses based on the research results of academic staff, the latest insights in the theory and practice of the field and its interface sciences;
- promoting cooperation and partnership between the business and academic research study environments.

**3. To create a modern environment for the implementation of study programmes, to provide appropriate equipment for the study process and research work.**

Characteristics and assessment of the process of implementation of the aim:

- Use and improvement of ICT provision for studies and research work, establishment and development of research corresponding to the study field of the laboratory complex, expansion of study opportunities in the e-learning environment, expansion of library funds and remote access to information.

**4. To improve the quality of life in Latgale region by involving academic staff and students in the social, cultural and economic life of Latgale.**

Characteristics and assessment of the process of implementation of the aim:

- promotion of business development, knowledge, skills and level of competence in the field of technologies used in accordance with the requirements of a modern production facility;
- improvement of industrial design possibilities, product design, development of products to be introduced into production, contributing to the growth of the manufacturing sector in Latgale region.

## 1.2. Study programmes included in the direction of study

The accreditation page of the study direction "**Production and Processing**" currently includes two study programmes (see Table 1).

**Table 1**

**Study programmes included in the accreditation page of the study direction**

No	Name of the study programme	LQF/EKI	Degree, professional qualification/degree and professional qualification to be awarded	Amount (ECTS)
1.	Short-cycle professional higher education study programme "Fashion Design and Technology" (code 41542)	5.	5th level professional qualification "Designer of textiles and leather goods"	CP 150
2.	Short-cycle professional higher education study programme "Food Processing" (code 41541)	5.	5th level professional qualification "Food production specialist"	CP 150

## 1.3. Analysis of the correspondence of the study programme to be included in the accreditation page of the study direction

The first cycle professional higher education bachelor's study programme "**Design Technologies**" (hereinafter referred to as the Programme) has been developed in accordance with **the RTA Actions and Development Strategy 2016-2025**, whose aim (M), objectives (U) and results (R) foresees: M1. To ensure purposeful, coordinated and successor implementation of STEM and resource-intensive study fields aimed at

the development, acquisition and application of innovative technologies in the Latgale region, preparing the specialists necessary for the growth of the Latgalian, Latvian, European economy, promoting the involvement of young specialists in science and research, as well as the development of the knowledge society and the introduction of digitalisation. U.1.1. By implementing the principle of integrated science, to become the leading engineering study, research and innovation center in Eastern Latvia. R.1.1.1.1. First cycle professional higher education programmes in study directions: [...] , „Production and processing”. R.1.1.4.1. Develop a module in existing bachelor's and master's level programs that provides for specialization in industrial design.

RTA's **Scientific Activity Strategy 2019-2025** envisages RTA to become the leading engineering and technology research and innovation centre in Eastern Latvia, ensuring purposeful, coordinated and consistent implementation of STEM and resource-intensive study fields focused on the development, acquisition and application of innovative technologies in the Latgale region, preparing the specialists necessary for the growth of the Latgalian, Latvian, European economy, promoting the involvement of young specialists in science and research, as well as the development of the knowledge society and the introduction of digitization. In the Strategy RTA is positioned as a regional development centre, where there is a concentration of human resources and infrastructure, so that all subjects of the innovation system – education, science and entrepreneurship – develop priority areas/directions for the region and the country, including engineering and technology. <https://www.rta.lv/about-rta> The RTA Strategy envisages the further development of [...] production and processing (design and technology) and other STEM and resource-intensive industries based on the principle: science → innovation → prototyping → technology transfer → production. **Production and processing is an important study direction of RTA for the national economy**, which includes an important sector of the economy aimed at increasing welfare both in the European Union and Latvia - manufacturing. In the global value chain of product manufacturing, one of the essential links is **design, the production of products (industrial, furniture, textiles) and related industries (the manufacture of interiors and its products)**.

**The establishment of the programme was promoted by:**

- 1) development plan of the study direction "Production and processing", which provides for ensuring the continuity of studies by creating a professional bachelor's study programme;
- 2) recommendation of international accreditation to ensure continuity in studies by establishing a professional bachelor's study programme;
- 3) Plan for the consolidation of RTA study programmes, which provides for the unification of RTA resources, concentrating them in the areas of strategic specialization of RTA.

The programme has been developed by combining the experience of the implementation of the professional bachelor's study programme "Interior Design" (Latvian Education Classification Code: 42214) implemented until 31 December 2023 at RTA since 2008, significantly supplementing it, improving both theoretical and practical study courses, in accordance with the requirements of engineering and related industries, updated profession standards, European education guidelines, current requirements of regulatory enactments, ensuring continuity of studies short-cycle professional higher education program "Fashion Design and Technology".

By diversifying study opportunities and taking into account the demand of employers, the programme provides for the provision of three modules of professional specialisation, based on two professional standards, (see Table 2).

Table 2

**Compliance of the specialization modules of the program with the standards of the profession**

<b>Specialization module</b>	<b>Profession standard</b>
Industrial design and technologies	Product designer. Sixth level of professional qualification (6.PQL) (corresponds to the sixth level of the Latvian Qualifications Framework (6. LQF))
Fashion Design and Technology	
Interior design and product technologies	Interior designer. Sixth level of professional qualification (6.PQL) (corresponds to the sixth level of the Latvian Qualifications Framework (6. LQF))

The profession standard "Product Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on June 8th, 2022, Protocol No.3. The profession standard "Interior Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on August 20th, 2008 Protocol No. 6. When developing the guidelines of the study program "Design Technologies" for the performance of the fundamental tasks of professional activity, defining the necessary knowledge, skills and competence, the new project of the Interior Designer standard was also taken into account, which is under development and will be updated in the near future.

The programme is **interdisciplinary**, providing for specialization in the directions mentioned. **Interdisciplinary studies in design and engineering** provide the basis for economic growth, promote the well-being and environmental sustainability of individuals and society, as well as form national identities and the image of the state. The aim of the Research and Innovation strategy for **smart specialization of Latvia** is the creation and introduction into production of innovative and internationally competitive products with high added value. Smart specialization directions of Latvia are a change in the structure of production and exports in traditional sectors of the national economy and growth in sectors where products and services of high added value exist or can be created. The field of design technology is directly related to these priorities. For manufacturers, the improvement of industrial design capabilities, knowledge of the product development process and the development of products to be introduced into production are relevant.

The program has been created for the preparation of specialists of two 6th level of professional qualification of LQF – product designers and interior designers, accordingly the graduates of the program will be awarded the qualification "Product Designer" or "Interior Designer".

The aim of the program is fully aligned with the RTA's mission - to contribute to the transformation and growth of the economy through education, research, science and innovation, ensuring the creation of new products and technologies in the scientific sectors and intersectors represented by RTA, both at the national and international level. The implementation of the program corresponds to the aim and tasks of the study direction "Production and Processing".

## II. CHARACTERISTICS OF THE STUDY PROGRAM

### 1. Parameters that characterize the study program

#### 1.1. Parameters of the study program

For the characteristics of the first cycle professional higher education bachelor's study programme "Design Technologies", see Table 3. For the degrees and professional qualifications to be awarded, see Table 4.

**Table 3**

#### 1. Parameters that characterize the study program

<b>1.</b>	<b>Name of the study programme</b>	<b>“Dizaina tehnoloģijas”</b>	
<b>2.</b>	Name of the study program in English language	"Design technologies"	
<b>3.</b>	Code of the study program according to the Latvian Classification of Education	42214 and 42548	
<b>4.</b>	Field of science of the study programme (applicable to doctoral study programmes)	<i>Not applicable</i>	
<b>5.</b>	Type of study program	Professional bachelor's study programme	
<b>6.</b>	Qualification level to be obtained (NKI/EKI)	6.	
<b>7.</b>	Scope of the study programme (CP, also recommended ECTS)	CP- 240 (160 CP according to Latvian CP system)	
<b>8.</b>	Form, type, duration of implementation (if less than one year, indicate in months) and the language of implementation		
	Full-time	4 Years	Latvian
<b>9.</b>	Place of implementation	Atbrivosanas aleja 115, Rezekne, LV-4601, Rezekne Academy of Technologies	
<b>10.</b>	Admission Requirements	Secondary education	
<b>11.</b>	Degree, professional qualification or degree to be obtained and professional qualification, so-called specialisation (if applicable)	Professional bachelor's degree in design and technologies and sixth level professional qualification of a product designer or interior designer	
<b>12.</b>	Profession standard, year of its approval (if applicable)	The profession standard "Product Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on June 8th, 2022, Protocol No.3. The profession standard "Interior Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on August 20th, 2008 Protocol No. 6.	
<b>13.</b>	Final examination at the end of the study programme	Diploma project	
<b>14.</b>	Director of the Study Programme	Diāna Apele Mg. design, Mg. art, Mg. paed., prof. docent	

**Table 4****Degrees and professional qualifications to be awarded**

Amount in credit points	240 CP
Duration of studies in years	4 years
Degree and/or qualification to be obtained	Professional Bachelor's Degree in Design and Technologies and Professional Qualification of a Product Designer
Admission Requirements	Secondary education

Amount in credit points	240 CP
Duration of studies in years	4 years
Degree and/or qualification to be obtained	Professional Bachelor's Degree in Design and Technologies and Professional Qualification of an Interior Designer
Admission Requirements	Secondary education

**1.2. Aim of the study program:**

To provide interdisciplinary, design and engineering theory-based studies that are competitive in the labour market, relevant to economic, cultural and social needs and applicable in practice in order to obtain 6th level professional qualification and bachelor's professional higher education, specializing in clothing or industrial, or interior and product design and technologies.

**1.3. Tasks of the study program:**

1. Theoretically and practically prepare product or interior designers, specializing in clothing, industrial or interior and product design, in accordance with the profession standard of a product designer or interior designer, developing students' skills, practical experience of activity, attitudes, fundamentally significant professional knowledge and competences for work in the relevant field of design technologies.

2. To educate the students, ensuring the fulfillment of the standard requirements of the first-cycle professional higher education bachelor's study programme, the acquisition of a fifth-level professional qualification in product or interior design, as well as to promote their competitiveness in changing socio-economic conditions and in the international labour market.

3. To ensure the achievement of study results (knowledge, skills and competence) in accordance with the knowledge, skills and competence of the 6th level of the European Qualifications Framework specified in the Latvian Classification of Education.

4. Promote the development of students' general skills and competences, including communication, presentation, ability to work in a team, social dialogue, language, leadership and other skills. To apply its scientific approach to problem solving, to develop and carry out research and innovation activities.

5. To ensure improvement of the content of the study programme and the study process in accordance with changes in the requirements of the labour market, to prepare the holders of professional qualifications for studies at the master's level, to promote self-education of students by improving knowledge in the field and area of professional activity.

## 1.4. Study results to be achieved:

### Knowledge:

- is able to demonstrate the general and professional knowledge of facts, theories, regularities and technologies necessary for the profession of designer (according to the standards of product or interior designer) at the level of perception, understanding and use;
- understands the most important concepts of the related industries necessary for the profession of a designer, the regularities and actualities of the design and production process in various professional situations and environments, taking into account the development trends of technologies and materials.

### Skills:

- based on an analytical approach, using the acquired theoretical foundations of the industry, cooperates with specialists of other professional sectors, plans, organizes and performs practical tasks, professional activity at the level of professional competence corresponding to the designer's qualification;
- applies creative, practical, innovative approaches in design, plans, performs or supervises such work activities, designing conceptual models of new products or environments in various professional, non-standard situations and environments where unpredictable changes are possible;
- formulates, negotiates, explains and reasonedly discusses the practical issues of the industry, research results, discusses at various levels with colleagues, clients and management in the national and English languages, solving work tasks in the field of design, leads the development of industrial samples of products, performs author supervision during the execution of the project;
- independently obtains, selects, processes, evaluates, analyzes, systematizes, uses information in the industry or profession, related to the design and production of products or interior and products, uses it in decision-making, ensuring the operation of an enterprise in the industry, solving problems;
- able to critically assess the level of their knowledge and skills in the field of professional specialization (clothing or industrial, or interior design) and the need to improve it, continue their further education, independently improve their professional qualification, competencies according to innovations in the sectors related to professional activity.

### Competence:

- evaluates and improves one's own and others' activities, shows a professional approach, problem-solving skills that allow to find creative solutions for professional tasks in order to carry out research or design activities, qualified professional functions;
- formulates, analytically describes, analyzes and solves practical problems, professional tasks in ensuring the design process, takes responsibility and shows initiative by performing work individually or in a team, delegating the performance of tasks, working in a team of company professionals, managing the work of other professionals;
- able to assess the impact of professional activity in a wider social context, e.g. on the environment, economy and society, to demonstrate an understanding of professional ethics in the design profession and to participate in the development of an appropriate field in the related industries, to take decisions corresponding to the level of competence and to take responsibility for them;
- complies with the measures of a safe working environment, the basic principles of professional activity and communication in the working environment, applies industry standards corresponding to a particular situation, regulatory enactments, technical regulations and regulatory documents of the Republic of Latvia, uses industry terminology in national and English language, uses digital tools, business principles, prepares and manages presentations, promoting systematization, optimization and digitization of processes.

For each of the specialization modules of the program – **Industrial Design and Technologies, Interior Design and Product Technologies, Fashion Design and Technology** – specific study results are defined, in which the specific requirements of each design field (in accordance with the standards of the relevant professions) are more precisely expressed (see point 2.1.2.).

## 2. Topicality of the study programme

### 2.1. Brief characteristics of the study program

#### 2.1.1. Justification for the establishment of the study programme and compliance with industry trends in Latvia, the European Union and the world

Nowadays, design is becoming as an added value for society and is particularly interesting as an economic tool. The design process leads to far-reaching plans and sustainable thinking. The designer is becoming a sought-after profession, demonstrating opportunities in the organization of life and cultural development, emphasizing the development and introduction of artistic-functional innovations into the human living space. Quality, tradition- and research-based content at all levels of design education has to be ensured in line with industry needs and future challenges. Development of interdisciplinary, internationally competitive design education programmes, promoting cooperation between universities. To develop new interdisciplinary educational programmes in connection with the development of the sector and the needs of the labour market. Product and process innovation encompasses actions related to the practical application of knowledge and the implementation of skills necessary to create more fulfilling, improved products and services that increase the final value of a product<sup>1</sup>.

In the development of the programme the labour market needs of the manufacturing sector (textile, metal, wood, plastics), the textile and clothing technology sub-sectors of the materials science sector and related industries (interior and product design) were taken into account. In order to ensure the compliance of the Programme with the requirements of the labour market, the part of the professional specialization study courses (99 CP) offers professional specialization modules - "Industrial Design and Technologies", "Interior Design and Product Technologies", "Fashion Design and Technology". As a justification for such a choice, it can also be mentioned that in 2017/2018 the design bureau H2E conducted a survey on the most demanded design areas in Latvia ([Rokasgrāmata Latvijas dizains 2020](#)), (the link is available only in Latvian) where it was found that the leading nine design areas in Latvia are:

- Graphic design (18%)
- Interior design (15,9%)
- Fashion design (14,7%)
- Advertising design (13,9%)
- Digital design (12,7%)
- Packaging design (10,6%)
- Product design (9,8%)
- Environmental design (3,7%)
- Service design (0,8%)

The first cycle professional higher education bachelor's study programme "**Design Technologies**" (hereinafter referred to as the Programme) has been developed in accordance with **the RTA actions and Development Strategy 2016-2025**, whose aim (M), objectives (U) and results (R) provide for: M1. To ensure purposeful, coordinated and successor implementation of STEM and resource-intensive study fields aimed at the development, acquisition and application of innovative technologies in the Latgale region, preparing the specialists necessary for the growth of the Latgale, Latvian, European economy, promoting the involvement of young specialists in science and research, as well as the development of the knowledge society and the introduction of digitalisation. U.1.1. By implementing the principle of integrated science, to become the leading engineering study, research and innovation center in Eastern Latvia. R.1.1.1.1. To establish first cycle professional higher education programmes in the fields of study: [...], "Production and processing". R.1.1.4.1. In existing bachelor's and master's level programs, develop a module that provides for specialization in

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<sup>1</sup> Latvijas Dizaina Stratēģija 2022-2027 <https://www.km.gov.lv/lv/media/27617/download> (the link is available only in Latvian)

industrial design.

