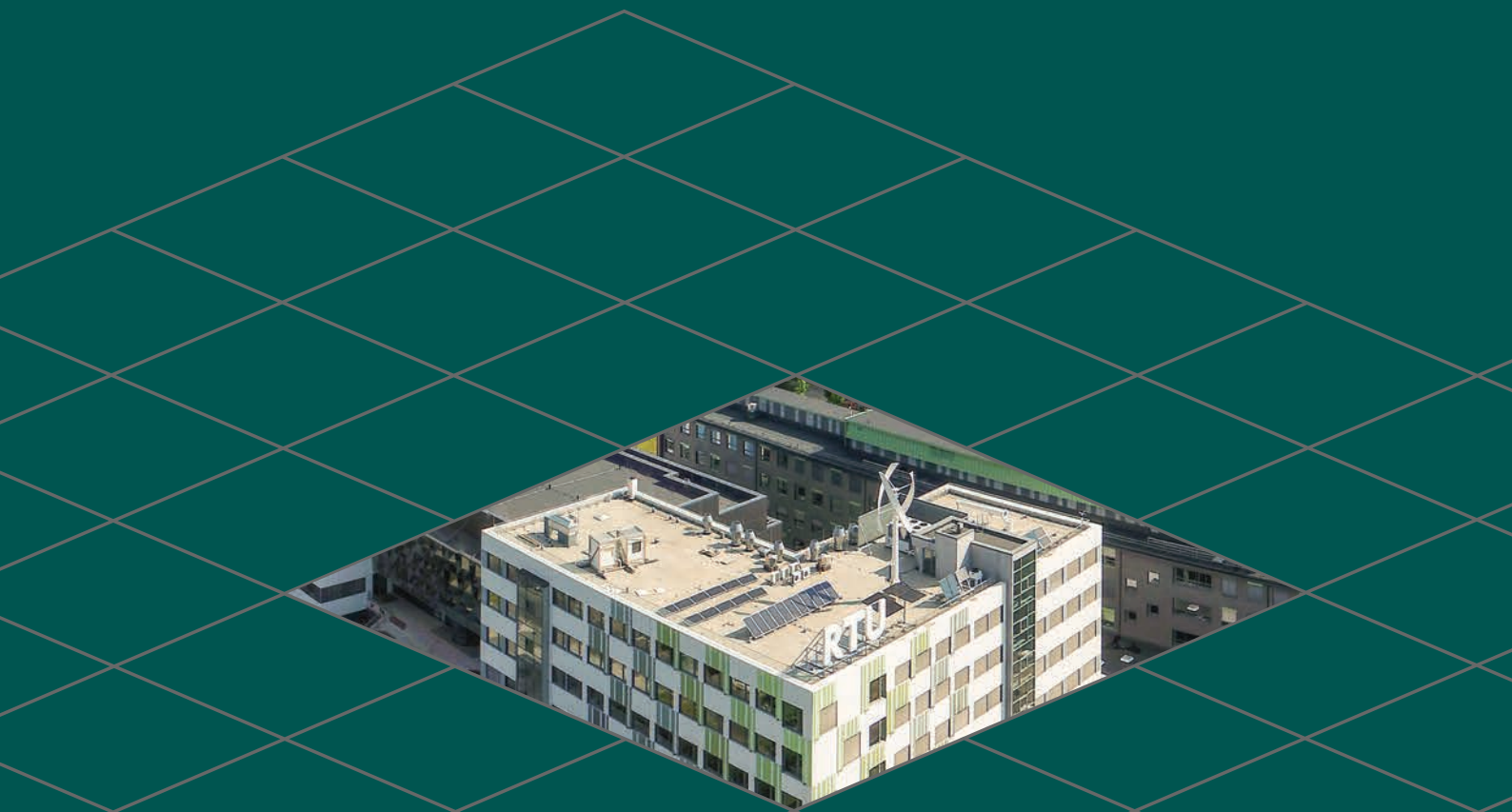
1862

RIGA TECHNICAL UNIVERSITY

YEARBOOK 2021



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RIGA TECHNICAL UNIVERSITY

YEARBOOK 2021

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RTU Rector, Academician
LEONĪDS RIBICKIS

This year for us was again full of challenges, achievements, and changes. Regrettably, *COVID-19* pandemic continued raging in 2021 in Latvia, as well as in the rest of the world, affecting both studies and research processes at RTU. This year again a part of the study life took place in the virtual environment, and still also in 2021 both students and academic staff withstood this challenge successfully, and we all together again could celebrate the already traditional RTU Grand Graduation in summer, where graduates of all three education cycles – Bachelor, Master and PhD studies – received their diplomas.

Our students actively worked at RTU Student Parliament and self-governments, organizing different events, and actively used the support provided by RTU to strengthen their innovation and entrepreneurial skills. Hopefully, such activities of students will gather even more pace in the future, as exactly in 2021 we created the Science and Innovation Centre on the existing basis of the Design Factory, which unites a team of highly qualified experts and an excellent technical provision – the best equipped prototyping workshop in the Baltic States and supercomputing resources – in order to provide a more focused support to students, innovators and start-ups in creating innovations.

Riga Technical University (RTU) has traditionally summarized its accomplishments in the Yearbook, which provides a comprehensive overview of our achievements in 2021.

All together we can congratulate our scientists on their excellent achievements – we traditionally do it in October when celebrating the anniversary of RTU. We greeted our Scientists of the Year and best performers in valorization, our scientists also received awards and recognition for their work both from the Latvian Academy of Sciences and our industrial partners. Whereas in August, another significant event for Latvian science of national standing took place – Latvia was accepted to the European Organization for Nuclear Research (CERN) as an Associate Member State, thus opening an opportunity for the Latvian scientists to participate in CERN operation on a full scale and work together with the world's most outstanding scientists.

The year 2021 will remain in the history of RTU with a bit of a sentiment, since right before Christmas we bid farewell to the historical building of RTU in Old Riga at 1 Kaļķu Street that used to be the symbol of Latvian higher education in engineering sciences for over 60 years. Having left this building, RTU administration relocated to the student campus in Ķīpsala to join most of their RTU colleagues.

In 2021, our Ķīpsala Campus experienced several happy moments. The brightest of them were the opening of new buildings of RTU Faculty of Computer Science and Information Technology and *Domus Auditorialis* auditorium center, as well as the visit of the President of the European Commission Ursula von der Leyen and her meeting with the university administration, scientists and students, learning about technologies promoting climate neutrality developed at RTU.

The year 2021 was bright, exciting, significant, and memorable. The year that stirred personal emotions and recollections in each of us, and in all of us together – the memories of events significant for our RTU family. Wishing us all to spend the forthcoming years as gorgeously and successfully!

01

About RTU

RTU is a modern, internationally recognized and prestigious multi-discipline technical university. RTU is purposefully evolving to become the fourth-generation university that offers not only high-quality education but also provides for excellent research and sustainable valorization, as well as smart digitalization.

At the nine faculties of RTU, it is possible to obtain comprehensive education in the cutting-edge technologies and engineering, as well as social sciences and humanities. The study programs implemented at RTU have passed international expert examination and are officially accredited, thus attesting high quality of education provided by RTU. This has also been acknowledged by the Latvian employers, who recommend RTU to prospective students as the priority higher education institution in Latvia.

RTU is purposefully improving its infrastructure at the first student campus in Latvia located at Ķīpsala, uniting engineering faculties of RTU, a modern laboratory building, Scientific Library, student dormitories and RTU Ķīpsala swimming pool.

02

Strategy

The RTU Strategy for 2021–2025 is a logical continuation of the existing Strategy and its leitmotif is proactive link between the university activities and the needs of the national economy of Latvia and the focus on high quality and efficiency.

The educational process based on research, innovation, and cooperation with the industry, which allows educating and training the specialists necessary for the national economy of Latvia in such a way serving as a basis for sustainable growth of Latvia, is the basis of RTU performance.

RTU has set four main aims for the next planning period, three of them – excellent research, high-quality education, and sustainable valorization – are related to implementation of the core functions of the University, at the same time, the fourth aim – institutional excellence – is concerned with the support function of the University and improvement of the internal governance system. Six sub-aims have been formulated within the latter aim – institutional excellence: digitalization, sustainable development, efficient financial and administrative performance, internationalization, communication and cooperation, and human resource development.

Definite tasks to be completed and performance indicators to be achieved have been formulated for all strategic aims, which will allow monitoring the execution of the Strategy and until 2025 implementing RTU Vision – internationally competitive, dynamic and modern university of science and technology.

RTU Excellence Approach

To promote the growth of RTU, the University Senate has approved the Excellence Approach, where the University Constitution, Strategy, and Quality Assurance Policy are integrated. In is based on the ESG (Standards and Guidelines for Quality Assurance in European Higher Education Area) developed by the European Association for Quality Assurance in Higher Education and the fundamental principles of EFQM (the European Foundation for Quality Management) Excellence Model.

Having introduced the Excellence Approach, Riga Technical University has defined the stages of the process leading to excellence. The stages of RTU Excellence Approach reflect the organizational culture of RTU and serve as a common language that ensures common understanding of the University quality issues to promote sustainable development and achievement of the University goals.

RTU Quality Assurance Policy has been developed based on the EFQM Excellence Model and the basic principles of continuous improvement. The quality assurance and improvement cycle is implemented at RTU, it includes process management, analysis, and improvement of the perception and performance indicators. A unified approach to risk management is defined at the University, it is integrated in the RTU Quality Management System.

Mission ▼

To ensure competitive, educated, innovative and creative future.

Values ▼

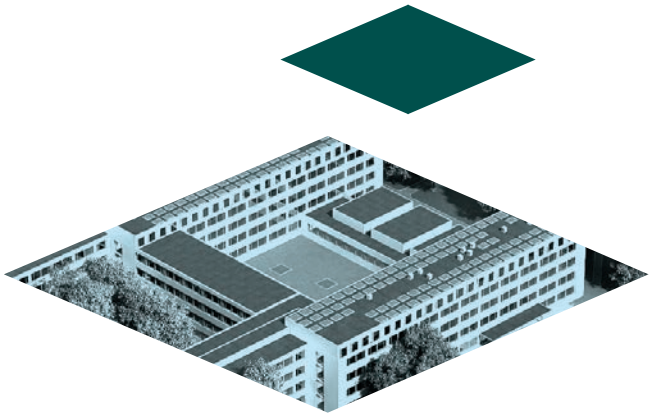
RTU values are sustainable development, quality, openness and cooperation, creativity, academic freedom, motivation to find out and discover.

Vision ▼

RTU is an internationally recognized, dynamic and modern university of science and technology.

Sustainability

In its daily activities, RTU makes emphasis on technology development and usage of renewable energy resources. Sustainable development is the main precondition of all RTU operations. Being aware of its significance on the national scale, RTU undertakes responsibility for its impact on society, the environment, and the national economy. To be capable of evaluating this impact, it is necessary to take into account the most significant factors, implementing which RTU would be able to move towards long-term planning, sustainability, and efficient development.



Green Ķīpsala

To reduce human impact on the environment and climate change, RTU has undertaken to implement the concept of Green Ķīpsala by 2023. This is planned to be implemented by promoting sustainable management of resources, raising awareness of RTU employees and students on the environmental issues, and succeeding in development and usage of environmentally-friendly technologies.

RTU has identified three main platforms — consumption of energy resources, waste management, and transport, where improvements can be introduced to reach efficient results reducing the ecological footprint of RTU. It can be done by improving the infrastructure, changing the habits of students and employees, and using innovative green products and technologies developed by RTU scientists in the infrastructure of Ķīpsala Campus.

Innovations created by RTU scientists play an important role in implementing the concept of Green Ķīpsala – they are tested in Ķīpsala Campus, promoting its sustainable management.

The President of EC Visited RTU to Learn about the Green Technologies Developed by RTU Researchers

When paying a visit to Latvia on 22 June, the President of the European Commission (EC) Ursula von der Leyen met with RTU administration, scientists, and students, familiarizing herself with technologies promoting climate neutrality developed at the University with the support of the EU funding. RTU set climate neutrality and green technologies as its priority in view of a strategic decision taken to reach minimum carbon emission at the University by 2030.

RTU also became the venue for the press conference of the EC President and the Prime Minister of Latvia Krišjānis Kariņš, following which U. von der Leyen and K. Kariņš met with three teams of scientists.

Scientists of the Institute of Environment and Energy Systems of RTU Faculty of Electrical and Environmental Engineering presented to U. von der Leyen solutions for using renewable energy and increasing energy efficiency – a prototype of a facade panel, which, having accumulated solar energy, ensures heat accumulation in a house during the warm period and heating of the house during the cold period.

A group of scientists of RTU Faculty of Material Science and Applied Chemistry (FMSAC) presented a project of the Baltic Biomaterials Centre of Excellence started a year ago, which is implemented using the funding of the EU program "Horizon 2020" and intended to strengthen the regional biomaterials industry.

In their turn, a group of scientists of FMSAC and the Institute of Water Systems and Biotechnology of the Faculty of Civil Engineering presented an innovative bioreactor that they created, which allows growing valuable tropical microalgae spirulina in the conditions of the cold Latvian climate.

U. von der Leyen visited RTU Design Factory to get acquainted with the environment where students and scientists can use the latest technologies for creating innovative products and developing their entrepreneurial skills.

The EC President visited Latvia in connection with the EU Recovery and Resilience Facility, the NextGeneration EU initiative, and the Latvian National Recovery Plan.

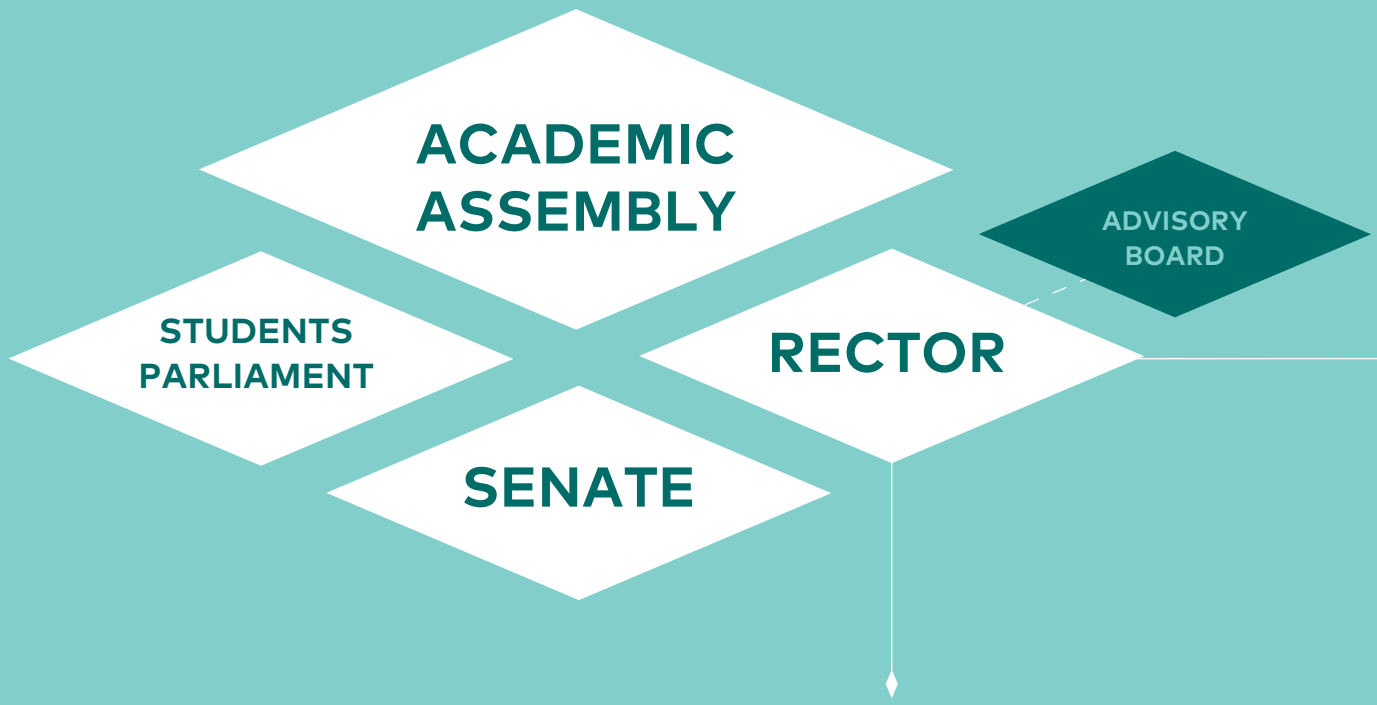
RTU Becomes a Partner of the New European Bauhaus

RTU has become a partner of the New European Bauhaus. This project provides an opportunity for any RTU representative to participate in all its activities, cooperate with other partners involved in the project and incite different activities pertaining to the European Green Course.

The initiative to start developing the New European Bauhaus setting the European Green Course as a priority was announced by the President of the European Commission Ursula von der Leyen. In her vision, by 2050 Europe should become the first climate-neutral part of the world, and, in order to reach this aim, it is not sufficient just to reduce emissions. Therefore, the New European Bauhaus is an environmental, economic, and cultural project, which aims at helping implement the European green course by uniting design, sustainability, accessibility, affordability, and investment.

Architects, artists, students, scientists, engineers, and designers are invited to cooperate hand in hand within the New European Bauhaus, that is, anyone who shares the main values of this initiative – sustainability, esthetics, and inclusion and who is willing to bring the European Green Course closer to the people and make processing, renewable energy resources, and biological diversity a self-evident constituent part of our daily life.

03 Structure



VICE-RECTOR FOR RESEARCH

DEPUTY RECTOR FOR INTERNATIONAL ACADEMIC COOPERATION AND STUDIES

VICE-RECTOR FOR STUDIES

VICE-RECTOR FOR FINANCE

ADMINISTRATIVE DIRECTOR

VICE-RECTOR FOR STRATEGIC DEVELOPMENT

FACULTIES

- FACULTY OF ARCHITECTURE
- FACULTY OF BUILDING AND CIVIL ENGINEERING
- FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
- FACULTY OF ELECTRONICS AND TELECOMMUNICATIONS
- FACULTY OF ELECTRICAL AND ENVIRONMENTAL ENGINEERING
- FACULTY OF E-LEARNING TECHNOLOGIES AND HUMANITIES
- FACULTY OF ENGINEERING ECONOMICS AND MANAGEMENT
- FACULTY OF MATERIAL SCIENCE AND APPLIED CHEMISTRY
- FACULTY OF MECHANICAL ENGINEERING, TRANSPORT AND AERONAUTICS

REGIONAL CENTRES

- RIGA TECHNICAL UNIVERSITY CESIS STUDY AND SCIENCE CENTRE
- RIGA TECHNICAL UNIVERSITY DAUGAVPILS STUDY AND SCIENCE CENTRE
- RIGA TECHNICAL UNIVERSITY LIEPAJA STUDY AND SCIENCE CENTRE
- RIGA TECHNICAL UNIVERSITY VENTSPILS STUDY AND SCIENCE CENTRE

- RTU RIGA BUSINESS SCHOOL
- RTU OLAINE COLLEGE OF TECHNOLOGY
- RTU ENGINEERING HIGH SCHOOL

04
Decision-Making Bodies

a. Constitutional Assembly

Constitutional Assembly is an authorized highest collegiate representative and administrative decision-making body of RTU.

THE CHAIRMAN
OF THE CONSTITUTIONAL
ASSEMBLY
Professor
Bruno Grasmanis

On 23 October 2014, the Parliament of Latvia (Saeima) approved the law «On the Constitution of Riga Technical University», which took effect on 5 November 2014. On 8 December 2014, RTU Academic Assembly approved the Regulation on RTU Constitutional Assembly. On 11 May 2015, RTU Academic Assembly was renamed as the Constitutional Assembly.

200 members of the Constitutional Assembly are elected by an open ballot by the students, academic and general personnel for the term of three years. The Constitutional Assembly comprises all members of RTU Senate, the remaining members of the Assembly are elected by the University administration, faculties, legally autonomous organizational units and student self-government to ensure their proportional representation. Representation wise, the proportion of the academic personnel is minimum 60% and the proportion of students is 20%.

b. Senate

THE CHAIR
OF THE SENATE
Professor
Elīna Gaile-Sarkane

The Senate of RTU is a statutory collegial administrative and decision-making body that approves the internal code of conduct and regulations governing all spheres of RTU activity. Since December 2014, RTU Senate consists of 50 members.

Meetings of the Senate are organized in such a way that any RTU Senator could be involved in discussions to actively represent the opinion delegated by their organizational units. Beyond the Senate meetings, the Senators actively participate in the work of Senate commissions. Senate commissions are established in the areas that are significant for the University operation and are intended for considering and providing statements on proposals submitted for consideration at the Senate meetings and conformity of the documents to be approved to the RTU strategic goals. Since 2016, the Senate meetings are held in the new building of RTU Scientific Library or Student House. Its modern meeting hall ensures excellent working conditions, it is equipped with multimedia equipment that facilitates the work of the Senators.

In total, during ten regular (planned) working meetings of the Senate a year, on average from 160 to 200 draft projects are considered. A competition is announced annually for minimum 30 positions of professors and associate professors, the titles of RTU Honorary Employees are granted, 30–40 regulations of different kind are approved, 25–30 amendments to different regulations are introduced and a lot of significant decisions are drawn up.

In order to ensure successful information exchange and raise awareness of all RTU employees about the current events at the University, valid regulatory enactments are available to any RTU employee and student in the RTU Documents section of the intranet platform Ortus. At the same time, the decisions made by RTU Senate are published in the weekly RTU brief «Jaunais Inženieris».

05
Administration

a. Rector

RTU RECTOR

Academician Leonīds Ribickis

Rector is the highest official of RTU who implements general administrative management and represents RTU without special authorization.

At the end of 2015, Leonīds Ribickis was re-elected as RTU Rector.

L. Ribickis noted, "Our strategic goals, such as high-quality higher education, excellence in research, valorization and digitalization, can be achieved not by the Rector alone, but by all of us together. We have a lot of talented youth, and it is worth working for their sake."

According to the Regulations on the Election of RTU Rector, a person holding the position of RTU professor for not less than five years may be elected Rector. Rector is elected by the Constitutional Assembly of RTU for the term of five years, but not more than for two consecutive terms. Rector is elected if at least two-thirds of the members of the Constitutional Assembly of RTU participate in the voting and the candidate wins more than a half of the casted votes of the members of the Constitutional Assembly.

b. Vice-Rectors

VICE-RECTOR FOR RESEARCH

Academician Tālis Juhna

The Office of RTU Vice-Rector for Research administers, promotes and supervises research activity at RTU, as well as manages procedures for obtaining scientific PhD degrees by RTU researchers at the accredited study programs approved by RTU Senate.

VICE-RECTOR FOR ACADEMIC AFFAIRS

Professor Uldis Sukovskis

The Office of RTU Vice-Rector for Academic Affairs coordinates implementation of the study programs and supervises the study process.

VICE-RECTOR FOR FINANCE

Professor Ingars Eriņš

The aim of the Office of Vice-Rector for Finance is to administer financial management processes and to perform accounting, allocation, and planning of resources and funds at RTU to ensure implementation of the University activities and implementation of its development strategy.

VICE-RECTOR FOR STRATEGIC DEVELOPMENT

Associate Professor Artūrs Zeps

The aim of the Office of Vice-Rector for Strategic Development is to draw up RTU development strategy and to ensure its successful implementation, monitoring significant development projects of RTU, as well as representing RTU interests cooperating with public authorities, partners, and the public.

c. Administratīvais direktors

ADMINISTRATIVE DIRECTOR

Juris Iljins

Administrative Department ensures implementation of the administrative processes and procedures that correspond to strategic goals of RTU, develops and implements personnel management, administrative work, quality management, information and communication technology system security policies; supervises development and implementation of strategies in the areas of information technology, document management, library, sports and cultural activities; controls implementation of decisions of RTU Senate, Deans' Council and the Rector's Council, as well as the orders of RTU Rector.

d. Deans of RTU Faculties

DEAN OF THE FACULTY OF ARCHITECTURE
Professor Uģis Bratuškins

DEAN OF THE FACULTY OF CIVIL ENGINEERING
Professor Mārtiņš Vilnītis

DEAN OF THE FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
Professor Agris Ņikitenko

DEAN OF THE FACULTY OF ELECTRICAL AND ENVIRONMENTAL ENGINEERING
Professor Oskars Krievs

ACTING DEAN OF THE FACULTY OF ELECTRONICS AND TELECOMMUNICATIONS
Professor Vjačeslavs Bobrovs

DEAN OF THE FACULTY OF E-LEARNING TECHNOLOGIES AND HUMANITIES
Professor Marina Platonova

IDEAN OF THE FACULTY OF ENGINEERING ECONOMICS AND MANAGEMENT
Professor Elīna Gaile-Sarkane

DEAN OF THE FACULTY OF MECHANICAL ENGINEERING, TRANSPORT AND AERONAUTICS
Professor Ēriks Geriņš

DEAN OF THE FACULTY OF MATERIALS SCIENCE AND APPLIED CHEMISTRY
Academician Māris Turks

06

Advisors

a. RTU Advisory Board

CHAIRMAN OF THE ADVISORY BOARD

Āris Žīgurs

DEPUTY CHAIR OF THE ADVISORY BOARD

Juris Binde

President of Ltd Latvijas Mobilais Telefons

The main aim of RTU Advisory Board is to promote RTU growth, determining the course of its strategic development in accordance with the needs of the national economy of Latvia.

The Advisory Board consults the Senate and the Rector on the issues concerning RTU Development Strategy and supports the formation of material and financial resources of the University.

The Advisory Board evaluates RTU performance four times a year and provides recommendations and proposals on the University development in general.

Members of the Advisory Board

Normunds Bergs	Chair of the Board of the Latvian Electrical Engineering and Electronics Industry Association; Chair of the Board of JSC SAF Tehnika
Ivars Puksts	
Maksims Jegorovs	Head of the Latvian Branch of "Accenture"
Leonīds Jākobsons	Executive Director of the Association of Manufacturers of Building Materials
Māris Gorodcovs	Director of SA Civilā Aviācijas Aģentūra"
Juris Savickis	CEO of Ltd ITERA Latvija
Vitālijs Gavrilovs	Honorary President of the Employers' Confederation of Latvia
Vilnis Rantiņš	
Ieva Jaunzeme	Director General of the State Revenue Service
Aigars Zariņš	Chair of the Board of Ltd Balsts
Andris Lauciņš	Partner, audit and professional services company EY (Ernst & Young Baltic)
Visvaldis Sarma	CEO of Ltd Sarma & Norde
Normunds Talcis	Chair of the Board of JSC Rīgas Siltums;
Aigars Kalvītis	Chair of the Board of JSC Latvijas Gāze
Andris Lubiņš	CEO of Ltd Grandeg
Atis Sausnītis	Chair of the Board of Ltd Baltijas Lāse
Ivars Alksnis	Technical Director of Ltd Kārlis
Andrejs Vasiļjevs	Chair of the Board of Ltd TILDE
Andris Bērziņš	Leading Partner of Ltd Change Venture
Andrejs Aleksejevs;	
Normunds Grinbergs	President of the Latvian Builders Association;
Raimonds Eizenšmits	Chair of the Board of the Latvian Association of Construction Engineers

b. Faculty Advisory Boards

Faculty Advisory Boards have been established to consult faculty administration, provide advice to the faculty councils and Deans on the faculty development strategy issues, support the formation of material and financial resources of the faculties, as well as evaluate the performance of the faculties and make proposals on the development of the faculties and RTU, study process improvements, planned financial investments, changes to the management model and other significant issues concerning faculty activities

Currently, Advisory Boards have been established and function at several faculties of RTU.

