



**RIGA TECHNICAL
UNIVERSITY**

Yearbook 2016



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UNIVERSITY**

Yearbook

2016

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Honouring Tradition, Open to the World

RTU Rector,
Academician Leonīds Ribickis

Riga Technical University (RTU) regularly summarises its own achievements in the Yearbook, thus providing a comprehensive summary of the tasks accomplished and noting the major achievements during the year.

RTU can be proud of many achievements – for the third year in a row RTU is the largest university in Latvia in terms of the number of students – in the academic year of 2016/2017, 15,000 students consider RTU their Alma Mater.

For the fifth year in a row, RTU takes up the 1st position in the list of universities most recommended by employers. In 2016, a record number of enterprises – 2,209 employers (14 times more than in the first year) – were surveyed.

RTU is included in the three most popular university ratings created by the world's most influential university rankings – Times Higher Education BRICS & Emerging Economies University Rankings 2017, Times Higher Education World University Rankings 2016–2017 and QS Stars 2015.

The University continues holding a stable position in other international rankings – QS University Rankings: EECA 2016, UI GreenMetric World University Ranking 2015 and U-Multirank 2016.

Sustainable development is at the heart of RTU activity. Within an annual measurement of the Sustainability Index 2016, RTU received Gold Category, which attested high level of RTU sustainability and corporate responsibility.

We have accomplished a lot this year in relation to scientific research, valorization, as well as expansion and modernization of the campus in Ķīpsala. RTU has drawn up 44 commercialization applications, 32 of which – in 2016. In 2015, RTU completed contract work for a total amount of 1,258,798 EUR.

The next phase of campus development will begin in 2017 and it is planned that by 2020 the majority of university students will be educated at Ķīpsala Campus. During the next planning period, it is envisaged to reconstruct the building of the Faculty of Civil Engineering, construct a new building for the Faculty of Computer Science and Information Technology, as well as relocate the Faculty of Mechanical Engineering,

Transport and Aeronautics in the renovated building in Ķīpsala.

Being aware of its role at the national scale, RTU assumes responsibility for its impact on the society, environment and the national economy. It is not only the responsibility for strategic planning, market relations and the working environment, but also for the education and training of the next generation of Latvian engineers. It has been clearly demonstrated by the activities of RTU Engineering High School, which a year after its establishment won the first place in the best small school rankings and received Great Owl Award by Atis Kronvalds Fund.

RTU has been awarded the status of a family-friendly enterprise by the Ministry of Welfare of the Republic of Latvia. It has been recognized that the university is implementing family-friendly policies, providing services and creating family-friendly environment.

Here, only some RTU achievements in 2015/2016 are mentioned, but this short review provides an insight of the university as a dynamic, development-

oriented institution that is delighted with the achievements of its students, researchers and academic personnel, where we think of the young generation, who will choose to study engineering. It is essential that we have entered into cooperation agreements with Latvian schools, are always interested in sharing information of the study programs implemented by the University at the exhibition «Skola» and Open Door Days.

In 2016, we bravely and dynamically changed our visual graphic identity, thus emphasizing that RTU is a modern, innovative and creative university.

Changes in the University can only be implemented by people open to changes, who work here. RTU logo combines historical traditions, their stability and confidence symbolized by the lions and the common engineering tools – compasses and triangles. Honouring traditions, we have to be innovative and adaptive to new scientific developments in the world, as well as able to develop new technologies. ◆

01

About RTU



RTU is a modern, internationally recognized and prestigious university, the only multi-disciplinary technical university in Latvia.

RTU has been purposefully developing to become the third generation university, which not only provides high quality education, but also ensures excellence in research and innovation and technology transfer, in such a way implementing scientific discoveries in practice. At nine faculties of RTU, it is possible to obtain comprehensive education in engineering and advanced technologies, as well as in social sciences and humanities. Study programs provided by RTU have been highly evaluated by international experts and have been officially accredited, thus the quality of education ensured by RTU has been recognized.

It has also been confirmed by the Latvian employers, who recommend RTU as the first priority university for the students in Latvia.

RTU has also been persistently developing its infrastructure. The first university campus in Latvia is being under construction in Ķīpsala. On completion, it will become the most advanced engineering study centre in the Baltic Region that will house RTU faculties, modern laboratory building, Scientific Library and administrative buildings.