**Strategy for Scientific Activity of RTA 2019-2025** envisages RTA to become the leading engineering and technology research and innovation centre in Eastern Latvia, by ensuring purposeful, coordinated and consistent implementation of STEM and resource-intensive study fields aimed at the development, acquisition and application of innovative technologies in the Latgale region, preparing the specialists necessary for the growth of the Latgale, Latvian, European economy, promoting the involvement of young specialists in science and research, as well as the development of the knowledge society and the implementation of digitalisation. In the Strategy RTA is positioned as a regional development centre, where the concentration of human resources and infrastructure takes place, so that all subjects of the innovation system – education, science and entrepreneurship – develop priority areas/directions for the region and the state, including engineering and technology. <https://www.rta.lv/about-rta> The RTA Strategy aims to further develop [...] production and processing (design and technologies) and other STEM and resource-intensive industries based on the principle: science → innovation → prototyping → technology transfer → production. **Production and processing is an important study direction of RTA for the national economy**, which includes both in the European Union and Latvia an important sector of the economy aimed at increasing welfare - manufacturing. In the global chain of product manufacturing of added value, one of the essential links is **design, for the production of products (industrial, furniture, textiles), and related industries (production of interiors and its products)**.

By referring to the common trends in the development planning documents of Latvia and in Europe in the preparation of designers and evaluating the study programmes implemented in the study direction of RTA, the professional bachelor's study programme is improved in accordance with the development trends in science and practice, thus expanding the employment and competitiveness of graduates in the labour market, as well as ensuring regional interests. External experts and organisations of industry employers were involved in the creation of the programme, as well as other industry organisations, such as Employers' Confederation of Latvia (LDDK) I. Zemdega-Grāpe, Chairman of the Board of the Expert Council of Textiles, Clothing, Leather and Leather Products Industries (NEP), Member of the Board of the Latvian Designers' Union for Education Č.Čable-Zibene, L.Čudare, Chief Architect of the Architecture Department of the Construction Board of Rezekne state city, Head of technical and industrial design centre "ENGINEERING ARSENAL" R.Ķikuts (for statements on the RTA professional bachelor's study programme "Design Technologies", see Annex 18). The issues of program development were also discussed in the Council of the Study Direction Production and Processing of the Faculty of Engineering, RTA as well as with the employers of the region. Taking into account the specifics of the program (three specializations), the issues of its development and necessity were discussed with the LIAA Rezekne Business Incubator (S.Baltace), Rezekne Business Association (REUB), the Administration of the Latgale Planning Region (LPR) (S.Maksimovs), Special Economic Zone of Rezekne (RSEZ) (K.Freiberga), as well as individual entrepreneurs, representatives of local governments.

Students, graduates of related study programs in the field of design were involved in the creation of the program. During the development process of the study program, discussions were conducted with students of the professional first cycle bachelor's study program "Interior Design", the short-cycle professional study program "Fashion Design and Technology" in order to find out their opinion on the implementation of a new professional bachelor's study program at RTA. Most of the students welcomed the intention to provide new bachelor's level studies in design technologies, which would allow continuity of studies for students in the short-cycle study programme, provide more opportunities for involvement in design technology studies and research in Latgale.

The following activities took place during the development phase of the programme:

- existing similar study programmes in the field of design technologies were analysed;
- discussions were held with lecturers, industry experts and the results of the survey of students and employers were analyzed;
- discussions were held at the meetings of the Council of the study directions "Production and Processing" and "Art" on the objectives, tasks, results and study courses to be included in the program, summarizing the experience of lecturers from international conferences, ERASMUS+ mobility visits and the

opinions of professional organizations for the future development of the field of design technologies, participating for several years in Career Days and seminars of employers' organizations. Employers unequivocally emphasized that Latvia and Latgale need a significant breakthrough, which can only be ensured by opening up opportunities for new cooperation and research-based innovations, the introduction of new technologies into production and the design of new products (for a list of cooperation agreements with employers for the provision of student internships, see Annex 19).

**The establishment of the programme was promoted by:**

- 1) development plan of the study direction "Production and processing", which provides for ensuring the continuity of studies by creating a professional bachelor's study programme;
- 2) recommendation of international accreditation to ensure continuity in studies by establishing a professional bachelor's study programme;
- 3) Plan for the consolidation of RTA study programmes, which provides for the unification of RTA resources, concentrating them in the areas of strategic specialization of RTA.

The programme has been developed by combining the experience of the implementation of the professional bachelor's study programme "Interior Design" (Latvian Education Classification Code: 42214) implemented until 31 December 2023 at RTA since 2008, significantly supplementing it, improving both theoretical and practical study courses, in accordance with the requirements of engineering and related industries, updated profession standards, European education guidelines, current requirements of regulatory enactments, ensuring continuity of studies short-cycle professional higher education program "Fashion Design and Technology".

By diversifying study opportunities and taking into account the demand of employers, the programme provides for the provision of three modules of professional specialisation, based on two professional standards, (see Table 5).

**Table 5**

**Compliance of the specialization modules of the program with the standards of the profession**

<b>Specialization module</b>	<b>Profession standard</b>
Industrial design and technologies Fashion Design and Technology	Product designer. Sixth level of professional qualification (6.PQL) (corresponds to the sixth level of the Latvian Qualifications Framework (6. LQF)) <a href="https://registri.visc.gov.lv/profizglitiba/dokumenti/s_tandarti/2017/PS-228.pdf">https://registri.visc.gov.lv/profizglitiba/dokumenti/s_tandarti/2017/PS-228.pdf</a> (the link is available only in Latvian)
Interior design and product technologies	Interior designer. Sixth level of professional qualification (6.PQL) (corresponds to the sixth level of the Latvian Qualifications Framework (6. LQF)) <a href="https://registri.visc.gov.lv/profizglitiba/dokumenti/s_tandarti/ps0414.pdf">https://registri.visc.gov.lv/profizglitiba/dokumenti/s_tandarti/ps0414.pdf</a> (the link is available only in Latvian)

The profession standard "Product Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on June 8th, 2022, Protocol No.3. The profession standard "Interior Designer" has been approved at the meeting of the Tripartite Cooperation Sub-Council on Professional Education and Employment on August 20th, 2008 Protocol No. 6. When developing the guidelines of the study program "Design Technologies" for the performance of the fundamental tasks of professional activity, defining the necessary knowledge, skills and competence, the new project of the Interior Designer standard was also taken into account, which is under development and will be updated in the near future. For the programme's compliance with professional standards , see Annex 2.

The programme is **interdisciplinary**, providing for specialization in the directions mentioned. **Interdisciplinary studies in design and engineering** provide the basis for economic growth, promote the well-being and environmental sustainability of individuals and society, as well as form national identities and the image of the state. **The aim of the Research and Innovation strategy for smart specialization of Latvia** is the creation and introduction into production of innovative and internationally competitive products with high added value. Smart specialization directions of Latvia are a change in the structure of production and exports in traditional sectors of the national economy and growth in sectors where products and services of high added value exist or can be created. The field of design technology is directly related to these priorities. For manufacturers, the improvement of industrial design capabilities, knowledge of the product development process and the development of products to be introduced into production are relevant.

The program has been created for the preparation of specialists of two 6th level of professional qualification of LKF – product designers and interior designers, accordingly the graduates of the program will be awarded the qualification "Product Designer" or "Interior Designer". The implementation of the program corresponds to the aim and tasks of the study direction "Production and Processing".

The Sustainable Development Strategy of Latvia until 2030 (Latvia 2030),<sup>2</sup> which is the hierarchically highest long-term development planning document in Latvia, provides for [...] Support for the creation and commercialisation of new ideas, knowledge transfer and user-driven research, world-class science, innovation and the transition to the creation of low-carbon and energy-intensive goods and services, the use of renewable energy sources and technological development, [...] is only part of the prospective directions of economic development.

In the National Development Plan of Latvia for 2021-2027 (NAP2027)<sup>3</sup> the priority focuses on the amount and quality of knowledge and skills, which is an important resource for individual and national growth. [...] the growth of a creative person, the creation and application of new theoretical and practical knowledge, as well as the development and improvement of high added value and exportable products and services.

Based on the design strategies of European countries, BEDA Guidelines for Design Policy Development by the Bureau of European Design Associations, UN Sustainable Development Goals and other recommendatory and regulatory documents, the Design Strategy of Latvia<sup>4</sup> corresponds to today's best practices. The basic principles of its development: active public involvement and participation, ecocentric worldview, interdisciplinary co-creation, digital transformation, transition to a circular economy, promotion of empathy and improvement of communication. It provides for the establishment of interdisciplinary, internationally competitive design education programmes, promoting cooperation between universities, in conjunction with the development of the sector and the needs of the labour market [...]. in the areas of new technologies and smart specialisation, the creation of innovative products, [...] by offering specialisations that meet the demands of the labour market. [...] Incorporate practice-based modules into higher education programs for interdisciplinary student teams to work on new ideas, developing them to the prototype stage, linking them to tools to support the commercialization of ideas.

Industry trends in the countries of the European Union and the world demonstrate the need [...] to develop design research, ensuring the development, approbation, use and transfer of new design knowledge, including design processes and methods. In the area of entrepreneurship, make the planning, development and implementation of products and processes more efficient and increase the potential of companies to create sustainable solutions that are in line with the principles of the circular economy, the European Green Deal and the European Commission's New European Bauhaus initiative. [...] Promote interdisciplinary team building with design as a key competence in innovative business projects, including high-tech sectors. [...] Increasing the competitiveness of merchants, promotion of cooperation between research and economic sectors, knowledge transfer, development of new products and technologies.

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<sup>2</sup> Sustainable Development Strategy of Latvia until 2030 (Latvia 2030). The Saeima of the Republic of Latvia. 2010.

<https://www.pkc.gov.lv/lv/valsts-attistibas-planosana/latvijas-ilgtspejigas-attistibas-strategija>

<sup>3</sup> Latvijas Nacionālais attīstības plāns 2021. - 2027. gadam (NAP2027). Latvijas Republikas Saeima. 2020.

<https://www.pkc.gov.lv/lv/nap2027>

<sup>4</sup> Latvijas Dizaina stratēģijā 2022-2027 <https://www.km.gov.lv/lv/media/27617/download>

Enterprises of the national economy sectors, which are directly or indirectly related to design, are given the task [...] to design products, services and processes that meet the requirements of the circular economy, ensuring their durability, recyclability and repairability; implement the Action Plan 2020-2027 for the transition to circular economy; support sustainable product development and processing in resource-intensive industries: textiles, etc. Development of industrial symbiosis and reuse of resources. [...] introduction of the best available technologies in production and provision of services, development of the latest generation of processing technologies.

In order to ensure that the Programme is in line with industry trends, a number of European universities were viewed to compare its structure:

- Technical University of Catalonia, BarcelonaTech (The Universitat Politècnica de Catalunya BarcelonaTech (UPC) Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)), professional bachelor's study programme "Industrial Design and Product Development";
- University of Westminster Barcelona School of Design (Spain) IED Barcelona Escola Superior de Disseny (validated by the University of Westminster), professional bachelor's study programme "Fashion Design";
- Kaunas University of Technologies (Lithuania), bachelor's study programme "Fashion Engineering";
- Eindhoven University of Technology (TU/e) (Netherlands), bachelor's study programme "Industrial Design";
- Vilnius University of Applied Sciences (Lithuania), bachelor's study programme "Fashion Technology and Business";
- TED University (Turkey), Department of Industrial Design;
- Howest University of Applied Sciences (Belgium), "Industrial Product Design";
- Tallinn University of Applied Sciences (TTKT) (Lithuania), bachelor's study programme "Fashion Engineering";
- Technical University of Sofia (Bulgaria), professional bachelor's study programme "Design and Technology of Clothing and Textiles";
- Technical University of Vilnius (Lithuania), bachelor's study programme "Industrial Product Design".

For the comparison of Programme Structure of RTA and based on the availability of binding comparable information, European study programmes were selected:

Technical University of Catalonia, BarcelonaTech professional bachelor's study programme "Industrial Design and Product Development" and Technical University of Vilnius bachelor's study programme "Industrial Product Design".

The two study programmes mentioned above are equivalent according to the level of study, duration – 4 years and volume – 240 CP. The study programs chosen for comparison do not provide for the selection of specialization modules, so the names include the field of design that is being acquired. While analyzing study courses and their volume, different approaches can be observed. In the two programmes selected for comparison, the study courses are divided into compulsory and elective, without distinguishing between general and specialisation courses. While comparing the process of internships, Technical University of Catalonia, BarcelonaTech study programme "Industrial Design and Product Development", that corresponds to the industry of engineering and architecture, does not provide for internships outside the educational institution. Within the framework of studies, various projects are carried out in modern workshops. While study programme "Industrial Product Design" of Technical University of Vilnius foresees three internships, which also correspond to the study program of RTA. 18 ECTS have been assigned for the development of the thesis/ bachelor's thesis in the study programmes of both RTA and Technical University of Vilnius. In the study program of Technical University of Vilnius, a special approach can be observed, dividing the development and evaluation of the Bachelor's thesis into three parts – the first part is developed and defended in the 7th semester, the second and third parts - in the 8th semester. At the end of the study programme at Technical University of Catalonia, BarcelonaTech, students develop a project (24 ECTS). The detailed study results of the professional bachelor's study programme "Industrial Product Design" of Technical University of

Vilnius are noteworthy, emphasizing the skills of engineering analysis and engineering design. The industrial design study program of ESEIAAT shows a high level in the organization of higher education, it is purposefully oriented towards the development of professional identity of students and the achievement of future career goals. Comparison with study programmes of other higher education institutions is given in Table 6.