Advisory Board of the Faculty of Engineering Economics and Management

Viktors Tihomirovs	Director General of Vollers Rīga
Raimonds Zukuls	Deputy Director General of the State Revenue Service in Customs
Aleksandrs Grigorjevs	Chair of the Board of Ltd Grif
Mārtiņš Baltmanis	Head of VUGD Board of Civil Protection
Linda Mežs-Talapina	Member of the Board of Ltd LATSIGN
Kaspars Zakulis	Director of Latvijas Zaļais Punkts
Dzintars Putnis	Chair of the Board of Ltd Leilands un Putnis
Uldis Vītoliņš	Executive Director of the Association of Regional Development Centres
Dace Gaile	Head of the Procurement Monitoring Bureau
Helēna Endriksone-Severnaja	Deputy Chair of the Board of Latvian Association of Construction Engineers; Chair of the Board of Ltd LBS-Konsultants

Advisory Board of the Faculty of Electronics and Telecommunications

Valdis Vancovičs	Chairman of the Board of Ltd Tele 2
Didzis Liepkalns	Technical Director of JSC SAF Tehnika
Jānis Bokta	Chairman of the Board of the Latvian State Radio and Television Centre
Alfrēds Asars	Strategic Development Director for IT and Telecommunications of JSC Latvenergo
Vija Gēme	Member of the Board of SJSC Elektroniskie Sakari
Ilmārs Osmanis	Chairman of the Board of JSC HansaMatrix
Modris Greitāns	Scientific Director of the Institute of Electronics and Computer Science
Normunds Lapoško	Head of the Wholesale Roaming Services Department of Ltd Latvijas Mobilais Telefons

Advisory Board of the Faculty of Mechanical Engineering, Transport and Aeronautics

Vilnis Rantiņš	Chairman of the Council of the Association of Mechanical Engineering and Metalworking Industries of Latvia
Ēriks Geriņš	Dean of the Faculty of Mechanical Engineering, Transport and Aeronautics
Aivars Amoliņš	Member of the Board of Ltd Auteko@TUV Latvija
Jānis Druska	Head of Department of LR CAA
Dzintars Naglis	Director of Ltd Naglis&Err
Lolita Smiltniece	HR Director of SJSC Latvijas Dzelzceļš
Normunds Talcis	Chairman of the Board of JSC Rīgas Siltums
Gundars Ziemanis	Head of the Department of Laboratory Diagnostics of «Siemens Healthcare Diagnostics»
Ruta Bogdane	Compliance Monitoring Director of SmartLynx Airlines Ltd
Arnis Petrānis	Member of the Board of Ltd Peruza
Arnis Muižnieks	Director of the Department of Aviation of the Ministry of Transport

Advisory Board of the Faculty of Materials Science and Applied Chemistry

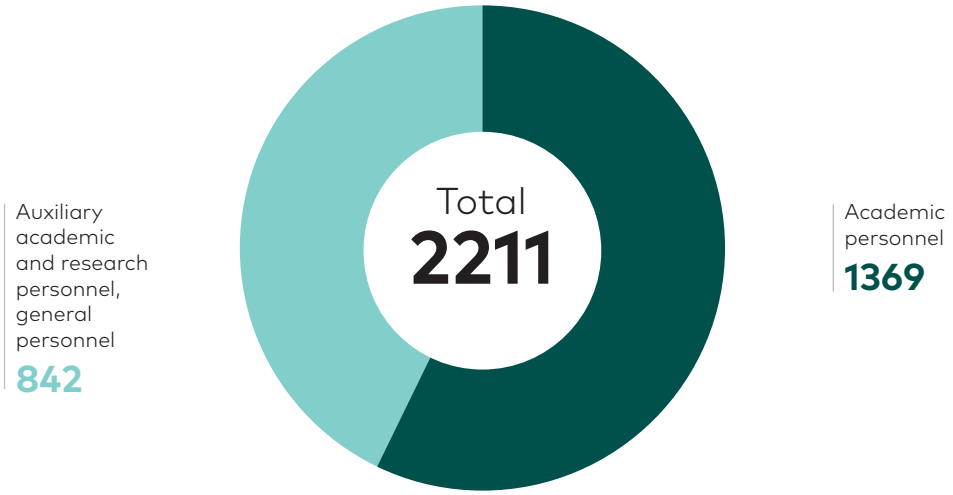
Andris Vanags	Director of Ltd Sakret
Bruno Andersons	Head of the Laboratory of Wood Biodegradation and Protection the Latvian State Institute of Wood Chemistry
Raina Dūrēja-Dombrovska	Executive Director of the Association of the Latvian Chemical and Pharmaceutical Industry
Ilga Gavare	Quality System Director of Ltd Tenachem
Andris Jegorovs	Director of Production of Active Pharmaceuticals of JSC Grindeks
Juris Gulbis	Head of Division of Production of Active Pharmaceuticals of JSC Grindeks
Raitis Kalniņš	Independent Expert in Environmental Issues
Ivars Kalviņš	Head of Laboratory of Carbofunctional Compounds of the Latvian Institute of Organic Synthesis
Indra Kramzaka	Deputy Director of the Environment State Bureau
Marians Ļahovskis	Director General of Ltd Tenachem
Vilnis Liepiņš	Representative of Ltd BAPEKS
Jānis Mārciņš	Advisor to the Latvian Association of Wood Processing Entrepreneurs and Exporters
Laila Pētersone	Head of the Production Development Department of JSC Valmieras Stikla Šķiedra
Vitālijs Skrīvelis	Chairman of the Board of the Association of the Latvian Chemical and Pharmaceutical Industry
Raimonds Terentjevs	Member of the Board of JSC Olainfarm, Director of the Quality Management Department
Normunds Zelčāns	Representative of JSC Olainfarm

07
Personnel

Being aware that human resources are the main asset of RTU, the University creates an inspiring environment for both its employees and students. Flexible working practices and growth opportunities are provided to all stakeholders. The excellence system based on the EFQM model is incorporated within the RTU management model.

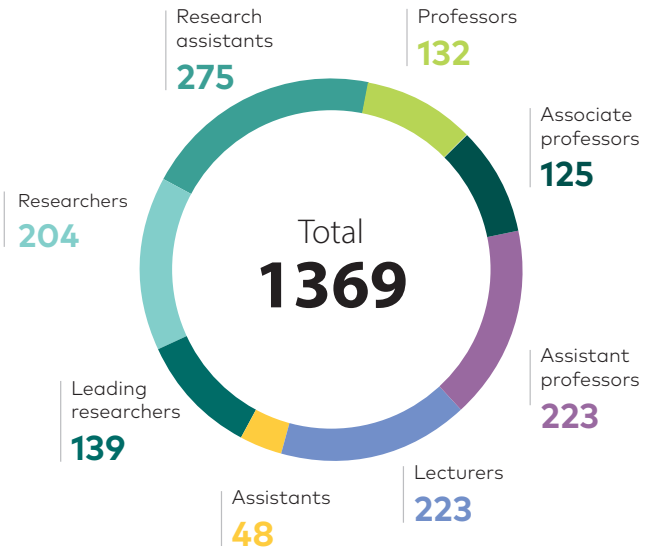
a. Total number of employees

As of 01 April, 2022



b. Number of academic personnel

As of 01 April, 2022



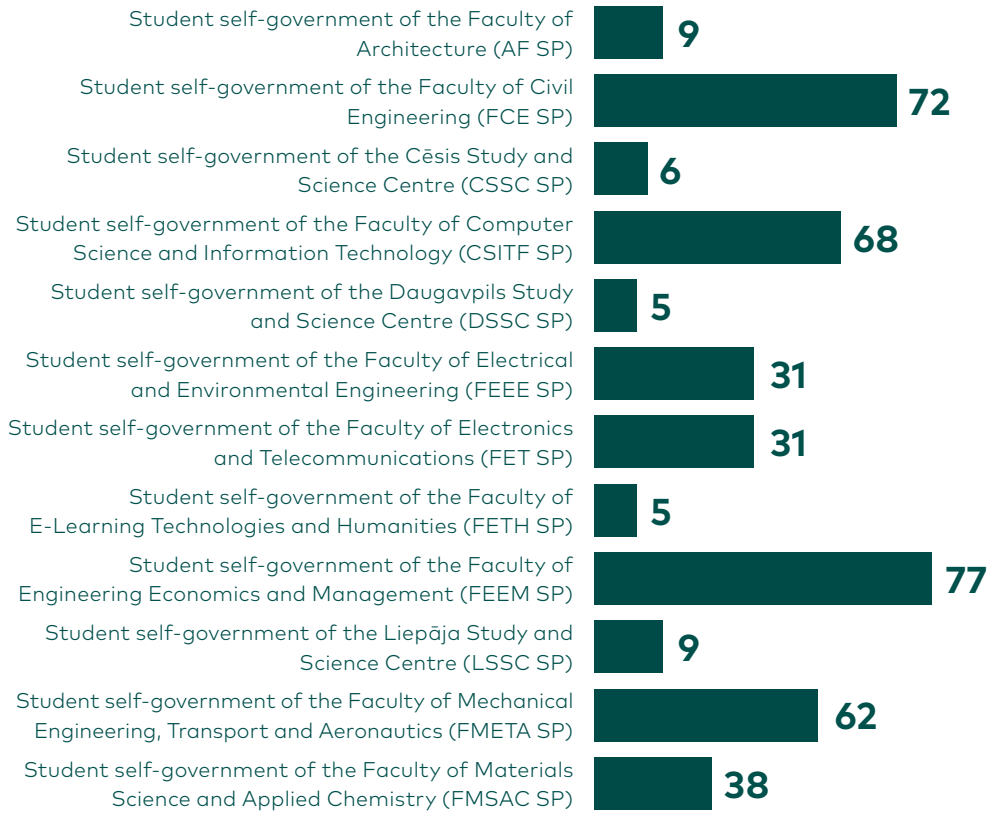
08

Student Parliament and Faculty Self-Governments

RTU Student Parliament (RTU SP) is an organization open to all students of RTU, who are interested in making their studies and extra-curricular life more qualitative and diverse, not only for themselves but for all students of RTU.

Aneta Tarasova, a student of the Faculty of Engineering Economics and Management, was RTU SP President in 2021.

a. Members of RTU Student Parliament



For RTU SP, 2021 was a year of both intramural and remote studies, therefore the Student Parliament had to think about arrangement of different activities adjusting them to the circumstances.

In 2021, 413 students were involved in the activities and worked at RTU SP, which is the largest number of members in recent years.

b. Activities of RTU SP in 2021

- The largest RTU sports games "Ronīši" were organized, more than 300 students participated in the games;
- The Pre-examination Seminar was organized at each faculty in order to acquaint the first-year students with the examination procedure at RTU and academic integrity;
- For the first time, "Mental Health Week" was organized, where psychotherapist Artūrs Miksons, RTU psychologist Viktorija Gaina and former Minister of Health Ilze Viņkele shared their experience and provided advice;
- In cooperation with the Student Parliament of Riga Stradins University, for the first time a remote 24 h hackathon was organized, its participants developed prototype offers on different themes, starting with electric car charging station solutions and solar panel tracking systems, up to improvements of disease diagnostics methods and accessibility of treatment services. The winning team received EUR 1,000 for further development of their idea;
- During this year, RTU SP cooperated both with student self-governments from other universities and with various big companies;
- A panel discussion "Conversation with a Black Screen" was held with participation of RTU psychologist, an RTU student and RTU lecturer. During this event, it was discussed how people are affected by remote studies and how to 'talk' with a computer screen;
- For the first time, semester meetings of group monitors with directors of study programs were introduced to discuss the required improvements in the programs.

Events organized by student self-governments:

- AF SP events "ERASMUS+ Opportunities" and "Gingerbread Houses";
- FCE SP arranged paper bridge designing competitions "Paper Bridges" and "Get into Engineer's Shoes";
- CSITF SP events "Erudite Engineer" and panel discussions "Has Internet Become Safer?" and "Ethic Hacking";
- FEEM SP events "EKU Gig Inspiration Week" and "ERASMUS+ Evening Stories";
- FMETA SP events "Hydraulic Hands" and "SLAZDS";
- FMSAC SP events "Days of Creative Chemists" and "Gaming Night";
- FET SP events "Electronic Week" and "The Lost";
- FEEE SP organized panel discussions "How to Struggle with Climate Change Deniers?" and "Green Mobility in Riga".

The strongest paper bridge held the load of 145.6 kg

In the traditional "Paper Bridges" construction competition, an RTU team "Hot Peppers" from the Faculty of Civil Engineering (FCE) won. The bridge they built held the load of 145.6 kg. The strength of the bridge models was assessed by placing them into a special loading device.

The second place was won by an RTU team "Golden Parts", their bridge held the load of 108.75 kg, and the team "Oh, God, what a Good Bridge!" came third – their bridge held the load of 105.55 kg.

"Paper Bridges" took place for the eighth consecutive time. It is organized by the FCE student self-government, and every year the event attracts a lot of participants who are interested to test their engineering skills and imagination. The participants are allowed to use only 50 A4 format paper sheets and glue in the construction. The mass of the bridge may not exceed 300 grams, and it should be minimum 10 cm wide throughout its entire span.

09
High-Quality Education

RTU offers a wide range of study programs at the college, Bachelor, Master and Doctoral level, providing the largest number of study seats funded from the state budget in Latvia.

Many programs are also available on part-time or extramural basis, providing an opportunity to study in the evenings during the week or on Saturdays.

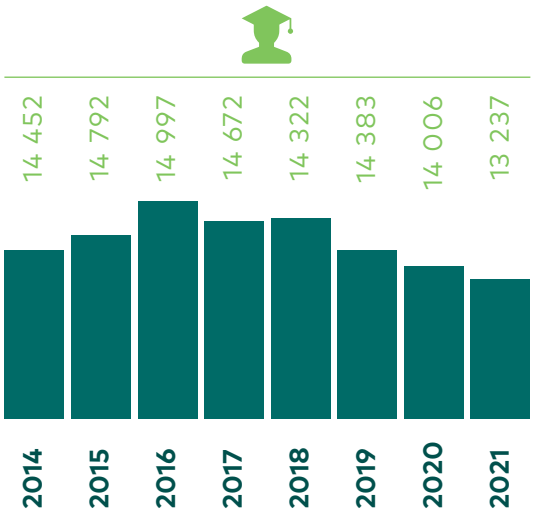
Studies at RTU are implemented by nine faculties in Riga, as well as at the regional Study and Science Centres in Cēsis, Daugavpils, Liepāja and Ventspils, as well as Riga Business School.

In academic year 2021/2022, 13,237 students studied at RTU.

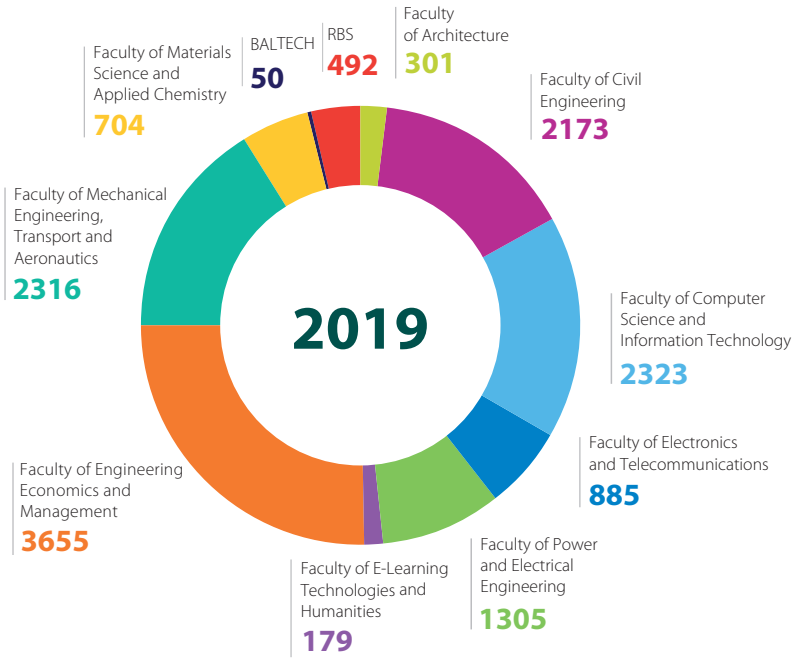
a. Study Fields

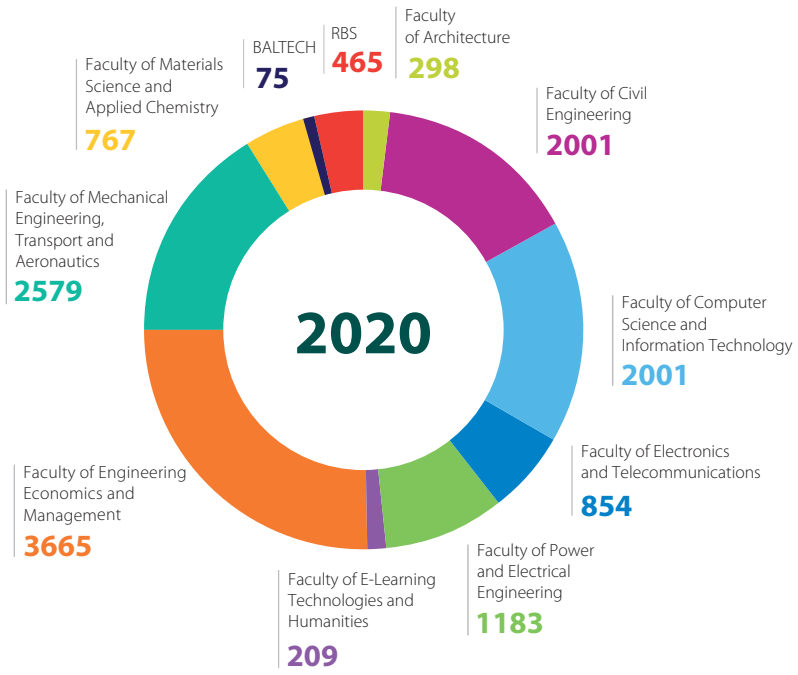
- Architecture and construction
- Economics
- Energy, electrical engineering and electrical technologies
- Physics, materials science, mathematics and statistics
- Internal security and civil defense
- Information technology, computer engineering, electronics, telecommunications, computer control and computer science
- Chemistry, chemical technologies and biotechnology
- Mechanics and metalworking, thermal energy, thermal engineering and mechanical engineering
- Production and processing
- Translation
- Management, administration and real estate management
- Environment protection
-

b. Total Number of Students



c. Number of Students by Faculty



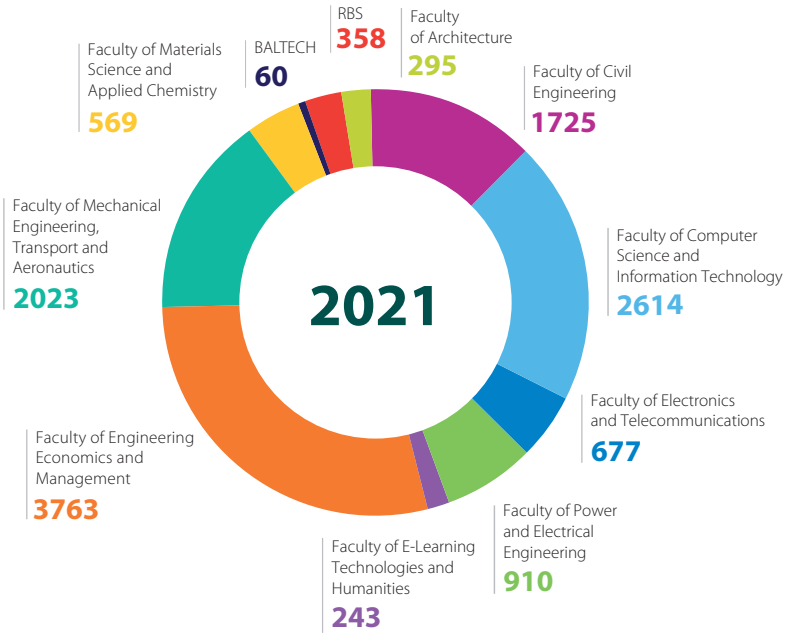


2021	1st level programs	Bachelor programs	Master programs	PhD programs
Number of study programs	6	57	63	23
Enrolled	177	3686	1550	133
Graduated	91	1137	747	45

Latvian residents choose a university based on the quality of studies and future opportunities in the labor market

A survey conducted by SKDS Research Centre demonstrates that high-quality studies and employment opportunities of graduates in the labor market are among the main criteria that make future students choose a university.
In the survey, 62% of respondents have acknowledged that they would choose to study at a higher education institution that ensures qualitative studies. It shows that Latvian residents value qualitative higher education and obtained knowledge that will be useful in building their future career.
The next criteria that the residents would take into account choosing their most desired higher education institution are related exactly to career issues.
It is important for 11% of respondents that a university offers professions that are in demand in the labor market, and 10% would choose a university recommended by employers.

Respondents participating in the survey have acknowledged that in their perception RTU ensures qualitative studies, is reliable and stable, offers professions demanded in the labor market, is innovative and modern.
SKDS in cooperation with RTU ran a survey in the autumn of 2020 polling Latvian residents aged 23–60.



Minister of Education and Science Anita Muižniece visits RTU Campus in Ķīpsala

Shortly prior to the start of academic year 2021/2022, on 27 August, the Minister of Education and Science Anita Muižniece visited RTU, met with its administration, scientists, and students, attended laboratories and familiarized herself with the latest scientific research.

During the visit, the Minister discussed with RTU representatives the administrative reform of higher education institutions, anticipated by the Recovery and Resilience Facility, RTU cooperation and consolidation with other higher education institutions, epidemiologically safe operation in the new academic year, and other issues.

d. New Study Programs

RTU Faculty of Materials Science and Applied Chemistry (FMSAC) in cooperation with employers developed two new Bachelor and two new Master study programs.

- The Bachelor study program **"Chemistry and Chemical Technology"** is the only program in Latvia offering to acquire theoretical foundations of chemistry and chemical technology, as well as practical skills at the academic and scientific laboratories, and internship in the field of specialization.
- The Bachelor study program **"Materials Engineering"** provides future specialists with knowledge and allows developing practical work skills both regarding traditional materials such as wood, glass, metal, textile fiber, plastic, and modern composite materials. Much attention is devoted to advanced technological processing of materials, which is now very topical, and development of sustainable design of goods for different industries.
- The Master study program **"Chemistry and Chemical Technology"** allows acquiring general study courses on the stages, equipment and development processes of chemical production from an idea to a ready product, on sustainability and social responsibility of chemical industry enterprises, quality assurance system and its supervision, as well as the management of the related risks.
- The Master study program **"Material Science and Nanotechnologies"** allows acquiring general study courses on modelling of physical processes of materials and calculations, as well as development of innovative products and technologies.
- The Bachelor study program of the Faculty of Electronics and Telecommunications (FET) **"Smart Electronic Systems"** allows obtaining not only a professional Bachelor degree in electrical engineering but also the qualification of an electronics engineer, thus opening wide career opportunities for the graduates – they can create innovative products by programming smart embedded systems, designing wireless communication systems and creating mobile applications.

The new study programs have been developed within the European Social Fund project "Reduction of Fragmentation of Riga Technical University Study Programs and Strengthening of Joint Usage of Resources".

PhD study program "Particle Physics and Accelerator Technologies" licensed

A PhD study program "Particle Physics and Accelerator Technologies" jointly developed by RTU and the University of Latvia (UL) in cooperation with the scientists of the European Organization for Nuclear Research (CERN) was licensed in 2021. First seven PhD students started their studies in this program in the autumn of 2021.
It is planned that primarily PhD students from Latvia and other Baltic States will study at the program, this way strengthening the united Baltic education and science area. The program will train specialists, who are capable of creating innovations based on their knowledge in particle physics, accelerator technology, and broader knowledge – in engineering sciences, usage of information technologies in control of complex processes, big data practical processing and usage in science and national economy, as well as control and monitoring of different technological processes of modern sensor and detector systems.
PhD students of the program specialize in particle physics or accelerator technology, as well as during their studies they are offered an opportunity to conduct their scientific research at CERN. It is possible by using student programs available to Latvia as an associated member state of CERN.
This is a competitive study program, which has attracted internationally acclaimed academic staff, as well as leading specialists of CERN and the Baltic States.

RTU Faculty of Engineering Economics and Management turns 55

On 1 September, RTU Faculty of Engineering Economics and Management (FEEM) celebrated its 55th anniversary. FEEM is the biggest faculty of RTU, where over 4000 students obtain higher education in different areas of economics and entrepreneurship. RTU FEEM, at that time the Faculty of Engineering Economics, started its operation on 1 September 1966. Its roots can be traced even further back to 1868, when a Department of Commercial Sciences was established at Riga Polytechnicum. Since its foundation, FEEM has had over 23,600 graduates.

The Faculty has gained high international recognition. FEEM is included in the prestigious Eduniversal Business Schools Ranking, in the Four Palms League, which designates a top-level academic institution offering excellent quality and having a strong international influence in business and management education. The international competitiveness of its education and favorable recognition on the part of employers are also confirmed by the fact that all Master programs offered by the Faculty are included in the world's TOP, and the Faculty is acknowledged as the most prestigious business education institution in Latvia. FEEM has also been assessed as the most innovative faculty in the Baltic States.

The European Commission has evaluated education in customs provided by RTU as one of the best in the European Union

Bachelor and Master study programs "Customs and Tax Administration" of the Institute of International Business and Customs of RTU Faculty of Engineering Economics and Management received recognition certificates from the European Commission (EC) attesting their compliance with customs competencies of the European Union (EU). Hence, EC evaluated the significant role RTU programs play in improving customs performance and increasing professionalism in the EU.

A recognition certificate is awarded as an emblem of excellence to high-quality modern study programs in customs, thus acknowledging that these programs provide their graduates with the customs competencies set by the EC for work both in the public and private sectors in the EU. RTU is the only educational institution in Latvia with the internationally accredited study programs "Customs and Tax Administration". The unique study programs developed in cooperation with the World Customs Organization (WCO) and the State Revenue Service (SRS) now have received all possible international recognition that is granted in the world to university study programs in customs.

A Master Thesis is brought to life – an augmented reality exposition created at Jaunauces Palace

The Master Thesis of Elīna Leiba-Lipsne, a student of RTU Faculty of Materials Science and Applied Chemistry, "Usage of Interactive Design Tools at Jaunauces Muiža" was taken as a basis for creating an augmented reality exposition at Jaunauces Palace that allows seeing valuable artistic works of old masters. When directing the gadget towards the images placed at the palace walls, they transform into unique works of art, for example, paintings of Rafael or Leonardo da Vinci, marble busts of the sculptor Bertel Thorvaldsen, thus allowing anyone to see the valuable pieces of art that once were there.

E. Leiba-Lipsne with her Master Thesis also successfully competed in the contest "Design Arena 2020".

RTU student Heinrihs Cielavs recognized the Best Young Translator of 2021

Student of RTU Faculty of E-Learning Technologies and Humanities Heinrihs Cielavs won in the annual contest "Best Young Translator 2021" organized by *Skrivanek Baltic* Translation Agency for the students of Latvian universities. Another student of RTU – Maija Pokule – got the third place in this contest.

Students had to translate texts from English,

French, or German into Latvian. Following the topical international events, which is a significant part of the translator's profession, the crisis of the Ever Given ship that stuck in the Suez Canal was chosen as the theme of the text to be translated. The future professionals had an opportunity both to demonstrate their skills of working with texts provided by the contest organizers and an ability to orient themselves within the theme by conducting research on their own.

RTU introduces educational innovations to promote the interest of children and youth in science and technologies

In order to promote the interest of children and youth in engineering sciences in an appealing way, RTU Children and Youth University in cooperation with scientists, students, and graduates develops new interactive training materials – science boxes with tasks and experiments.

Specially created boxes for children and pupils provide everything required for completing the tasks, in such a way obtaining new knowledge in physics, chemistry, electrical engineering, and studying design and mechanisms. In order to make experiments and tasks successfully, the box also contains instructions, both in printed form with explanations and images and in video format.

Shortly after graduation, RTU alumni earn by half more than an average employee in Latvia

In two years after graduation, RTU alumni earn by 56% more than an average employee in Latvia. This is the highest indicator of graduate incomes in comparison with other multidisciplinary universities in Latvia according to the university graduate monitoring data of the Ministry of Education and Science. The data confirm that when studying for the state budget funds at the study programs that enjoy demand in the labor market, it is possible to get a highly qualified and well-paid job.