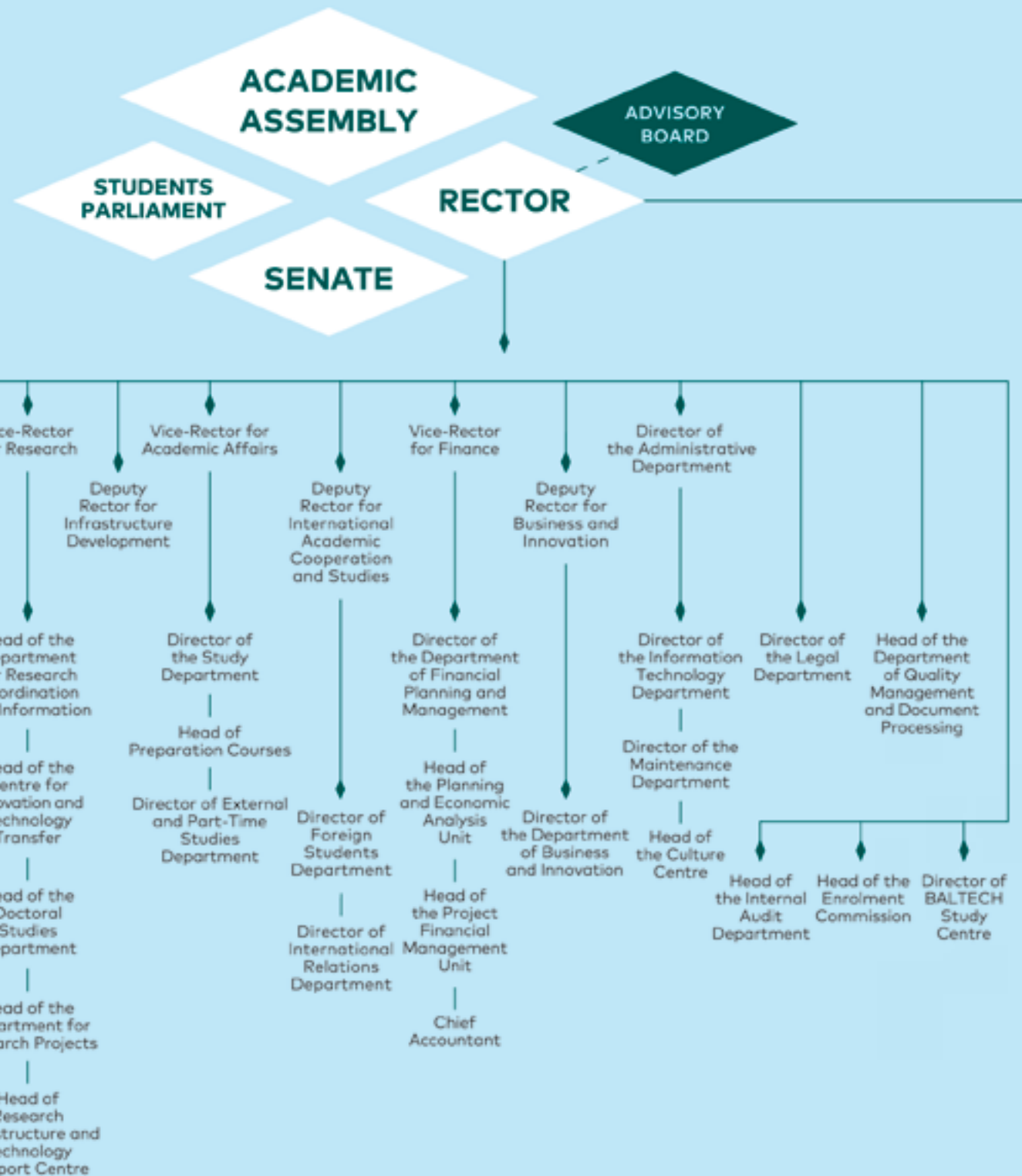
In July 2016, the Prime Minister of the Republic of Latvia Māris Kučinskis visited RTU campus in Ķīpsala.

During his visit, the Prime Minister attended RTU faculties, research and study laboratories. He also discussed university development plan and its contribution to the development of the national economy of Latvia with RTU Rector, Academician Leonīds Ribickis, and other representatives of RTU administration. M. Kučinskis positively rated RTU development plans and expressed his willingness to provide support for faster implementation of RTU infrastructure projects.