Table 6

## Comparison with study programmes of other universities/colleges

	Study program	Study programmes implemented in higher education institutions/colleges of the European Union	
		Study programme of the 1st higher education institution	Study programme of the 2nd higher education institution
<b>Name of University/ College</b>	Rezekne Academy of Technologies	Polytechnic University of Catalonia (Barcelona Tech) <a href="https://www.upc.edu/en/bachelors/industrial-design-and-product-development-terrassa-eseiaat">https://www.upc.edu/en/bachelors/industrial-design-and-product-development-terrassa-eseiaat</a>	Vilnius Gediminas Technical University (Vilnius Tech) <a href="https://vilniustech.lt/">https://vilniustech.lt/</a>
<b>Name of the study programme</b>	Professional bachelor's study programme " <b>Design Technologies</b> "	Professional bachelor's study programme " <b>Industrial design and product development</b> "	Professional bachelor's study programme " <b>Industrial Product Design</b> "
<b>Duration of studies</b>	4 years	4 years	4 years
<b>Volume</b>	240 CP	240 ECTS	240 ECTS
<b>Comparison of study courses and their volume</b>	<b>Part A – 30 CP</b> <b>Part B – 54+99 CP</b> Theoretical General Knowledge and Information Technology Study Courses – <b>54 CP</b> Professional Specialization Courses of Industry- Specialization Modules – <b>99 CP</b> Industrial design and technologies Interior design and product technologies Fashion Design and Technology <b>Part C Elective – 9 CP</b> <b>Practice – 30 CP</b> <b>Final / state examination - 18 CP</b>	<b>Mandatory part - 186 ECTS</b> <b>Elective part – 30 ECTS</b> <b>Practice (external) – 0 ECTS</b> <b>Final project – 24 ECTS</b>	<b>Mandatory part – 202 ECTS</b> <b>Elective part – 6 ECTS</b> <b>Cognitive practice – 2 ECTS</b> <b>Manufacturing practice – 6 ECTS</b> <b>Professional practice – 6 ECTS</b> <b>Bachelor thesis I, II, III – 18 ECTS</b>

<p><b>Study results</b></p>	<p><b>Knowledge:</b> Is able to demonstrate the general and professional knowledge of facts, theories, regularities and technologies necessary for the profession of designer (according to the standards of product or interior designer) at the level of perception, understanding and use; is able to demonstrate the understanding of the most important concepts, regularities and actualities of the design and production process necessary for the profession of a designer, in various professional situations and environments, taking into account the trends in the development of technologies and materials</p> <p><b>Skills:</b> Based on an analytical approach, using the acquired theoretical foundations of the industry, is able to cooperate with specialists of other professional fields, plan, organize and perform practical tasks, professional activity, at the level of professional competence corresponding to the qualification of the designer;</p> <p>Is able to apply creative, practical, innovative approaches in design, plan, perform or monitor such work activities, designing conceptual models of new products or environments, in various professional, non-standard situations and environments in which unpredictable changes are possible;</p> <p>Is able to formulate, discuss, explain and reasonably debate practical issues of the industry, research results, discuss</p>	<p><b>Competence:</b></p> <p>Ability to carry out industrial design activities and create new products, concepts and services that add value in the production process.</p> <p>Gains the necessary experience in the field of design to plan and design the entire product life cycle, as well as key competencies to define and develop production and commercialization activities, functional, technical, constructive, aesthetic and communicative aspects.</p> <p>Knows how to create virtual and physical models and prototypes, use manual and computerized tools for calculations and artistic and industrial expression, process graphic information, as well as analyze and evaluate the social and environmental impact of technical solutions.</p>	<p><b>Knowledge:</b> Knowledge of fundamental sciences: the ability to apply knowledge in mathematics, physics and chemistry when solving problems of production engineering. Knowledge of the humanities and social sciences and understanding of the principles and needs of the development of society, which are necessary for engineering activities and the development of erudition and philosophical worldview. General technology sciences knowledge of mechanics principles, materials, human and environmental safety, engineering graphics, computer-aided design, electrical engineering and electronics, measurement theory, mechanisms, quality management, optimization and understanding of their adaptation and use in production engineering. Knowledge of industrial product design, production equipment, structures, operating principles, basics of design, production technologies, production planning, organization and industrial management, human resource management, industrial marketing. Knowledge of the aesthetic principles of the formation of objects of the human environment, their development, the laws and rules of representation and application in the design activity of a production engineer, while understanding the importance of aesthetics in the works of technical creativity.</p> <p><b>Research skills:</b> To know and systematically understand the theoretical and applied foundations and concepts of the field of engineering corresponding to the study programme. To know and understand the basics of natural science and mathematics, to be able to understand</p>
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	<p>at various levels with colleagues, clients and management in state and English language, solving work tasks in the field of design, manage the development of industrial samples of products, carry out author's supervision during the course of project execution;</p> <p>Is able to independently obtain, select, process, evaluate, analyze, systematize, use information in the industry or profession, related to the design and production of goods or interior and products, use it in decision-making, ensuring the operation of an enterprise in the industry, solving problems;</p> <p>Is able to critically assess the level of their knowledge and skills in the field of professional specialization (clothing or industrial, or interior design) and the need to improve it, continue their further education, independently improve their professional qualification, competencies according to innovations in the sectors related to professional activity.</p> <p><b>Competence:</b></p> <p>Is able to evaluate and improve one's own and others' activities, show a professional approach, problem-solving skills that allow to find creative solutions for professional tasks in order to carry out research or design activities, qualified professional functions;</p> <p>Is able to formulate, analytically describe, analyze and solve practical problems, professional tasks in ensuring the design process, take responsibility and show initiative by performing work</p>		<p>the basics of the interaction of fundamental and artistic activities of the engineering sector corresponding to the study program.</p> <p>To know the broader multidisciplinary context of engineering, to be able to adapt other fields of science and types and processes of art.</p> <p><b>Engineering analysis:</b></p> <p>To be able to apply knowledge and understanding to formulate and solve problems, choosing appropriate methods.</p> <p>Be able to choose and apply appropriate analytical and modelling methods in the study direction corresponding to the study programme in production engineering.</p> <p>To be able to apply their knowledge and understanding in the formulation and analysis of engineering and artistic design tasks, to solve them by choosing appropriate methods, experimental and industrial equipment.</p> <p><b>Engineering design:</b></p> <p>To be able to analyse and design machinery and mechanism systems using CAD/CAM, to analyse and design production processes, to select the equipment necessary for production to prepare production and marketing programmes.</p> <p>To be able to choose the materials used in production, evaluate their peculiarities and characteristics, choose the requirements for parts and elements of machines and mechanisms.</p> <p>To be able to design various mechanisms, perform engineering calculations of mechanical systems, prepare projects of industrial products (structures, technologies, forms, aesthetics).</p> <p><b>Personal and social skills:</b></p> <p>To be able to work effectively independently and in a team.</p> <p>To be able to communicate with the engineering community and the general public.</p>
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	<p>individually or in a team, delegating the performance of tasks, working in a team of company professionals, managing the work of other professionals;</p> <p>Is able to assess the impact of professional activity in a wider social context, e.g. on the environment, economy and society, to demonstrate an understanding of professional ethics in the design profession and to participate in the development of an appropriate field in the related industries, to take decisions corresponding to the level of competence and to take responsibility for them;</p> <p>Is able to comply with the measures of a safe working environment, the basic principles of professional activity and communication in the working environment, to apply industry standards corresponding to a particular situation, regulatory enactments, technical regulations and regulatory documents of the Republic of Latvia, to use industry terminology in national and English language, to use digital tools, business principles, to prepare and conduct presentations, promoting systematization, optimization and digitization of processes.</p>		<p>Holistic understanding of the impact of engineering and artistic decisions on society and the environment, adhere to the norms of professional ethics, engineering and art, understand responsibility for engineering artistic activities.</p> <p>Knowledge of project management and business aspects, understand the connection of technological and creative solutions with their economic consequences.</p> <p>Understand and prepare for the importance of individual lifelong learning.</p> <p><b>Competence:</b></p> <p>To be able to choose and use appropriate methods, tools and equipment for the implementation of engineering artistic decisions, to know the constructions of these engineering equipment, the principles of aesthetic formation of the material environment, functions, initial skills to use them.</p> <p>To be able to creatively apply the professional activities of a humanities and social sciences engineering constructor in interdisciplinary fields.</p> <p>To be able to use legal and regulatory documents, provide information in graphic and textual form (using information technologies).</p> <p>To understand and evaluate the ethical, environmental and commercial conditions of engineering activities.</p> <p>Understand the engineering and artistic principles of the organization, the importance and main requirements of labor and fire safety, the interaction of the chain of engineering and artistic activities.</p>
Final tests	<b>Diploma project</b>	<b>Final project</b>	<p><b>Bachelor thesis I 3 ECTS</b></p> <p><b>Bachelor thesis II 6 ECTS</b></p> <p><b>Bachelor thesis III 9 ECTS</b></p>

Today, the design industry faces a variety of global challenges: social, economic and industrial, ecological, these are requirements of different levels. In the future, there will be an increasing need for designers who can work with a more systemic and strategic approach on a larger scale. Direction of design movement in the future – to make product and process planning, development and implementation more efficient and to increase the potential of businesses by creating sustainable solutions that are in line with the principles of the circular economy, the European Green Deal and the European Commission's New European Bauhaus initiative. The studies plan to promote the formation and operation of interdisciplinary teams by engaging in innovative business projects using a variety of opportunities of design technologies.

The challenges of the field of design technologies – to solve problems for a sustainable future, to expand industry-oriented approaches in the implementation of the study process to the organization of student internships, which is an important intersection of joint activities of universities and industry for successful achievement of the result, improvement of the competence of a professional specialist. Design technologies in this case are the main link, which equally concerns design, ICT and digital skills, the use of environmentally friendly technologies, etc. The activities of the programme will facilitate the implementation of not only academic and research cooperation of RTA, but also the solutions of needs and problems relevant to the business environment and active cooperation with industry. The operation of design programs of RTA already demonstrates successful cooperation with entrepreneurs, implementing the problem-based learning approach (PBL) in studies. At RTA, the PBL approach is implemented in the content of the study course, purposefully balancing the acquisition of theory with solving practical tasks relevant to the industry and its companies, the execution of custom research, the production of designs. Two lecturers involved in the Program implement the PBL method in the study courses. PBL contains the acquisition of new knowledge, intensive (including interdisciplinary) group cooperation and communication with various parties involved in the solution of the problem. PBL allows students to develop competencies such as innovative thinking, self-assessment, the ability to work with information, independent learning in a team environment. The PBL method used in industry study courses and the structure of the content and work organization of the corresponding study courses are able to facilitate and ensure the implementation of the study results of the study program.

In 2022, RTA launched the SAM project "Automation tools for creative industries AutoRade". The programme lecturers involved in the project: S.Mežinska, A.Strode, D.Apele, R.Rēvalds, A.Pacejs, I.Bodža, I.Dundure, N.Brokāne. The project introduced digitization initiatives that streamlined the study process based on modern innovative solutions. To improve the quality of studies, new automated IT and study result analysis solutions were developed and implemented, which improved the quality of studies, students' digital skills and strengthened the digital capacity of RTA in the future, including inter-institutional cooperation and sharing solutions.

RTA's successful cooperation with the business sector is proved by the concluded cooperation agreements with companies and institutions: SIA NEMO, SIA Spectre Latvia, SIA ARTEX, Daugavpils Marka Rothko centrs (DMRMC), Photo and Design Center (FDC) Baltic SIA, Rezekne State City Municipal Agency "Rezekne Culture and Tourism Centre" Latgale Culture and History Museum (LKM), SIA "MK Dizains", Technical and Industrial Design Centre "Engineering Arsenal", SIA "Metroks", SIA Bus park Furniture manufactory "STILS", SIA "SMART Interior", etc. Mutual cooperation contributes to increasing the competitiveness of merchants, promotion of cooperation between research and economic sectors, knowledge transfer, development of new products and technologies.

Cooperation agreements in studies and research, as well as in the development and implementation of joint projects have also been concluded with several higher education institutions, such as LU, RTU, ESA, DU, LiepU, etc., internship positions.

The European Centre for the Development of Vocational Training (cedefop) informative report on Europe's uneven return to job growth ([https://www.cedefop.europa.eu/files/9098\\_lv.pdf](https://www.cedefop.europa.eu/files/9098_lv.pdf)) (the link is available only in Latvian) updates future skills in designing products, services and processes that meet the requirements of the circular economy, ensuring their durability, recyclability and reparability. Cedefop points out that manufacturing as a whole is expected to suffer job losses, but that by 2025 the

majority of job opportunities, around 24%, in the EU will be for professionals (skilled jobs in [...], engineering, [...] business [...]), in the EU at least half of job opportunities will require high-level qualification as well as in Latvia. Future trends in labour demand show that an increase in labour market involvement is forecast also in Latvia. The Action Plan for the Circular Economy 2020-2027, approved by the Cabinet of Ministers of Latvia, provides support for the development and processing of sustainable products in resource-intensive sectors: textiles, etc. The development of industrial symbiosis and the reuse of resources. [...] For the introduction of the best available technologies in production and the provision of services, the development of the latest generation of processing technologies.

The high professional qualification and approach of the RTA academic and scientific staff to the study process, cooperation with professionals from related fields, RTA Faculty of Engineering and other structural units and research centers will ensure high-quality study content and cooperation interdisciplinary experience in the design and prototyping of design products.

### 2.1.2. Outline of the content of the study programme

The first cycle professional higher education bachelor's study programme "**Design Technologies**" has been developed as an interdisciplinary, collaborative, modern program that will be able to respond flexibly to the demand of the industry and the needs of society, using the capacity of RTA and cooperation partners, as well as the potential of RTA laboratories. The integrated study content of design technologies is oriented towards the relevance of competencies in the 21st century challenges, stimulation of systemic design thinking, strategic potential that would allow the design professional to successfully operate for the long-term social well-being of a sustainable society, develop design research, ensuring the development, approbation, use and transfer of new design knowledge, including design processes and methods. The program incorporates practice-based modules for interdisciplinary student teams to work on new ideas, developing them to the prototype stage and linking them to support tools of idea commercialization.

The program is designed to provide locally rooted and globally competent studies, to provide an opportunity to obtain a professional bachelor's degree and professional qualification in product or interior design, specializing in the field of Fashion Design and Technology, interior design and product technologies, or industrial design and technologies. The program implemented by RTA can be acquired in Latvian.

The content of the study program "**Design Technologies**" consists of study courses in the amount of 240 CP (Regulation of the Cabinet of Ministers No. 305)<sup>5</sup>. For the distribution of study courses, see Table 7. <https://likumi.lv/ta/id/342818-noteikumi-par-valsts-profesionalas-augstakas-izglitiba-standartu> (the link is available only in Latvian)

**Table 7**

**Framework of the content of study program "Design Technologies"**

<b>Total amount of CP in the plan of the study program</b>	<b>240 CP</b>
<b>General education courses (Part A) in Humanities and Social Sciences</b>	<b>30 CP</b>
<b>Branch (Part B) (field of professional activity) Theoretical General Knowledge and Information Technology Study Courses</b>	<b>54 CP</b>
<b>Branch (Part B) (field of professional activity) modular study courses of appropriate specialization</b> Modules (selects one module): <ul style="list-style-type: none"> <li>• Industrial design and technologies</li> <li>• Interior design and product technologies</li> <li>• Fashion Design and Technology</li> </ul>	<b>99 CP</b>
<b>Elective courses (Part C):</b>	<b>9 CP</b>
<b>Practice</b>	<b>30 CP</b>
<b>State tests</b>	<b>18 CP</b>

<sup>5</sup> [Noteikumi par valsts profesionālās augstākās izglītības standartu \(likumi.lv\)](https://likumi.lv/ta/id/342818-noteikumi-par-valsts-profesionalas-augstakas-izglitiba-standartu)

See Annex 3 for the plan of the programme.

The study program "**Design Technologies**" foresees joint acquisition for all specialisations of General education courses (Part A) in Humanities and Social Sciences in the amount of 30 CP and Branch (Part B) (field of professional activity) Theoretical General Knowledge and Information Technology Study Courses in the amount of 54 CP. The mentioned general education study courses provide knowledge of business start-up, intellectual property rights and data security in information technologies, environmental, labor and civil protection, history of development of Western culture and art styles, engineering graphics, psychology, scientific research, etc. While, industry and information technology study courses are intended to present modern trends in the development of visual arts and design, global challenges of the 21st century, sustainability issues in the fields of design, digital technologies in design, user-oriented product design, product and process design, and material sciences. This part also includes study paper with the project part.

The volume of study courses in modules of the corresponding specialization of the Branch (Part B) (field of professional activity) of the study program 99 CP, allows to deepen knowledge in the chosen specialization.

Specialization module of the Industry **Industrial Design and Technologies** provides knowledge of the design process, as well as the technologies and materials needed to create consumer products that are both functional and aesthetically pleasing, so that students can understand and use the principles of technology and to create innovative and competitive, as well as environmentally and human-friendly products. It helps companies stand out from the competition, create awareness and improve user experience with products.

It is an interdisciplinary module as it brings together several different disciplines, such as design, technology, material science, engineering and business principles, which are related and necessary to synergistically promote innovative and competitive product design.

This module is a novelty at Rezekne Academy of Technologies and the region of Latgale, which will provide an excellent opportunity for many employees of regional companies and home manufacturers from Rezekne, Latgale, as well as employees of other regional companies to gain knowledge in the design industry (understanding the design process, various computer programs of digital technologies, product design specifics, trends and ergonomics, etc.) and in the field of engineering (in-depth understanding of material science, the possibilities of applying various production technologies, as well as the skills to work with them, etc.), which will give companies the opportunity to acquire professional, knowledgeable specialists who are engaged in the design and development of new products, with the acquired knowledge of engineering sciences and design technologies the graduates of the program will make a significant contribution to the company's operations, with mutual cooperation of an industrial designer and production specialist, the graduates will be able to work with various prototyping and production equipment and understand the technological process.

Graduates of the specialization module have a very wide range of job opportunities in various sectors, including manufacturing, technology, design and innovation. Manufacturing companies are looking for professionals who can design products, as well as work as manufacturing and technology specialists, creating and using advanced, new technologies and processes to produce products. Specialists who are able to work with new technologies, in the creation of 3D models, as well as in the use of virtual and augmented reality opportunities in the creation of digital cultural heritage.