Incomes of RTU alumni were on average EUR 20,196 a year, whereas the average salary in Latvia during the same period was EUR 12,912 a year. Moreover, the income of the graduates in the fields of natural sciences, mathematics, and information technology (IT) in the second year after graduation grows most rapidly – by 27%, while the average income growth for university graduates is 20%.

Analyzing graduate employment figures, it may be observed that 89% of RTU graduates are employed and 82% of them are employed in high-end professions already in the second year after graduation.

In academic year 2021/2022, highly talented youth study at RTU according to the individual plan within the Talent Program

In 2021, 50 highly talented young people from all over Latvia joined RTU Talent Program. The Program was established to attract bright minds to engineering studies and motivate them in the future to be involved in science, to become excellent engineers, innovators and managers.

RTU Talent Program offers an individual study plan to youth, as they have much wider and more specific knowledge in sciences than some of their peers. In addition, they can improve their personality, emotional intelligence, leadership, project and innovation management and many other skills, as well as work with mentors from the professional environment in their selected industry, participate in networking events to establish professional contacts, get involved in projects significant for RTU and society.

RTU Talent Program was established in academic year 2020/2021, it is under the patronage of Executive Vice-President of the European Commission Valdis Dombrovskis.

About 1,000 graduates receive diplomas at RTU Grand Graduation Ceremony

In 2021, the traditional RTU Grand Graduation Ceremony was again held in the *drive-in* format in Spilve Airfield due to epidemiological restrictions imposed by *Covid-19*. About 1,000 graduates who obtained their Bachelor, Master or PhD degree in academic year 2020/2021 received their diplomas and enjoyed the concert.

RTU opted for the *drive-in* format for RTU Grand Graduation Ceremony to allow graduates who had spent the entire academic year in the virtual environment to enjoy the sense of community at least at the graduation party even though staying in their cars.

The event was organized by RTU Alumni Association. This was the fifth Grand Graduation Ceremony when all RTU graduates received their diplomas simultaneously.

RTU design students make presents to patients with dementia

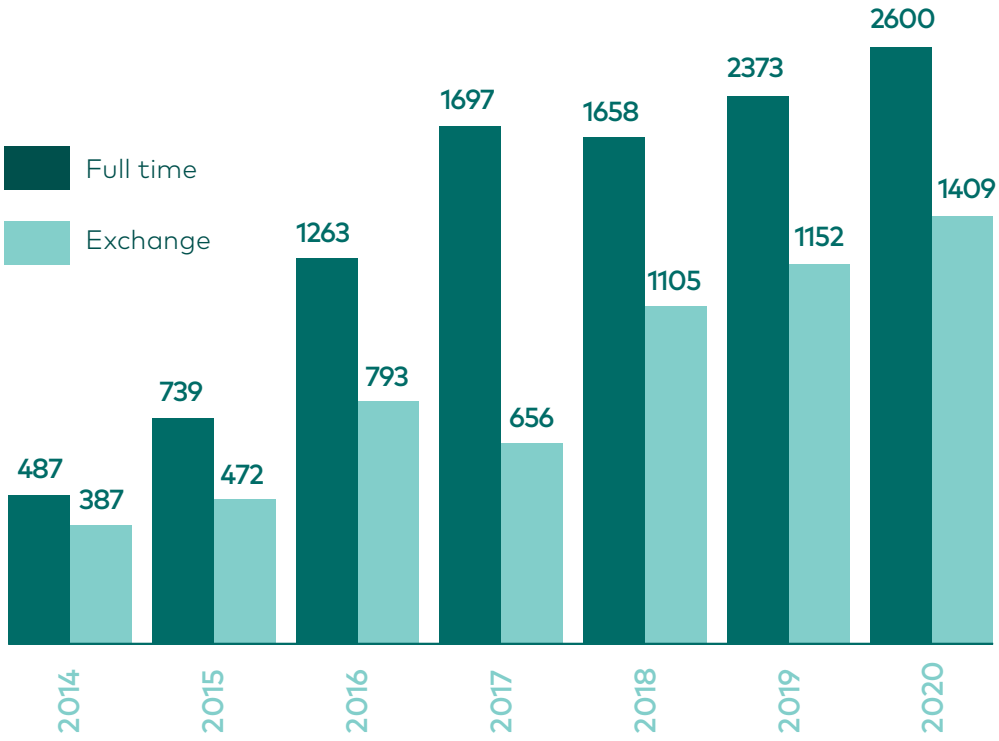
In 2021, the students of the Institute of Design Technologies (IDT) of RTU Faculty of Materials Science and Applied Chemistry guided by Assistant Professor Ilze Gudro made Christmas presents to the residents of the social support center "Stella Maris" located in Riga – activity cushions for the people suffering from dementia.

It is important for patients with dementia to engage their hands and fingers in order to reduce tension and stress. Therefore, RTU IDT students created colorful cushions with different strings, cords, loops, and other tactile attributes, which can be grasped, fastened, and tossed, and brought them to the residents of "Stella Maris". IDT students guided by I. Gudro regularly make and present their own-made Christmas presents to some institution. Several years ago, they made splints for the Infectiology Department of the Children's Clinical University Hospital in order to stabilize small hands with an intravenous system attached, as well as work clothes for the medical staff.

e. Number of foreign students

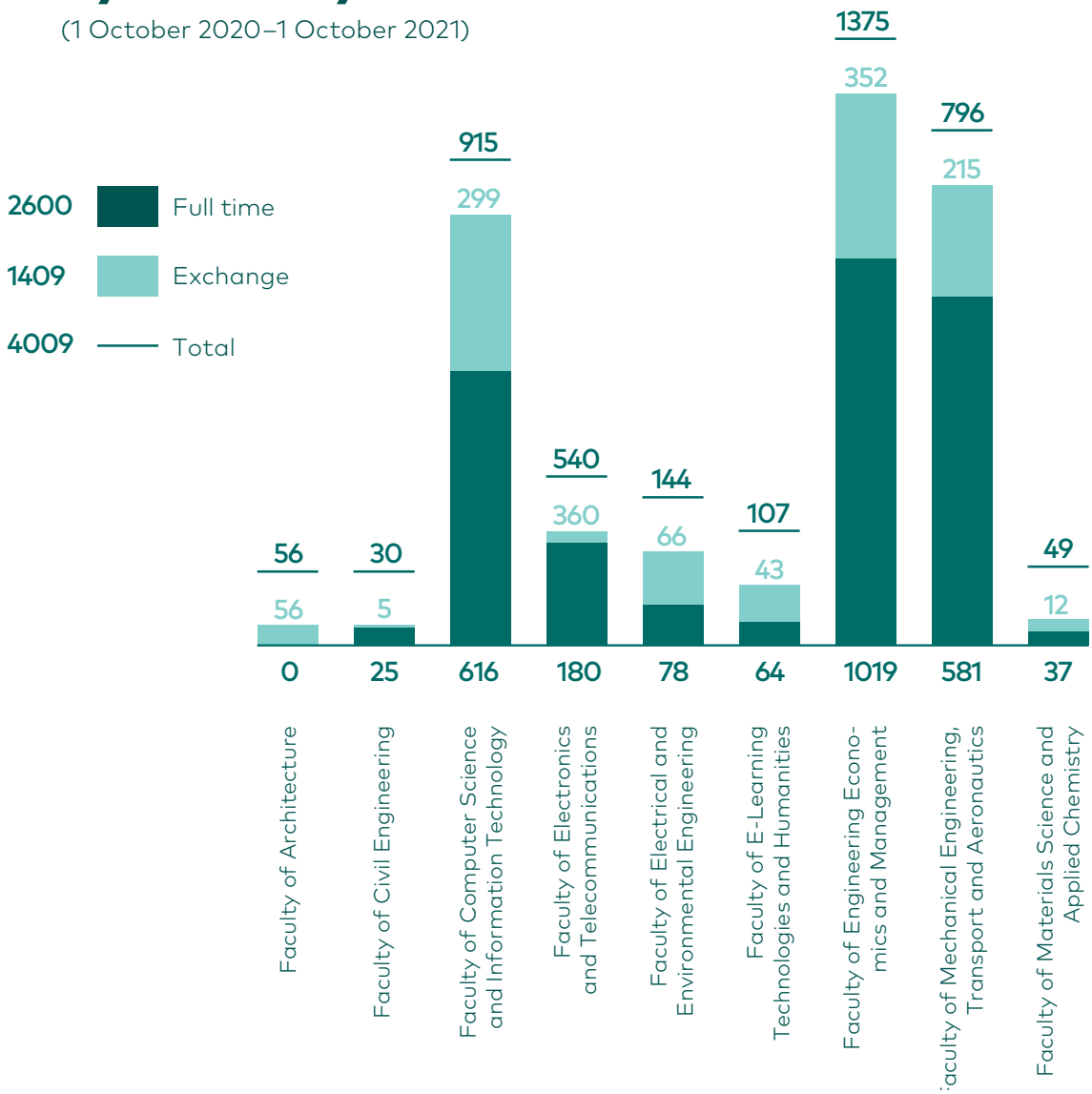
In academic year 2020/2021, the record number of foreign students studied at RTU – 4,009. The number of foreign students at RTU has been growing considerably during the last years, having increased more than ten times in nine years.

Internationalization is one of the most significant strategic objectives of RTU and the growing number of foreign students is the result of the targeted activities in attraction of these students. The largest number of foreign students came from India, France, Uzbekistan, Sri Lanka, and Kazakhstan.



f. Number of Foreign Students by Faculty

(1 October 2020–1 October 2021)



The number of foreign PhD students grew by 20%

The number of PhD students at RTU International Cooperation and Foreign Students Department (ICFSD) increased by 20% in 2021. The largest growth was observed due to the support financing program for PhD students from third countries (DAD2), which was successfully implemented for the second consecutive year. The aim of the PhD student funding program is to increase research capacity of RTU and attract a larger number of foreign students at the PhD level, engaging talented young researchers in RTU research activities. The attraction of foreign PhD students to the university develops the international research environment, allowing to ensure succession of academic staff in the Bachelor and Master studies. DAD financing provides an opportunity for young PhD students to focus on their research and academic activities, in such a way increasing the general quality and competitiveness of the study programs.
The program was launched on 1 December 2019. ICFSD provides the required financing throughout the entire implementation period (four years for each PhD student).

g. Further education

The Further Education Department offers those interested to advance their qualification and improve skills and competences required in the labor market, enrolling in some of the courses from a wide and versatile range of courses. The offer allows for professional advancement, non-formal adult education, and acquisition of separate courses. In 2021, in spite of the fact that adult education process could not be organized onsite due to *COVID-19* related restrictions, more than 2,500 people advanced their knowledge remotely in the course of further education, including the ESF project "Development of Professional Competencies of the Employees".

RTU cooperates with both entrepreneurs, offering individual learning opportunities, and other higher education institutions in Latvia and abroad in order to improve its experience and education offer.

More than 1,300 employees remotely acquire study courses and professional advancement programs offered by RTU

In cooperation with the State Education and Development Agency, RTU organized online courses providing an opportunity to acquire one out of eight study courses and eleven professional advancement educational programs in the remote format. The offer of courses was mainly focused on the development and advancement of digital and ICT skills, making particular emphasis on programming, although students could also enroll in the programs related to personal data protection and information security, digital marketing, design thinking, robotics, etc.
More than 1,300 employees completed the courses within the project.
"WEB Programming Languages and Development (PHP, *Javascript, Python*)" and "Design Thinking, Project, Product and Process Management with *Agile, Scrum, Lean, Kanban*" were the most popular professional advancement programs – they were selected by more than 260 people who wanted to improve their skills.

h. Engineering High School

RTU Engineering High School (EHS) was established in 2015 in order to provide opportunity to the most talented Latvian schoolchildren to study exact study courses in depth under the guidance of the best teachers in Latvia and after graduation to connect their future with engineering. The EHS was recognized the best school in Latvia, since for the fifth consecutive year it was ranked first in the Small School Ranking system of Atis Kronvalds Foundation. In 2020 , EHS students demonstrated the highest results at the state centralized exams in mathematics and the Latvian language, and the second-best results at the exams in English, as well as won numerous national and international student Olympiads.

RTU Engineering High School attests its excellence, having traditionally become the best small school in Latvia

RTU Engineering High School (EHS) was recognized as the best school in the small school category and for the sixth consecutive year received Atis Kronvalds Foundation award "Large Owl", which is awarded for secondary school student achievements in the city and state level Olympiads.
EHS achievements were evaluated in the small school group, where the number of pupils in the 10th–12th grades did not exceed 100. In the 2020/2021 ranking, EHS got 123.33 points, demonstrating considerably better results than their competitors in the group – Rudzātu Secondary School and Daugavpils Saskaņas Elementary School. On the national scale, EHS traditionally demonstrated very high achievements as well, slightly lagging behind only Riga State Gymnasium No 2, which was the highest evaluated school in the group of gymnasiums. EHS achievements are promoted by highly qualified academic staff, excellent training facilities, as well as motivated and purposeful pupils.

The best results at centralized exams in the group of city secondary schools

RTU Engineering High School was recognized as the best school in the city secondary school group of the best school ranking by Friendly Appeal Foundation. It received awards in several nominations – for achievements of students in mathematics, the Latvian language, and the English language.
The Friendly Appeal Foundation awards the best schools in different nominations by evaluating the data summarized by the National Centre for Education (NCE) on the results of the centralized exams.
EHS students demonstrated the highest results at the state centralized exams in mathematics, the Latvian language, and the English language.

Student of RTU Engineering High School Jonathan Miks Melgalvis – the most titled winner of the national Olympiads in Latvia

The 12th-grade student of RTU Engineering High School Jonathan Miks Melgalvis became the most titled winner of

Olympiads in the study subjects in Latvia, having received awards at seven national Olympiads.
He won awards at the national Olympiads in chemistry, physics, biology, geography, philosophy, history, and the English language. Jonathan also won a silver medal in the prestigious International Mendeleev Olympiad in Chemistry, showing the best result in the Baltic States.

The President of Latvia greets EHS teacher Laura Fjodorova acclaiming her contribution to educating talented students

The President of Latvia Egils Levits granted the Atis Kronvalds award to Laura Fjodorova, a chemistry teacher of RTU Engineering High School for her contribution to educating talented students and supervising their research activities.
In academic year 2020/2021, Laura Fjodorova's students showed remarkable results at the international Olympiad in chemistry – Jonathan Miks Melgalvis won a silver medal and Edvards Jānis Treijs received bronze.

Successful results at international Olympiad

In academic year 2020/2021, EHS students demonstrated successful results at different international Olympiads, having confirmed the high level of EHS education. For example, Valts Vītums-Jaunzems won the silver medal at the international Olympiad in economics. His teacher Līga Kamola, whose students received gold, bronze and silver medals also at previous international Olympiads, helped him prepare for the Olympiad.
In turn, a geography teacher Agra Lipsberga guided Jonathan Miks Melgalvis to receiving the gold medal at the 17th international Olympiad in geography and the silver medal at the European Olympiad in geography.

EHS students demonstrated excellent achievements also at the Genius Olympiad in global environment issues, the European Olympiad of Experimental Sciences, the International Mendeleev Olympiad in Chemistry, and the international Olympiad in philosophy.

Victory in the BIO-GO-Higher erudition contest for pupils

The team of RTU Engineering High School won the BIO-GO-Higher erudition contest for pupils organized by the Baltic Biomaterials Centre of Excellence (BBCE). They gained a valuable prize – a trip to Switzerland and an opportunity to be involved in the research of biomaterials at AO Research Institute Davos. BBCE organizes the contest to strengthen the knowledge of pupils in engineering and natural sciences, as well as to increase interest in the usage of implant materials in medicine. Teams of pupils from Forms 10 and 11 from all over Latvia can take part in this contest. The competition is organized in several rounds and is run remotely. The teams have to solve tasks prepared and assessed by BBCE partners. BBCE is a large-scale project for increasing the scientific capacity, which promotes excellence in research and development of new biomaterials to restore bone tissues, face, mouth, and jaw surgery, orthopedics, and other areas. The project is implemented by RTU Rudolfs Cimdins Riga Biomaterials Innovation and Development Centre jointly with Riga Stradins University (RSU), RSU Institute of Stomatology, the Latvian Institute of Organic Synthesis, AO Research Institute Davos, and the Centre of Biomaterials of Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) in Germany.

Students of RTU Engineering High School successfully participated in the international project "ChangeMakers"

Students of RTU Engineering High School together with over 100 other participants

from Estonia, Sweden, and Finland demonstrated their achievements within the international project "ChangeMakers" and its closing event "Dragon's Den".
Within the project, students obtain knowledge on innovation management, entrepreneurship and market research, circular economy, intercultural communication, as well as search for solutions to problematic situations defined by enterprises and establish startups that can develop these solutions.
The idea of the students of RTU Engineering High School– "Potato shampoo from potato juice", which emerged in cooperation with the team members from the Aland Islands, got the shared first place from the jury and won in the category "Best pitching performance", got high assessment in the nominations "Best product design" and "Thinking outside the box", as well as received recognition from other participants of the event.
At the same time, the project "Scanner for disposable cups" of the team of RTU Engineering High School developed in cooperation with students from Estonia was nominated for awards in the category "Best technical solution", and the idea of "Solar bench" won in the category "Most business potential".
The Interreg project "ChangeMakers" was implemented by RTU Design Factory jointly with Tallinn University of Technology, Satakunta University of Applied Sciences and Turku University from Finland, Stockholm University, and Aland Engineering College.

i. Scientific of Library RTU

RTU Scientific Library provides the necessary information to ensure study and research process at RTU, as well as renders library, bibliographic and information services to RTU students, academic personnel, and employees.

The Library stocks 1.3 million printed documents and electronic resources. There are 713 workstations at the Scientific Library and RTU branches. There are four joint-use halls and six individual boxes, rare book reading hall, and a conference hall. The Library is accessible to users with movement impairments.

The most significant services and events in 2021:

- Non-interrupted access to information materials, as well as receipt and submission of books, was ensured observing the epidemiological safety measures. Contactless receipt and submission of books were ensured by self-service equipment.
- 29 different-level individual consultations conducted both on site and remotely and group trainings in information literacy were provided to the students, academic staff, and pupils. 14 library trips were organized for different groups.
- Six virtual exhibitions were organized:
  ✓ How to write a graduation paper (can be viewed in the Library also in the traditional form)
  ✓ Professor Gustavs Vanags – 170
  ✓ Augusts Ādolfs Agte
  ✓ Liaison and communication
  ✓ Cryptocurrency
  ✓ Clothes and textile technology
- Posters "Top Textbooks", "Rarities in the Collection of the Chemistry Branch" (in electronic and printed form);
- A Korean Room with a modern library reading hall was opened,

Databases subscribed by RTU Scientific Library in 2021:

- LETA;
- Letonika;
- Database of Latvian standards;
- ACM Digital Library;
- EBSCOhost (20 collections);
- IEEEXplore Digital Library;

- PRIMO;
- ProQuest Ebook Central;
- ScienceDirect;
- Scopus;
- SpringerLink;
- Web of Science;
- Wiley Online Library;
- The International Monetary Fund eLibrary.

In 2021, the usage of databases almost doubled, full texts were downloaded 792,492 times.

Databases of RTU Scientific Library created and supplemented in 2021:

- Database of publications on RTU history and publications of academic staff – PhD Theses of the academic staff of RTU, the works published, edited, reviewed, and developed by both RTU academic staff and employees; articles and books about RTU employees and persons related to RTU; articles and books about RTU and its history.
- Architecture and Construction – the database presents information on the articles in journals and collections of articles in the field of architecture and construction.
- Database of the collection of the Chemistry Branch of RTU Scientific Library – full texts on the applications of chemistry in households, manufacturing, etc.

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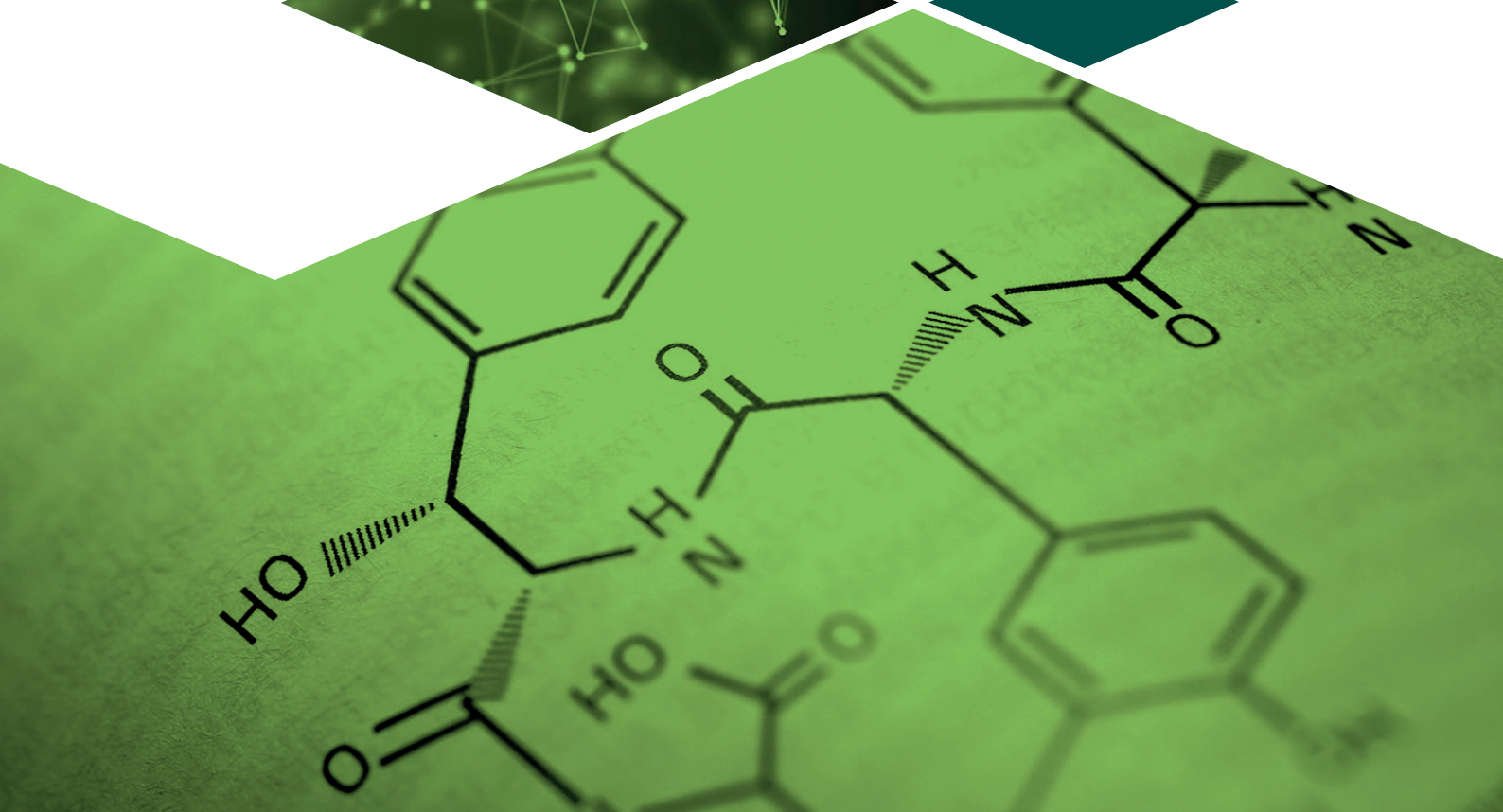
Excellent Scientific Research



Scientific research at the university is an integral part of the study process, which is implemented within all study programs. The strategic objective of the fundamental and applied research activities carried out at RTU is to analyze and provide solutions to the topical technical and social challenges. In the course of fundamental and applied scientific research, the accumulated knowledge potential is being gradually implemented in business activities.
The aim of RTU is to become one of the leading universities of science and technology in Europe.

a. Research Platforms

The rapid development of technology in the industry requires complex solutions to problems that exceed the boundaries of one faculty specialization, therefore, scientists from different faculties at Riga Technical University cooperate in cross-disciplinary research in six scientific fields significant for the national economy and society.

Energy and Environment

Vision

Leading center of competence in the field of energy and environment in the Baltic States

Fields of Research

- Safety of energy supply systems and optimal operation modes to increase their performance and economic returns;
- Methods and technologies for increasing electricity and heat generation, transmission, distribution and consumption efficiency;
- Methods and technologies to promote the use of renewable energy sources in order to increase energy independence in the region and minimize environmental impacts;
- Climate technology and environmental methods for the circular economy.

Cities and Development

Vision

Significant competence center for urban development in the Baltic States

Fields of Research

- Sustainable living environment;
- Efficient urban infrastructure;
- Identification, protection and development of cultural heritage;
- Urban development (development of new technologies);
- Urban planning economy;
- Evaluation of urban infrastructure activities and risks to economic growth.

Information and Communication Technologies Vision

Vision

Internationally acknowledged and Latvian leading technology platform of the knowledge societya

Fields of Research

- Exploration of the usability of e-learning systems and development of new e-learning technologies, methods and systems;
- Research on the Internet of Things and Big Data transfer and processing, development of methods for improvement of energy efficiency of information transfer;
- Research on the use of ICT in linguistics;
- Development of smart cities and regional technologies and creation of new e-services to improve the quality of life;
- Research and development of technologies for cyber-physical systems on the basis of innovative high-speed optic transmission system technologies;
- Research on comprehensive data processing studies in complex distributed environments;
- Comprehensive intelligence for the development and integration of smart and autonomous systems;
- High-performance signal processing and rapid transformations;
- Development of next generation radio frequency and microwave communication systems;
- Research on transport communication systems and complex processing of information.

Transport

Vision

Excellent and internationally acknowledged center of research and expertise in the field of road and aviation transport in the Baltic States

Fields of Research

- Energy efficient and safe road and rail transport;
- Safe and financially efficient air transport;
- Efficient transport infrastructure;
- Reliable and safe methods for diagnostics of technical condition of vehicles and transport infrastructure.

Materials, Processes and Technologies

Vision

Leading competence center in the field of material sciences, processes and technology in the Baltic States

Fields of Research

- Development and functionality of biocompatible, biodegradable materials integrable within and outside the human body;
- Development of high value-added materials from local and renewable resources;
- Smart materials for environmental monitoring and purification – development, research and integration into the existing infrastructure;
- Development of smart materials for alternative energy generation (water cleavage, piezoelectric nano-structures);
- Electro-optical materials in construction, automotive industry and defense – research and development;
- Organic chemistry and pharmaceutical processes and technologies.