02

Structure





03

Strategy



The main goal of RTU Strategy is to facilitate implementation of the leitmotif of the National Development Plan for 2014-2020 – to ensure economic growth of Latvia.

RTU positions itself as one of the cornerstones of the development of Latvia, which educates and trains specialists required by the national economy, as well as develops new products and services, providing the basis for sustainable development of Latvia.

RTU Vision till 2020 is to become a leading research and innovation university in the Baltics. In order to reach this goal, three objectives are formulated in the Strategy: high quality study process, excellence in research, as well as sustainable innovation and commercialization. Definite indicators that will allow RTU to implement its Vision till 2020 have been formulated for each of these objectives.

The Strategy is based on three main objectives of the University and is closely connected with five University priorities: internationalization, interdisciplinarity, organizational efficiency, financial efficiency as well as infrastructure efficiency. Implementation of RTU Strategy has been approved by decision of RTU Senate. The reached outcomes are analyzed annually.

Sustainability Strategic planning

The whole activity process of RTU is based on sustainable development. Being aware of its role at the national scale, RTU assumes responsibility for its impact on the society, environment and national economy, and to be able to assess the impact, it is necessary to take into account five key factors that enable RTU to achieve long-term planning, sustainability and effective development.

RTU Strategy for 2014 – 2020 contains the core targets of RTU development, as well as defines the activities and distribution of responsibilities for implementation of the tasks. The Strategy determines specific result-based targets for study process, excellence in research and valorization at the level of every RTU structural unit that is responsible for efficient achievement of the targets.



Mission ▼

To ensure internationally competitive high quality scientific research, tertiary education, technology transfer and innovation for Latvian national economy and the society

Vision ▼

RTU – a modern and prestigious University, internationally recognised as the leading university of science and innovation in the Baltic States – a cornerstone of the development of Latvia

Goals ▼

HIGH QUALITY
STUDY PROCESS

RTU VALUES ▲

Quality
Academic freedom
Sustainable development
Integrity
Cooperation
Stability

EXCELLENCE
IN RESEARCH

SUSTAINABLE
INNOVATION/
COMMERCIALISATION

Horizontal Priorities

Horizontal priorities determine five horizontal priority tasks within three RTU core areas (studies, research and innovations), which should be integrated and implemented within all RTU activities.

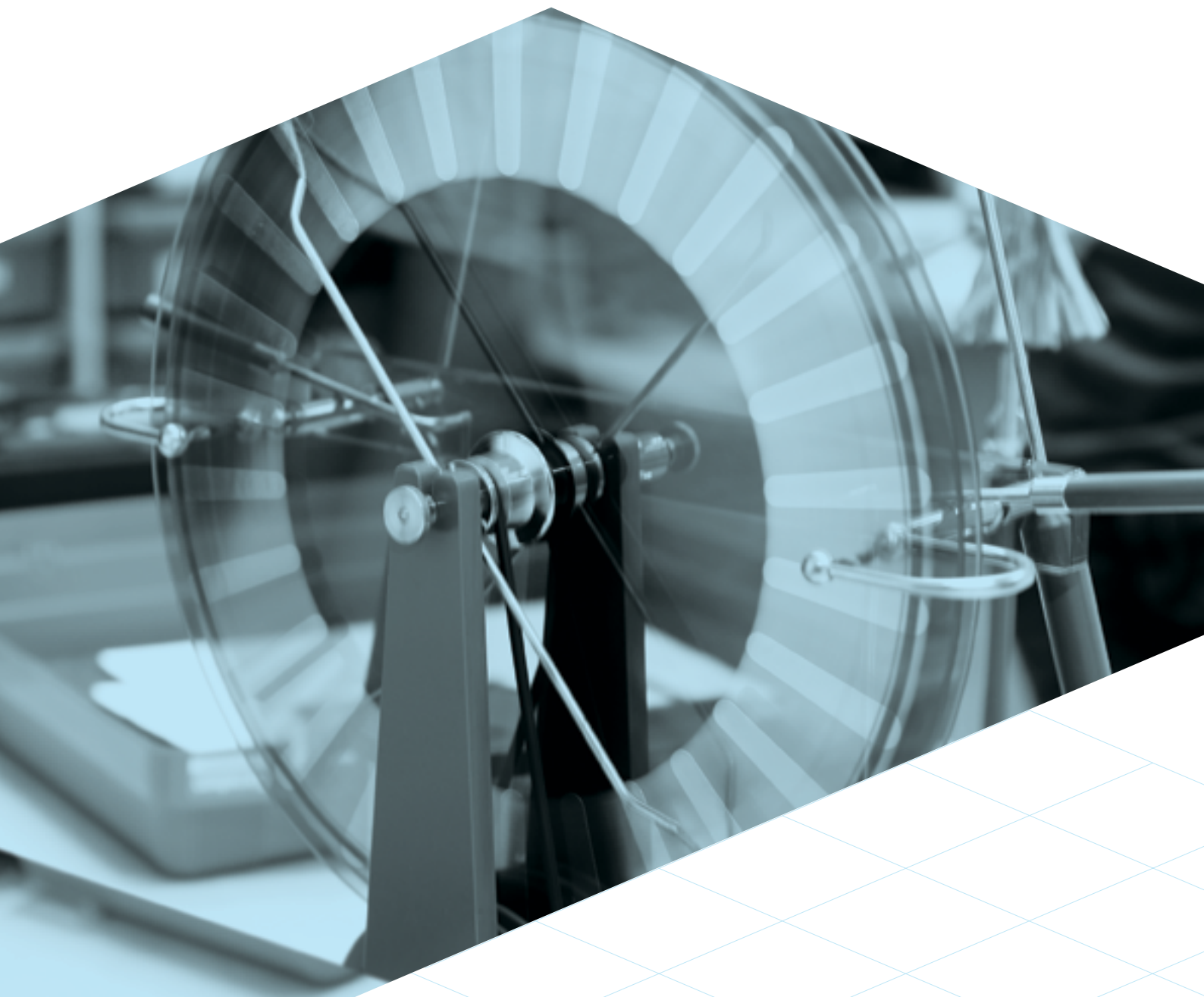
		Goals		
		High quality study process	Excellence in research	Sustainable innovation/commercialization
Horizontal priorities	INTERNATIONALIZATION			
	INTERDISCIPLINARITY			
	ORGANIZATIONAL EFFICIENCY			
	FINANCIAL EFFICIENCY			
	INFRASTRUCTURE EFFICIENCY			