### **Study results to be achieved by the module "Industrial Design and Technologies":**

#### **Knowledge:**

- can demonstrate knowledge and understanding of the construction of industrial products, used materials, their compatibility and properties, production technology, aesthetics and ergonomics corresponding to professional specialization.

#### **Skills:**

- develops conceptual product solutions in accordance with the technical task and market requirements, visualizes conceptual solutions in sketches, drawings, 3D visualizations, as well as

models/samples;

- uses traditional and modern design technologies in the design process – general purpose and specialized computer-aided design (CAD) systems, as well as computer-aided manufacturing (CAM) systems for the preparation of software management (CNC) machine tool management programs and computer-aided calculation (CAE) systems.

**Competence:**

- able to determine the requirements related to the design and realization of products and the necessary resources, understand the specifics of different manufacturers and the levels of complexity of the design of serial products, know the necessary machine tools and equipment;

- analyzes and defines a set of material-technical, functional, aesthetic and ergonomic properties of products, and is able to perform ergonomic parameters, strength, structural elements and other necessary calculations.

In the branch (field of professional activity) modular study courses of appropriate specialization “**Industrial design and technologies**” students in the amount of 99 CP will learn spatial object design, model making technologies, topology optimization tools, digital technologies (3DsMax, etc.), the use of artificial intelligence in design, product life cycle, metalworking technologies, both in working with hand tools and with digitally controlled work tables, 3D printing and laser processing technologies, electronics and microprocessor programming basics, etc. (see table 8).

Table 8

Study courses that are included in the module "Industrial design and technologies" and the study schedule of the module:

				1.	2.	3.	4.	5.	6.	7.	8.
<b>Part A/B</b>			<b>99</b>								
<b>Branch (field of professional activity) modular study courses of appropriate specialization</b>				<b>3</b>	<b>6</b>	<b>15</b>	<b>15</b>	<b>24</b>	<b>27</b>	<b>15</b>	<b>2</b>
<b>Module: Industrial Design and Technologies</b>											
1.	Introduction to the Speciality of Industrial Designer	Dr. paed. Mg. art, Mg. sc. ing. Assoc. prof. A. Strode Mg. sc. ing Lect. R. Rēvalds	3		3DI						
2.	Material Application and Technologies	Mg. sc. ing Lect. R. Rēvalds	3		3DI						
3.	Metrology	Dr. sc. ing. Guest doc. A. Skromulis	3			3E					
4.	Design and Technology of Spatial Objects	Mg. design, Guest lect. I. Dundure	3			3DI					
5.	Higher Mathematics	Dr. paed. Assoc. prof. I. Kangro	3				3E				
6.	Fundamentals of Electronics	Mg. sc. ing. Lect. R. Rēvalds	3			3E					
7.	Furniture Design, Project planning and Lighting Technologies	Mg. design, Mg. art, Mg. paed. Doc. D. Apele (4., 5.sem.) Mg. design, Guest lect. I. Bodža (5.sem.)	9				3DI	6E			
8.	Industrial Sketching	Mg. design, Guest lect. N. Brokāne	9			3DI	3DI		3E		
9.	Material Sciences: Physics	Mg. sc. ing. Guest lect. A. Martinovs Mg. sc. ing. Lect. E. Zaicevs	3	3E							
10.	Photography and Design of Web Application Graphics	Mg. design, Guest lect. N. Brokāne Mg. sc. comp. Guest lect. E. Pavlovskis	3					3DI			
11.	Metalworking Technologies and Equipment	Mg. sc. comp. Lect. G. Koļčs	3					3E			
12.	Equipment, Product ergonomics and Model making Technologies	Mg. sc. ing Lect. R. Rēvalds Mg. sc. ing. Lect. A. Pacejs Dr. paed. Mg. art, Mg. sc. ing. Assoc. prof. A. Strode	6					6DI			
13.	Form making	Mg. design, Guest lect. I. Dundure (5.sem.) Bc. art. Guest lect. G. Klaučs (6.sem.)	6					3DI	3E		

14.	3D Modeling and Topology Optimization	Mg. sc. ing Lect. R. Rēvalds	3						3E		
15.	Laser Processing Technologies and Laser Safety	Mg. sc.ing. Lect. A. Pacejs Mg. sc. ing. Guest lect. I. Adijāns	6						6E		
16.	Rapid Prototyping and Digital Manufacturing of Products: 3D	Mg. sc. ing Lect. R. Rēvalds	6						6E		
17.	Digital Technologies in Product Design: 3DMax	Dr. paed. Mg. art, Mg. sc. ing. Assoc. prof. A. Strode	3							3DI	
18.	Programming and Setup of Metalworking CNC Machine Tools	Dr. sc. ing. Prof. A. Martinovs Mg. sc. ing. Lect. E. Zaicevs Mg. sc. ing. Lect. A. Igavens	3							3DI	
19.	Technique and Programming of Microcontrollers	Mg. sc. ing. Guest lect. D. Kļaviņš	3							3E	
20.	Basics of Artificial Intelligence	Dr. sc. ing Prof. P. Grabusts	3							3E	
21.	Virtual and Augmented Reality	Mg. sc. ing Lect. R. Rēvalds	3							3DI	
22.	Quality Management	Dr. sc. com. Doc. S. Sprudzāne	3								3DI
23.	Planning and Organization of the Production Process	Dr. oec. Assoc. prof. L. Litavniece	3						3E		
24.	Study project I	Study Project Supervisors	3					3DI			
25.	Study project II	Study Project Supervisors	3						3DI		

One of the strategic goals of the operation and development of Rezekne Academy of Technologies is to improve the quality of life in the region by involving RTA academic staff and students in the social, cultural and economic life of Latgale, in the preservation and circulation of cultural and historical values of the region.

The professional bachelor's study program "Interior Design" began to operate in 2008 at the Faculty of Education, Languages and Design of Rezekne Academy of Technologies (until 2016 – Rezekne Higher Education Institution). From 2012 to 2023, 80 young interior designers graduated from the program.

Until now, the program offered students a professional bachelor's degree in art and an interior designer qualification. Full-time, face-to-face, four year studies. The aim of the program was to prepare interior designers based on the theory of art, architecture, interior design and related fields, meeting the standards of the profession of an interior designer and having acquired basic professional skills in cooperation with employers, who are competent to plan and implement the creation of a functional and high-quality aesthetic spatial environment, competitive in Latvia and the EU national labor market and oriented towards lifelong learning.

The academic staff of the program is knowledgeable and every year proves their efforts and accepts challenges, they themselves encourage students to continuous professional improvement. Several students and graduates of the program have won LDS Yearly Design Awards, participated in Latvian and international competitions, exhibitions, and have proven themselves year after year as potential young designers in internship companies (positive feedback from companies). Designers who understand the principles of historical heritage, modern interior as a synergy of architecture, design technology and art, are in demand in the labor market. An important condition for the development of human resources is a quality living space, a tidy and creative living environment that attracts creative and innovative thinking people. The aforementioned positive experience justifies the inclusion of the "Interior Design and Product Technologies" module in the new study program "Design Technologies".

### **Study results to be achieved by the module "Interior Design and Product Technologies":**

#### **Knowledge:**

- can demonstrate knowledge and understanding of the value criteria of art, architecture, interior design and related industries corresponding to professional specialization in the development of a competitive country in a cultural, historical, aesthetic, technological, economic, social and ethnic context, critically evaluating what has been learned and, demonstrating a comprehensive understanding of the processes and methods of interior design and interior product design, competent to plan and implement the creation of a reasonably functional and highly aesthetic spatial environment.

#### **Skills:**

- in accordance with the task, executes complex orders related to the design of public, residential and multifunctional environments in accordance with the work task – data research, problem detection, analysis and creative solution, apply traditional methods and digital technologies to visualize ideas at all stages of the project exhibition, developing drawings, visualizations, product prototypes and interior models;
- is able to create a conceptual model of the interior project, functional schemes of the object and a full-scale interior project, as well as the offer of interior style, design of spatial objects and interior products, project presentation, project management, contract administration, organization of a project execution and author supervision.

#### **Competence:**

- analyzes the possibilities of interior design development, taking into account the wishes and values of the customer, the habits and needs of the target audience, as well as the technical indicators of the room, make decisions in solutions to interior design problems, substantiate them, defend their opinion, cooperate with industry professionals by communicating with customers, users, executors and the public at all stages of research, design, execution and author supervision, taking into account the measures of a safe

working environment, professional ethics, knowing the regulatory documents corresponding to a specific situation, using digital tools, promoting systematization, optimization and digitization of processes;

- understands and analyzes the concepts, theories, criteria and topicalities of art, architecture, design and interior design, carry out design research activities, evaluate the impact of their design activities on society and participate in the process of development of the field of design and technology, are oriented towards lifelong learning, are competitive in the labour market of Latvia and the EU countries.

In the branch (field of professional activity) modular study courses of appropriate specialization “**Interior design and product technologies**” students in the amount of 99 CP will learn the basics of architecture, the psychology of space perception, interior composition, digital technologies in product and interior design (ArchiCad, 3DsMax, etc.), orient themselves in interior stylistics, learn interior sketching, furniture design and technology, interior design and ergonomics, material science and technologies of decorative finishes, model making technologies for interiors and products, lighting in interior design, photography and design of web application graphics, innovative development of products, processes and services according to the PBL method, as well as learn the psychological effects of the environment on the individual and the philosophy of the environment, etc. (see table 9).

Table 9

Study courses that are included in the module "Interior design and product technologies" and the study schedule of the module:

			1.	2.	3.	4.	5.	6.	7.	8.
<b>Part A/B</b>			<b>99</b>							
<b>Branch (field of professional activity) modular study courses of appropriate specialization</b>			<b>3</b>	<b>6</b>	<b>12</b>	<b>15</b>	<b>24</b>	<b>30</b>	<b>15</b>	<b>3</b>
<b>Module: Interior Design and Product Technologies</b>										
1.	Introduction to the Speciality of Interior Designer	Mg. design, Guest lect. I. Dundure	3	3DI						
2.	Psychology and Coloristics of Space Perception	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	6		6E					
3.	Interior Composition in Plane and Space	Mg. design, Mg. art, Mg. paed. Doc. D. Apele (3. un 4.sem.) Mg. design, Guest lect. I. Dundure (5.sem.)	9			3E	3E	3E		
4.	Digital Technologies in Product and Interior Design: I ArchiCad, II 3DMax	Dr. paed. Mg. art, Mg. sc. ing. Asoc. prof. A. Strode	6				3E		3E	
5.	Interior Sketching	Mg. design, Guest lect. I. Bodža	6				3DI	3E		
6.	The Interaction of Interior Styles	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	3						3E	
7.	Furniture Design, Project planning and Technologies	Mg. design, Mg. art, Mg. paed. Doc. D. Apele (3) Mg. design, Guest lect. I. Bodža (3)	6					6E		
8.	Interior Design and Ergonomics	Dr. paed. Mg. art, Mg. sc. ing. Asoc. prof. A. Strode	6				3DI	3E		
9.	Material science and technologies of decorative finishes	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	6			3DI	3E			
10.	Basics of Architecture	Dr. paed. Mg. art, Mg. sc. ing. Asoc. prof. A. Strode (3) Mg. soc. sc., Mg. arch. Guest lect. L. Čudare (3)	6						6E	
11.	Model making Technologies for Interior and Products	Mg. design, Guest lect. I. Dundure (5.sem.) Mg. sc. ing. Lect. R. Rēvalds (7.sem.) Mg. sc. ing Lect. A. Pacejs (7.sem.)	6					3DI		3E
12.	Lighting in Interior Design	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	3						3E	

13.	Textiles and Leather Products in Interior Design	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	3			3E					
14.	Photography and Design of Web Application Graphics	Mg. design, Guest lect. N. Brokāne Mg. sc.comp. Guest lect. E. Pavlovskis	3					3DI			
15.	Design and Technology of Spatial Objects	Mg. design, Guest lect. I. Dundure	3							3DI	
16.	Psychological and Philosophical Aspects of the Environment	Dr. paed. Assoc. prof. G. Strods	3							3DI	
17.	Development of Innovative Design Products, Processes and Services	Mg. design, Mg. art, Mg. paed. Doc. D. Apele	9					6E	3E		
18.	Image Formation: Theory and Design	Mg. design, Mg. sc. ing., Mg. paed. Lect. S. Mežinska	3							3DI	
19.	Study Project I	Study Project Supervisors	3			3DI					
20.	Study Project II	Study Project Supervisors	3						3DI		
21.	Requirements for the Development of a Diploma Project in the Speciality of an Interior Designer	Mg. design, Mg. art, Mg. paed. Doc. D. Apele Dr. paed. Mg. art, Mg. sc. ing. Assoc. prof. A. Strode	3								3DI

The necessity of the "Clothing design and technology" specialization module of the program is justified by the specialists needed and in demand in the textile industry today, who are able to combine deep knowledge in clothing technology and innovations with the basics of design. Their competence includes the development of design and technology of clothing and accessories, the design, organization and management of the production process, the identification and analysis of user-oriented problems, the selection of appropriate laboratory equipment and research methods for the identification and evaluation of the properties of textile materials and products, the analysis and evaluation of materials, products and technological processes, optimization of process parameters, as well as data collection, structuring, analysis from various sources and application of the obtained results in textile/clothing design creation, technology selection and quality assurance.

The program meets the demand of clothing manufacturing companies in the textile industry in the Latgale region to provide specialists in the production facilities of clothing and other sewn products (clothing designers, constructors, craftsmen, etc.) for the needs of the region. The demand for industry specialists is still relevant (employer surveys). It is important to train specialists of the appropriate level in the textile industry, who have mastered CAD/CAM specialized computer programs used in textile industry companies, can become production/processing process organization specialists, entrepreneurs and/or middle/higher level managers in the textile industry, actively engage in business development, create their own companies, carry out product design, create new jobs, work in production companies of various levels according to the profession, or conduct research in the field of design, continue studies in RTA master's study program "Design", or in another Latvian or foreign university. RTA is the only educational institution in the region (Latgale) that offers this study program specialization.

The specialization of the program ensures the continuity of education for textile and leather product designers who have obtained a short-cycle professional higher education (Textile and leather product designer) in the region, Latvia. After graduating from the short cycle study program, it is possible to continue studies in the later stages of studies to obtain the 6th level professional qualification (6th LQI). The program is designed to provide locally aligned and globally competent studies, giving the opportunity to obtain a professional qualification as a product designer, specializing in the field of clothing design and technology.

Resources of RTA ensure interdisciplinarity in the Program, which is shown by several aspects specific to the operation of RTA: interdisciplinary cooperation of academic staff of different study areas, for example, with "Mechanics and metalworking, thermal energy, thermal engineering and mechanical sciences" and "Arts", etc. directions; scientific activity of academic staff - joint scientific publications that are both interdisciplinary and developed in related fields, cooperation in the implementation of RTA scientific grant projects.

### **Study results to be achieved by the module "Fashion Design and Technology":**

#### **Knowledge:**

- is able to formulate and explain the basic principles of the theory of scientific fields corresponding to professional specialization and related scientific fields, to critically evaluate what has been learned, and to demonstrate a comprehensive understanding of the processes and methods of clothing design, its aesthetic, functional, ergonomic, constructive and technological aspects.

#### **Skills:**

- performs practical tasks and necessary research, solves problems, taking into account the conditions of environmental sustainability and circular economy, applies the learned industry theory in practice, uses the results of research, as well as traditional methods and digital technologies, to visualize ideas at all stages of project development, develops concepts, plans, designs and practically realizes aesthetic and functional clothing design solutions according to their use;

- designs conceptual solutions for clothing pieces and collections, develops prototypes, tests and prepares technological and technical documentation of the first samples, uses appropriate specialized design

methods, materials and advanced, digital and production technologies, plans the time and material resources necessary for them, presents and explains their solution by communicating with customers, users, executors and the public at all stages of research, design, execution and author supervision.