Security and Defense

Vision

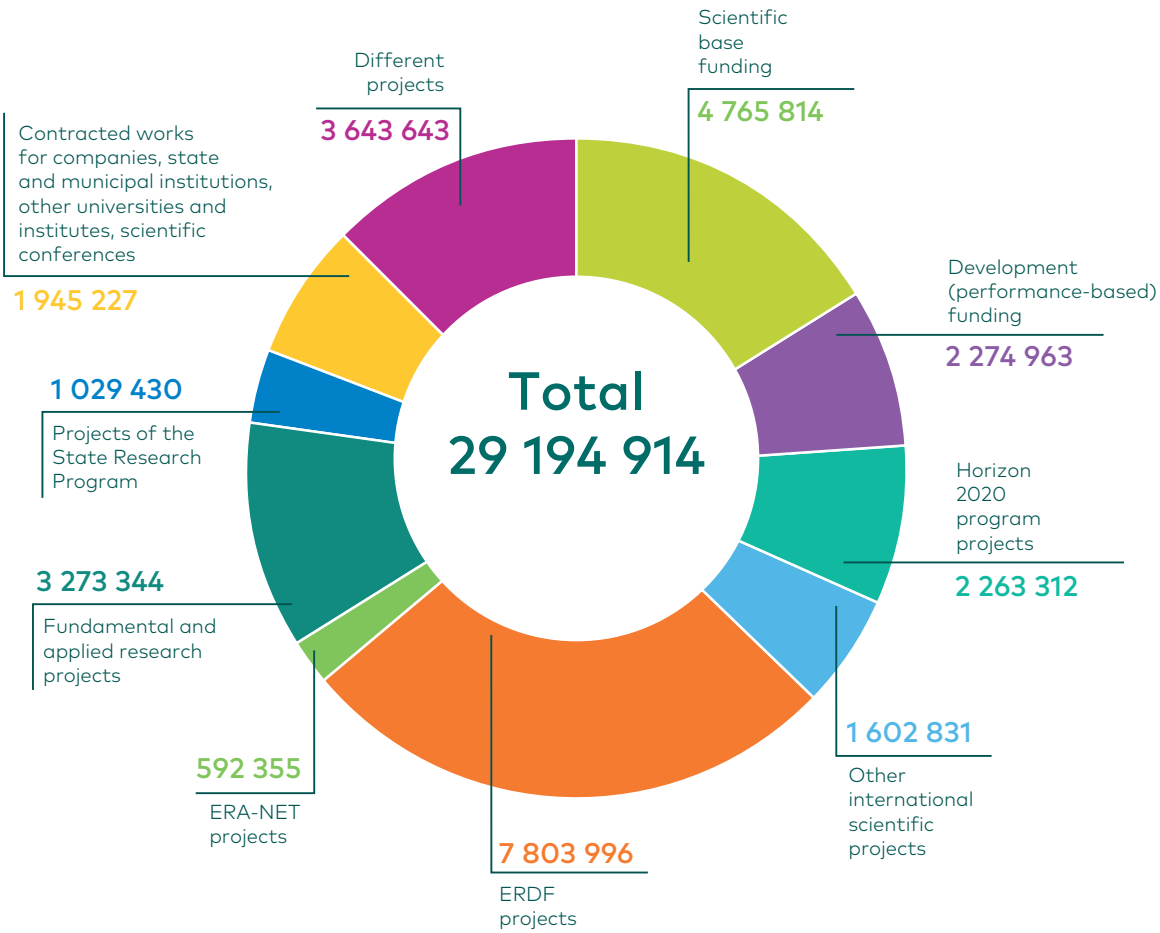
Internationally acknowledged center of strategic significance in the field of development of security products and control of their circulation

Fields of Research

- Strategic products for international security;
- Boarder security;
- National economic security;
- Civil defense.

b. Financing of Science

Financing attracted to science in 2021 (EUR)



c. Scientific Projects

Number of projects

20	38	107	17
7th framework program and Horizon 2020 projects	Other international scientific projects	ERDF projects	ERA-NET projects

43	6	36	164
Fundamental and applied research projects	Projects of the State Research Program	Different projects	Contracted works for companies, state and municipal institutions, other universities and institutes, scientific conferences

In their assessment of the scientific activity of RTU, experts call cooperation of RTU with the industry a strong area

RTU contribution to the strengthening of science has brought its outcome – in the international assessment of the operation of scientific institutions, especially in the fields significant to the national economy, the performance of RTU has been assessed as very good. Cooperation of RTU scientists with the industry is mentioned as one of the strongest areas of RTU, which is very important for engineering sciences in order to promote the transfer of knowledge and integrate the products created by scientists into the market.
The statement presented by international experts demonstrates that the scientific performance of RTU has considerably improved.

The experts have most highly assessed RTU research in power engineering and environmental engineering, chemistry and materials science, computer science and information technology, as well as advancements in architecture.
In their international science assessment, independent foreign scientific experts were evaluating Latvian scientific institutions from October 2019 to December 2020. The assessment was commissioned by the Ministry of Education and Science.

RTU Vice-Rector Tālis Juhna becomes a member of the UN high-level expert group in science, technology and innovation issues

The UN Secretary-General António Guterres appointed RTU Vice-Rector for

Research, Academician Tālis Juhna and nine other experts from different countries to the UN high-level expert group, the main task of which is to make suggestions and facilitate discussion regarding how science, technology and innovations can promote implementation of sustainable development goals.
The decision of the UN Secretary-General is a confirmation of the professionalism of the Latvian experts and a positive assessment of the capability of the Latvian scientific community to contribute to promotion of sustainable development.
T. Juhna is also the Chair of the Advisory Scientific Board of the Latvian Council of Science. His areas of research cover water quality and management, wastewater treatment, and renewable energy production. The Professor is also actively involved in the introduction of support mechanisms for the development of startups and innovations in Latvia.

Five scientists of RTU elected members of the Latvian Academy of Sciences

Two scientists from RTU Faculty of Materials Science and Applied Chemistry (FMSAC) – a leading researcher of the Institute of General Chemical Engineering, the Head of Rudolfs Cimdins Riga Biomaterials Innovation and Development Centre Dagnija Loča and a leading researcher and the Head of the Institute of Materials and Surface Engineering Andris Šutka – were elected full members of the Latvian Academy of Sciences (LAS).
Three more scientists of RTU – a leading researcher of the Department of Environment and Energy Systems of RTU Faculty of Faculty of Electrical and Environmental Engineering Andra Blumberga, Professor of the FMSAC Department of Polymer Materials Technology Remo Merijs Meri and a leading researcher of the FMSAC Institute of General Chemical Engineering Kristīne Šalma-Ancāne – were elected corresponding members of LAS.
Distinguished Latvian scientists, whose research is widely recognized in Latvia and internationally, can be elected members of LAS. Scientists, who have obtained authority in a field of science in Latvia, who can represent the respective field of science in a qualified way, provide expert statements in their scientific works and research areas corresponding to their specialization, can become corresponding members of LAS.

Road quality to be monitored with the help of sensors embedded in the road surface

A young scientist of RTU Faculty of Electronics and Telecommunications Jānis Braunfelds has succeeded in embedding optical fiber sensors in the road surface that will help monitor road quality already in the nearest future.

Optical fiber sensors were embedded on the principal roads Riga–Sigulda and Riga–Jelgava. Most of them allow determining that vehicles of different heaviness and traffic intensity deform the road surface. Three sensors measure the temperature of the road surface, allowing to determine precisely when, for example, anti-slipping materials should be applied on the roads. The next task of J. Braunfelds is to connect these sensors with optical fiber cables that would allow monitoring the road condition remotely.

J. Braunfelds is one of the two PhD students, who study and simultaneously work at RTU and the LMT program "Industrial Doctor".

RTU together with Sakret establishes the first 3D concrete printing laboratory in the Baltics

RTU in partnership with the biggest manufacturer of dry and ready-to-use cement mortars in the Baltic region Ltd Sakret has established a 3D concrete

printing scientific laboratory, laying the foundation for using innovative technology in construction in the Baltic States. The laboratory provides knowledge and infrastructure for students, researchers, startups, and different construction-related industries.
3D concrete printing is an innovative trend in the development of science and technology that is rapidly developing worldwide. The technology is sustainable, ensures efficient usage of human resources and materials, as well as offers almost limitless opportunities for architecture and construction industries due to the freedom of form, size, and structure.
It is possible to print concrete mass in the laboratory, develop prototypes for printing parts of facilities or structures for 3D printing, research and test innovative materials, and test printed objects.

Innovative nanocoatings developed for coating the elements of new generation aviation engines

RTU Institute of Aeronautics (AERTI) has developed innovative nanocoatings, which can be used for coating aviation engine parts made of titanium alloys. Such coatings have high erosion- and heat-resistance properties, they also can withstand a high-temperature airflow for a long time. The coatings have also wider applications – they can be used not only in the aviation industry but also in car manufacturing and aerospace technologies.

Scientists develop injectable implant materials for restoring face tissues

Scientists of RTU Rudolfs Cimdins Riga Biomaterials Innovation and Development Centre together with their international partners develop innovative injectable biomaterials for restoring soft tissues after face and jaw surgeries or injuries. To reduce pain and the risk of inflammation for patients, currently, the addition of cannabidiol to the implant materials is being researched.
RTU scientists headed by Arita Dubņika develop drug delivery systems – active substances are added to the implant materials, which impact locally and are discharged in certain potions, making the treatment more efficient and more patient-friendly. Within three years, the scientists plan to develop the optimal preparation protocol for the innovative implant material.

RTU scientists offer to strengthen asphalt by embedding used tyres in it

How to live greener and allow old tyres to come back to the place where they have been worn out – back to the roads, strengthening the road surface? Scientists of RTU Faculty of Civil Engineering and the Faculty of Materials Science and Applied Chemistry offer their solution by developing an innovative formula for bitumen – a glue that contains fractions in the bituminous concrete mass.
Usually, specific polymers are added to bitumen to make the asphalt coating more resistant to cracks and deformations; however, RTU scientists offer to replace polymers or combine them with rubber granules, which are obtained by processing used tyres. Researches show that rubber-modified bitumen is competitive quality wise. When processing hills of old tyres and giving tyres a new life, it is possible to make the environment greener and management – more sustainable.
The newly developed asphalt coating will be laid in autumn in Vilces Parish of Jelgava Region on the road, which is intensively used by heavy trucks. In the course of road operation, the scientists will continue their research to find out the road's life cycle, recycling opportunities, as well as will analyze energy consumption for material manufacturing and will calculate the potential economic benefits.

RTU scientists develop technology for water treatment in the Amazon Region

To help in the treatment of drinking water in South America, a group of RTU scientists headed by Associate Professor of the Department of Water Engineering and Technology of the Faculty of Civil Engineering Linda Mežule offer the electrochemical disinfection technology that allows efficiently liquidating microbiological contamination.

RTU scientists develop an efficient and accessible water treatment technology for eliminating microbiological contamination. By using titanium oxide ceramics electrodes, discharge of chlorine is activated from salts naturally available in water. During the electrolysis process, water is disinfected without addition of chemicals. The process is efficient – just one-time water disinfection is sufficient. The technology is not energy-intensive either, therefore, it can be used for the treatment of drinking water even in remote areas with no permanent electricity supply.

RTU scientists study conversion of eggshells into biomaterials to restore bones

Every year millions of eggshells come to waste; however, they can become a valuable raw material for manufacturing of the new generation of biomaterials. Scientists of RTU Rudolfs Cimdins Riga Biomaterials Innovation and Development Centre working within an international project develop a technology that allows converting eggshells into biomaterials to restore bone tissues.
Eggshells are used as a raw material – the source of calcium – for the synthesis of amorphous calcium phosphate.
The amorphous calcium phosphate synthesized in the laboratory can replace the inorganic part of the bone – it can be used to treat bone fractures and other diseases that cause loss of bone mass. Eggshells for the research needs of the RTU scientists are provided by Balticovo, the largest manufacturer of eggs and egg products in Northern Europe, which implements responsible environmental policies.

Latvia creates an international ICT innovation that allows transmitting information faster, safer and further

Scientists of the Institute of Telecommunications of RTU Faculty of Electronics and Telecommunications (FET) in cooperation with their partners have created an ICT innovation that allows transmitting information faster, safer and further.
For the first time in the world, it was demonstrated at the FET laboratory how a microresonator-generated optical frequency comb is used in fiber optical communication systems, transmitting information from a distance of 20 km with a data transmission speed of 10 gigabits per second.
In cooperation with AFFOC Solutions, the innovation was approbated in real conditions, testing its potential commercial application. The scientists and the company representatives are convinced that the solution could be integrated into real communication systems already in the coming years.

RTU scientists develop an energy performance solution that will allow buildings to adjust to temperature changes

Scientists of RTU Institute of Energy Systems and Environment develop a smart and

dynamic facade system that will be capable to adjust to changes in the environment and accumulate solar energy to be further used for heating the building.
Similar to flowers opening to the sun and closing when it goes down, blades in a wall structure test panel developed by the scientists close and open, receiving and accumulating solar energy. The phase transition material available in the core of the system accumulates energy when the sun lightens the façade and transmits it to internal premises when the external air temperature goes down.
Conducting these experiments, the scientists participate in the development and research of the most topical dynamic structures in the world. Dynamic systems anticipate active involvement of the building envelope in energy balance by transforming renewable energy available on the spot into heat or electric energy. In the future, it might allow such a building to become self-sufficient by producing and storing energy in its walls, roofs, and floors.

RTU strengthens the development of space technology and education in Latvia

Having signed a cooperation agreement with the European Space Agency on the establishment of *ESA_lab@RTU*, RTU intends to promote the development of space technology research, innovations and education in Latvia.
ESA_lab is a collaboration platform set up by the European Space Agency to build closer links with higher education and research organizations. Its aim is to strengthen research, development and information exchange, thus fostering innovation and future-oriented space solutions.
Membership in *ESA_lab* provides Latvian scientists with more opportunities to participate in international space research projects in cooperation with the European Space Agency. It will also increase mobility of researchers and, possibly, of academic staff, which will improve education in the field, with a view to educate and train high-level specialists for space research and manufacturing companies.
Latvia joined the European Space Agency as an Associate Member State in 2020, and RTU is the only Latvian higher education institution to have signed the *ESA_lab* agreement.

RTU launches surface and nano-object spectroscopy facility

A state-of-the-art surface and nano-object spectroscopy facility has been established at RTU. The new equipment will allow students to gain in-depth knowledge and scientists – to conduct interdisciplinary research and build closer collaboration with the industry.
The facility includes equipment for the analysis of surface layers and films from 1 to 100 nanometres thick. By comparison, a human hair is around 100 thousand nanometres in diameter. The new equipment enables chemical and atomic composition analysis of compounds, spectroscopy of reflected ions, analysis of low concentrations of atoms and radicals in materials, as well as nanomechanical testing - measuring nanoindentation, nano-scratching, nano-cohesion and coefficient of friction. The equipment also allows the surface properties of materials to be tested over a very wide temperature spectrum from +700°C to -120°C. Testing over such a wide temperature spectrum can only be carried out in a few locations in Europe.
The facility was created with the support of the ERDF in cooperation with RTU Faculty of Mechanical Engineering, Transport and Aeronautics, Faculty of Materials Science and Applied Chemistry, Faculty of Civil Engineering and Faculty of Electrical and Environmental Engineering.

Remote water monitoring system developed by RTU scientists helps ensure successful fish farming

To remotely monitor water quality in fish

farming ponds and reduce the burden of management, scientists of the Institute of Radioelectronics at RTU Faculty of Electronics and Telecommunications have developed an innovative system for remote monitoring and digitization of pond management. The new system was tested at the pond farm "Pērtnieki", Rezekne Region.

The system, which automates and digitizes pond management, allows real-time remote monitoring of water quality and rapid response to changes, thus improving conditions for fish and allowing intensive farming to reach its maximum without compromising the biochemical balance of the established ecosystem. Air exchange management of fish food is ensured, allowing timely responses to adverse environmental changes for the fish, allowing conservation of fish resources. By automating the monitoring processes, the new system reduces the management burden on staff.

RTU scientists develop unprecedented energy and climate modelling toolkit

Scientists of the Institute of Energy Systems and Environment (IESE), RTU Faculty of Electrical and Environmental Engineering, have developed a state-of-the-art energy and climate modelling toolkit to help make data-driven decisions on effective policies to move Latvia towards carbon neutrality. The tool is freely available online for policymakers and all other stakeholders.

By varying the parameters and their values, the model assesses the impact of policy tools on cumulative energy savings and the share of renewable energy. At the same time, IESE scientists in collaboration with partners from the Latvia University of Life Sciences and Technologies and the University of Latvia have developed a modelling tool to find a cost-efficient solution. Both tools are based on a large amount of data on energy efficiency assessments in different sectors of the economy, technological solutions, and the economic potential of renewable energy production and use in Latvia.

RTU scientists develop and license a technology for natural thermo-packaging

To replace environmentally harmful polystyrene, scientists at RTU Institute of Energy Systems and Environment (IESE) are developing a natural thermo-packing material. It could be used to safely transport goods – the material protects against temperature fluctuations and mechanical damage. The scientists' work has been licensed by two Latvian companies.
The material is used to make thermo-packing plates, which can be placed in boxes for transporting goods. Laboratory tests show that the plates are light, durable and have low thermal conductivity, which means they keep the goods they carry at the right temperature for a long time. They are also completely biodegradable. Thermo-packaging has a wide range of applications, especially in pharmaceutics and biomedicine to make the supply of medicines and vaccines greener.

RTU collaboration with CERN

2021 marked a historic milestone for the Latvian science, since on 2 August Latvia became an Associate Member of the European Organization for Nuclear Research (CERN). This opens up a wide range of opportunities for the Latvian scientists to work in one of the world's most powerful science centers, and for Latvian businesses – to participate in CERN procurement processes and to offer their products and services needed to support scientific activities.

CERN has been the world's leading science

center for nearly 70 years, where globally significant scientific discoveries have been made. CERN is where the Internet was invented, however, the Higgs boson, the existence of which was confirmed six years ago with the help of the Large Hadron Collider, is by far one of the most widely known discoveries.

Latvia's progress towards CERN is the result of purposeful efforts of RTU, since the University already signed a cooperation agreement with CERN in 2012 and has been successfully collaborating with CERN within several scientific projects.

Latvia's cooperation with CERN is ensured by RTU Center of High-Energy Physics and Accelerator Technology established in 2017, which also acts as CERN's National Contact Point in Latvia. The aim of the Centre is to build a strong high-energy particle and accelerator technology community in Latvia to foster high-level scientific and industrial research. This will allow the Latvian economy to shift towards knowledge-intensive manufacturing, ensuring rapid development of Latvia.

- In February, a particle physicist Kārlis Dreimanis, who leads the Latvian team of the CMS experiment at CERN, became Head of RTU Center of High-Energy Physics and Accelerator Technology;
- On 14 April, Prime Minister Krišjānis Kariņš and CERN Director-General Fabiola Gianotti remotely signed an agreement on Latvia's accession to CERN as an Associate Member;
- On 27 May, the Saeima ratified the agreement between Latvia and CERN granting Latvia the status of an Associate Member of CERN;
- The first Baltic CERN Conference was held online in June, bringing together Baltic scientists, science policymakers, businesses and representatives of CERN. The message of the conference was that Baltic universities and research institutions had shown that they can work in partnership with CERN not only as part of CERN Baltic Group but in a much broader scope;
- In August, for the first time, CERN Baltic School of High-Energy Physics and Accelerator Technologies took place, where internationally renowned lecturers and scientists delivered lectures and led discussions in elementary particle physics and accelerator technology to Master and PhD students in person at RTU Conference and Sports Centre "Ronīši";
- In September, the first CERN Council meeting took place with Latvia participating as an Associate Member. The Latvian Ambassador to the UN in Geneva, Bahtijors Hasans, and the Head of the Higher Education, Science and Innovation Department of the Ministry of Education and Science, Dmitrijs Stepanovs represent Latvia in the CERN Council. In turn, Kārlis Dreimanis participates in the work of the CERN Scientific Policy Committee.
- In November, the first PhD students started their studies at the new joint PhD study program of RTU and the University of Latvia "Particle Physics and Accelerator Technologies" developed in collaboration with CERN.

Latvia's joining CERN as an Associate Member is only the beginning. Latvia needs to further strengthen its particle physics, accelerator physics and related technology community to be able to work with CERN in the long term and to ensure that this collaboration is meaningful and that its benefits are enjoyed by a wider public.

Being part of CERN is not just about working for a small scientific elite. It is a benefit for the whole of Latvian society, as scientific activities of CERN generate a wide range of innovations that can be put into practice and provide immeasurable support for the development of Latvia's human capital.

Thanks to public funding and strategic development mechanisms, the National Research Program "Particle Physics and Accelerator Technologies" is being successfully implemented in Latvia, the Latvian Scientists participate in CMS, MEDICIS and AEGIS experiments and CERN accelerator technology projects. Nine Latvian PhD students are working on PhD theses related to scientific activities of CERN.

Latvia's entry to CERN has also opened up new perspectives and motivation for young people in STEM (science, technology, engineering and mathematics) fields, providing a clear direction for education and research.

Latvia has presented itself as a reliable and motivated partner in the context of CERN, demonstrating itself through its work and real results, inventions, scientific publications and the ability to bring together Latvian, Lithuanian and Estonian scientists regionally in the CERN Baltic Group.

RTU scientist works with a Latvian company to create a cooling system that could be used in experimental work at CERN

RTU researcher Guntis Pikurs has designed part of a cooling loop that could be used in one of CERN's most important experiments – CMS, which aims to discover new physical phenomena and also involves Latvian scientists. The prototype was made by the Latvian company Allatherm.
The task of G. Pikurs was to design a cooling loop system – a manifold for the distribution and preparation of the cooling gas before the evaporation circle. This is necessary for a detector where elementary particles collide at very high energies and where high-precision spatial and temporal measurements are made using crystals. The crystals and the electronics used to control them become hot, so this detector system needs to be cooled using CO2, which is compressed and evaporated through a cooling arc.

A prototype accelerator is made from pure copper using additive manufacturing technology

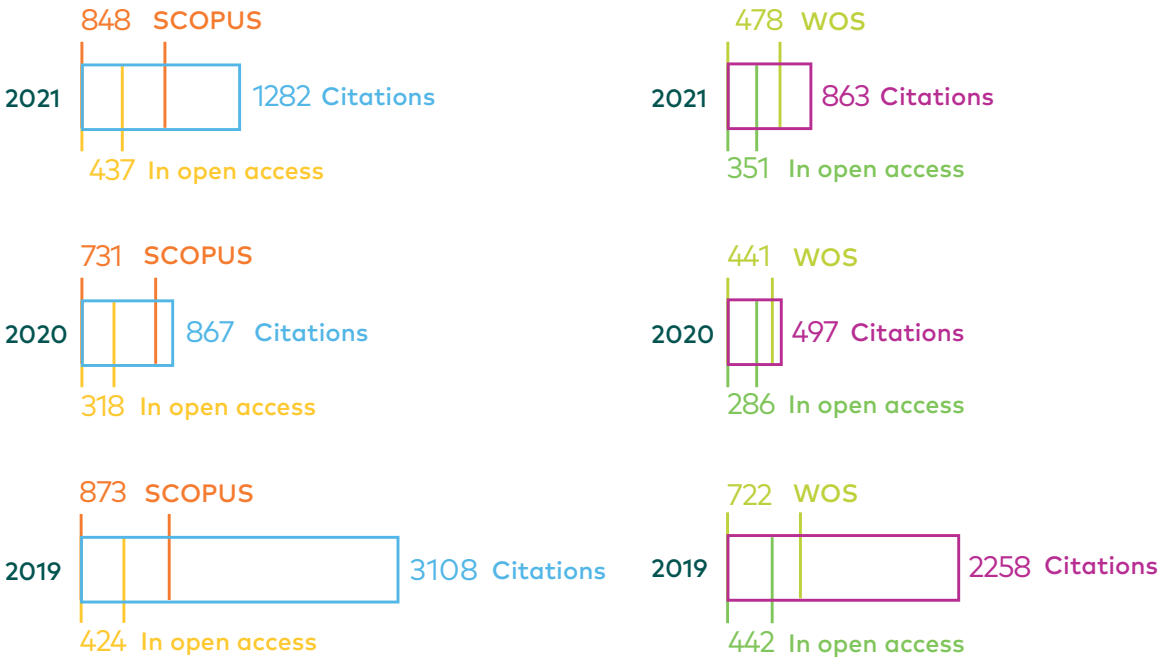
A prototype of the *Radio Frequency Quadrupole* (RFQ) has been made from pure copper using additive manufacturing (AM) technology, based on the technical design by Guntis Pikurs. Additive manufacturing technology is an innovation in particle accelerators and has significant development potential. AM technology is used to manufacture objects by building a product layer by layer from a pre-designed 3D model. This way, it is possible to develop more design-oriented objects. The process is more cost-effective as it uses less material and the overall production time is shorter.

RTU researcher at CERN develops software for the robot to rescue people during disasters

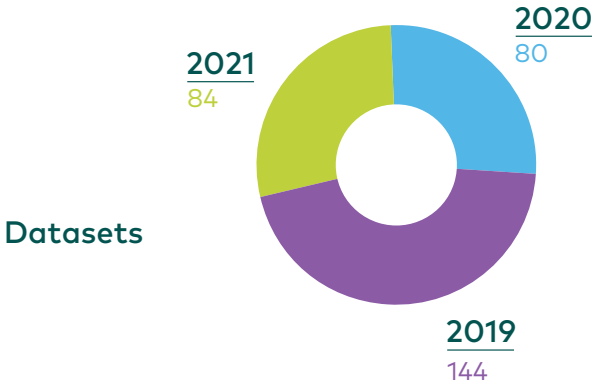
Artūrs Ivanovs, a researcher of RTU Faculty of Computer Science and Information Technology, has developed software for a robot that could help rescue people in tunnels and other hard-to-reach places in the event of disasters. The young scientist has developed a radar system to enable the robot to recognize people and detect their vital signs – breathing and heartbeat – in a contactless way.
The robot is being developed by a team of CERN scientists, including A. Ivanovs who has been working on it for more than three years. The robot is being developed primarily for CERN security needs in a 27-kilometre tunnel located about 100 meters underground, where one of the largest elements of CERN infrastructure, the Large Hadron Collider, operates. If a fire were to break out in the tunnel, CERN's firefighting team would only be able to arrive in the scene in about half an hour, so there is an urgent need for a robot that is permanently located inside the tunnel and can react much faster to keep people safe.

d. Publications

RTU publications indexed and cited in SCOPUS and WoS databases



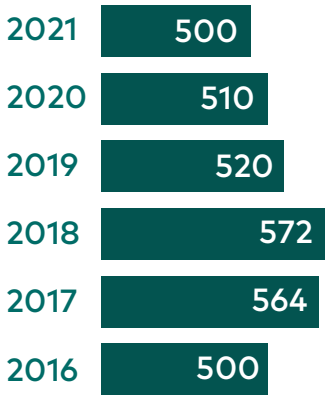
RTU research datasets uploaded to RTU Scientific Research SupportSystem



e. Doctoral studies

RTU implements 16 accredited PhD study programs in engineering and technology, natural sciences, humanities and arts (architecture) and social sciences.

Number of PhD students



PhD studies

- **Developing research skills**

A series of workshops and events have been offered to PhD students and other stakeholders to develop various general skills, including an introductory "Short PhD Course" workshop for the first-year PhD students.

- **Quality assessment**

Since 2011, an annual survey of PhD students and PhD graduates has been conducted to assess the quality of PhD studies at RTU and to identify opportunities and challenges for study program improvement. In 2021, an admission survey was also conducted to evaluate the admission process and commencement of PhD studies.

For the first time in RTU history, a PhD student defends her PhD Thesis in Latvia and Sweden

A PhD student Brigita Daļecka defended her PhD Thesis simultaneously at RTU and KTH Royal Institute of Technology. The young scientist studies the use of microscopic fungi in the purification of municipal wastewater from pharmaceutically active substances. The existing treatment methods do their job effectively removing, for example, nitrogen compounds and phosphate from wastewater, but they are not always able to comprehensively deal with pharmaceutically active substances, posing a risk they may be released into the environment.
Over four years, B. Daļecka studied various microscopic fungi, found one that already lives naturally in wastewater, and developed an alternative method. However, further research is still needed to apply the method to wastewater treatment, and she hopes that by assessing the potential of fungi in wastewater treatment and other biotechnology-related processes, her thesis will serve as a basis for other young scientists to carry out research.

RTU together with LMT are first in Latvia to implement the project for industrial PhD students

RTU and LMT have launched an unprecedented business and science

cooperation initiative "Industrial Doctor" to promote innovation for the Latvian economy. The first two RTU industrial PhD students started working on research on drone and digital road technologies for LMT.
A PhD student of RTU Rūdolfs Rumba in his thesis develops a set of methods for regulating and controlling autonomous drone traffic for LMT needs to make the movement of these aircraft safer and easier. Jānis Braunfelds, a PhD student of RTU, is developing a universal technology for real-time processing of digital road sensor signals for LMT. With the development of 5G and the possibilities offered by the Internet of Things, such a device can collect information about temperature, pressure, humidity, or deformations on the roads, which is necessary for more efficient traffic organization and safety.
The program "Industrial Doctor" aims to develop closer cooperation between researchers and business by involving industry in research. The program provides financial support from the European funds, RTU and the company to young scientists who develop a thesis on a topic that corresponds to scientific competences of RTU and is needed for the innovation projects of the respective company. "Industrial Doctor" is part of the program "RTU Innovation Grants for Students".