Horizontal Priority Tasks:

- ◆ **Internationalization**
Internationally competitive University performance in the field of science, innovation and studies
- ◆ **Financial efficiency**
Established financial independence and motivating internal financial system that promotes University development
- ◆ **Interdisciplinarity**
Cooperation among different sectors and fields of specialisation as the basis for development of new innovative products and modern educational content
- ◆ **Infrastructure efficiency**
Up-to-date study, scientific and innovation environment with modern buildings and technical equipment that comply with the activities of the University
- ◆ **Organizational efficiency**
Efficient high quality management of the University to promote development and ensure advanced implementation of study and research processes

04

Achievements and Finances





For the fifth consecutive year, RTU is ranked 1st in the list of universities most recommended by the Employers' Confederation of Latvia

For the fifth year in a row, RTU takes up the 1st position in the list of universities and study programmes most recommended by employers. The list is drawn by the Employers' Confederation of Latvia in cooperation with the career and education portal «prakse.lv».

Just as in the previous year, employers have ascribed the highest rank to the RTU professional study programme «Computer Systems». The study program «Civil Engineering» has also been ranked among the top 10 study programs implemented by RTU.

RTU Vice-Rector for Academic Affairs, Professor Uldis Sukovskis notes, «Employers can most precisely assess the quality of RTU study programs, as they are the ones who employ our graduates and are the first to decide whether their level of professionalism meets the requirements of the labour market».

In 2016, a record number of enterprises – 2,209 employers (14 times more than in the first year) – were surveyed to compile the list of higher education institutions recommended by employers.

a. Ratings

Ratings provide RTU the opportunity to evaluate own performance in accordance with the international criteria and compare itself with other higher education establishments in Latvia and over the world. Based on the ranks received within various ratings, it is possible to make conclusions on the current performance and set new goals concerning organization of the study process, research activities and overall sustainable development and progress of the university.



In the academic year 2015–2016, RTU for the first time appeared in the three most popular university ratings compiled by the world's most influential university rankings:

Times Higher Education BRICS & Emerging Economies University Rankings 2017

RTU was placed in the group of universities ranked 201–250 in the list of top 300 universities out of 41 emerging economies.