**Competence:**

- able to evaluate and improve their professional activity, find creative, innovative solutions to the problems of the design project, carry out design research activities, qualified professional functions, take responsibility and show initiative by performing work individually or in a team, delegating the performance of tasks, working in a team of company professionals, managing the work of other professionals;
- evaluates the impact of one's own and others' professional activities in a wider social context, that is on the environment, economy and society, and to participate in the development of an appropriate field of related industries, to comply with the measures of a safe working environment, professional ethics in the profession of a designer, the basic principles of mutual communication in the working environment, to apply regulatory documents corresponding to a particular situation, to use digital tools, promoting systematization, optimization and digitization of processes.

In the branch (field of professional activity) modular study courses of appropriate specialization **“Fashion Design and Technology”** students in the amount of 99 CP will learn textile physics, fashion theory and stylistics, design processes in CAD/CAM, digital technologies in clothing design, product life cycle and quality system management, clothing technology and equipment, 2D and 3D technologies for clothing design, clothing collection development, industrial collection planning, innovative product development, in cooperation with the business sector according to the PBL method, etc. (see table 10).

**Study courses that are included in the module "Clothing design and technology" and the study schedule of the module:**

			1.	2.	3.	4.	5.	6.	7.	8.	
<b>Part A/B</b>			<b>99</b>								
<b>Branch (field of professional activity) modular study courses of appropriate specialization</b>				<b>3</b>	<b>6</b>	<b>12</b>	<b>15</b>	<b>24</b>	<b>30</b>	<b>15</b>	<b>3</b>
<b>Module: Clothing Design and Technology</b>											
1.	Material Sciences: Textile Physics	Dr, sc. ing., Guest prof. I. Baltiņa	9			3DI	6E				
2.	Fashion Theory and Stylistics	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska	6	3DI	3E						
3.	Design of Clothing, Collections and Fashion Workshops	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska (3., 4.sem.) Mg. design Guest lect. Z. Pīgožne (5.sem.)	9			3DI	3DI	3E			
4.	Clothing Design CAD/CAM system Gerber AccuMark	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska (5., 6.sem.) Bc. sc. ing. Guest lect. M. Polunina (7.sem.)	9					3DI	3DI	3E	
5.	Digital Technologies in Clothing Design: Texdesign	Mg. design, Guest lect. I. Unzule	3					3E			
6.	2D and 3D Technologies for Clothing Design	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska Bc. sc. ing. Guest lect. M. Polunina	3					3E			
7.	Clothing Construction and Modeling	Mg. sc.ing., Mg. paed. Mg. design, Lect. S. Mežinska	6		3DI	3E					
8.	Clothing Technology and Equipment	Mg. sc.ing., Mg. paed., Guest lect. S. Romančuka (3.,4., 5.sem.) Mg. sc. ing., Guest lect. V. Bulindža (6.sem.)	12			3DI	3DI	3DI	3E		
9.	Leather Product Design and Technology	Mg. design, Guest lect. Z. Pīgožne	6						3DI	3E	
10.	Laser Processing Technology in Product Design	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska Mg. sc. ing. Lect. A. Pacejs	3						3DI		

11.	Clothing Collection Design	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska (3) Mg.art., Guest lect. L. Jurča (3)	6						6E		
12.	Planning of Industrial Collections	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska (3) Mg. art. Guest lect. L. Jurča (3) Dr. sc. ing., Guest prof. I. Ziemele (3)	9							9E	
13.	Professional Practice	Mg. sc. ing., Mg. paed. Mg. design, Lect. S. Mežinska	6					6E			
14.	Quality Management	Dr. sc. com. Doc. S. Sprudzāne	3								3DI
15.	Planning and Organization of the Production Process	Dr. oec., Assoc. prof. L. Litavniece	3						3DI		
16.	Study Project I	Study Project Supervisors	3				3DI				
17.	Study Project II	Study Project Supervisors	3						3DI		

The program includes English language (3 CP) and possible acquisition of a second foreign language (3 CP) (in the elective part), Internship (30 CP), and Diploma project (18 CP).

The content of the program "Design Technologies" consists of lectures, practical and group works, seminars, as well as independent work that complies with the requirements of regulatory enactments, in compliance with the procedures for the implementation of the [RTA study process](#), the By-law on examinations and tests of study courses, [see link](#) (the link is available only in Latvian)

For the compliance of the programme with the national educational standard, see Annex 1.

In the study courses of the program, the study results are focused on innovations in the field of design and technology, advanced technologies, science and research, and socially responsible entrepreneurship. The assessment of trends in the development of scientific research of the programme is provided for in study research papers and study courses, mainly "Research in Design", "Study paper with the project part", "Study project I" and "Study project II", which provide the necessary knowledge and skills for understanding and developing the study work/project idea. The scientific research and independent activity of students is activated in the study work/project and diploma project: they have a theoretical-practical, applied orientation, the goal - to strengthen the student's knowledge and skills acquired in the relevant study year (according to the study plan in the 1st, 2nd, 3rd, 4th years), promoting the development and strengthening of the student's research skills, problem-solving, analytical and design thinking skills, as well as practical product and interior design skills.

The study process provides for three study papers/projects in which the knowledge acquired in the study courses in the specified study semester will be used. Study courses have been developed by creating an interconnection from course to course, coordinating the study content. Projects to be implemented in the study process can be interdisciplinary. For example, working in teams of designers and engineers of other study programs of the Faculty of Engineering, developing innovative solutions in the design of smart products and interiors or using a sustainability approach in the use of environmentally friendly technologies or materials. The thematic directions of study projects can be linked to the topicalities and needs of the industry.

For the acquisition of practical experience and improvement of skills, professional practice outside the educational institution for students of the Programme is provided for in the amount of 30 CP, which is in accordance with Regulation of the Cabinet of Ministers No. 305 "Regulations Regarding the State Standard of Professional Higher Education"<sup>6</sup>, in accordance with the purpose and objectives of the programme and the requirements specified in the profession standard, the professional internship programme is aligned with the results of the programme.

In semesters 4, 5, and 6, students of specialization modules of product/interior design and technologies can schedule elective study courses or advanced specialized courses. In the 2nd, 3rd, 4th year of studies, students can use ERASMUS+ exchange programmes for studies or internships at another higher education institution. The 8th semester is intended for the development of the Diploma Project.

At the end of the studies in the diploma project, its author provides independently developed insights, conclusions, proposals for the solution of a problem/user's need, as well as proves his readiness to work in the industry. Students can choose project topics by linking the study results achieved in the study courses, the study results set for research papers and the topicalities of the industry, users and materials and technologies. Students can use literature in a foreign language to strengthen their knowledge of foreign languages, ensure quality in studies and research papers.

The specialization modules of the programme are justified by the objective defined in the RTA strategy to strengthen the strategic role of RTA in the Latgale region, the system of Latvian and European higher education and scientific institutions, positioning itself as a technology academy, focusing on the development, acquisition, research, promotion and application of multidisciplinary technological solutions, updating the important role of interdisciplinary links in the development of higher education and science in Latvia, primarily reducing the latgale region factors hindering development, guaranteeing the development and practical realization of innovative products necessary for traditional economic sectors, creative and cultural industries.

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<sup>6</sup> [Noteikumi par valsts profesionālās augstākās izglītības standartu \(likumi.lv\)](#)

The specialization of the program ensures the continuity of the acquisition of education for designers of textiles and leather goods who have acquired short-cycle professional higher education (designer of textiles and leather goods) in the region, Latvia. After graduating from the short-cycle study program, there is an opportunity to continue studies in the later stages of studies for obtaining the 6th level professional qualification (6.LQF) product designer, specializing in the field of Fashion Design and Technology.

Graduates of the short-cycle professional higher education study program "Fashion Design and Technology" have the opportunity to continue their education in the professional bachelor's study program "Design Technologies", obtaining a bachelor's degree in design technologies, and the qualification "Product Designer". In the professional bachelor's study programme "Design Technologies" CP transfer is possible, which allows to continue studies starting from the 3rd year. When starting studies in the bachelor's study programme, students need to take general education courses in humanities and social sciences in the amount of 30 CP. Theoretical study courses in the field 54 CP, which significantly increases the competitiveness of graduates in the labor market.

### **Opportunities for graduates of the study programme "Fashion Design and Technology" (41) while continuing their studies in the bachelor's study programme "Design Technologies" (42)**

Continuing studies in the professional bachelor's study program "Design Technologies", it is necessary to acquire study courses that are in the bachelor's programme, but are not included in the short-cycle programme (3 CP, Part A) – 3 CP (27 CP are equated); Branch theoretical study courses 15 CP - (39 CP are equated); Branch (field of professional activity) modular study courses of appropriate specialization "Fashion Design and Technology" – (69 CP): (30 CP are equated); Elective study courses (Part C) – 3 KP (6 CP are equated); carry out practice – (12 CP) (18 CP are equated); defend the Diploma project (18 CP). Total – 120 CP (3rd and 4th year of studies)

For the alignment of study courses with the inclusion of graduates of the short-cycle study programme "Fashion Design and Technology" in the 3rd year of the bachelor's study programme "Design Technologies", see Table 11.

**Table 11**

**Alignment of study courses with the inclusion of graduates of the short-cycle study programme "Fashion Design and Technology" in the 3rd year of the professional bachelor's study programme "Design Technologies" in full-time studies**

<i>Study courses of the study program "Design Technologies"</i>		1st sem.	2nd sem.	3rd sem.	4th sem.	5th sem.	6th sem.	7th sem.	8th sem.	<i>Corresponding study courses of the study program "Fashion Design and Technology"</i>	<i>Equated study courses CP</i>	<i>Study courses to be taken CP</i>
						30	30	30	30		CP	
<b>General education courses</b>			<b>3</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>3</b>
1.	Practical Foreign Language: English	3								Qualification work	2/3	3
2.	Introduction to Human Sciences	3								Introduction to Human Sciences	2/3	3
3.	Research in Design	3								Introduction to research	2/3	3
4.	Environmental, Labour and Civil Protection	3								Environmental and Civil Protection, Labor Protection	2/3 1	3
5.	The History of the Development of Western Culture and Art Styles	3	3									3
6.	Applied Mathematics	3								Applied Mathematics	2/3	3
7.	Fine Geometry and Engineering Graphics	3								Professional Practice II	2/3	3
8.	Launching of Entrepreneurship	6								Launching of Entrepreneurship	6	6
9.	Intellectual Property Rights and Data Security in Information Technologies	3								Information and communication technologies Copyright	3 1	3 1
<b>Branch theoretical study courses</b>				<b>6</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>15</b>
10.	Visual Art: I Drawing, II Model making III Painting, IV Graphics	12		3	3					Drawing Material training II	2/3 2/3	6 6
11.	Language and Composition of Visual Arts	6								Language and composition of visual arts Fashion drawing	2/3 2/3	6
12.	Development of Contemporary Design Trends and the History of	6			3					Design history and development trends	2/3	3 3

<i>Study courses of the study program "Design Technologies"</i>		1st sem.	2nd sem.	3rd sem.	4th sem.	5th sem.	6th sem.	7th sem.	8th sem.	<i>Corresponding study courses of the study program "Fashion Design and Technology"</i>	<i>Equated study courses CP</i>	<i>Study courses to be taken CP</i>
	Design											
13.	Applied Graphics and Font	3								Clothing design II	2/3	3
14.	Material Sciences	3								Material training I	2/3	3
15.	Study paper with the project part	3								Study project	2/3	3
16.	User-Driven Innovative Product Design, Manufacturing Processes and Technologies	6		3						Clothing (automated) design III	2/3	3
17.	Digital Technologies in Design: I Corel Draw, II Adobe Illustrator, III Photoshop	9				3				Graphic programs in information technology I, IV (Corel Draw, Photoshop)	4/6	6
18.	Product and Process Design CAD/CAM: I AutoCad, II Solidwork/AccuMark	6								Graphic programs in information technology II (AutoCad, AccuMark)	4/6	6
	<b>Specialization module</b>		3	6		21	18	18	3			69
19.	Material Sciences	9	3	6							9	9
20.	Fashion Theory and Stylistics	6								Fashion theory and stylistics Clothing design I	2/3 2/3	6
21.	Design of Clothing, Collections and Fashion Workshops	9				3				Basics of designing clothes, collections and fashion workshops	4/6	6
22.	Clothing Design CAD/CAM system Gerber AccuMark	9					3	3		Graphic programs in information technology III (AccuMark 3D)	2/3	3
23.	Digital Technologies in Clothing Design: Texdesign	3				3						3
24.	2D and 3D Technologies for Clothing Design	3				3						3
25.	Clothing Construction and Modeling	6								Clothing Construction and Modeling	4/6	6
26.	Clothing Technology and Equipment	12				3	3			Clothing Technology and Equipment	4/6	6
27.	Leather Product Design and Technology	6						3		Design of leather products	2/3	3

<i>Study courses of the study program "Design Technologies"</i>			1st sem.	2nd sem.	3rd sem.	4th sem.	5th sem.	6th sem.	7th sem.	8th sem.	<i>Corresponding study courses of the study program "Fashion Design and Technology"</i>		<i>Equated study courses CP</i>	<i>Study courses to be taken CP</i>
28.	Laser Processing Technology in Product Design	3						3						3
29.	Clothing Collection Design	6						6						6
30.	Planning of Industrial Collections	9							9					9
31.	Professional Practice	6					6					6		6
32.	Quality Management	3								3				3
33.	Planning and Organization of the Production Process	3						3						3
34.	Study project I	3					3							3
35.	Study project II	3							3					3
<b><i>Elective study courses</i></b>						<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>					<b>3</b>
36.	Elective study courses	9						3			Elective study courses	4/6	9	3
<b>Prakse</b>					<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>					<b>12</b>
37.	Practice	3									Qualification practice	4	3	
38.	Practice	3			3							3		3
39.	Practice	1 5									Professional practice	12	15	
40.	Practice	9							9			9		9
<b>State tests</b>						<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>					<b>18</b>
41.	Diploma project	1 8								18				18
						<b>24</b>	<b>21</b>	<b>18</b>	<b>30</b>					<b>120</b>

### 2.1.3. List and justification of changes made to the study programme since the licensing

During the reporting period (September-December 2023), the content of the programme was analysed and the measures for the implementation of expert recommendations were evaluated at the council meetings of the RTA study direction "Production and Processing". After evaluating the course of implementation of the program, according to the recommendations of experts, the goal to be achieved by the study program was more clearly defined, so that it would express the uniqueness of the study program. The aim is defined by emphasizing the interdisciplinarity of the study program, the contact of the fields of design and engineering, the competence of students specializing in interior design including in the field of product design and technology. Minor changes were introduced in the structure and content of the programme with amendments to Section 1 of the Law on Higher Education Institutions in the definition of a credit point<sup>7</sup>, <https://likumi.lv/ta/id/37967-augstskolu-likums> For a list of changes, see Table 12.

Saskaņā ar grozījumiem Augstskolu likumā, kas skar kredītpunkta izpratni un apjomu, programmas apjoms mainīts uz KP sistēmu, kur 60 kredītpunkti atbilst pilna laika studijās vienā akadēmiskajā gadā apgūtajiem studiju rezultātiem saskaņā ar Eiropas kredītpunktu pārnese un uzkrāšanas sistēmu. RTA pāreju uz Eiropas kredītpunktu pārnese un uzkrāšanas sistēmu regulē Nolikums par akadēmiskajām un profesionālajām studijām un studiju programmām (pieejams [RTA mājaslapā](#)), kur noteikts, ka bakalaura programmu saturs nodrošina zināšanu, prasmju un kompetences kopumu atbilstoši Latvijas izglītības klasifikācijā noteiktajām ietvarstruktūras 6. līmeņa zināšanām, prasmēm un kompetencei. Profesionālās bakalaura studiju programmas apjoms ir vismaz 240 kredītpunkti. RTA Nolikums par akadēmiskajām un profesionālajām studijām un studiju programmām paredz, ka vienā kredītpunktā ir 27 studiju stundas, no kurām pirmā cikla programmās 40% jeb 11 stundas ir kontaktstundas, 16 – studējošo patstāvīgā darba stundas.