RTU student develops bacteria-derived material to replace fossil-based plastic

To reduce plastic pollution, Madara Žiganova, a PhD student of RTU Faculty of Materials Science and Applied Chemistry, is developing a material of microbiological origin that can be used to make plastic packaging that fully degrades without harming the environment.
Microbial material is "produced" by bacteria in reactors, polymers of the polyester group – polyhydroxyalkanoates – are formed from the energy reserves stored in the bacteria. This material is already produced industrially, but it is fragile. M. Žiganova is developing a formula and production technology to make it similar to synthetic plastic – flexible and durable – but at the same time completely biodegradable.

Post-doctoral research

Since 2017 RTU has been implementing post-doc research projects within the framework of activity 1.1.1.2 "Postdoctoral research support" of Objective 1.1.1 "To Increase the Research and Innovative Capacity of Scientific Institutions of Latvia and the Ability to Attract External Financing, Investing in Human Resources and Infrastructure" of the Operational Program "Growth and Employment".
In 2021, RTU had 60 post-doc research projects, covering a wide range of topics and areas. Most of them are dedicated to developing new technological solutions and addressing challenges of social importance.

RTU scientist develops innovative technology to study the effects of radiation on human DNA

Marina Romanova, a leading researcher at the Institute of Biomedical Engineering and Nanotechnologies of RTU Faculty of Mechanical Engineering, Transport and Aeronautics, has developed a technology that will help radiobiologists study the effects of radiation on DNA (deoxyribonucleic acid) molecules in human cells. This will allow understanding how radiation affects small particles in the cell, and in the future, this knowledge could be used to more precisely irradiate and destroy cells that are harmful to humans.

11

Sustainable Valorization

a. Innovation and Technology Transfer Center

The Innovation and Technology Transfer Center (ITTC) supports engagement of RTU scientists in valorization activities, provides for the monitoring and protection of the intellectual property of the University, promotes innovation and technology transfer ensuring implementation of results of scientific research in a commercially exploitable manner. It maintains sustainable relations and professional communication with external partners, representing the interests of RTU and promoting its local and international visibility.

Main activity areas:

- Support to scientists in valorization activities;
- Ensuring technology transfer;
- Management and protection of the intellectual property;
- Cooperation with the industry and external partners.

Support in commercialization of research results

Involvement of RTU scientists in the program "Support for the Commercialization of Research Results" administered by the Latvian Investment and Development Agency (LIAA) is one of the most important technology transfer activities. RTU has already raised €3.28 million for the design and development of new technologies within this program. RTU Innovation and Technology Transfer Center helps scientists by offering support in the drafting of project applications and project implementation, providing training in ideas presentation, coordinating the application submission and implementation process, and maintaining communication with LIAA.
Using the attracted funding, RTU scientists continue to design and develop several technologies that will be offered for licensing:

- The Water Research and Environmental Biotechnology Laboratory of the Faculty of Civil Engineering at RTU is developing a technology that will allow online assessment of the microbiological quality of water. The project "Online drinking water quality monitoring and early warning system" is led by Sandis Dejus, a leading researcher of the Water Research and Environmental Biotechnology Laboratory.
- The Institute of Applied Chemistry, Faculty of Materials Science and Applied Chemistry, is developing and experimentally testing a technology that allows biodiesel to be obtained in an innovative way from the lipid-soap mixture produced during the vegetable oil production process (oil washing with lye). The project "Advanced biodiesel from the lipid-soap residue of vegetable oil production" is led by Professor Valdis Kokars from the Institute of Applied Chemistry.
- The Institute of Energy Systems and Environment (IESE) of RTU Faculty of Energy and Environmental Engineering is developing a technology to replace the environmentally harmful chemical binder used in the production of wood panels with natural raw materials that are safe for human health and the environment. The project "Sustainable solutions for biomass panels" is led by Vladimirs Krisanovs, a leading researcher of IESE.
- RTU IESE is developing a technology to cultivate protein-producing micro-organisms using biodegradable agricultural residues, industrial by-products and invasive plants as feedstock. The project "Use of biodegradable by-products for the

production of protein-rich animal and fish feed extracts - Single-cell proteins" is led by a leading researcher of IESE Jeļena Pubule.

In 2021, the projects of the 1st and 2nd rounds of the program "Support for the Commercialization of Research Results" came to an end. Companies have licensed the work of scientists in three project areas:

- microbiology, molecular genetics, and environmental engineering
- sustainable materials and production technologies;
- information and communication technologies.

Four license agreements have been concluded for a total amount of EUR 146,000.00.

Guidelines on Protection, Licensing or Selling of Intellectual Property Owned by a Research Institution

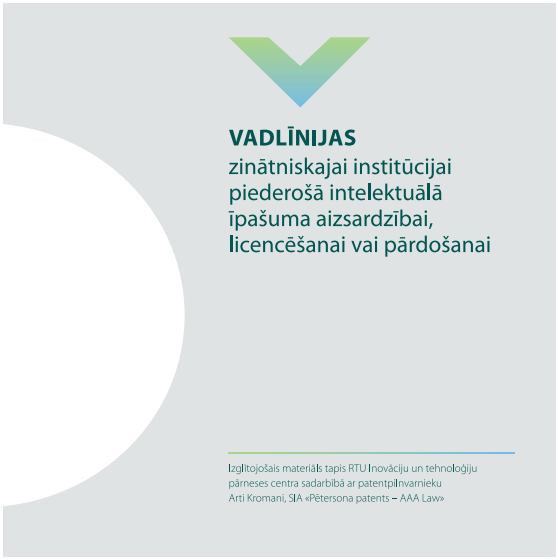
RTU Innovation and Technology Transfer Centre in cooperation with Patent Attorney Artis Kromanis (Ltd "Pētersona patents - AAA Law") has developed guidelines for protection, licensing or sale of intellectual property owned by a research institution.

The information material or guidelines are mainly intended for RTU scientific and academic staff whose specific work is related to the creation of intellectual property and who need an understanding of various aspects of intellectual property protection and commercialization.

The guidelines provide an overview of the processes on the way to commercialization of intellectual property, which are:

- identification of intellectual property;
- fixation or registration;
- licensing or alienation (sale).

The guidelines are available on the website of RTU Innovation and Technology Transfer Centre www.inovacijas.rtu.lv



Intellectual property protection

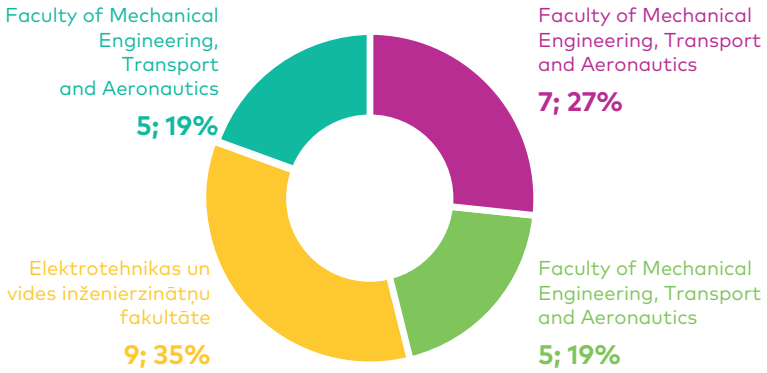
Protection and supervision of RTU intellectual property is one of the tasks of the Innovation and Technology Transfer Centre, which includes providing support to RTU scientists and students on intellectual property protection issues, including drafting of patent, design and trademark applications, their filing and maintenance, as well as raising awareness of the importance of intellectual property issues, especially in the commercialization process.

Patents

In 2021, 22 patent applications were filed in the Republic of Latvia, as well as one foreign patent application.
RTU Faculty of Electrical and Environmental Engineering had filed the largest number of applications for the patents of the of Republic of Latvia – 9.

Filed patent applications by RTU faculty (including LV and foreign) 2021

Data as of 31 Dec 2021. Source: ITTC

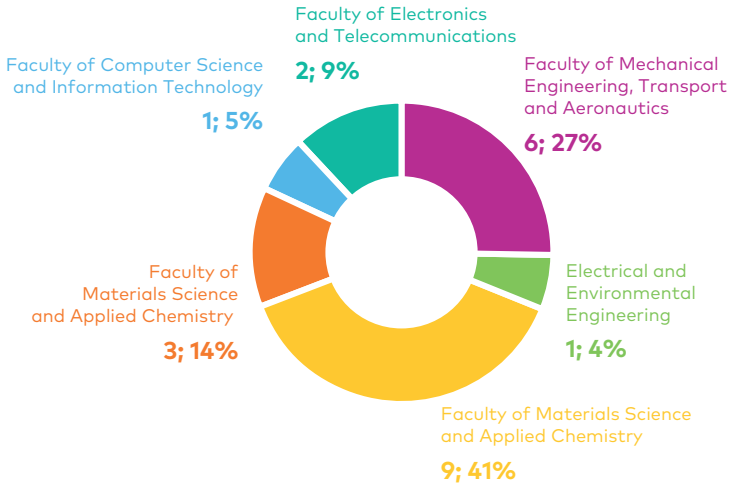


In 2021, RTU obtained 19 patents of the Republic of Latvia, as well as 1 European patent.

The Faculty of Materials Science and Applied Chemistry has the largest number of obtained patents – 8 LV patents and 1 European patent.

Patents obtained by RTU faculties (including LV and foreign) 2021

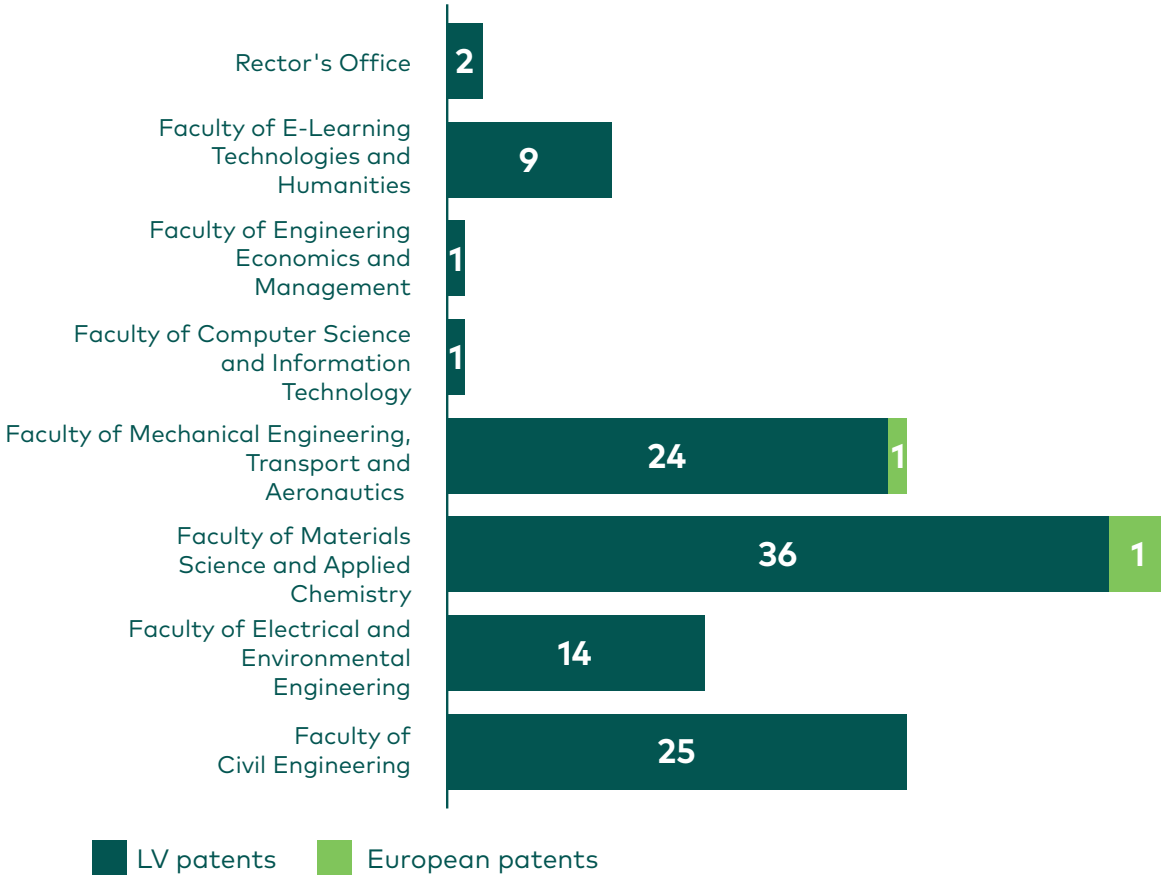
Data as of 31 Dec 2021. Source: ITTC



In total, 91 patents of the Republic of Latvia and 4 European patents were valid or maintained by RTU in 2021.

The largest number of valid patents was held by RTU Faculty of Materials Science and Applied Chemistry (FMSAC) – 36 LV patents and 3 European patents, followed by the Faculty of Civil Engineering (FCE) – 25 LV patents and the Faculty of Mechanical Engineering, Transport and Aeronautics (FMETA) – 24 LV patents and 1 European patent.

Number of patents held by organizational units of RTU 2021



Data as of 31 Dec 2021. Source: ITTC

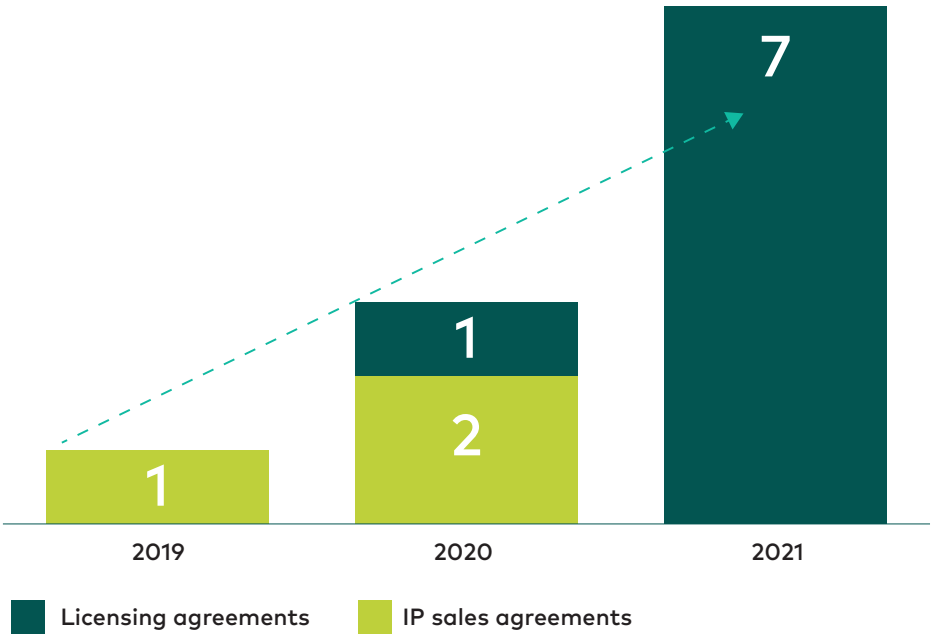
Licensing and sale of technology

RTU offers to license or sell intellectual property to enterprises – inventions, copyrights, trademarks, designs or know-how – that have the potential to be used to create new products or services or to solve problems.
Licensing grants companies the right or permission to use RTU intellectual property for commercial purposes. In the case of a sale, the intellectual property rights are fully transferred to the company that has acquired the intellectual property. Both licensing and selling contribute to the development and dissemination of intellectual property to the wider public, and to the exploitation of new technologies and knowledge to create competitive products.
RTU intellectual property licensing is provided by the RTU Innovation and Technology Transfer Centre.

In 2021, RTU concluded seven license agreements. The total value of these agreements amounted to EUR 154,642. The revenue from licensing agreements in 2021 amounted to EUR 44,742.

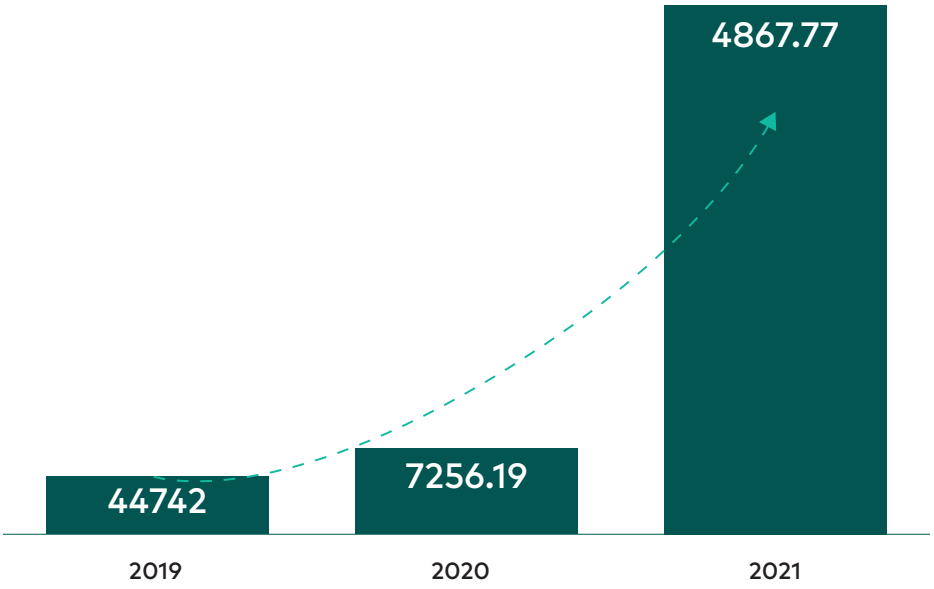
Number of RTU technology licensing and sales agreements 2019-2021

Data as of 31 Dec 2021. Source: ITTC



Revenue (EUR) from licensing and sale of RTU technologies 2019-2021

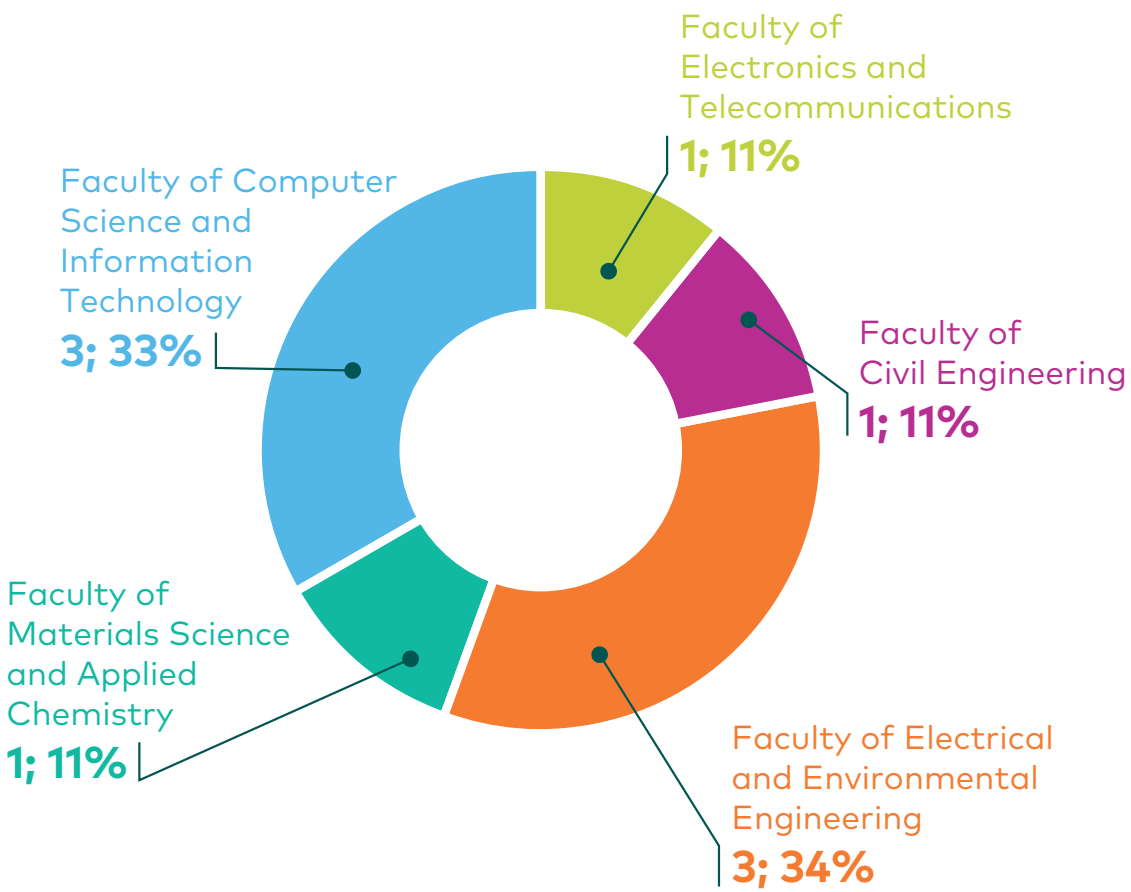
Data as of 31 Dec 2021. Source: ITTC



In total, in 2021, RTU had nine valid license agreements concluded from 2013 to 2021. The largest number of valid license agreements is maintained by RTU Faculty of Electrical Engineering and Environmental Engineering (FEEE) – 3 – and the Faculty of Computer Science and Information Technology (FCSIT) – 3

The number of valid licensing agreements at RTU faculties 2021

Data as of 31 Dec 2021. Source: ITTC



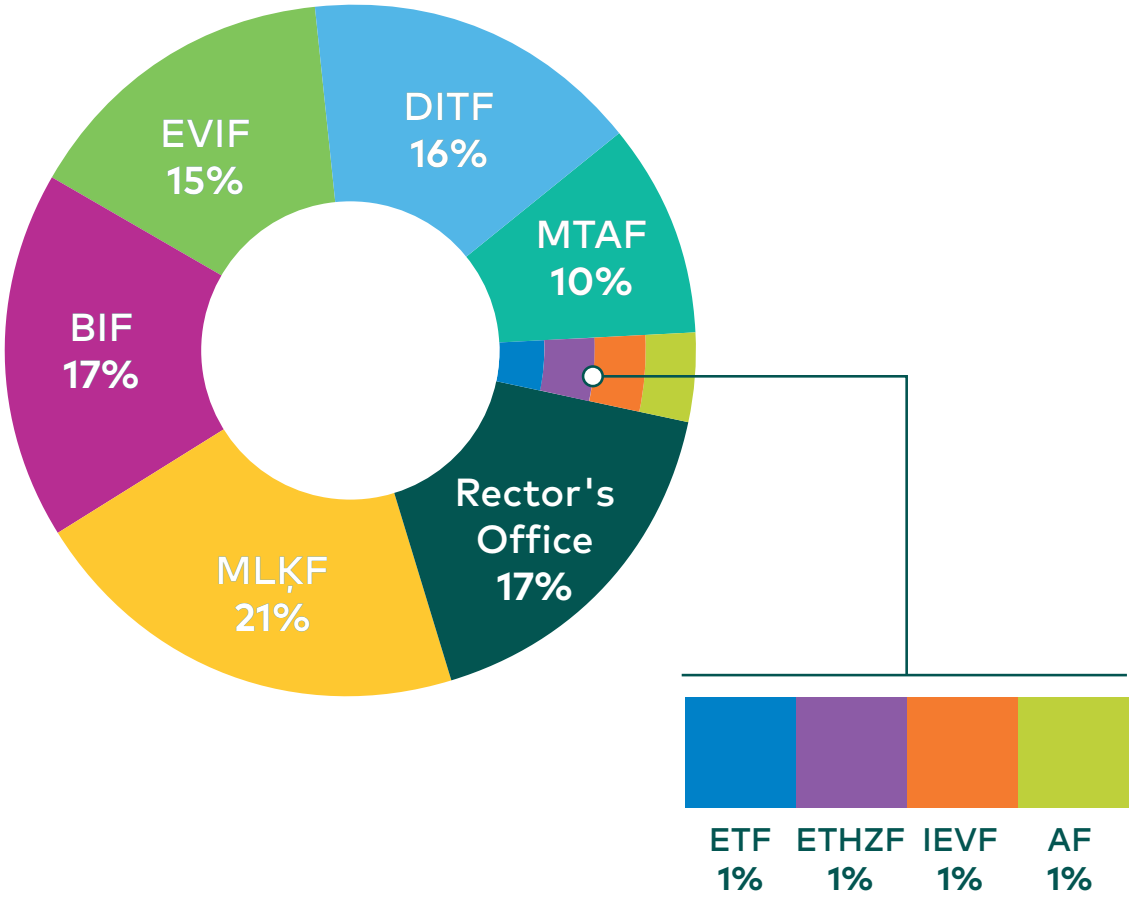
Cooperation with the industry and external partners

RTU scientists actively collaborate with Latvian and foreign companies and organizations, providing opportunities to improve the existing products and technologies and to develop new ones. The rendered services range from consultancy and materials testing to new product development.

In 2021, more than 130 contracts were implemented. All RTU faculties were involved, but the Faculty of Materials Science and Applied Chemistry was responsible for the largest number of contracted works – 21% of the total.

Contracted work implemented by organizational units of RTU (%) 2021

Data as of 31 Dec 2021. Source: ITTC

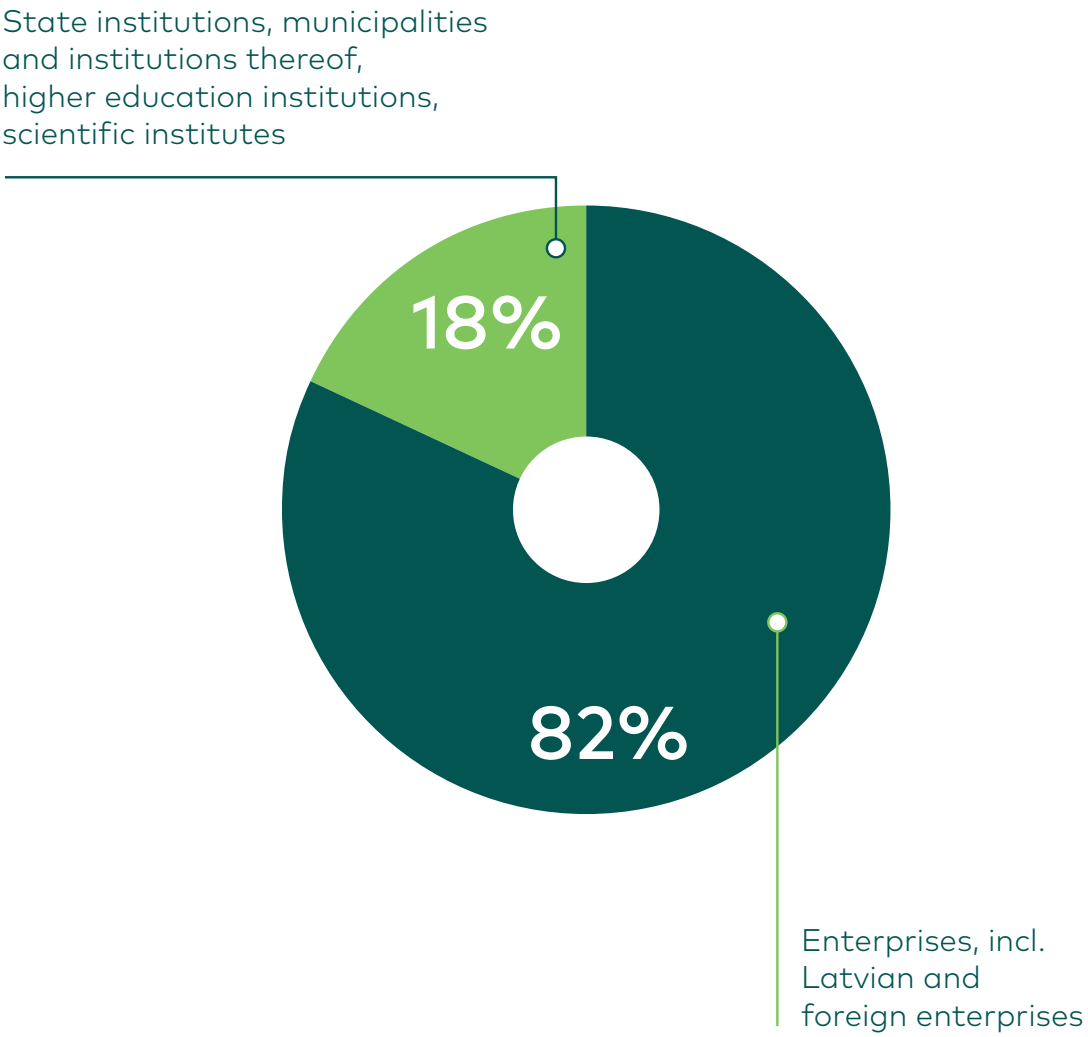


In 2021, contracts were concluded with more than 100 partners. These included enterprises (82%), state (9%) and municipal (3%) authorities, research institutes (4%), and higher education institutions (2%).