Times Higher Education World University Rankings 2016-2017

The Ranking includes the 980 top universities in the world. RTU was placed in the 800+ group. Among the top 500 universities, RTU was highly ranked for its collaboration with the industry and entrepreneurs.

QS Stars 2015

RTU received three stars in the QS Stars rating. On the whole, university performance was evaluated considering eight categories, and RTU received the highest evaluation – five stars – in six of them: education quality, employability of the graduates and internationalization, study environment, innovations and engagement.

RTU continues to hold a stable position in other international rankings:

QS University Rankings: EECA 2016

In 2016, RTU climbed one place to 64th position in QS EECA ranking among 200 leading universities from 24 Eastern European and Central Asian countries.

UI GreenMetric World University Ranking 2015

RTU was ranked 170th in the Green Metric World University Ranking on Sustainability in 2015. RTU is the only university in Latvia that was ranked as highly. 407 universities from 65 countries were ranked in 2015.

U-Multirank 2016

U-Multirank is a new multidimensional user-oriented international university comparison tool. U-Multirank uses a letter grading scale (from A to E) to compare universities considering each indicator included in the rating. In 2016, RTU received 11 top level evaluations – A «very good» and B «good» in the following areas: timely graduation from Bachelor programs; timely graduation from Master programs; external research revenue; indexes with regard to artifacts; spin-off enterprises; Bachelor programs implemented in English; Master programs implemented in English; graduate students employed in the region; post-graduate students employed in the region; student internship in the region; publications on regional development issues.

The Conference of European Schools for Advanced Engineering Education and Research (CESAER)

RTU was admitted to the membership of the Conference of European Schools for Advanced Engineering Education and Research (CESAER). This attests high quality of education and research conducted by RTU, which is evaluated at the international level.

To become a member of the CESAER, universities should meet high criteria in studies, research and innovations. On 9 October 2015, celebrating the 25th Anniversary of the CESAER, RTU was elected a member of the CESAER by the General Assembly.

In 2016, RTU Faculty of Engineering Economics and Management (FEEM) and Riga Business School (RBS)

were highly valued in Eduniversal Business Schools Ranking, for the first time ranking in the 4 Palms League that represents top business schools with significant international influence in business and management education. Overall ranking consists of five Palms Leagues. Until now, RTU was in the 3 Palms League. Eduniversal 4 Palms League includes 200 business schools. Moving one league up compared with last year's rating, RTU FEEM and RBS affirmed the progress of RTU strategic priority execution.

Three Master study programs implemented by FEEM are included in the list of the best programs in the world:

- «Customs and Tax Administration» was ranked in the 37th position among 50 best university and business school programs in the corresponding field;
- «Civil Construction and Real Estate Management» was ranked in the 35th position among 100 best university

and business school programs in the corresponding field;

- «Innovations and Entrepreneurship» (Master of Business Administration – MBA) was ranked in the 47th position among 100 best university and business school programs in the corresponding field.

Five more FEEM and RBS programs were ascribed high positions in the Eastern European Region:

- Master study program «Business Finance» implemented by FEEM was ranked 6th among 200 best East European university and business school programs in the corresponding field;
- Master study program «Economics» implemented by FEEM was ranked 8th among 200 best East European university and business school programs in the corresponding field;
- «Executive MBA» program implemented by RBS was ranked 12th among 200 best part-time East European university and business school programs;
- «Professional MBA» program implemented by RBS was ranked 14th among 200 best full-time East European university and business school programs;
- «Professional MBA» program in marketing implemented by RBS was ranked 15th among 200 best East European university and business school programs in the corresponding field.



b. Achievements

Gold Category in Sustainability Index 2016

Within an annual measurement of the Sustainability Index 2016, RTU received Gold Category, which attests high level of RTU sustainability and corporate responsibility. The university applied for index evaluation for the fourth time, and it was the first time it received gold.

Sustainability Index is a strategic management tool based on an internationally recognized methodology. It is used to assess enterprise performance considering topical regional economic, social and environmental issues, at the same time ranking it within international context of corporate responsibility and sustainability standards. The Index provides objective criteria to the public, state and non-government institutions, which can be used to praise and support the enterprises that promote development of the Latvian national economy in the long term.

RTU Organizes the Award Ceremony of the World Cultural Council

In October 2016, the award ceremony of the World Cultural Council (WCC) was organized by RTU at the National Library of Latvia. Professor of theoretical physics Edward Witten from the United States of America received the World Award of Science and Professor Kalevi Ekman from Aalto University received the World Award of Education. RTU Rector, Academician Leonīds Ribickis is the only person from Latvia elected as the member of the Interdisciplinary Committee that decides on the WCC award winners.