**Table 12**

**List of changes made in the study programme** (due to amendments to Section 1 of the Law on Higher Education Institutions in the definition of a credit point)

Study courses before the changes	Study courses after the changes
Study course Introduction to Research (1CP)	Integrated into the study course Research in Design (3 CP).
Study course Labor protection (1CP)	Integrated into the study course Environment, Labour and Civil Protection (3 CP).
Study course Digital Technologies in Design I, II (Corel Draw, Photoshop) (4CP)	Study course Digital Technologies in Design: I Corel Draw and III Photoshop supplemented with Adobe Illustrator 3 CP. Digital Technologies in Design: I Corel Draw, II Adobe Illustrator, III Photoshop (8 CP) .
Study course Industrial Sketching I, II (5CP)	Study course "Industrial Sketching" is supplemented with 1 CP. Industrial sketching (9 CP).
Study course 3D modeling and topology optimization (3 CP)	For the study course "3D modeling and topology optimization" 1 CP is removed. 3D modeling and topology optimization (3 CP).
Study course Laser Processing Technologies and Laser Safety (5CP)	Study course "Laser processing technologies and laser safety" is supplemented with 1 CP. Laser processing technologies and laser safety (6 CP).
Study course Interior Design and Ergonomics I, II, III (5CP)	For the study course "Interior Design and Ergonomics I, II, III" 1 CP is removed. Interior design and ergonomics (6 CP).
Study course Basics of Architecture (3CP)	The study course " Basics of Architecture " is supplemented with 1 CP. Basics of architecture (6 CP).

<sup>7</sup> [Augstskolu likums \(likumi.lv\)](https://likumi.lv)

#### 2.1.4. Statistical data on students in the study programme

Implementation language - English  
there are no students from abroad

The number of enrolled students in the module "Interior Design and Product Technologies" of the first cycle professional higher education bachelor's study programme "**Design Technologies**" is shown in Table 13.

#### Number of students enrolled

**Table 13**

Statistical data on full-time <b>students</b> in the firstcycle professional higher education bachelor's study programme "Design technologies"		
Years of studies	2023/2024	
Financing	Financing of the budget	Personal financing
<b>1st year</b>	15	0
<b>TOTAL</b>	<b>15</b>	<b>0</b>
Statistical data on <b>graduates</b> in the firstcycle professional higher education bachelor's study programme "Design Technologies"		
<b>TOTAL</b>	<b>0</b>	<b>0</b>
Statistical data on <b>exmatriculated</b> students in the firstcycle professional higher education bachelor's study programme "Design Technologies"		
<b>TOTAL</b>	<b>2 (failed grades, have not started their studies)</b>	<b>0</b>

For statistical data on students in the study programme , see Annex 4.

At the summer admission of the academic year 2023/2024, due to the fact that until December 31, 2023, the license for the professional bachelor's study program "Interior Design" was still in force, students were enrolled in this program, with a note in the admission rules that from January 1, 2024, students will transfer to the new – first-cycle professional higher education bachelor's study program "**Design Technologies**" module "Interior design and product technologies". Therefore, only the corresponding module was offered at the summer admission. All students are enrolled to study in Latvian. A total of 15 students. Drop-out as of January 2024 – 2 students. The number of students enrolled corresponds to the number of students planned for licensing, even slightly exceeds (compared to the planned number of students within the licensing procedure). In the licensing materials, it was planned to enroll 7 students in each module, and in the summer admission of the 1st year, 15 students were enrolled in the module "Interior Design and Product Technologies". The budget places allocated by the state are filled. With the existing number of students and the funding provided accordingly, the financial base of the study programme is stable and appropriate to the needs and implementation conditions of the study programme. In the next enrollment period, students are scheduled to be enrolled in two modules of the program. There are no graduates in the program yet.

#### 2.1.5. Perspectives of employment of graduates

The development prospects of the programme can be attributed to increasing the competitiveness of enterprises described in the Latvian Design Strategy by strengthening the introduction of innovative products, services and processes in small and medium-sized enterprises. It is also essential to promote the use of

sustainable materials and technologies in design, manufacturing, identifying the extension of the life cycle of materials and products, which can be facilitated by the introduction of new production technologies that reduce the formation of by-products and make more efficient use of raw materials.

Products with design added value are gaining increasing demand in both manufacturing and services by promoting design literacy with the aim of creating demand for good design. The public sector must lead by example in the use of good design, as well as explain the design process, the time invested in it, knowledge and other resources in the context of the benefits of good design.

During the implementation of the program, it is planned to actively inform cooperation partners, the public about the achievements of students, including participation in scientific conferences, seminars and projects that provide for informing the public and providing feedback. It is planned that graduates of the program will be able to continue their studies at the master's level and engage in the work of the RTA Alumni Association and participate in the strengthening of the program as graduates.

Further improvement of the programme (including work with the results of surveys of students and employers) is also planned for the provision of feedback in accordance with the procedures laid down in the annual self-assessment procedure of the RTA study fields and the corresponding programmes approved by the Study Council, surveys of students, graduates and employers are organised, and the developed mechanisms for obtaining feedback are used.

In order to improve the programme, it is planned to maintain close connection with the strategic partners of the programme, with representatives of the LIAA Rezekne Business Incubator and the Rezekne Business Association, the Administration of the Latgale Planning Region and the management of the Rezekne Special Economic Zone as well as individual entrepreneurs and municipalities, employers' organisations in the sector, such as the Latvian Designers' Union, the Employers' Confederation of Latvia NEP for the manufacture of textiles, clothing, leather and leather goods, etc.

### 3. Resources and Provision

#### 3.1. Characterisation and assessment of the study base, science base (if applicable), informative base (including library), material and technical base and financial base regarding conformity with the conditions for the implementation of the study programme and ensuring the achievement of study results, and changes made since the commencement of the implementation of the study programme, their impact on the quality of studies

##### 3.1.1. Assessment of the study base necessary for the implementation of the study programme

The program will be implemented at the RTA Faculty of Engineering (IF) in cooperation with the RTA Institute of Engineering and research centers. RTA IF was established in 1993. It implements four study fields and 11 study programmes (see Table 14).

**Table 14**

Fields of study		Architecture and construction	Mechanics and metalworking, thermal energy, heat engineering and mechanical engineering	Information technology, computer technology, electronics, telecommunications, computer management and computer science	Production and processing
Third cycle (LQF 8)	Doct.		Laser technologies	Modelling of sociotechnical systems	

Second cycle (LQF 7)	Mag.		Laser technologies	Electronic commerce in information systems		
First cycle (LQF 6)	Bac.		Mechatronics	Programming Engineer	Design Technologies*	
	Short-cycle	Construction	Mechanical engineering	Programming	Fashion Design and Technology	Food processing

RTA Faculty of Engineering implements short-cycle professional higher education study programmes "Fashion Design and Technology", "Mechanical Engineering", "Construction", "Programming", "Food Processing" and firstcycle professional higher education bachelor's study programmes "Mechatronics" and "Programming Engineer" and master's level study programme "Laser Technologies". Until 31st of December 2023, RTA Faculty of Education, Languages and Design (IVDF) implemented the professional bachelor's study programme "Interior Design" and the professional master's study programme "Design". Consequently, the new Programme has a study base and provision appropriate for its implementation.

For the effective implementation of the programme, the RTA has staff of support units:

**Specialists of the study process of the Faculty of Engineering:** responsible for record-keeping and organizational issues of the study process at the faculty level. Faculty of Engineering organizes classes and internships for students in the study programme, organizes examinations, tests, keeps records of achievements, keeps and stores personal files, organizes the process of defending diploma theses.

**Specialists of the study process of the study department:** responsible for maintaining SD data in LAIS, VIIS, Moodle systems, Multirank, planning the workloads of academic staff, maintaining the list of classes, preparing diplomas and diploma supplements, preparing reports, preparing statements, etc. preparing documents on study issues.

**Personnel department specialists:** prepares personnel documentation (including employment contract), conducts introductory briefing of personnel.

**Employees of the Center for Lifelong Learning:** organizes professional development courses in didactics and innovations of universities.

**Library staff:** participates in the planning of teaching and scientific literature, ensures the availability of electronic databases, is responsible for updating the content of the RTA institutional repository, maintains the database of publications of the RTA academic staff.

**Financial analyst:** plans the financial resources of SD and SP.

**Information Communication Technology Research Center:** maintains a collection of scientific articles "Environment. Technology. Resources" e-environment and electronic open access databases rta.lv, journals.rta.lv.

**Institute of Engineering Sciences (IZI):** ensures synergy of pedagogical and scientific work, plans and implements scientific projects in the field of engineering and related interdisciplinary fields, conducts research and practical support for strengthening the scientific capacity of SD, provides a collection of scientific articles "Environment. Technology. Resources" in the e-environment. IZI was established in the year 2016 as a structural unit of the faculty. Under the auspices of the IZI, there are five research centres, 13 laboratories and other smaller structures (see Figure 1). IZI operates in the field of engineering and technology science. Activities of the Institute: electrical engineering, electronics, information and communication technologies, mechanical engineering and mechanics, materials science, environmental engineering and energy, other engineering and technology.

# Inženierzinātņu institūts



1.att. Structural units of the Institute of Engineering

The directions of activity of the IZ institute - material sciences, electronics, information and communication technologies are the most important directions of potential further research activity in the development of the study program Design technologies for all specialization modules.

In order to strengthen the mechanisms of science transfer, RTA operates the Science and Project Management Division, which ensures the involvement of RTA staff (including doctoral students) in projects and the correlation of research capacity with the challenges of sectoral transformation. Information on RTA implemented projects, project calls is available on the RTA website (<https://www.rta.lv/projekti>) (The link is available only in Latvian).

RTA has a newly built **Laser Technology Center** with a total area of 277 m<sup>2</sup> and purchased laser equipment and other equipment for conducting scientific research, such as a 3D measurement laser microscope; magnetron sputtering system for creating surface coatings; 8 different laser equipment for cutting, welding and engraving. The laser centre was built within the framework of the specific objective 8.1.1 of the operational programme "Growth and Employment" "To increase the number of modernized STEM study programmes, including medical and creative industries" within the framework of the project "Modernization of RTA laser technology, mechatronics and mechanical engineering study programmes".

IZI structural units - research centers (Physical Processes and Laser Technologies Research Center, Metalworking and Mechatronics Research Center are supporting structural units for collaborative research in student study theses and diploma projects. The basis for this is the interdisciplinary cooperation and research already carried out in RTA grant projects in other RTA study programs of the direction Production and processing such as the short-cycle professional education study program Fashion Design and Technology.

RTA has purposefully carried out modernization of the material and technical base, also by attracting

project funding, for the improvement of programs of engineering. Sub-activity 3.1.2.1.1 "Modernization of premises and equipment of higher education institutions for the improvement of the quality of study programmes, including by ensuring opportunities for the acquisition of educational programmes also for persons with functional disorders" "Construction of new Engineering faculties, laboratory construction and purchase of equipment of Rezekne Higher Education Institution", project implementation time 15.04.2010-31.10.2015. (project Nr.010/0117/3DP/3.1.2.1.1/09/IPIA/VIAA/028).

As a result of the project, laboratory equipment was purchased for 4 mil. EUR, but 5.8 million EUR invested in the construction of the new building of the Faculty of Engineering. 13 laboratories have been created and equipped. In the summer of 2014, a modern building of the Faculty of Engineering, corresponding to the European level of education and science, with modern premises and equipment for the study and research process, began its work.

Several workshops are available for the study program "Design Technologies": a well-maintained clothing design workshop with the necessary equipment for the design and manufacturing / sewing of products. An art and design workshop with the necessary provision for teaching the theory of visual art, composition and design study courses and conducting practical work, the workshop also houses a graphics press that provides work for mastering the basics of visual art in graphics, as well as the necessary equipment for the development of model making works. The fine arts workshop, named after the long-term RTA lecturer, professor and outstanding representative of Latgale watercolor painting Vladislavs Paurs, teaches the basics of visual arts in drawing (academic drawing, sketching of products and interiors, etc.) and painting (academic painting, coloristics, product and interior painting, etc.). The workshop also has everything you need for teaching material science and technologies of decorative finishes (samples of collections of materials and interior decoration, etc.). In the design technology workshop study courses as Model making, Fine Geometry and Engineering Graphics, Research in Design, Fundamentals of Architecture, Interior Design and Ergonomics, and other subjects are taught. In co-creation spaces, the RTA Applied Research Center "SalesLab" hosts guest lectures, master classes, IT audiences host teaching of study courses related to digital technologies, such as Digital Technologies in Design (CorelDraw, Adobe Illustrator, Photoshop), Digital Technologies in Product and Interior Design (ArchiCAD, 3DsMax), Digital Technologies in Apparel Design (AccuMark Gerber, Adobe Illustrator, TexDesign), 3D Modeling and Topology Optimization (Solidworks), etc. In metalworking and laser technology workshops, study courses related to industrial processing of materials are taught, for example, Metalworking CNC machine tools and their programming, Laser processing and laser safety, Metalworking technologies. In the academic year 2023/2024, ESF project No. 8.2.3.0/22/A/004 "Automation tools for creative industries AutoRade" acquired: 11 high-performance computers, Adobe Creative Cloud software, specialized computer program TEXDESIGN for digital sketching, clothing design, process rationalization and research in textile material science, specialized computer program Gerber AccuMark 3D, for the use of advanced 3D design and visualization tools, for prototyping clothes using virtual Avatars, for trying on designed clothes in 3D, 3D scanners for the use of the contactless method of removing measures and designing individual virtual models, 3D Virtual reality glasses (6 pcs.) for interactive visualization and reverse engineering, etc. Theoretical study courses, such as Introduction to Human Sciences, History of the Development of Western Culture and Art Styles, Launching of Entrepreneurship, etc., will be taught in RTA auditoriums, which are appropriately equipped for demonstrations of presentations, works in group, seminars, etc. (for a list of equipment/facilities, see: Annex 14).

With the development of the IF laboratory base, they were equipped with the most universal equipment possible, which can be used by students of various study programs. The material technical support of the RTA IF is sufficient for the conduct of the Programme's research and practical work in laboratory conditions for both students and academic staff. The virtual tour of the RTA premises can be viewed <https://www.rta.lv/inzenieru-fakultate>. The existing material and technical base of RTA allows to fully implement the Program, if necessary, also using the research infrastructure offered by cooperation partners.

The program will be implemented by the academic staff of RTA. Individual study courses of the Programme will be taught by visiting lecturers from Latvian and foreign universities (Riga Technical University and Vilnius University of Applied Sciences), as well as professionals in the field (architects, interior, product designers). In the guest lectures, students will be introduced to the latest developments in the

industry by cooperation partners, industry experts from manufacturing companies and design bureaus.

### 3.1.2. Assessment of the information and methodological base

RTA is provided with an informative and methodological basis for the implementation of the Programme. The main information resources of RTA are:

**RTA website** ([www.rta.lv](http://www.rta.lv)), where information about the study directions and programs, Institute of Engineering is available.

**RTA internal document management** system (DVS), in which regulatory documents of RTA structural units are stored, which are available to all of the staff of RTA (employees and students), etc. information related to the study process (documentation of the quality system of studies, lesson schedules, etc.) and study programmes, library services, publication rules in the collections of RTA scientific articles, requirements for the development and presentation of a thesis, binding regulatory documents (The links are available only in Latvian).

List of classes for spring semester 2024: [luis.lu.lv/luis/lisarR.html](http://luis.lu.lv/luis/lisarR.html)

[Quality Assessment and Control System of Studies.](#)

[Regulations regarding examinations and tests of study courses.](#)

[Public access to the RTA regulatory enactments.](#)

The RTA Information System is a part of the Information System of Higher Education Institutions of Latvia (LAIS), which is adapted to the needs of higher education institutions. RTA students and employees are provided with the opportunity to receive access to LAIS, where student study data, personnel data is managed, matriculations, exmatriculations, registration instructions, changes of study data, change of personal data and printouts of scholarship granting orders, maintenance of the register of courses, study plans, record of student achievements, preparation of diplomas and diploma supplements, etc. are prepared.