The largest cooperation partners of RTU are SJSC «Latvenergo», JSC «Komforts Group», JSC «Grindex», JSC «Sadales tīkls», JSC «Latvijas Valsts meži», Ltd «eMobility», SJSC «Latvijas Valsts ceļi», JSC «SAF Tehnika», Ltd «Latvijas Mobilais Telefons», JSC «Olainfarm», JSC «Valmieras stikla šķiedra», Ltd «Tet», Ltd «Rīgas ūdens», Ltd «TENAX», Ministry of Education and Science, National Centre for Education, Ministry of Economics, National Armed Forces Logistics Command, Scientific Institute of Food Safety, Animal Health and Environment "BIOR".

Contractual partners by type of organization 2021

Data as of 31 Dec 2021. Source: ITTC



RTU scientists develop guidelines for consistently good water quality in Riga

Regular flushing of water mains in Riga is necessary to maintain high drinking water quality. RTU scientists commissioned by Latvia's largest water supply and sewerage company Ltd «Rīgas ūdens» have developed guidelines for action in the coming years.

The quality of drinking water in Riga is good and tap water is safe to drink. However, there are temporary problems as evidenced by both the two years of measurements of the limescale potential of water pipes in all neighborhoods of the capital and the complaints of residents recorded by RTU scientists. The formation of limescale can be prevented by regular flushing of the pipelines.

In developing the guidelines and prioritizing the water mains to be flushed, the scientists considered both the number of complaints and the measurements of the potential for limescale, the population and the length of the water network in the neighborhood, as well as the number of trunk mains in the neighborhood.

"Lidl Latvija" launches unique groundwater remediation project in Sarkandaugava following recommendations of RTU scientists

Taking into account the recommendations of the specialists of RTU Environmental Modelling Laboratory, the retail company "Lidl Latvija" has carried out the remediation of contaminated groundwater in Riga, Sarkandaugava, where it plans to build a new "Lidl" store. The remediation used a unique technology that had not been previously used in Latvia – it was recommended to build a jet wall in the path of the contamination flow, which allows the water to pass through unhindered, purifying it. This is an innovative solution – if not for this method, the only route to remediation would be to excavate the site.

Developing innovative equipment to monitor and maintain water quality

A prototype water flushing machine has been developed in collaboration between RTU scientists and engineers. By flushing water pipes, the machine collects data on water quality and sends them to scientists for rapid decision-making on how to consistently maintain high drinking water quality.
To make flushing more efficient, scientists worked with engineers from RTU Science and Innovation Centre and specialists from the scientific and technical firm "Lāsma" to create a prototype for a new flushing machine. It is equipped with sensors that collect information on water flow, pressure, and turbidity. Once the data are recorded, they are sent to scientists to analyze and develop proposals for flushing water pipes. The machine is simple to operate and does not require scientists to be present: water company representatives connect it to a fire hydrant, supply water for flushing, and start data logging with a single button. The equipment is mobile. Engineers from the Innovative Product Development Department of RTU Science and Innovation Centre designed it following the instructions of the specialists from the Water Research and Environmental Biotechnology Laboratory, with functionality and usability in mind. Before being put into operation, the device was successfully tested in Ķīpsala with the support of Ltd "Rīgas ūdens".

RTU sings a record number of licensing agreements with enterprises in 2021

In 2021, RTU signed seven licensing agreements with local and international enterprises for the commercialization of technologies.
The enterprises purchased licenses for scientists' work in three areas: microbiology, molecular genetics and environmental engineering; sustainable materials and manufacturing technologies; information and communication technologies.
RTU offers to license intellectual property that has the potential to be used to create new or improved products or services. Licensing gives companies the right or permission to use RTU intellectual property for commercial purposes. The licensed technologies include, for example, a thermal insulation material made from lignocellulosic biomass and a natural binder developed by the scientists of RTU Institute of Energy Systems and Environment, which can be used to produce thermal insulation instead of the environmentally unfriendly polystyrene. Two companies – Ltd «Forma» and Ltd «ZARO» – obtained the licenses. At the first intellectual property auction organized by RTU in spring, the right to use a solution created by scientists of the Faculty of Computer Science and Information Technology of RTU, which predicts the arrival time of public transport, was sold to the cartography and geospatial intelligence solutions company Ltd "Jāņa sēta".

b. RTU Science and Innovation Center

At the end of 2021, RTU Science and Innovation Center was established on the basis of the existing RTU Design Factory, which has been conceived as a one-stop innovation agency. The Center brings together a team of highly qualified experts and excellent technical facilities – the best equipped prototyping workshop in the Baltics and a supercomputing or scientific computing center.

The Science and Innovation Center was created to provide more targeted support to students, innovators, and start-ups in development of innovations, as the Design Factory has evolved since its opening in 2016, offering more and more opportunities for the students to develop their entrepreneurial skills, for innovators and start-ups – to support implementation of their business ideas, and for companies – to help and support the development of innovative products.

RTU Science and Innovation Centre comprises four units:

- The aim of the Design Factory is to promote student engagement in innovation and knowledge transfer processes by developing students' general competences and providing processes and infrastructure to support practice-based learning, in line with the principle of interdisciplinarity. The cornerstones of the Design Factory are the ambitious project "Innovation Grants for Students", which develops students' innovative thinking, creative skills and entrepreneurial abilities, and the open workshop "theLAB", which is open to everyone;
- Engineers in the Innovative Product Development Unit actively work with the enterprises and scientists to help them create high added-value products, evaluate the existing products and services, and improve them. They provide advice and technical support on industrial design, electronics, mechatronics, industrial design, prototyping, and manufacturing;
- The Innovation Ecosystem Development Unit promotes RTU involvement in national and international innovation and technology ecosystems. The Unit implements activities of knowledge and innovation communities of the European Institute of Innovation and Technology (EIT) – «EIT Climate-KIC», «EIT Food», «EIT RawMaterials», «EIT Urban Mobility» in Latvia, as well as the work packages of Interreg, Horizon, Life, Creative Europe, and other projects.
- The Research Equipment Division provides state-of-the-art research equipment, as well as a Scientific Computing or HPC (High-Performance Computing) center that promotes the use of digital technologies in research.

Open workshop "theLAB"

"theLAB" is an open workshop at RTU Science and Innovation Centre, where students, employees, and scientists have the opportunity to materialize their inventions using the technological possibilities of 3D printing, laser cutting and engraving, plotting, large-format printing, and other auxiliary tools.

Innovation grants for students

RTU Science and Innovation Centre coordinates the project "RTU Innovation Grants for Students", offering students

to participate in activities and programs aimed at the development of innovative thinking and support for technology transfer, commercialization of research, development of business ideas and new products, as well as the opportunity to receive additional scholarships and support grants.
In 2021, 95 teams were engaged in Innovation Grant activities and 417 students from 12 universities received support. In general, the activities led to the creation of around 70 innovations, engagement of 51 companies, creation of three start-ups, and development of innovation and entrepreneurship competences of more than 900 students.

"EIT Climate-KIC Hub Latvia"

Mitigating the impacts of climate change on the economy and the environment by promoting the transition to climate neutrality is a challenge that the EIT Climate-KIC Hub Latvia is addressing by strengthening the innovation-friendly ecosystem and initiating systemic change.

"EIT Climate-KIC Hub Latvia" offers:

-
- Business support programs and events for climate-friendly solutions (ClimAccelerator, Climathon);
- Capacity building programs for different target audiences, including young people (Young Innovators, Pioneers, Climate Leadership Journey);
- Educational events on climate neutrality, circular economy, energy efficiency, smart cities and other topics related to the mitigation of climate change;
- Support to strengthening the innovation ecosystem.

"EIT Food Hub Latvia"

By building strong links between consumers, businesses, start-ups, researchers, and students from across Europe, the "EIT Food" initiative aims to foster innovation and sustainable economic initiatives that increase access to quality food, contribute to preserving and improving the environment and health, and create new jobs. "EIT Food" activities cover the entire food system, from agriculture and production to delivery and final consumption.

"EIT Food Hub Latvia" offers:

- International business support programs (*Seedbed Incubator, EIT FAN, RisingFoodStars*) and financial support for solution development;
- Education and mobility programs for students, researchers, and industry professionals (*RIS Fellowships, RIS Talents, Summer Schools*);
- Support for capacity building of the research sector in the agri-food sectors;
- Actions to address industry challenges (*Challenge Labs, TeamUp*).

"EIT Urban Mobility RIS Hub"

"The EIT Urban Mobility" initiative aims to improve the quality of people's lives in urban environments by fostering the development of innovative solutions that make life more convenient for urban dwellers while reducing the environmental impact of mobility or commuting. In addition, various activities raise public awareness of the importance of mobility for quality of life and sustainability. "The EIT Urban Mobility RIS Hub Latvia" was established in 2021 as a collaboration between RTU, the VEFRESH innovation movement, and Riga City Council.

"The EIT Urban Mobility RIS Hub" offers:

- A range of financial and non-financial support mechanisms to foster innovation in mobility;
- Support measures to strengthen cooperation between private, research and public sectors;

- Support to enhance the capacity of the research sector in the field of mobility;
- Educational activities on the issues related to mobility, urban planning, transport, etc.

"EIT RawMaterials Baltic Hub"

In 2019, RTU, Kaunas University of Technology and Tallinn University of Technology established "EIT RawMaterials Hub – RIS Baltic Region", a contact point to help Baltic scientists, start-ups, and companies to create competitive innovations in the field of raw materials (minerals and metals). "EIT RawMaterials Baltic Hub" strengthens cooperation, promotes knowledge exchange, start-ups, and the development of innovative solutions along the entire raw materials chain, from exploration, extraction and processing to substitution, recycling and the circular economy.

"The EIT Raw Materials Baltic Hub" offers:

- A variety of networking and educational events to address industry challenges;
- Acceleration program for the development of deep-tech or scientific start-up ideas;
- Scaling projects and financial support for start-ups (*Jumpstarter, Booster, KAVA*);
- Educational programs for schools and universities;
- Opportunities to use facilities of RTU Science and Innovation Centre for prototyping, research, etc.

High-Performance Computing Center

The mission of RTU High-Performance Computing Center is to promote and support the use of digital technologies in research, as well as to contribute to the international competitiveness of Latvian science. The Center offers a powerful supercomputing and data storage infrastructure, provides modeling and simulation services, maintains scientific software for research and teaching, organizes various courses and events on digital science topics, and cooperates with other European e-infrastructures.
The High-Performance Computing Center participates in several European projects such as EuroHPC project "National Competence Centers in the framework of EuroHPC (EuroCC)", "Research on AI- and Simulation-Based Engineering at Exascale" (CoE RAISE), and "EOSC Nordic".

Exhibition of innovative products and prototypes

In 2021, the Innovative Product Development Unit launched seven new innovative products and continued the development of seven products launched in the previous years. The development projects were implemented in cooperation with both enterprises and RTU faculties. Within the framework of cooperation projects and using the competences of the staff of the Science and Innovation Center in industrial design, mechanics, mechatronics, electronics, as well as in rapid prototyping and manufacturing methods and final production processes, various prototypes, samples, and demonstration models were developed, product research, concept testing, product effectiveness tests, simulations, and feasibility studies were conducted, user needs were identified, product concept proposals were developed, and product demo versions were produced in 2021.

Jānis Grēviņš, Director of RTU Riga Business School, becomes a member of the EIT Board of Directors

The European Commission has approved the new Board of Directors of the European Institute of Innovation and

Technology (EIT), appointing four new members, including the Director of RTU Riga Business School, Janis Grēviņš.

The Board of Directors oversees the strategic development of the EIT. The new members join at a crucial time as the EIT launches its new Innovation Strategy 2021-2027, which offers even more opportunities for innovators and entrepreneurs to develop solutions to the challenges faced by the European society.

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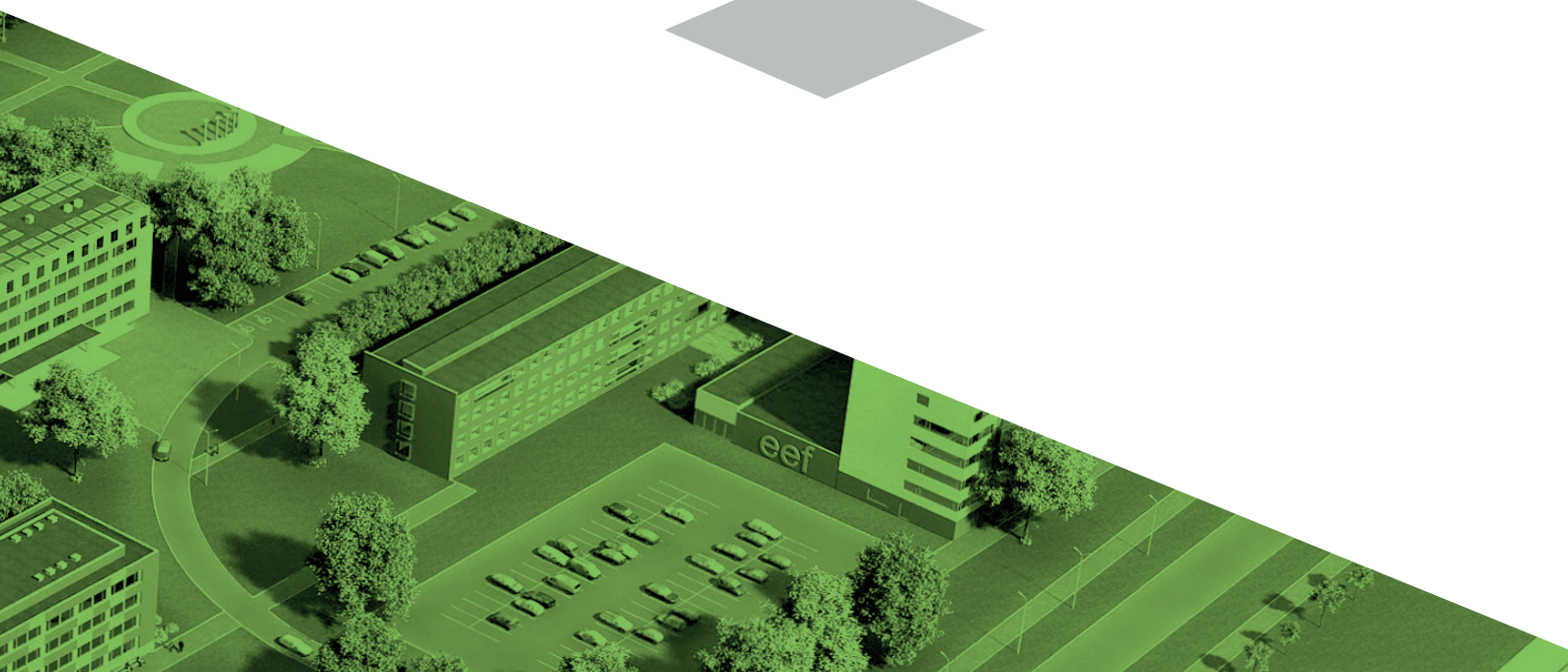
Development of RTU Campus in Ķīpsala

RTU continues working on the concentration of its organizational units in Ķīpsala, using ERDF funding for 2017-2021. Several projects are currently being implemented in synergy:

- Infrastructure Development of Riga Technical University for Modernization of STEM Study Programs;
- Development of RTU Infrastructure for the Center of Engineering Sciences and Smart Technology in the Field of Smart Specialization;
- Improvement of Energy Efficiency of RTU Center of Engineering Sciences and Smart Technology at 6A Ķīpsalas Street, Riga.



RTU Ķīpsala Campus is being purposefully developed to become the largest and most modern center of engineering sciences in the Baltics. It brings together all RTU engineering faculties, as well as the Laboratory House, Scientific Library, student hostels, and a swimming pool. The faculty buildings are also physically connected to each other by air passages, so that students, staff and RTU guests can move easily from one faculty to another. This also facilitates communication between students and researchers from different faculties, providing fruitful ground for interdisciplinary research and innovation at RTU.

1. Reconstruction of the building of the Faculty of Civil Engineering

Reconstruction of the building of the Faculty of Civil Engineering (FCE) at 6A Ķīpsalas Street, where the Centre of Engineering Sciences and Smart Technology will also be located after the reconstruction, started in August 2019. It is scheduled to be completed in 2021. Within the reconstruction project, the internal design of the building was changed retaining the corridors and the location of the stairways. All old engineering communications were replaced. In order to increase the useful space of the premises, the areas of the earlier constructed technical shafts were reduced. Another floor was built in the lower part of the building, levelling the height of the two connected buildings and providing additional areas for lecture rooms and space for the research staff. The windows were replaced with triple-glazed windows, and the facade and roof have been renovated and insulated, significantly improving the overall thermal performance of the building. A new ventilation system with air recovery was built to manage engineering communications of the building and maintain a comfortable microclimate, building management system was installed. Sun blinds were installed on the south-facing façade to prevent unnecessary heating during the warmest period of the year. The building will comply with the latest fire safety standards applicable to public buildings.

2. Establishment of the Science and Innovation Center

The Science and Innovation Center is to be integrated into the building at 6A Kipsalas Street, where the Faculty of Civil Engineering is located. The redevelopment works started in late summer and will continue until 2022.

The development of the Centre of Science and Innovation will provide students with much wider opportunities to engage in science and various research projects, while researchers will have greater opportunities to transfer their knowledge, experience and skills to students. Emphasis is placed on higher-level (Master and PhD) studies, research and innovation, and on activities in the education and research services market. Such centers of excellence and innovation act as generators which contribute significantly to the international competitiveness of the country.

3. New building of the Faculty of Computer Science and Information Technology

Continuing the concentration of RTU students in Ķīpsala Campus, a new educational building for the Faculty of Computer Science and Information Technology (FCSIT), which is part of the research unit of the Centre of Engineering Sciences and Smart Technology was built at 10 Zunda Embarkment. A new joint-use auditorium building «Domus Auditorialis» was also erected. The new buildings were commissioned in the summer of 2021.

New buildings of the Faculty of Computer Science and Information Technology and the joint-use auditorium building inaugurated

On 3 September, new buildings of the Faculty of Computer Science and Information Technology of RTU and joint-use auditorium building "Domus Auditorialis" were inaugurated. It was a historically significant event, as the Faculty of Computer Science and Information Technology also joined the rest of RTU family in Ķīpsala Campus, where most RTU faculties are concentrated.
The opening of the buildings was attended by Prime Minister Krišjānis Kariņš and Minister of Education and Science Anita Muižniece, as well as RTU management and students, and industry professionals.

The new building is a gift for the 60th anniversary of the Faculty of Computer Science and Information Technology, as it is the first time in its history that a new building was built specifically for the needs of the Faculty. It offers a modern study and research environment, well-equipped laboratories, a research center, computer rooms and spacious and bright lecture halls for students and researchers. There are also comfortable seating areas for students on each floor.
The Faculty of Computer Science and Information Technology is the leader in Latvia in such research areas as artificial intelligence, robotics, machine learning, software development, and design technology. It maintains close cooperation with the industry, getting engaged in research and development of importance to the national economy. Students are also engaged in cooperation with the industry, developing the skills they need for the labor market while providing companies with new problem-solving experience and a view of the users of the future.
The auditorium building "Domus Auditorialis" hosts lectures, conferences, and other events, attracting a large number of participants. The center houses a large auditorium for 560 visitors. It can be transformed and divided into two smaller auditoriums if needed.

4. New building of the Baltic Biomaterials Center of Excellence

In April 2020, amendments to the project "Development of RTU Infrastructure for the Center of Engineering Sciences and Smart Technology in the Field of Smart Specialization" were signed, envisioning the establishment of the Baltic Biomaterials Centre of Excellence (BBCE).
In October 2021, a procurement contract was signed for the design, supervision and construction works for the BBCE building. A year was set aside for the development of the construction design and construction work was scheduled to start in the autumn of 2022.
It is planned to build the BBCE building next to the Faculty of Materials Science and Applied Chemistry building at 3 Paula Valdena Street. The floor area of the building will be approximately 1,600 m2. The exact floor area will be specified during design and construction. All workplaces will be relocated to the new building in Ķīpsala from 3 Pulka Street, where RTU Faculty of Materials Science and Applied Chemistry Rudolf Cimdins Riga Biomaterials Innovations and Development Centre is currently located, thus ensuring more successful cooperation between different RTU faculties located in Ķīpsala and thus promoting the development of interdisciplinary research.
The facilities will be located in a fully equipped BBCE building, providing a modern laboratory environment for research, studies, and valorization. The building will include fully equipped chemistry laboratory facilities, *in vitro* research laboratory facilities, and implant prototyping laboratory facilities. The *in vitro* laboratory facilities will help RTU develop a new research area related to the in-depth study of implant materials in the cellular environment. In addition to the laboratory space, office space will be created.

The foundation stone is laid for the center where RTU scientists and students will develop aeronautics technologies

The foundation stone of the Institute of Aeronautics of the Faculty of Mechanical Engineering, Transport and Aeronautics, where scientists and students will develop aeronautics technologies, was laid at RTU Ķīpsala Campus.
The new RTU Institute of Aeronautics will become home to several laboratories and a so-called "clean room", which will provide specific air and temperature parameters and equipment for applying nano-coatings, as well as a facility to partially simulate the space environment and thus test the performance of satellites and other space products in space.
The hangar will also house other equipment of the Aeronautics Research and Technology Center, such as a turbojet test bed. It will also house a laboratory for the design and production of unmanned aerial vehicles, as well as a supersonic wind tunnel. The new building will also accommodate the recently established Institute of Aeronautics Student Research Center.

President of the Development Bank of the Council of Europe gets acquainted with the infrastructure projects of RTU Campus

On 21 September, the President of the Council of Europe Development Bank (CEB), Rolf Wenzel, and representatives of the management team visited RTU to get acquainted with RTU infrastructure projects implemented with support of CEB funding.
The CEB appreciated RTU achievements in the overall development of the University and in the implementation of CEB-funded projects. It attested its readiness for cooperation in financing future development projects. The CEB delegation visited RTU buildings that were constructed or renovated with CEB funding. These are the Faculty of Mechanical Engineering, Transport and Aeronautics, the Faculty of Computer Science and Information Technology, the Faculty of Civil Engineering, and "Domus Auditorialis".
The CEB visit to RTU Ķīpsala Campus was part of the official visit program of the CEB management.

RTU bids farewell to the historic building at 1 Kaļķu Street

On 13 December, RTU turned over a new page in its history and, as the management removed the granite plaque with RTU name from the facade of the building, left the university administration building at 1 Kaļķu Street, which had been a symbol of Latvian engineering higher education for more than 60 years.
After leaving Kaļķu Street, RTU administration is now situated in RTU Campus in Ķīpsala, where most of the faculties, the Laboratory House, the Scientific Library, and student hostels are located already and which is being developed into a modern engineering center. It is exactly in the building on Kaļķu Street where the former management of Riga Polytechnic Institute (RPI) decided to build a campus in Ķīpsala in the 1960s.
RTU had called Kaļķu Street home since 1958, when the engineering faculties were separated from the State University of Latvia and RPI was reborn after having lost its independence in 1919, when the newly established Latvian state established the Higher School of Latvia, later the University of Latvia, on the basis of the institute.
The building on Kaļķu Street housed several faculties, such as the former Faculty of Construction, now the Faculty of Civil Engineering, and the Department of Architecture, now the Faculty of Architecture, as well as the Faculty of Engineering Economics and Management, the RPI Research Library and even the Department of War, where students

underwent military training during the Soviet era. The building was the venue for the admission and entrance examinations of new students, it was also the place where RTU graduates received their diplomas.
The building on Kalķu Street experienced the change of state power, the Barricades, when the defenders of the restored state gathered and warmed themselves in the building, as well as the change of the name of the university, as in 1990 RPI was renamed Riga Technical University. Even before that, in 1989, a group of students removed a plaque with the name of RPI from the facade of the building on Kalķu Street and threw it into the Daugava from the Stone Bridge.