At the WCC award ceremony, nine members of RTU academic staff – promoters of science and overall growth – were honored: Chair of RTU Senate, Professor Elīna Gaile-Sarkane, RTU Professor Jānis Grundspenķis, RTU Professor Jānis Krastiņš,

RTU Vice-Rector for Research, Professor Tālis Juhna, RTU Professor Oskars Krievs, RTU Professor Igors Tipāns, RTU Professor Kaspars Kalniņš, RTU Professor Māris Turks and Head of RTU Design Factory Guntis Kuļikovskis.

The WCC awards for achievements in culture, education and science significant for the mankind have been granted since 1984, and every time a different place for the ceremony is chosen. In the past, the award ceremonies were held at Massachusetts Institute of Technology, Swiss Federal Institute of Technology in Zurich, Australian National University, University of Oxford, Princeton University, etc.

The Best Employer in Latvia

In 2016, RTU was recognized the best employer in Latvia by the Employers' Confederation of Latvia (LECL). RTU received the award in the category «The Best Employer in Latvia» for its ability to both appreciate its employees and to make contribution to the development of highly qualified workforce meeting labour market needs.

Family-Friendly Enterprise

RTU was awarded the status of a family-friendly enterprise by the Ministry of Welfare of the Republic of Latvia. It was recognized that the university was implementing family-friendly policies, for example, providing services and creating family-friendly environment. RTU children activity room Integral Bear (Lācītis Integrālis), Children and Youth University, RTU Contemporary Dance Studio, which provides opportunity to learn first dance steps not only to the children of RTU staff, but also other children, engineering workshops organized by the university within various events in Latvia are just some examples, which demonstrate university efforts to become a family-friendly educational establishment. The Ministry of Welfare grants companies the status of a family-friendly enterprise to promote family values in the society.

The EHS Achievement – 1st Place in the Small School Rankings

A year after its establishment, RTU Engineering High School (EHS) won the first place in the best small school rankings and received Great Owl Award by Atis Kronvalds Fund. The EHS gained 61.99 points, staying ahead of the nearest competitor by 7.99 points. RTU EHS is included in the Latvian small school ranking as the number of secondary school students does not exceed 100.

RTU Student Teams Win

• RTU team «Bridge iT» – students of the Faculty of Civil Engineering Lauris Lubgans, Lauris Lodītis and Kristaps Zeps – for the second year in a row won a victory in the World Championship in Spaghetti Bridge Building «RECCS 2016». The Championship took place on 26 May 2016 in Budapest, Hungary. The team participated in the support bridge category and constructed two spaghetti bridges – Alpha and Beta. The team won laurels with Alpha Bridge, which demonstrated an excellent result – load capacity of 468.8 kg. Beta Bridge, in turn, withstanding 443.6 kg in the loading test ensured the third place in the competition. Latvia in the competition was also represented by RTU team «JAM» – students of the Faculty of Mechanical Engineering, Transport and Aeronautics

Artūrs Vēvers, Jānis Lungevičs and Māris Puriņš. Their bridge bore a load of 372.1 kg, winning the 5th place in the competition. Teams from Latvia, Lithuania, Hungary, Romania, Turkey, Iran and Bulgaria participated in the World Championship.

• RTU student team «Four of a K» – Kristens Raščevskis, Kristis Venterzutis, Kristis Pētersons and Klāvs Stiprais – won the regional round of the European BEST Engineering Competition «EBEC Baltic» held in Kaunas. The team represented Latvia and RTU in the final round of the European BEST Engineering Competition «EBEC Final» held in Belgrade, Serbia.

• The idea «Quube» presented by the students of RTU Faculty of Architecture and Urban Planning (FAUP) was recognized as the best one in the masterclass «PITCHING 2015». First place winners – FAUP students Egīls Markus, Matijs Babris and Mārtiņš Smilts – were awarded a grant for business development by JSC Swedbank. «Quube» is an original design tool for stationery organisation.

• The Master Thesis «Reconstruction of Cesis Old Brewery» by RTU graduate Andra Odumāne was recognized as the best Master Thesis in the category «Best Graduation Projects of Architecture Students in the Baltic States» within the competition BAUA AWARDS 16. The aim of the Master Thesis was to develop the territorial development strategy of Cesis brewery, looking at everything as a whole. The main connection to Cesis Castle Park and Castle Square unites all the buildings in the territory.