The methodological basis of the study process is created in the e-environment <https://ekursi.rta.lv/>, in which the catalogue of study courses is maintained. In accordance with the Regulations approved by the RTA Study Council regarding the development of descriptions of study courses/modules at RTA, when commencing the implementation of the study course, for the qualitative provision of the study course, for the organisation of the study process and independent work of students, the lecturer shall ensure the availability of study materials in the e-environment (on [the website https://ekursi.rta.lv/](https://ekursi.rta.lv/)) and inform students about the content of the study course, the main study requirements and study results, indicating the address of the electronic website and its the conditions of use. The Microsoft Teams platform is mainly used to provide remote studies. RTA has access to high-quality equipment for remote study process, seminars, conferences.

The Library of RTA is located in Atbrivosanas aleja 115, k-4. The structure of the library consists of a reading room, a subscription of teaching and sectoral literature, a collection and cataloguing sector, a bibliography and information sector.

The working hours of the library are appropriate to the needs of students and ensure the availability of informative resources. The library's opening hours at the beginning of each academic year are reviewed taking into account faculty demand and user attendance statistics by day and hour.

The library is accessible to persons with reduced mobility. For a description of the library premises, see Table 15.

**Library premises, suitability for permanent study and research work**

Library premises	Indicators/evaluation
Total area of premises (m <sup>2</sup> ) <i>When working in the reading room, you can use the computers of the reading room or come with your own computers and connect to a Wi-fi network.</i>	459
Reader rooms (m <sup>2</sup> )	418.8
Number of working places for readers in the library	39
Technical condition of the premises (good, satisfactory, repair is needed, in emergency condition)	good
When was the last time reconstruction, overhaul or routine cosmetic repairs were carried out	The building was built in the year 2014, renovated in the year 2022

The library has two individual work spaces where students can work undisturbedly. In the reading room there is a recreation corner with bean bags. The library of RTA provides all traditional services, including in the e-environment. The electronic catalogue reflects on information about all the available books and magazines in the library's collection.

In order to provide qualitative support to the educational and scientific process of RTA, special attention is paid to user awareness, providing more opportunities for searching for e-resources and obtaining information, educating and advising users in information literacy. Library staff constantly provide assistance to users in finding information and inquiries. In the year 2023, 1128 references were provided.

The library's collections correspond to study programmes and directions of RTA. The total amount of the collection is 54214 copies. The latest literature from the relevant sectors is regularly procured, most of the funding for bundling is used for sectoral books in English (see Table 3.3.2 for an overview of the literature available in RTA). In accordance with the "Rules of Procedure for the Provision of Literature", book requests are regularly submitted to the library. For more convenient and faster execution of the submission process, a form for supplementing library funds was created, which is available electronically in the RTA document management system. A significant addition to the collection is given by books purchased or published in projects. Subscription to databases are decided at a meeting of the Science Council, having previously become acquainted with the database subscription price offer and statistics on the use of previous periods. Library users have access to Interlibrary Loan Services. For the provision of books in the program, see Table 16.

Table 16

## Provision of books in the study direction "Design Technologies" on 12.01.2024.

UDK index, sector	Number of copies	Number of titles
658 The economics of an enterprise	983	274
001.8 Research	79	30
303.1 Methods of social sciences	41	12
620.2 Material training	165	23
53 Physics	728	197
54 Chemistry	805	175
502 Environmental protection	1522	399
504 Environmental chemistry and pollution	239	51
577 Biochemistry. Molecular biology	28	19
349.2 Labour law	158	49
681 Mechatronics	138	39
621.37 Lasers	30	23
355.58 Civil protection	34	10
614.8 Human safety. Accidents	96	37
658.5 Organization of production processes	313	83
51 Mathematics	2710	508
004 Information and communication technologies	981	446
613.2 Nutrition Science	124	46
7 Art	2376	1485
7.03 Art history	363	145
741 Drawing and technical drawing	38	25
745 Craftsmanship. Design	103	59
746 Crafts	112	60
75 Painting	292	219
646 Clothing	97	49
687 Sewing industry	196	175
391 Folk clothing. National costumes. Fashion	76	60

The library offered the following databases to its users in the academic year 2023/2024: iFinances, iTiesības, iBusiness, BilancePLZ, Jurista Vārds, Skolas Vārds, Latvijas Standartu bibliotēka, EBSCO, ScienceDirect, Scopus, Web of Science, LNB Digitālās Kolekcijas. Database trials are also offered: 2022/2023 – 7. Databases can also be used remotely. In 2023, the use of databases was 35654 sessions. In order for students to gain knowledge about the e-resources of the RTA library, their use and availability, the library offers classes and individual consultations. Using the library resources, it is possible to obtain a review of the literature necessary for the implementation of the study process using the electronic catalogue of the RTA library.

Students can obtain the list of sources necessary for the study process, as well as the materials necessary for studies prepared by the lecturers in the e-course (*Moodle*) system, which ensures access throughout the study process.

For the convenience of users, a section e-resources has been created on the library's website, where various hyperlinks with access to databases, scientific articles of RTA and other universities, open-access resources are collected. In accordance with the conditions of the quality management system, monitoring of the resources is regularly carried out. A working environment has been created and developed where students can learn qualitatively, independently generate ideas, form a creative attitude, be active and motivated. Students have access to a learning environment that is created and improved according to the principles of functionality, modernity, aesthetics, human safety and ergonomics. RTA purposefully works on ensuring the widest possible availability of information about the study process and study content that is freely accessible to students. Among the most important information resources available to students, RTA includes:

1. Electronic Information System of Higher Education Institutions of Latvia (LAIS), where the following information available to students is provided: study course descriptions, study plans, lesson schedules, changes in them, student success, information on orders related to the study process (matriculation, exmatriculation, scholarships, etc.). In the LAIS environment, there is also a unified anti-plagiarism control system, in which the examination of students' final papers is carried out.

2. Electronic study site *in Moodle's system.rta.lv* where study course programs, requirements for the assessment of study results, lists of recommended literature, study materials of study courses are available. The system is improved every year by supplementing it with new study courses. Since 2016, RTA has made the preparation of study courses in the official foreign language of the EU and the preparation of study course materials for distance learning as priorities on the e-course website.

3. The website of scientific journals and collections of articles <http://journals.ru.lv/>, where the collections of all articles and journals of RTA conferences are placed in open access.

4. The Latvian library information system ALISE <https://biblio.rta.lv/Alise/lv/home.aspx>, which provides remote access to library catalogues and diverse information search possibilities, as well as ordering / booking expenses for authorized users.

On the RTA library website you can find links to the joint catalogue of higher education institutions and special libraries, the joint catalogue of libraries of rezezne region, the joint catalogue of libraries of state significance, which ensures the search and ordering of the necessary resources that are possible using interlibrary membership options.

The library works on weekdays from 9.00 to 17.00/19.00. Every year, taking in consideration the suggestions of part-time students or the management of study directions, the library also provides reader services on Saturdays/Sundays, but these schedules are not regular, they are adapted to current demand and return to the rationed working hours when demand runs out.

At the end of 2022, the RTA institutional repository has been launched, where the first one will collect and manage the science data of RTA, eventually expanding the number and scope of entities. RTA has established a data transmission network of the latest generation for ensuring scientific activity (Latvian academic core network) in order to participate in the unified European academic network, and to improve information systems. Its creation ensures the international competitiveness of science and education and integration with the global scientific and educational processes, which ensures the availability of students and academic staff to the latest world-class information.

For the publicity of scientific and methodological activities and the provision of open access, RTA

operates a publishing house specializing in the publication of electronic publications (see *books.rta.lv*).

In general, it should be noted that students have access to a learning environment that is created and improved in accordance with the principles of functionality, modernity, aesthetics, human safety and ergonomics. RTA purposefully works on ensuring the widest possible availability of information about the study process and study content that is freely accessible to students.

### 3.1.3. Information on the financial base necessary for the implementation of the study programme

To ensure the success of the study process, RTA uses both the state budget funding and private funds. Since the foundation of the higher education institution in 1993, the financial situation has been assessed as stable. Revenue consists of: a grant from general revenue, tuition fees in higher education, funding from EU structural funds, participation fees in seminars, conferences, courses, student hotel services, other operating income.

In proportion to revenue, expenses are planned in the budget. The main items of expenses are: staff remuneration, expenses for the maintenance of premises and utility bills, material expenses of the study process, purchase of new equipment, redevelopment and repair of premises.

In 2023, the financial security of the RTA study direction "Production and Processing" amounted to EUR 119 thousand, which includes state budget funding (see Table 17).

**Table 17**

**Financial resources for the implementation of study programs  
corresponding to the field of study (EUR)**

Funding	2017 EUR	2018 EUR	2019 EUR	2020 EUR	2021 EUR	2022 EUR	2023 EUR
State budget funding for the direction (without funding for scholarships)	<b>44 235</b>	<b>44 630</b>	<b>46 481</b>	<b>46 685</b>	<b>88 026</b>	<b>88 026</b>	<b>119299</b>

**The funding of the science base and the funding of scientific activity (performance) are not** divided by study directions, but are diverted to the RTA for the provision of scientific activity (remuneration of scientific staff, travel expenses, grant funding, subscription to databases, capital expenditures) and scientific institutes, while the academic staff employed in science represents different fields of study. In 2023, RTA's research revenue reached almost EUR **1518954** (see Table 18).

**Table 18****Funding for ensuring the research (creative) activities of academic staff (EUR)**

<b>Funding</b>	2017 EUR	2018 EUR	2019 EUR	2020 EUR	2021 EUR	2022 EUR	2023 EUR
Science base funding	194 774	209 367	190 347	191 094	151 788	218 106	22 48 80
Funding of national research programmes	77 401	87 065	91 916	326 952	188754	189 926	44 46 41
Performance funding	39 843	138 087	104 009	80 480	29 569	32 746	18 21 21
Other revenue from the state budget	10 000	-	-	-	-		
EU Structural Funds	786 571	1 143 562	347 690	90 712	184 820	1 301 178	66 36 82
Revenue from contract work with legal entities of the Republic of Latvia	14 841	21 536	12 182	28 488	17 217	8 279	36 30
<b>Funding in total</b>	<b>1 123 430</b>	<b>1 599 617</b>	<b>746 144</b>	<b>717 726</b>	<b>572 148</b>	<b>1 750 235</b>	<b>1 51 89 54</b>

**Funding for the gathering of RTA library collections** is not divided by study directions, as often the library resources in the study process are used by students of several study fields (see Table 19). The most significant literature within each course has a cyclical renewal, but the most current additional units of literature are replenished regularly.

**Table 19****Funding for the acquisition of the RTA library collections (EUR)**

<b>Expenses for the gathering of library collections</b>	2017 EUR	2018 EUR	2019 EUR	2020 EUR	2021 EUR	2022 EUR	2023 EUR
Periodicals	2 940	3 009	3 333	3 369	2918	3055	2503
Books	12 102	8 206	7 419	12 407	6891	5499	6047
Electronic documents and databases	19 184	15 828	7 086	2 930	5424	5623	6254
<b>Kopā:</b>	<b>34 226</b>	<b>27 043</b>	<b>17 838</b>	<b>18 706</b>	<b>15233</b>	<b>14177</b>	<b>14804</b>

**Funding for the student council** is provided annually in the amount of at least one two hundredth of the state funding for the study process and tuition fee revenues and fluctuates for around twelve thousand euros per year (see Table 20).

**Table 20**

**Funding for the Student Council (EUR)**

Funding	2017 EUR	2018 EUR	2019 EUR	2020 EUR	2021 EUR	2022 EUR	2023 EUR
Funding for student council	12 422	12 729	12 331	12 918	14 399	13653	11005
State budget funding for the study process	2 001 323	2 076 881	2 162 918	2 242 195	2 492 457	2397498	2565243

RTA calculations show that the direct costs of the Programme (remuneration of academic and general staff) are 1890 EUR/ 75% per conditional student per year, indirect costs (expenses for ensuring the operation of RTA, including for the library, land tax, rental of premises, rent, operating expenses of buildings and equipment, telephone subscription and service costs, utilities, current repairs, special programs, etc.) per 1 conditional student per year are 630 EUR/ 25 %. In total, the cost of studies per student per year is estimated at 2520 EUR, which does not exceed the cost of European countries for the preparation of one student in a similar speciality. The minimum number of students, which will ensure the profitability of the study program, in one year of study is 10 students. At the beginning of the implementation of the program in the study program "DESIGN TECHNOLOGIES" 7 students in each module will be enrolled.

**3.1.4. Assessment of the material and technical base**

RTA owns 4.2 ha of land at Atbrivosanas street 115, where a student campus is being created, bringing educational and scientific resources to one place, thus ensuring much higher quality, more attractive and, above all, more rational and economically efficient infrastructure maintenance. The study process at RTA is implemented in four study blocks. The total area of the central building at Atbrivosanas aleja 115 is 4844.5 m<sup>2</sup>. For the study process, 19 auditoriums with a total area of 2059.4 m<sup>2</sup> are used.

For the study process, the Information Technology Center with two auditoriums and three spacious computer classes is used. The building of the Faculty of Engineering houses a spacious and modern library and reading room, which is accessible to students. The IT center offers two computer classes with an area of 104.9 m<sup>2</sup> and 97.9 m<sup>2</sup>, with 25 and 21 computers. Students, academic staff have access to all the resources necessary for the study process. All buildings are accessible to people with reduced mobility, with equipped entrance and indoor elevators.

The material and technical base is constantly being updated and improved. The auditoriums are equipped with new and comfortable furniture, air conditioners are installed, all audiences (100%) are provided with the necessary equipment as whiteboards, screens, blinds, etc. All computers are connected to a computer network. Faculty and students can use the open-access Internet and Wi-Fi network. For learning foreign languages, video and audio equipment is used, as well as educational films. RTA has purchased equipment for translating small conferences and international seminars.

For the implementation of the study direction, a co-creation space is used of the RTA applied research center "SalesLab". RTA students have access to a dormitory on the territory of the RTA student campus at Atbrīvošanas alley 115. For the needs of sports and interests of students, RTA provides premises for sports classes, choir activities, acquisition of professional and interest education programs.

Faculty of Engineering (IF) facilities: For information on laboratory equipment, computer equipment,

presentation equipment and software available at SD, see Annex 19. The IF infrastructure consists of:

1) new faculty building (commissioned in 2014) with laboratories, workshops, auditoriums, staff and student premises;

2) Information Technology Centre (computer halls, electronic editions room, hardware servicing room, server room);

3) Laser Technology Center (commissioned in 2019). In addition to this, the main building of the RTA is used for the acquisition of social, humanitarian, design study courses. The material and information base of RTA IF fully ensures the successful implementation of all SP. The equipment of all laboratories/ workshops is freely available to every IF student, lecturer and researcher on weekdays from 7:30 to 19:30, on weekends from 7:30 to 17:30. 6 engineers and 2 laboratory technicians are attracted to work with specific laboratory and workshop equipment, who provide support to lecturers in the course of classes, students - in the development of research papers, course projects and qualification papers, scientists - in conducting research, developing, manufacturing and approbation of experimental stands and prototypes. 3 IT specialists ensure the functioning of IF hardware (computers, interactive whiteboards, projectors) and the Internet. The available software can be freely used by any IF student, lecturer or researcher (For information on available provision, see Annex 19).

All audiences are equipped with interactive whiteboards (8 pcs.) or multimedia projectors (10 pcs.). The total number of computers in the faculty (without the library) that can be used by students in the study process is about 100; Most of these computers are connected to the Internet. Taking into account that the total number of IF students (including part-time studies) is about 600, it can be concluded that the number of existing laboratory and auditorium rooms, the area, the amount of workplaces, computers and presentation techniques at the faculty fully meet the needs of the study process. Wi-Fi is freely available everywhere. All rooms are accessible to people with special needs.