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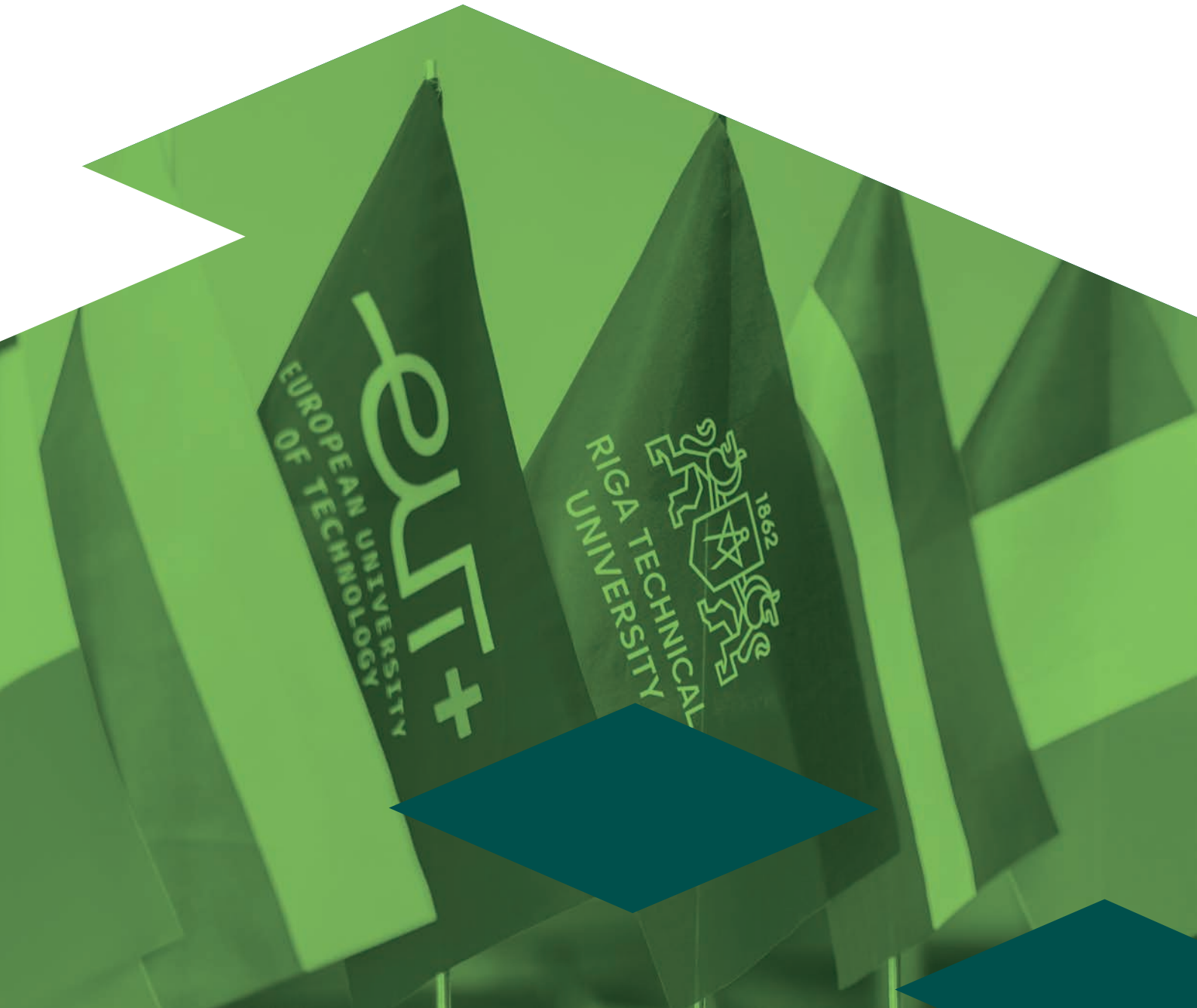
International Cooperation



Promotion and implementation of international institutional cooperation is one of the cornerstones of the RTU Development Strategy. Based on the vast network of partner universities worldwide, as well as participation in international organizations and alliances, academic and scientific cooperation is being pursued, the mobility of students and academic staff is promoted, providing extensive opportunities for exchange of experience and enabling active participation in global scientific centers.

a. International projects

New projects of the European University of Technology

RTU together with seven international partners continues developing its offer for the European University of Technology (EUt+).
The consortium brings together RTU, the University of Technology of Troyes from France, Technological University Dublin from Ireland, Sofia Technical University from Bulgaria, Cyprus University of Technology, Darmstadt University of Applied Sciences from Germany, Technical University of Cluj-Napoca from Romania, and Polytechnic University of Cartagena from Spain, who have jointly undertaken to develop an innovative confederal EUt+ model within three years.
In 2021, the European Commission approved and allocated budgets for several new projects. On the RTU side, the International Projects Unit of the International Cooperation and Foreign Students Department is responsible for the development of project applications and their implementation.
A project "EUt+ EXTRAS" of the European University of Technology (EUT+) is one such projects. It is a Horizon 2020 project. Within the project, research to experiment and find better forms of research in the EU is conducted to boost European capacity for innovation and competitiveness. RTU is responsible for a work package that aims to make science cause a greater impact on society. It focuses on making research results more accessible to business and society at large, promoting information exchange between business and universities, and addressing the challenges of protecting intellectual property in the context of "open science".
AesTheTiCo, a strategic partnership project of the Erasmus+ program

supporting the EUt+ initiative, aims to broaden the concept of aesthetics in traditional engineering and product design curricula by incorporating insights from contemporary aesthetic theories. In this manner, the project promotes the integration of arts and humanities in design and engineering. The project is coordinated by the Technological University Dublin.
In 2021, Erasmus+ Strategic Partnership project "GREENWORAL" was also approved – training and mentoring-based empowerment of rural women in green entrepreneurship. Within this project, RTU will work with the Polytechnic University of Cartagena, Cyprus University of Technology, and Technological University Dublin to develop a support program for the development of green business of rural women.

b. International events International summer schools

In 2021, the Foreign Students Foundation and Short-Term Courses Unit of the RTU International Cooperation and Foreign Students Department welcomed 330 students from 36 countries to participate in two online and nine on-site summer schools. Students from Lithuania, Estonia, Belarus, Germany, Poland, Italy, Slovakia, Belgium, Greece, France, the Netherlands, Liechtenstein, Spain, Romania, Bulgaria, Russia, Ukraine, Azerbaijan, Uzbekistan, Turkmenistan, Tajikistan, Kazakhstan, Mongolia, Indonesia, Vietnam, China, Sri Lanka, Mexico, Colombia, Libya, Burkina Faso, Cameroon, Tunisia, and Madagascar participated in the events. Three of the summer schools received financial support from the State Education Development Agency.

«Bioeconomy. Sustainable Use of Biological Resources»

In cooperation with the RTU Institute of Energy Systems and Environment, an online summer school was organized, comprising lectures, virtual laboratory visits, and a creative co-creation event. The Summer School introduced participants to the bioeconomy with a particular focus on the agriculture, forestry, and aquaculture. Several discussions on the bioeconomy and resource efficiency were also held. The summer school also included a creative co-creation event – a role-play "Polish Bioeconomy Strategy". Participants defined a problem to be solved during the game. Participants were divided into groups – agricultural sector, forestry sector, aquaculture sector, fossil fuel lobby, and decision-makers. Students worked on role-play tasks and presented ideas developed in teams for a Polish bioeconomy strategy. The works presented at the final event of the creative co-creation were highly appreciated by the international jury – the Horizon partners of the BIOEASTsUP project.

«Student campus development. En plein air 1.0» and «Riga – The Pearl of Latvian Wooden Architecture»

In the summer of 2021, RTU organized a summer school "Riga – The Pearl of Latvian Wooden Architecture" for the second time, but this time the students were joined by the participants of the summer school "En plein air 1.0". They visited the Ethnographic Open-Air Museum of Latvia, JSC "Latvijas valsts meži" Gostiņi Tree Nursery in Pļaviņas and the forest section in Tomė, a sawmill "Norupes" of Ltd "Rīgas meži", as well as the factory of Ltd "Dores", a manufacturer of wooden and timber-framed houses. The participants also had the opportunity to visit Ungurmuiža, a unique ensemble of the 18th-century wooden architecture, the Old Town

of Cesis, Lielstraupe Castle, and Ogre Central Library, which was built using glulam construction technology and is one of the first public buildings in Latvia to be constructed using this method. Participants also had the opportunity to try their hand at practical work – not only did they develop and present their vision for the possible further improvement of the environment of RTU Campus, but they also built a kayak shelter and started work on the construction of RTU boat dock. The participants of the summer school worked on the technical solution of the structure (fixing and connection points) and took part in the transportation of the structure to Zunda Embarkment and its installation.

«Global Leadership»

In the summer of 2021, RTU for the first time implemented the summer school "Global Leadership", which aimed to develop students' personal qualities and promote their advancement, to introduce students to the qualities and world vision necessary for future leaders. During discussions and workshops, the faculty and participants of the summer school worked together to explain the links between such trends as cultural diversity, religious freedom, and independence of thought and action. The interaction between the future world and current values was explored, possible points of contact were assessed and different world visions were identified. Participants took part in debates, emotional intelligence (EQ) workshops, and other activities.

«3D Animation World»

3D Animation World Summer School 2021 took place for the third consecutive year. Representatives of the Latvian Animation Association and industry professionals took part in its organization. During the three weeks, the participants were introduced to the history of Latvian animation, evaluated various examples of Latvian and international animation, learned the steps of animation production, and created their own short animated film. The animations were dedicated to Latvian nature, which the participants explored on several excursions.

«Internet of Things (IoT) for Smart Cities»

In cooperation with the scientists of the Faculty of Electronics and Telecommunications of RTU, the summer school "Internet of Things (IoT) for Smart Cities" was organized. Students had the opportunity to improve their knowledge in smart technologies during three weeks. They attended lectures and were given the opportunity to try their hand at practical work in RTU laboratories. There were also excursions to various companies and research centers.

«Intensive English and Cross-Cultural Communication»

"Intensive English and Cross-Cultural Communication" Summer School was organized in cooperation with a partner university from France. 56 students improved their English language skills, got to know Latvia and its culture, and enjoyed the beauty of its nature. The summer school attracted instructors – native speakers of English.

Project "SUCCESS" for engineering students and professionals

In November 2021, the State Education Development Agency approved RTU project "SUCCESS" (*Solutions for Unified Communication Competences for Engineering Students and Specialists*). The project was launched to develop a set of solutions to a problem that is relevant in many universities, including RTU. There is a constant high demand for engineering students in modern society, so higher education institutions need to

meet industry requirements to ensure that graduates integrate as successfully as possible into the labor market. "SUCCESS" aims to help students and professionals in the field to develop a set of skills that will increase their confidence and ability to present their knowledge to the public in their field of specialization in an engaging and interactive way.
The project involves five partners – RTU, *Technische Universität Dresden* (Germany), *Universidad Politecnica de Cartagena* (Spain), *Association Leonard de Vinci* (France), and *Paul Francis East* (Germany). The project will last for three years and is expected to conclude at the end of 2024.

c. International Cooperation

Ambassador of Mexico visits RTU

On 13 February, the Ambassador of Mexican to Latvia Francisco Eduardo del Río López and the Honorary Consul of Mexico in Latvia Carlos Arredondo Martinez met with the representatives of the RTU management to get acquainted with RTU activities and various cooperation projects with Mexico. RTU representatives presented RTU activities, history, and scientific activities, as well as various cooperation projects with higher education institutions of Mexico.
RTU has signed eight cooperation agreements with various Mexican higher education institutions and is actively implementing student exchange and other projects. The closest cooperation has been established with the Monterrey Institute of Technology and Higher Education – 40 exchange students come to RTU per year, and with the National Polytechnic Institute of Mexico – RTU welcomes 10 exchange students per year. Six full-time students from Mexico are currently studying in RTU Bachelor and Master degree programs.
RTU-Mexico cooperation in studies and research is also facilitated by an agreement signed between the governments of Latvia and Mexico, which offers scholarships to Mexican students for studies and research in Latvia, as well as for participation in the summer schools organized by RTU.

Ambassador of Italy to Latvia gets acquainted with academic and research activities of RTU

On 23 April, Ambassador of Italy to Latvia Stefano Taliani de Marchio paid a working visit to RTU to get a deeper insight into the development of RTU infrastructure and technical support, as well as to meet with students from Italy and RTU representatives who are actively implementing academic and science-related activities in cooperation with Italian higher education institutions.
During the visit, great attention was paid to the development of the international summer school "Nonlinear Life" established by RTU International Cooperation and Foreign Students Department and the Institute of Biomedical Engineering and Nanotechnologies. The Ambassador also met with Italian nationals Francesco Romagnoli and Claudio Rochas, professors at the Institute of Energy Systems and Environment of RTU Faculty of Electrical and Environmental Engineering. They presented to the Ambassador the activities of the Institute, highlighting, in particular, its active cooperation with partner institutions in Italy in the implementation of international projects, provision of student internships, and joint development of graduation papers.

Korean Corner opens at RTU Scientific Library

On 2 September, the first Korean Corner in Latvia was officially opened in RTU Scientific Library. At the opening ceremony, the Ambassador of the Republic of Korea to Latvia Seong-Jin Han and RTU Rector Leonīds Ribickis signed a

Memorandum of Understanding.
The Korean Corner was opened to promote Korean culture and raise awareness about Korea in Latvia.
The Korean Corner offers audiovisual materials on Korean studies, technologies, and culture, and also displays traditional Korean art objects and musical instruments.

RTU signs a Memorandum of Cooperation with Massachusetts Institute of Technology

On 16 September RTU signed a Memorandum of Cooperation with one of the world's leading universities of technology– Massachusetts Institute of Technology (MIT). It provides an opportunity for Latvia to join a global community of faculty members of higher education institutions, technology experts, researchers and policy experts and, with the support of MIT, to build an innovation and research ecosystem in Latvia.
MIT has been a leading education and research institution in the world for many decades, it aims to support and strengthen the capacity of other universities. The Memorandum foresees that support of MIT will be available to any higher education institution in Latvia, since an international center of excellence in education and innovation will be established in Latvia.
Its mission will be to use MIT support to promote educational excellence, transfer of international best practice, promoting digital transformation and reform in Latvian higher education. The center will be operated by RTU Riga Business School (RBS) in cooperation with MIT.

RTU Vice-Rector for Research and Ambassador of Thailand discuss possible areas of cooperation

On 24 September, RTU Vice-Rector for Research Tālis Juhna welcomed the Ambassador Extraordinary and Plenipotentiary of the Kingdom of Thailand to Latvia Kanchana Patarachoke on a familiarization visit to inform about RTU activities in the field of studies, science and innovation and discuss possible areas of cooperation with higher education institutions in Thailand.
During the meeting, the Ambassador was introduced to the summer schools organized by RTU, which could be one of the potentially most effective means to promote RTU in Thailand.

Ambassador of Mongolia gets acquainted with academic and research activities of RTU

On 15 October, the Ambassador of Mongolia to Latvia Barkhas Dorj paid a working visit to RTU to get a deeper insight into the development of RTU infrastructure, technical support and to discuss cooperation between RTU and higher education institutions in Mongolia and its further development areas.
During the meeting, the Ambassador was informed about RTU studies, science and innovations, as well as was provided with the insights into RTU cooperation with Mongolian higher education institutions.

RTU Rector and Ambassador of Ireland discuss future areas of cooperation

On 23 November, RTU Rector Leonīds Ribickis welcomed the Ambassador of Ireland to Latvia, Eimear Friel, on a familiarization visit to inform her about RTU activities in studies, science and valorization, to discuss cooperation with Irish higher education institutions and to outline further areas for its development.
During the meeting, cooperation between RTU, Technological University Dublin and six other European universities on the development of a proposal for the European University of Technology

(EUt+) was highlighted. The Ambassador expressed her willingness to continue to participate in RTU events involving both Irish students and RTU students and staff who plan to implement mobility or joint activities in Ireland.

RTU hosts a representative of the Université Savoie Mont Blanc from France

On 2 and 3 December, Professor Philippe Bolon, Dean of the *Polytech Annecy-Chambéry*, part of the *University Savoie Mont Blanc*, paid a working visit to RTU, meeting with the representatives of RTU faculties and the International Cooperation and Foreign Students Department, as well as gaining a deeper insight into the infrastructure development and technical support of Ķīpsala Campus.
Professor Philippe Bolon saw the facilities of RTU Institute of Energy Systems and Environment, Institute of Mechanics and Mechanical Engineering, Mitutoyo Metrology Laboratory and the Design Factory and their application in the study process and international research activities, as well as evaluated the Large Motion Range Robotic Simulator System.

Visit of representatives of Pusan National University from Korea to RTU

On 3 December, the Ambassador of the Republic of Korea to Latvia Seong-Jin Han and the Advisor for International Cooperation of Pusan National University Sang Gum Li visited RTU.
The guests were welcomed by the Dean of the Faculty of Electronics and Telecommunications Jurģis Poriņš. They visited the Fiber Optics Transmission Systems Laboratory, Mitutoyo Metrology Laboratory and the Large Motion Range Robotic Simulator. The signing of a Memorandum of Cooperation between Pusan National University and RTU was discussed, as well as the visit of the management of the Faculty of Engineering of Pusan National University to RTU in early 2022.

d. Erasmus+

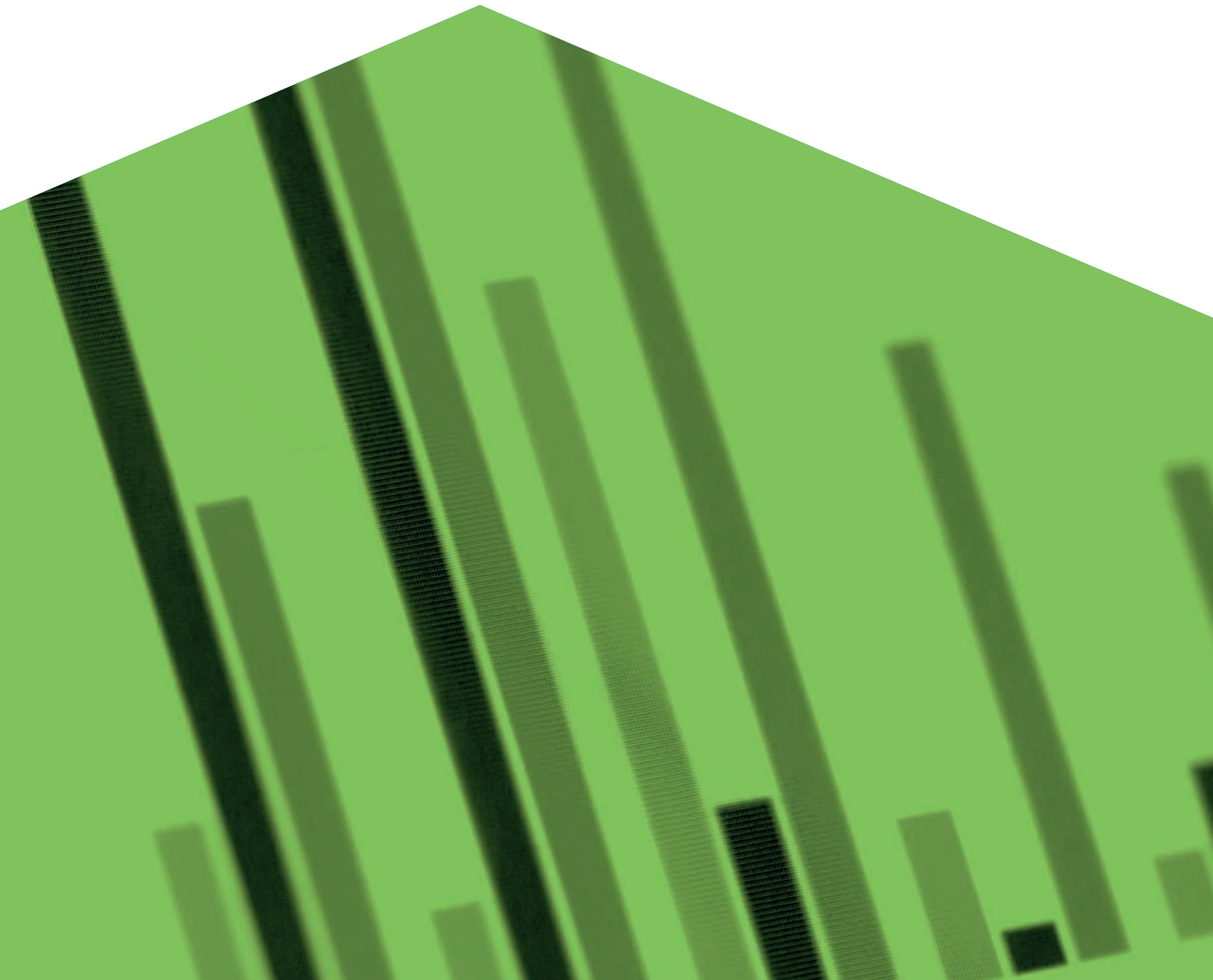
In academic year 2020/2021, RTU continued its activities within the Erasmus+ program by implementing several projects. The project KA103 is one of them – "Higher Education Student and Staff Mobility within Program Countries", where RTU students have the opportunity to go on exchange studies to one of RTU partner universities or on an internship to the companies of the European Union, while RTU staff have the opportunity to carry out teaching or experience exchange mobility in RTU partner universities, organizations or companies by receiving Erasmus+ scholarship.
There were 326 Erasmus+ agreements in force for cooperation with European universities.
The leading countries in terms of number of agreements were Germany (56), France (39), Poland and Italy (26).
The following mobility were implemented to European countries in academic year 2020/2021:

- 132 study mobilities;
- 163 mobility placements;
- 145 staff mobilities.

The number of internship mobilities undertaken by RTU graduates during the year after graduation is increasing.
In academic year 2020/2021, 110 RTU graduates went on an internship after their studies.
In 2020/2021, 166 RTU students and graduates with foreign citizenship participated in Erasmus+ mobility projects in European countries.
The most popular countries for RTU exchange studies are Lithuania (20), Portugal (15), Sweden (12), Spain (11), and Czech Republic (11).
The most popular countries for internships

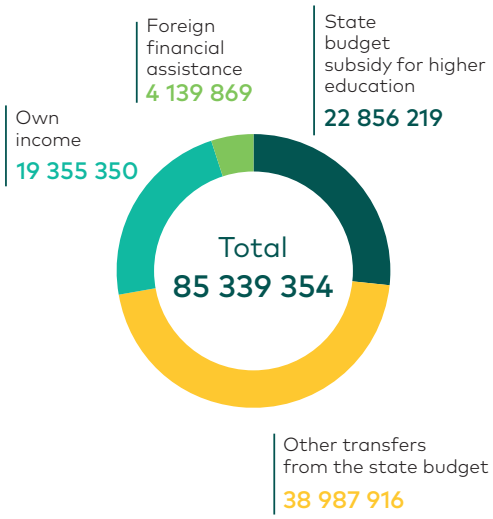
are Spain (33), Poland (19), Germany (15), Czech Republic (14), Portugal (14), and Estonia (14).
The total funding used by the project amounted to more than EUR 890,000. Support of Erasmus+ program clearly enriches the knowledge and experience of RTU students and staff every year, contributing to professional advancement and competitiveness of RTU students and graduates in the European and global labor market, as well as to improving the pedagogical skills of RTU staff allowing them to learn from the best experience of their colleagues abroad.

14
Finances

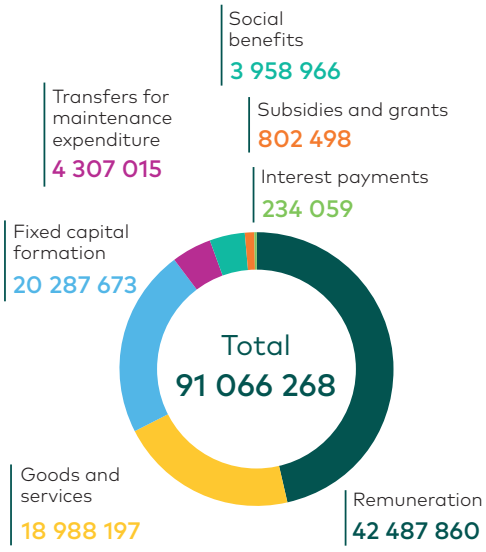


Budget for 2021

Revenue in 2021 (million EUR)

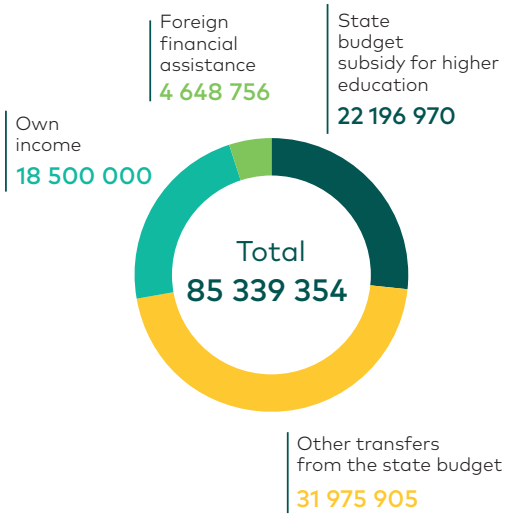


Expenditure in 2021 (million EUR)

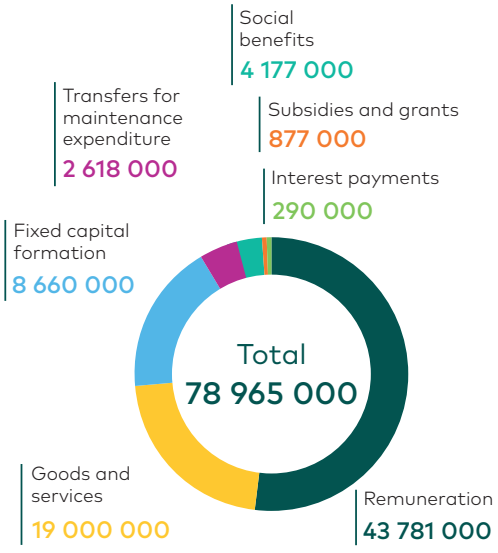


Planned budget for 2022

Estimated revenue in 2022 (million EUR)



Expenditure planned in 2022 (million EUR)



RTU Development Fund

The Development Fund of Riga Technical University is an organization that cooperates with various companies, organizations and individuals to offer scholarships to students, implement various projects and take care of RTU development as a modern center of education, science, culture, and sports.
The main objectives of the Fund are:

- to promote the development of higher education in Latvia that meets the needs of society and market requirements;
- to promote the advancement of the level of education and training of new specialists;
- to support the implementation of university development programs not only for education but also for scientific research;
- to award scholarships to students for training and scientific activities, and also for qualification advancement of the academic staff and employees.

The Ministry of Finance granted the status of a public benefit organization to RTU Development Fund to support education, science, culture and sport.

In 2021, the RTU Development Foundation raised more than EUR 657,000 in donations.

The largest donation in 2021 – more than EUR 500,000 – was made by Ltd "Mikrotīkls" (MikroTik brand).

The following projects were implemented with support of these funds in 2021:

- Modernization and improvement of the infrastructure of RTU High-Performance Computing Center;
- Modernization of the Laboratory for Programmable Radio and Wireless Sensor Networks;
- Modernization of RTU Telematics and Transport Electronic Systems Training Laboratory;
- Modernization of RTU Electroacoustics Laboratory;
- RTU Student Innovation Grant Program activity "DEMOLA"
- RTU Talent Program.

The donation of JSC "Latvenergo" made it possible to implement the project "Modernization and reconstruction of student laboratory work stands at the Faculty of Energy and Electrical Engineering of RTU for remote learning".

Thanks to the donations raised, the following projects were also supported and implemented:

- RTU Grand Graduation Ceremony;
- Support for the furnishing of the public spaces of the Faculty of Computer Science and Information Technology of RTU;
- Conference "Wood Construction Forum".

RTU Development Fund Scholarships

RTU Development Fund, attracting donations and gifts from organizations, legal entities and individuals, grants scholarships to students of RTU and other universities and colleges, as well as to students of secondary vocational education institutions.

Scholarships are offered in cooperation with sponsors:

- for academic achievements;
- for achievements in science and research;
- to promote practical skills;
- for achievements in sport.

Scholarships awarded for achievements in science and research

- "ZIBIT 2021" Graduation Paper Scholarships for students in Information Technology and Computer Science;
- Scholarship of Ltd "Peikko Latvija" for students of RTU Faculty of Civil Engineering;

- Jānis Alksnis Scholarship for students of RTU Faculty of Architecture;
- Ivars Strautmanis Latvian Regional Architecture Scholarship;
- Graduation paper scholarship of Ltd "whiteCryption" for IT students;
- Accenture Science and Research Scholarships for IT students.

Scholarships for academic achievements

- Ltd "PERI" supports scholarship for students of RTU Faculty of Civil Engineering;
- Ltd "ITERA Latvija" scholarships for RTU and Latvia University of Life Sciences and Technologies students;
- Alfreds Raisters scholarships for students in various fields who have outstanding achievements and are involved in promoting engineering on a daily basis;
- Ltd "SAKRET" scholarship for students of RTU Faculty of Civil Engineering;
- Ltd "SAKRET" supports scholarship for students of RTU Faculty of Materials Science and Applied Chemistry;
- RTU Engineering High School Student Support Scholarship;
- Ltd "Mikrotīkls" support scholarship "Topošais profesionālis" for RTU students;
- Ltd "SCHWENK Latvija" for students of energy, electrical engineering, engineering mechanics and mechanics;
- Ltd "Light Guide Optics International" scholarships for students of the Faculty of Materials Science and Applied Chemistry;
- JSC "HansaMatrix" scholarship for students of the Faculty of Electronics and Telecommunications of RTU;
- Ltd "Mikrotīkls" supports scholarships for students of the Faculty of Computer Science and Information Technology, Faculty of Electronics and Telecommunications, and Faculty of Electrical and Environmental Engineering of RTU;
- Excellence scholarship competition for the students of the joint study program "Computer Science and Organization Technologies: of RTU Riga Business School and the University of Latvia;
- RTU Student Innovation Grant Scholarships for various activities such as the Product Development Project and the Vertically Integrated Project.

RTU Development Fund also awards prizes for special achievements in science

- Latvian Academy of Sciences, SIA "ITERA Latvija" and RTU Development Fund Annual Award;
- Academic Excellence Award of the Year and Young Faculty Member of the Year Award;
- RTU Engineering High School Honorary Graduate Award.

Una Īle, a graduate of the Faculty of Architecture, receives Professor Ivars Strautmanis Prize

A graduate of RTU Faculty of Architecture Una Īle was awarded the Latvian Regional Architecture Prize of Professor Ivars Strautmanis. U. Īle won the prize for her diploma paper "Multifunctional Outdoor Space of Contemporary Residential Buildings. "Rietumu vārti" residential development in Jelgava", in which the graduate created a proposal for a sustainable residential area in Jelgava with a functionally usable, aesthetically qualitative and safe multifunctional outdoor space.
Ivars Strautmanis (1932-2017) was a multifaceted personality – an architect, urban planner, and theoretician. At the end of his life, Professor made a donation to the RTU Development Fund to establish a prize to celebrate and highlight one young specialist every year for their contribution to the shaping of Latvia's urban and rural environment. The Latvian Regional Architecture Prize has been awarded since 2013.

15

Achievements and Rewards

RTU – Higher Education Institution Most Recommended by Employers

In 2021, for the tenth consecutive year, RTU gained the title of the higher education institution most recommended by employers in a survey conducted by the Employers' Confederation of Latvia in cooperation with the career and education portal prakse.lv.
The assessment of employers is very important for RTU, as it confirms to the existing and future students that the study programs implemented by RTU comply with the labor market requirements and employers evaluate the knowledge obtained by RTU graduates.

a. Ratings

International ratings enable RTU to assess progress according to internationally defined criteria and to compare itself with other higher education institutions in Latvia and in the world. Based on the assessments obtained from the ratings, it is possible to draw conclusions and set new objectives for the sustainable growth and development of the study process, scientific activities and the entire university.

«Times Higher Education World University Rankings» 2022

RTU is ranked in the 1001 – 1200 group. RTU was recognized as the 242nd World Best University in terms of university cooperation with the industry. The ranking of the university cooperation with the industry is evaluated considering the amount of revenue the university has generated from knowledge transfer. It also analyzes the contribution of the university to business development through innovation, inventions and expertise, as well as the ability of universities to raise funding from the commercial sector. The ranking includes the best universities in the world, assessing their performance in studies, cooperation with industry, internationalization, science and citation rate.

«Times Higher Education Emerging Economies University Rankings» 2022

RTU is ranked 251-300 in the rating of universities of the emerging economies. Two areas of RTU activity are most highly valued: industrial revenues and the international perspective. Overall, the ranking includes 698 universities. The rating assessed the performance of universities on the basis of the Times Higher Education World University Rankings methodology, adapting it to the priorities for the development of emerging economies, in five areas of activity: studies (study environment), research (volume, revenue and reputation), citation (research impact), international perspective (staff, students, research) and industry income (knowledge transfer).

«Times Higher Education Impact Rankings» 2021

Having evaluated the performance of RTU in the framework of the United Nations (UN) Sustainable Development Goal (SDG) 17 cooperation program, RTU was ranked in the group 201 – 300. The efforts of RTU to achieve the "Protection of the Planet" goal were evaluated the highest – in this area RTU finished in the 64th place. RTU was ranked 201st – 300th in terms of reaching the "Renewable Energy" goal, 101st – 200th in implementing the activities of the goal "Good Work and Economic Growth", and the 82nd best in meeting the expectations of the goal "Innovations and infrastructure".

«QS World University Rankings» 2022

RTU was included in group 751-800 of the international QS World University Rankings 2022, which is the highest position among the three Latvian universities included in the ranking. The rating highlights the increase of foreign students at RTU, moreover, RTU improved its position by 82 points, reaching the rating of 289 on the global score. The ranking includes 1300 best universities in the world and universities have been evaluated on the basis of six criteria: academic reputation, employers' reputation, citation rate, the proportion of students and academic staff, as well as the share of foreign students and foreign academic staff. Compared to the previous year, RTU has improved its performance in four out of six criteria: the share of foreign students, the proportion of students and academic staff, citation rate and academic reputation.

«QS University Rankings: EECA» 2022

RTU retained the 57th position against the previous year in the international ranking «QS Emerging Europe and Central Asia (ECCA) 2022», experiencing growth in several criteria, such as the reputation of employers. The ECCA is a regional university rating for Europe and Central Asia, which in 2021 included 450 regional universities. At the regional level, the reputation of RTU

among employers was evaluated the highest, ranking the university the 27th. RTU climbed up in this position, as well as in four more criteria – academic reputation, the share of foreign students, international cooperation in research, as well as the proportion of the number of scientific publications at the faculties.

«QS Graduate Employability Rankings» 2022

In the QS Graduate Employability Rankings compiled by the prestigious rating agency QS World University Rankings, RTU holds 201–250th place. The cooperation between employers and students was evaluated the highest. This confirms that study programs of RTU are valued in the labor market not only locally, but also internationally, and that RTU educates and trains the necessary and high-quality specialists for the national economy. The ranking assesses the reputation of universities among employers, graduate performance, university and employer cooperation, student and employer cooperation and graduate employment. A total of 679 higher education institutions take part in this rating, however, only 550 are included.

«UI GreenMetric World University Ranking» 2021

RTU significantly improved its position in the green policy and sustainability rating "GreenMetric", ranking among 50 greenest universities in the world, and this is a significant increase compared to 2020, when RTU was in the 57th place. In addition, RTU is consistently the only Latvian higher education institution rated so highly in the ranking, as no other Latvian or Baltic higher education institution has been able to rank even among the 400 greenest universities. In the "GreenMetric" rating, the world's universities are ranked according to their commitment to reducing the harmful impact on the environment. The compliance of the university's actions with green principles is evaluated in six criteria – total infrastructure, energy efficiency and climate change mitigating activities, waste management, efficient use of water resources, transport infrastructure, and environmental education and science.

«U-Multirank» 2021

For the second consecutive year, the international university ranking "U-Multirank" highly valued RTU, naming it one of the 25 leading universities in the world in terms of the share of Open Access Publications. This means that a significant number of publications by RTU researchers are available in the open access scientific journals, making research results available to the public. For several years in succession, RTU achieved the most convincing results among all Latvian universities included in this rating.
RTU is the only Latvian university that has received A-level rankings in 13 evaluation criteria, such as the share of open access publications, the level of employment of graduates and their start-ups, the number of spin-off companies, funding attracted for science, graduation of Bachelor and Master studies at the scheduled time, Bachelor programs implemented in English. In 2021, RTU improved its results in four ranking criteria: international publications, student mobility, the number of postdoctoral fellows and attraction of foreign academic staff.

«World's Universities with Real Impact» (WURI) 2021

RTU is the only Latvian university included among the best 40 universities in the section of the international ranking "World's Universities with Real Impact" (WURI), where the capacity of universities in promoting entrepreneurial capacity and developing the business environment is assessed. RTU ranks 31st and this is the best result not only in Latvia but also in the Baltic States as not a single university from Latvia, Lithuanian, and Estonia got included in the ranking's top 50. Overall, RTU takes the 95th place in the WURI ranking.

RTU business and management education is highly valued

For the first time, all Master study programs of RTU Faculty of Engineering Economics and Management were included in the prestigious "Eduniversal Best Masters Ranking" of the

world's best business schools, confirming the international competitiveness of the education offered by RTU and the high evaluation by employers.
The study programs of RTU Faculty of Engineering Economics and Management and RTU Riga Business School were evaluated in the ranking for five years now, constantly improving their position. In 2021, three Master study programs – "Leadership and Management", "Production Engineering and Management" and "Labor Protection" were additionally included in the rating, while the others received a higher rating than before.

b. Achievements

Platinum Category in the "Sustainability Index 2021"

JFor the fourth consecutive year, RTU has been ranked in the highest or Platinum Category in the Sustainability Index. This is a high assessment of RTU efforts to promote green lifestyle and make scientific contributions to the development of environmentally friendly technologies.
According to the "Sustainability Index" methodology, the companies in the Platinum Category have fully integrated corporate responsibility into their activities and have assigned responsible persons on the level of both administration and performers. Companies are systematically collecting data and assessing the impact, as well as are accounting for their activities with high-level transparency and engagement of impact audiences, and their published data have been approved by an external auditor.

Family-Friendly Workplace

RTU was awarded the status of a "Family-Friendly Workplace", which confirms RTU support for employees so that they can combine their professional duties with family life.
This status is obtained by employers who promote awareness of the need to create a family-friendly workplace and help employees by introducing such a work environment and ensuring its sustainability. For example, the employer gives the opportunity to spend more time with the family, gives employees additional vacation days or provides support in obtaining additional education.
RTU, as an employer and an educational institution, values the well-being and opportunities for self-realization of every employee and student. Ensuring family-friendly conditions and organized events resonate with RTU values – sustainable development, openness, and cooperation because family is one of the foundations of a strong society that ensures the inheritance of traditions and further development.

c. Awards

Expressing gratitude for their work and contribution to the development of RTU, following the annual tradition, the most outstanding scientists and academic staff of RTU were honored on October 14, during the celebration of the 159th anniversary of RTU.

Scientists of the Year

- "RTU Scientist of the Year 2021" award was received by Andris Šutka, an associate professor of RTU Faculty of Materials Science and Applied Chemistry (FMSAC). Under his leadership, piezoelectric polymer materials, which generate electricity when mechanically acted upon, are being researched at RTU;
- "RTU Young Scientist of the Year 2021" award was granted to FMSAC researcher Jana Vecstaudža;
- "RTU Young Scientist of the Year 2021" award was received by FMSAC researcher Kristaps Rubenis. Both young scientists specialize in the development of biomaterials.

Annual Award in Valorization

To promote the development of practically applicable innovations and cooperation of scientists with the industry, RTU has awarded the "Annual Valorization Award" and "Student Valorization Award" for several years. Such indicators of technology transfer as licensing agreements, contractual works, patents, technology promotion, and business activities are evaluated within the competition.

- In 2021, Professor Agris Nikitenko, Dean of the Faculty of Computer Science and

Information Technology of RTU, received the "Annual Valorization Award". Under his leadership, many robot systems are being developed, which have a wide range of applications, for example, in room disinfection;

- A PhD student of FMSAC Kristīne Irtiševa won the "Student Valorization Award". She has developed an innovative technology for enriching the soil, using the peat of the Latvian bogs, and by commercializing the new technology, she founded her own start-up company Humico.

Academic Excellence Award

During the annual celebration of RTU birthday, best academic staff of the year are honored. Usually, these are the member of the academic staff that had shown outstanding achievements in teaching. Awards for the best academic staff are traditionally supported by the company of an RTU graduate and former Deputy Rector Aigars Ločmelis – "Industry Service Partners".

- RTU Academic Excellence Award" was received by FCSIT professor Jānis Grabis;
- "RTU Young Teacher of the Year Award" was received by Assistant Professor of the Faculty of Electronics and Telecommunications Ingrīda Lavrinoviča.

The Order of Three Stars was awarded to Uģis Bratuškins and Toms Torims

- The Dean of RTU Faculty of Architecture, Professor Uģis Bratuškins received the Order of Three Stars for special merits in promoting and popularizing architectural education in Latvia and the world, for educating architectural staff, for creating high-quality architecture, and promoting its qualitative growth in Latvia. He was appointed an Officer of the Order of the Three Stars.
- Professor of RTU Faculty of Mechanical Engineering, Transport and Aeronautics and Latvian representative at CERN Toms Torims received the Order of Three Stars for his outstanding contribution to the development of Latvian science, as he has worked purposefully so that Latvia becomes an associate member state of CERN. T. Torims was appointed as an Officer of the Order of the Three Stars.

The Cross of Recognition was awarded to Alida Zigmunde and Aija Janbicka-Vība

- Professor of RTU History of Engineering Research Center A. Zigmunde received the Cross of Recognition for special services for the country. In the Latvian scientific community, she is known as a researcher of the history of science, whose scope of research includes the history of higher education, the study of the Baltic German heritage, and the lifestyle of individuals;
- The Head of RTU Scientific Library, A. Janbicka-Vība, received the Cross of Recognition for her lifetime contribution to the development of the library industry. Under her leadership, RTU Library has turned from a book storehouse into a modern information resource not only for RTU students, academic staff and scientists, it also provides its support to Latvian science, economy, and society.

The Paul Walden Medal awarded to outstanding RTU scientists

In 2021, the memorial medal of outstanding chemist Paul Walden for achievements in materials science, chemistry and history of chemistry was awarded to Māra Jure, Professor of the Institute of Organic Chemistry Technology of RTU Faculty of Materials Science and Applied Chemistry, and to Māris Knite, Professor of the Institute of Technical Physics of RTU FMSAC.

- M. Jure received the Paul Walden Medal for her contribution to the knowledge and popularization of the history of chemistry, summarizing the scientific legacy left by her teacher, FMSAC professor Emīlija Gudriniece. The Professor's contribution made while selflessly working for many years as the Vice-Dean for Studies at FMSAC and guiding the faculty through the processes of change was highly appreciated.
- M. Knite received the Paul Walden Medal for scientific achievements

in material physics and significant contribution to materials science education. M. Knite was one of the initiators of the inclusion of the Institute of Technical Physics to FMSAC, developing a new research area "Materials Physics" and creating a PhD study program "Materials Science".

RTU scientists receive Latvenergo and LAS Annual Awards for excellence in energy research

- Gatis Bažbauers, Professor of the Institute of Energy Systems and Environment (IESE) of the Faculty of Electrical and Environmental Engineering of RTU and Deputy Vice-Rector for Research, received the Alfred Vītols Award for outstanding contribution to the Latvian energy sector in 2021. G. Bažbauers is the author of more than 25 scientific publications, two textbooks and scientific monographs. He has supervised PhD, Bachelor and Master theses, he is also an expert in several organizations – the Latvian Council of Science, "The ERA-Net SES (Smart Energy Systems) Knowledge Community" in Belgium, the *Community Research and Development Information Service* (CORDIS) of the European Commission. G. Bažbauers works not only in research – since 2012 his work responsibilities also include management of the research system and creation of research policy.
- The annual award for significant contribution to the energy sector was awarded to Laila Zemīte, Associate Professor of RTU FEEE Institute of Energy, for the body of works "Energy System Development in Transition to Sustainable Resource Use" and Dmitrijs Rusovs, Associate Professor of the Department of Thermal Energy Systems of RTU Faculty of Mechanical Engineering, Transport and Aeronautics, for his research on the efficiency of heat supply networks. This research is implemented within the State Research Program "Innovative Smart Network Technologies and their Optimization".
- RTU IESE researcher Edīte Biseniece received the annual award for success in the energy sector for young scientists for her work "Sustainable Development of Historical Buildings".
- At the same time, promotion awards were granted to two young scientists – Toms Mols for his PhD Thesis "Climate Adaptive Building Envelopes", which he developed at IESE, as well as IESE researcher Armands Grāvelsiņš for his PhD Thesis "Coupling of Power and Heating Sector – Opportunity for Heating Sector Development".

« Woman in Architecture, Construction, Design »

- Agrita Krieviņa-Siliņa, an Assistant Professor at the professional study program of the Design Technology Institute (DTI) of the Faculty of Materials Science and Applied Chemistry of RTU, was honored in the competition-forum "Woman in Architecture, Construction, Design" for her significant achievements in the promotion of design. A. Krieviņa-Siliņa is a designer who wants to preserve historical values in modern products. She creates illustrations for magazines, has created several book designs and cover designs, and is involved in vintage shoe research and imitation;
- Antra Viļuma, a research assistant and lecturer at the Faculty of Architecture, received an award in the field of architecture development. A. Viļuma's scientific work is related to wooden architecture, structures, and durability. She actively participates in the organization of the international conference "Wooden Days", organizes seminars and guest lectures on wooden architecture.

RTU – Champion of eSignature

In 2021, RTU students, academic staff, scientists, and employees used eSignature so actively that for the second consecutive year the Latvian State Radio and Television Center recognized RTU as the "Champion of eSignature", because RTU internal communication portal ORTUS was the third most popular where users authenticated using eSignature identification.

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Sports

The year 2021 would be marked in the history of the world by COVID-19 pandemic, which had also affected the sports industry – sports competitions were banned, cancelled, and postponed. However, also this year RTU defended its title of the most athletic university. This is reflected not only by the participation of students – varsity team athletes – in Latvian competitions but also by international achievements.

Achievements in the 31st Latvian Universiade

Due to restrictions imposed by the pandemic, competition for the Latvian 31st Universiade Cup took place only in some sports disciplines.

- RTU athletes got 3rd place in both women's and men's basketball competitions.
- Patriks Pinka and Roberts Kļaviņš got 3rd place in the men's competition in beach volleyball.
- 3rd place in the women's competition and 2nd place in the men's competition in the overall athletics standings.
- Table tennis in the overall standings in the women's competition – 1st place and in the men's competition – 2nd place.
- 1st place in women's bench press competition and 5th place in men's competition.

RTU athletes participate in international student competitions

RTU chess players Laura Rogule and Madara Golsta participated in the International Chess Federation (FIDE) chess.com Grand Swiss and Women's Grand Swiss chess tournament held in Latvia and showed respectable results, increasing their ratings by at least 25 points.

Medals won by RTU students in international competitions

- At the international swimming competition "Latvian Open 2021", which was also the qualification competition officially recognized by the International Swimming Federation (FINA) for XXXII Summer Olympic Games in Tokyo, RTU students Daniils Bobrovs won two silver medals in 100m and 200m breaststroke and Artūrs Markovs got a bronze medal in 400m freestyle.
- RTU student Artūrs Rinkevičs in a duo with Ardi Daniela Bedrīte won a silver medal in the European U-22 beach volleyball championship held in Baden.
- RTU student – a bobsleigh pilot Dāvis Kaufmanis with pushers Reinis Nungurs, Regnars Kirejevs and Ivo Dans Kleinbergs got 3rd place in the European Cup competition on the Igls track. At the same time, D. Kaufman in a pair with Ivo Dan Kleinberg got the silver medal at the World Junior Championship U-23.
- At the Baltic States swimming championship, Artūrs Markovs won the title of the Champion of the Baltic States in the 400 m freestyle, while Daniils Bobrovs won the silver medal in 200m and 100m breaststroke.
- RTU student Lauris Pēteris Vējš won the 1st place in the final stage of the Baltic Cup Baltic Championship in shooting in the junior competition in the Olympic discipline "Round stand".

Achievements of RTU athletes

- Valerijs Valinščikovs won the 1st place in both 100m and 400m race in the **second round of "Sportland" Cup Competition in athletics.**
- **Latvian championship in athletics:**
  - Asnāte Kalniņa got the 1st place in 400m race and 2nd place in 200m race;
  - Karlis Sondors got the 1st place in 110m hurdles;
  - Vilmārs Settarovs got the 2nd place in decathlon;
  - Patriks Gailums got the 3rd place in javelin;

- Valerijs Valinščikovs got the 3rd place in 400m race.

- **RTU table tennis women's team got the 2nd place in the top league of the Latvian Championship** (Viktorija Majorova, Diāna Zeltiņa, Sanita Sveile and Diāna Afanasjeva).
- **At the Latvian Table Tennis Championship**, Viktorija Majorova took the 2nd place in mixed doubles and the 3rd place in women's doubles, while Denis Vasiļjevs got the 3rd place in mixed doubles.
- **RTU bridge team (Ilze Andersone and Egons Lavendels) won the first place in the Latvian Couple Championship in Sports Bridge.**
- **Competition of the Latvian Powerlifting Federation in the power duel – bench press and deadlift:**

- Jānis Kalnienieks, got the 1st place in the weight category up to 105 kg;

- Eliza Jansone got the 2nd place in the category up to 69 kg both in the individual evaluation and in the overall women's evaluation.

- RTU women's volleyball team won the 1st place in the Patriot Cup.
- RTU team got the 1st place in the Latvian Blitz Chess Championship and the 3rd place in the Latvian Rapid Chess Championship.
- In the first Latvian Super Cup, the men's volleyball team "RTU Robežsardze"/"Jūrmala" got the 2nd place. The Super Cup was awarded due to the limited competition calendar due to epidemiological restrictions in the season of 2020/2021 did not allow to determine the winners of the Latvian Cup.
- RTU student, beach volleyball player Artūrs Rinkevičs became the 2021 Latvian Beach Volleyball Champion.

RTU supports sports talents

In academic year 2021/2022, 15 sports talents were selected on a competitive basis for studies at RTU. Athletes have chosen a wide range of study programs – Faculty of Engineering Economics and Management, Faculty of Computer Science and Information Technology, Faculty of Electrical Engineering and Environmental Engineering, Faculty of Mechanical Engineering, Transport and Aeronautics, Faculty of Materials Science and Applied Chemistry, and Faculty of Construction Engineering.
Basketball players Raimonds Čudars and Daniels Tīde, a track and field sprinter Maksims Pjazings and a javelin thrower Matīss Kaudze, who studies at RTU Ventspils Study and Science Center, started their studies in the Bachelor study programs. Swimmers Marija Goberga and Rihards Kahanovičs, volleyball players Dinara Mihejeva and Toms Kalniņš, a table tennis player Deniss Vasiļjevs, orienteering athletes Elsa Ķuze, Anna Emīlija Suta and Aija Denija Treziņa, as well as a kayaker and canoeist Henrijs Horsts also joined the family of RTU students. At the same time, two athletes – a basketball player Eduards Grabovskis and a table tennis player Viktorija Majorova – have already obtained a Bachelor degree at RTU and are continuing their studies to pursue the Master degree.
Every year RTU awards special budget-funded study seats for young and perspective sports talents so that they can build a dual career – along with success in sports, they can also obtain higher education.

RTU students – talented athletes – receive state scholarships

The sports scholarships of the Latvian Sports Federation Council (LSFC) were awarded to 14 students of RTU in academic year 2021/2022. RTU students received the largest number of scholarships compared to other Latvian universities.
In general, one-time scholarships in the range of EUR 500 – 1400 euros were awarded to RTU students based on the evaluation of their sports achievements for the period of two academic years (2019/2020 and 2020/2021).

Awards are presented to RTU athletes for achievements in the season of 2020/2021

The Latvian Volleyball Federation presented awards to the best players of the Latvian Volleyball Championship, and an RTU graduate Aleksandrs Avdejevs, the payer

of the team «RTU Robežsardze/ Jūrmala», was recognized as the best small forward.

RTU students – athletes, members of the Latvian Olympic Team

- Several RTU students – **representatives of winter sports** – were included in **the Gold, Silver and Bronze composition of the Latvian Olympic Team**. "Gold" composition includes a bobsledder Lauris Kaufmanis, "Silver" includes bobsledders Dāvis Kaufmanis and Ralfs Bērziņš, while "Bronze" includes a skeletonist Dārta Estere Zunte.
- **Three RTU students were included in the Silver and Bronze squads of the Latvian Olympic Team in summer sports**. **A beach volleyball player Artūrs Rinkevičs** is included in the Silver squad, which is focused on preparing for the Olympic Games in Paris in 2024. At the same time, a **judoka Aleksejs Zarudnevs and a javelin thrower Patriks Gailums** are included in the Bronze squad, and their goal is to prepare and represent Latvia at the World and European Youth Olympics.

RTU student participates in Tokyo Olympic Games

An RTU student Daniils Bobrovs achieved the highest result compared to other Latvian swimmers during the qualification period of the Olympic Games, winning the opportunity to participate in **XXXII Summer Olympic Games in Tokyo**.

RTU athletes receive scholarships in the TVNET social game

Thanks to the vote of supporters, three RTU students – a floorball player Laura Gaugere, volleyball player Artūrs Rinkevičs, frisbee player Emils Elksnītis, and a lacrosse player Sergejs Ņikitjuks received scholarships in the social game of the portal TVNET, which aims to support young athletes. The students received EUR 1,000 scholarship each to be able to combine professional sports with their studies.

Science and Sports

Before the Olympic Games in Beijing, RTU scientists researched how to improve the suits of the sledders, the material and construction of which affect the speed of the descent.

For luge athletes, while fighting for hundredths of a second, it is not only important to have a good athletic form and precisely designed technique, but also an outfit that fits like a second skin, so the Anthropometry Laboratory of RTU Institute of Design Technologies conducts research to improve the athletes' outfit. Scientists Inga Dāboliņa and Eva Lapkovska use a 3D scanner of the human body for this purpose. Such a fine and accurate measuring device, which is owned by RTU, is the only one in Latvia. The scanner scans the athlete to get the most accurate measurements possible. The common goal of scientists and athletes is to create individualized outfits for world-class sledders.

Let's do sports together

- **Bachelor and college students of RTU, as well as foreign students** of RTU, can attend sports classes offered by RTU for free, paying for them with **virtual money**. Students can play sports at their convenience before or after lectures, choosing from 25 different sports.
- During the pandemic, remote, individual and outdoor sports became relevant at RTU, and RTU Sports Center offered the widest range of sports opportunities to both RTU students and employees.
- RTU Sports Center established a new tradition "RTU Wellness Month", during which both employees and students competed by performing various sports activities using various apps. The students and employees are motivated to play more sports and maintain healthy competition among themselves, as well as to get to know their colleagues in an informal atmosphere, discover their hidden talents and get ideas for activities together with their loved ones. At the end of the campaign, the most diligent students and colleagues were awarded.

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Culture

In 2021, the success of RTU Culture Center was expressed in the use of various opportunities, the interaction among people, as well as the joy of discovery and creativity. It was also necessary to undergo changes – at the very end of the year, when RTU left the historical building in Old Riga, at 1 Kalķu Street, cultural groups of RTU also had to say goodbye to their previous homes, where they experienced both intense rehearsals and joyful moments of concerts and performances. After moving, the Cultural Center works at 1 Meža Street, which is gradually being made into its new home.

Awards

- Dagmāra Bārbale, the leader of RTU folk dance ensemble "Vektors", received the Dance Award in the "Dance Event" category for the choreography "Saules zīmē rotāties", in which one dancer danced a dance in 36 squares.
- Likewise, D. Bārbale together with the music group "Auļi" and the kokle player Laima Jansoni was nominated for the annual music recording award "Zelta Mikrofons 2020" for the music video "Bez gaismiņas nedzīvošu".
- RTU Student Theater "Kamertonis" was praised in the video competition "Shakespeare's heroes and quotes today" of the "Divi maija vakari" festival organized by Latvia University of Life Sciences and Technologies, while the other student theater troupe "Spēle" won the sympathy award.

Anniversaries

- RTU Student Theater "Kamertonis" celebrated its 40th anniversary by showing a kaleidoscope of performance fragments "Kolumbīnes pasakas"

Concerts and performances

- RTU mixed choir "Vivere" ushered in the new academic year on the seashore in Klapkalnciems with the concert "Mazie svētki dziedāšanai";
- RTU post-folklore group "Daba San" invited to Miķeļdienas holiday concert and to the creation of the autumn harvest mandala in Mežapark's Green Theater;
- RTU choirs "Gaudeamus" and "Vivere" participated in the 5th Festival of Latvian Chief Conductors in Aloja;
- RTU student theaters "Spēle " and "Kamertonis" participated in the parade of amateur theater performances "Rīga spēlē teātri 2021";
- RTU mixed choir "Vivere" and SPO participated in the concert dedicated to 159th anniversary of RTU;
- RTU men's choir "Gaudeamus" took part in the concert "Latviešu karavīru dziesmas" dedicated to Lāčplēsis Day, which took place online;
- RTU post-folklore group "Daba San", celebrating Latvia's 103rd birthday, participated in Tartu Cultural Program "2+2 = Latvians in Tartu".

Events

- On March 27, XXII Latvian Student Theater Day organized by RTU took place online. Its motto was "Meeting", it united student theaters from RTU, LU, LLU, and JVLMA;
- With the motto "Es mīlu Roņus" from June to September, a new festival "Vasaras vakara intriga 2021" took place in RTU conference and sports center "Ronīši", where RTU student theaters "Spēle" and "Kamertonis", LLU student theater, RTU amateur collectives "Jauna Nianse", "Delta", "Vivere" and actors Juris Strenga and Artūrs Dīcis participated;
- RTU post-folk group "Daba San" organized a concert "Aitu kūts" in Ogre;
- The RTU interfaculty erudition competition "Spice 2021" took place.

Videos, recordings

- After more than a year and a half of work, a video clip of folk dance group "Vektors" – Kaleidoscope of Memories – was released;
- RTU post-folk group "Daba San" released new videos "Pulkā'i, talkā'i" and "Straumē";
- In honor of RTU anniversary celebrations, folk dance group "Vektors" in cooperation with the contemporary folk music group "Tautumeitas" released a new dance video "Brosnej, puika, tū dzeršonu".

RTU Department of Public Affairs

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