RTA has purposefully carried out modernization of the material and technical base, also by attracting project funding, for the improvement of programs of engineering. Sub-activity 3.1.2.1.1 "Modernization of premises and equipment of higher education institutions for the improvement of the quality of study programmes, including by ensuring opportunities for the acquisition of educational programmes also for persons with functional disorders" "Construction of new Engineering faculties, laboratory construction and purchase of equipment of Rezekne Higher Education Institution", project implementation time 15.04.2010-31.10.2015. (project Nr.010/0117/3DP/3.1.2.1.1/09/IPIA/VIAA/028). As a result of the project, laboratory equipment was purchased for 4 mil. EUR, 5.8 million EUR invested in the construction of the new building of the Faculty of Engineering. The following laboratories have been established and equipped:

1. Laboratory of physical processes;
2. Laboratory of electronics, electrical engineering and electric drive;
3. Computer Network and Telecommunications Training Laboratory;
4. Materials Mechanical Research Laboratory;
5. Laboratory of flow mechanics, pneumatics and hydraulics;
6. Mechatronics Laboratory;
7. Ecology and Environmental Protection Laboratory;
8. Laboratory of Chemical Processes;
9. Microbiology and Biotechnology Laboratory;
10. Ecotechnology Laboratory;
11. CAD/CAE/CAM laboratory;
12. Mechanical workshop;
13. Laboratory of Engineering Geology and Ground Mechanics;
14. Room for gas cylinders and compressors;
15. Laboratory for ensuring environmental health and human living conditions;
16. Student creative workshop.

In the summer of 2014, a modern building of the Faculty of Engineering, corresponding to the European level of education and science, was opened with modern equipment for the study and research process within the framework of the specific support objective 8.1.1 "Increase the number of modernized

STEM study programmes, including medical and creative industries" of the operational programme "Growth and Employment" within the framework of the project "Modernization of laser technology, mechatronics and mechanical engineering study programmes of the Rezekne Academy of Technology" (agreement on the implementation of the European Union fund project No. 8.1.1.0/17/I/011). The cost of the project is 964917,00 EUR. The project implementation took place from 16.03.2018 to 31.12.2018. Within the framework of the project, new equipment was purchased (3D laser scanning microscope, magnetron foaming system, laser equipment for cutting, welding, engraving, etc.), materials, tools in the field of laser technologies, powerful computer equipment was purchased, information and communication technology solutions were introduced during the study process (web conference equipment, simultaneous interpreting systems were purchased), the building of the Center for Physical Processes and Laser Technologies was built. <http://lazers.rta.lv/lv/rezeknes-tehnologiju-akademija-pabeigts-studiju-programmu-modernizacijas-projekts/>

In total, the study process is provided with 9 laboratories, 5 workshops and three IT auditoriums. Work premises/workshops – Clothing design/manufacturing workshop; Art and Design Workshop; Visual arts workshop; Design technology workshop; The implementation of the project "Automation tools for creative industries AutoRade" (No. 8.2.3.0/22/A/004 04.11.2022 13:56 24) in 2023 provides for the purchase of training equipment, equipment for the needs of the study process of RTA design programs in order to improve the design automation laboratory and create a new multimedia laboratory, also the Materials Technology Experimental Laboratory is under development.

The material and technical base and its availability to students and teaching staff are appropriate to the specifics and implementation of the SP. The material and technical support of the RTA Faculties of Engineering and Education, Languages and Design is sufficient for the implementation of the professional bachelor's programme "Design Technologies", for conducting research in laboratory conditions for both students and academic staff (see Annex 19). If necessary, separate contracts for laboratories or equipment necessary for research are concluded with other higher education institutions, for example, a cooperation agreement has been concluded with RTU for testing textile fabrics. The cooperation agreement also provides for the use of sewing workshop equipment in the Eastern Latvian Creative Services Center "ZEIMUĻS".

In order to strengthen the mechanisms of science transfer, RTA operates the Science and Project Management Division, which ensures the involvement of RTA staff (including doctoral students) in projects and the correlation of research capacity with the challenges of sectoral transformation. Information on RTA implemented projects, project calls is available on the RTA website (<https://www.rta.lv/projekti>) (The link is available only in Latvian).

RTA has a newly built **Laser Technology Center** with a total area of 277 m<sup>2</sup> and purchased laser equipment and other equipment for conducting scientific research, such as a 3D measurement laser microscope; magnetron sputtering system for creating surface coatings; 8 different laser equipment for cutting, welding and engraving. The laser centre was built within the framework of the specific objective 8.1.1 of the operational programme "Growth and Employment" "To increase the number of modernized STEM study programmes, including medical and creative industries" within the framework of the project "Modernization of RTA laser technology, mechatronics and mechanical engineering study programmes".

RTA has purposefully carried out modernization of the material and technical base, also by attracting project funding, for the improvement of programs of engineering. Sub-activity 3.1.2.1.1 "Modernization of premises and equipment of higher education institutions for the improvement of the quality of study programmes, including by ensuring opportunities for the acquisition of educational programmes also for persons with functional disorders" "Construction of new Engineering faculties, laboratory construction and purchase of equipment of Rezekne Higher Education Institution", project implementation time 15.04.2010-31.10.2015. (project Nr.010/0117/3DP/3.1.2.1.1/09/IPIA/VIAA/028). .

As a result of the project, laboratory equipment was purchased for 4 mil. EUR, 5.8 million EUR invested in the construction of the new building of the Faculty of Engineering. 13 laboratories have been established and equipped. In the summer of 2014, a modern building of the Faculty of Engineering, corresponding to the European level of education and science, with modern premises and equipment for the study and research process, began its work.

Several workshops are available for the study program "Design Technologies": a well-maintained

clothing design workshop with the necessary equipment for the design and manufacturing / sewing of products. An art and design workshop with the necessary provision for teaching the theory of visual art, composition and design study courses and conducting practical work, the workshop also houses a graphics press that provides work for mastering the basics of visual art in graphics, as well as the necessary equipment for the development of model making works. The fine arts workshop, named after the long-term RTA lecturer, professor and outstanding representative of Latgale watercolor painting Vladislavs Paurs, teaches the basics of visual arts in drawing (academic drawing, sketching of products and interiors, etc.) and painting (academic painting, coloristics, product and interior painting, etc.). The workshop also has everything you need for teaching Material science and technologies of decorative finishes (samples of collections of materials and interior decoration, etc.). In the design technology workshop study courses as Model making, Fine Geometry and Engineering Graphics, Research in Design, Fundamentals of Architecture, Interior Design and Ergonomics, and other subjects are taught. In co-creation spaces, the RTA Applied Research Center "SalesLab" hosts guest lectures, master classes, IT audiences host teaching of study courses related to digital technologies, such as Digital Technologies in Design (CorelDraw, Adobe Illustrator, Photoshop), Digital Technologies in Product and Interior Design (ArchiCAD, 3DsMax), Digital Technologies in Apparel Design (AccuMark Gerber, Adobe Illustrator, TexDesign), 3D Modeling and Topology Optimization (Solidworks), etc. In metalworking and laser technology workshops, study courses related to industrial processing of materials are taught, for example, Metalworking CNC machine tools and their programming, Laser processing and laser safety, Metalworking technologies. In the academic year 2023/2024, ESF project No. 8.2.3.0/22/A/004 "Automation tools for creative industries AutoRade" acquired: 11 high-performance computers, Adobe Creative Cloud software, specialized computer program TEXDESIGN for digital sketching, clothing design, process rationalization and research in textile material science, specialized computer program Gerber AccuMark 3D, for the use of advanced 3D design and visualization tools, for prototyping clothes using virtual Avatars, for trying on designed clothes in 3D, 3D scanners for the use of the contactless method of removing measures and designing individual virtual models, 3D Virtual reality glasses (6 pcs.) for interactive visualization and reverse engineering, etc. Theoretical study courses, such as Introduction to Human Sciences, History of the Development of Western Culture and Art Styles, Launching of Entrepreneurship, etc., will be taught in RTA auditoriums, which are appropriately equipped for demonstrations of presentations, works in group, seminars, etc. (for a list of equipment/facilities, see: Annex 16).

With the development of the IF laboratory base, they were equipped with the most universal equipment possible, which can be used by students of various study programs. The material technical support of the RTA IF is sufficient for the conduct of the Programme's research and practical work in laboratory conditions for both students and academic staff. The virtual tour of the RTA premises can be viewed <https://www.rta.lv/inzenieru-fakultate>. The existing material and technical base of RTA allows to fully implement the Program, if necessary, also using the research infrastructure offered by cooperation partners.

The program will be implemented by the academic staff of RTA. Individual study courses of the Programme will be taught by visiting lecturers from Latvian and foreign universities (Riga Technical University and Vilnius University of Applied Sciences), as well as professionals in the field (architects, interior, product designers). In the guest lectures, students will be introduced to the latest developments in the industry by cooperation partners, industry experts from manufacturing companies and design bureaus.

### **3.1.5. During the reporting period, analysis of changes in the composition and qualifications of teaching staff and assessment of these changes**

One of the most important factors of quality assurance in the study programme is the teaching staff, who are highly qualified specialists in the relevant fields of science, including design and engineering.

The qualitative composition of the teaching staff working in the study programme in general complies with the requirements of the Law on Higher Education Institutions. The qualification of the academic staff is appropriate to the specifics of the study program and the conditions for implementation, as well as the requirements of regulatory enactments in the fields of design and engineering. The elected academic staff are professionals in their field of science who have demonstrated competence in field research, use of e-

environment in the study process, as well as participated in national and international projects, exhibitions, developed scientific articles, teaching aids or monographs. Professionals in their specialty with practical work experience in design or engineering are also involved in the implementation of the study program.

The criteria for the selection of the teaching staff involved in the implementation of the study programme are mostly according to the specifics of the study programme and study courses, that is specialists practicing in the design industry, architecture sector, metalworking industry, electronics, textile processing industry, art sector, CAD/ CAM industry, pedagogy sector, mechatronics industry, both from the local region and from other partner universities. As recognized by the experts of the licensing committee of the program, the study program "Design Technologies" fits into the direction of study "Production and processing", it corresponds to the engineering segment.

At the time of licensing of the program, the academic composition consisted of 15 teaching staff with a doctoral degree (33% of the total composition of the 46 academic staff), where 4 visiting lecturers with a science specialization Dr.sc.ing. In the main work, lecturers with the following science specializations: 1 Dr.sc.ing., 3 Dr.paed., 2 Dr.philol., 2 Dr.oec., 1 Dr.sc.com., 1 Dr.hist., 1 Dr.psych. Directly Dr.sc.ing. specializes in textiles, computer science, mechanics/mechatronics, and environmental science. 59% (27 practical assistant professors, lecturers) from the academic composition with a master's degree, of which 14 are guest lecturers, which also ensures qualitative diversification of specializations in accordance with the goals set by the study program. 8% of the academic composition or two guest lecturers with Bc.art, Bc.sc.ing. and one guest lecturer with a first-level higher education. Taking into account the recommendations received in the licensing of the program, a lecturer with a first-level higher education will not work in the program. In turn, lecturers with bachelor's degrees are motivated to enter master's studies.

During the reporting period, E.Teirumnieka, a lecturer in material sciences, has obtained a scientific degree in the field of chemistry sciences (Ph.D.) and elected in RTA as an associate professor. In turn, the teaching staff of the program A.Pacejs (Mg.sc.ing.), R.Rēvalds (Mg.sc.ing.), I.Adijāns (Mg.sc.ing.) and E.Zaicevs (Mg.sc.ing.) are enrolled in the doctoral study program "Laser Technologies". Head of the study direction "Production and Processing" and head of the study module "Fashion Design and Technology" S.Mežinska (Mg.design, Mg.sc.ing., Mg.paed.) this year graduates from the theoretical part of the doctoral program, is an applicant for a scientific degree. The professional development of the lecturers of the relevant programme will affect the quality of studies, the conditions for the implementation of the programme and their conformity with the requirements of regulatory enactments in the long term. Due to the high workload, one elected faculty member S.Lazdiņa (Dr.phil.) refused to teach the course (Introduction to Research). Due to the amendments to Section 1 of the Law on Higher Education Institutions in the definition of a credit point, this course was integrated into the study course "Research in Design", which is taught by the Elected Associate Professor A.Strode (Dr.paed. Mg.art, Mg.sc.ing.). Due to the activities of the AutoRade project, technologies and software purchased in the project, a new study course "Digital Technologies in Design: II Adobe Illustrator" was included in the program. That will be led by I.Bodža (Mg.design), a guest lecturer working in the program and an expert of the AutoRade project. The changes made in the implementation of the program do not worsen the composition of the teaching staff, but will improve their qualitative capacity to work with students.

## 4. Implementation of recommendations received in licensing of the study programme

Assessment of the execution of the implementation plan of the recommendations given by study program licensing experts and the impact of the given recommendations on the quality of studies or the improvement of processes in the study program. The licensing experts of the study programme expressed short-term: until the meeting of the Higher Education Quality Commission and until the commencement of student enrolment, and also long-term recommendations: within a year after licensing of the study programme and until accreditation of the direction, which is to be implemented in the year 2028.

Short-term recommendation (until the meeting of the Higher Education Quality Commission) - the experts determined to more clearly define the goal to be achieved by the study programme, to carry out additional analysis of the profitability of the study programme, as well as to carry out enhanced analysis of the sharing of resources and performance indicators of the higher education institution in relation to the implementation of three modules within the framework of the study programme, to eliminate typographical errors in the diploma of the study programme and to carry out the numbering of the pages of the Diploma Supplement, as well as to define more clearly the study supplement prospects for the development of the program and to justify the compliance of the study program with the international trends of the industry in the strategic development documents of the design development of international organizations. All the above-mentioned short-term recommendations were implemented until the meeting of the Study Quality Commission. The experts of the short-term recommendations (**until the commencement of the admission of students**) determined to clearly define in which cases, for example, a sufficient number of students is not reached, the particular study module may not be realized and this information may be published on the RTA website in order to be able to get acquainted with it for prospective applicants, to publish on the RTA website the descriptions of study courses, the results to be achieved and the requirements in order to provide prospective applicants with the opportunity to get acquainted with the study the content of the programme, as well as to enter into an agreement allowing students to continue their studies in another study programme, in case the RTA study programme is closed, with another study programme the subject area and qualification of which would correspond to the module Interior Design and Product Technologies of the study programme implemented by RTA and to create descriptions of the modules of the study programme in order to comply with the requirements set out in Section 56.2 of the Law on Higher Education Institutions. All these short-term recommendations were implemented until the start of student admission.

Long-term recommendations (within a year after licensing of the study programme) experts recommended to create a more specific plan for attracting students to the study programme in order to guarantee its profitability, recommended supplementing the relevant document "By-law on RTA academic and professional studies and study programmes", laying down as a mandatory requirement to include representatives of students and employers in the working group for the creation of the study programme and to update the RTA methodological recommendations "Based on study results study quality system" so that the information contained therein reflects the most current version of the ESG and to include at least one student representative nominated by the student self-government in the basic composition of the council of the study field. All the mentioned long-term recommendations (within a year after licensing of the study program) were implemented by 31.12.2023. Long-term recommendations (up to directional accreditation) experts recommended to increase the number of scientific publications and/or artistic creation achievements of the teaching staff, recommended the creation and improvement of research and prototyping laboratories, attracting teaching staff in the segment of practical research and primary samples of engineered wood, minerals, polymers and composites, prototyping, in order to fully realize the goals set in the study program "Design Technologies", as well as develop product materiality, mechanics, physical indicators, "life cycle" computing, mathematical, sustainability simulations in CAD/CAM environments to accumulate and build a database in the direction of the EU Green Deal Directive. In the 2023/2024 academic year, ESF project No. 8.2.3.0/22/A/004 "Automation tools for creative industries AutoRade" supplemented the material and technical base (see Paragraph 3.1.4) in order to promote the possibilities of digitization and prototyping of

products, the use of advanced 3D interactive visualization tools and reverse engineering and other methods, the Product Design Technology Laboratory has been established. All the mentioned long-term recommendations (up to the accreditation of the direction) are in the process of being implemented and will be implemented until the accreditation of the direction, which is to be implemented in 2028.

The implementation of the recommendations of licensing experts will have a positive impact on the improvement of the quality of studies and processes in the study program "Design Technologies". For an overview of the implementation of the recommendations, see Annex 16.