• RTU was awarded 2015 Top Campus Award by Southwestern Advantage. RTU was ranked 15th among 218 universities, thus attesting its ability to educate and train highly qualified and competitive professionals. 2015 Top Campus Award is given for an indicator of students' earnings of a particular university, which in case of RTU exceeds 123,000 USD.

c. Awards

State awards

RTU Rector, Academician **Leonīds Ribickis** received the Award of the Cabinet of Ministers (CM) for significant contribution to improvement of the quality of engineering education.

Professor of RTU Faculty of Architecture and Urban Planning **Jānis Krastiņš** received CM Award for achievements in research in the field of architecture and urban planning and publication of seminal monographs.

The Cross of Recognition, Fourth Class, was awarded to the Professor of the Faculty of Engineering Economics and Management of Riga Technical University and a corresponding member of the Latvian Academy of Sciences **Konstantin Didenko**.

In 2015, RTU Rector Leonīds Ribickis was awarded the Cicero Prize by the Latvian Academy of Sciences for strengthening higher engineering education and its impact on the national economy.

RTU Scientists of the Year 2015

The Director of the Institute of Silicate Materials of RTU Faculty of Materials Science and Applied Chemistry, Professor **Gundars Mežinskis** received the honorary title of RTU Scientist of the Year 2015 for scientific achievements in the field of nanotechnology and attracted funding for the institute.

The honorary title of RTU Young Female Scientist of the Year 2015 was awarded to the Director of RTU Rudolfs Cimdins Riga Biomaterials Innovations and Development Centre, Leading Researcher of the Institute of General Chemical Technology of RTU Faculty of Materials Science and Applied Chemistry **Dagnija Loča**.

The honorary title of RTU Young Scientist of the Year 2015 was awarded to a Leading Researcher of the Institute of Industrial Electronics and Electrical Engineering of RTU Faculty of Power and Electrical Engineering **Jānis Zaķis**.

RTU Scientists of the Year 2016

Leading Researcher of the Institute of Inorganic Chemistry of RTU Faculty of Materials Science and Applied Chemistry **Kārlis Agris Gross** received the honorary title of RTU Scientist of the Year 2016 for research in materials science.

The honorary title of RTU Young Female Scientist of the Year 2016 was awarded to a Leading Researcher of the Institute of General Chemical Engineering of RTU Faculty of Materials Science and Applied Chemistry and RTU Rudolfs Cimdins Riga Biomaterials Innovations and Development Centre **Kristīne Šalma-Ancāne**.

In 2016, she was granted the L'Oreal Latvian Scholarship «For Women in Science» for the development of bone implant materials, which would facilitate the healing and recovery process of osteoporotic bone fractures.

The honorary title of RTU Young Scientist of the Year 2016 was awarded to an Assistant Professor of the Institute of Telecommunications of RTU Faculty of Electronics and Telecommunications **Sandis Spolītis**. The scientist explores technologies that could improve energy efficiency of optical communications network and increase the transmission speed.



Kārlis Agris Gross

In 2015, S. Spolītis was granted the Werner von Siemens Excellence Award for his Doctoral Thesis «Development and Evaluation of High-Speed Optical Access Systems».

Scientific Awards

On 4 November 2016, marking the 137th anniversary of the Latvian radio founder Jānis Linters, the Dean of RTU Faculty of Electronics and Telecommunications, Professor **Jurģis Poriņš** received the prestigious award from Engineer Jānis Linters Foundation for merit to the development of Latvian electronic communications, students' education and training as well as outstanding contribution to research.

Assistant Professor of RTU Institute of Heat, Gas and Water Technology **Ināra Laube** and a Researcher of Water Technology Laboratory **Kamila Gruškevica** received honorary awards from the Federation of European Heating, Ventilation and Air Conditioning (REHVA).



Kristīne Šalma-Ancāne



Sandis Spolītis

Werner von Siemens Excellence Award

was granted to eight RTU young scientists, thus attesting the importance of their research conducted and opportunities to apply the research findings in practice in order to improve our quality of life.

Oskars Bormanis, Polīna Ivanova, Agnese Skujevska, Renārs Millers and Mārtiņš Mieziņš received the Award in the category of Master Theses. Jānis Latvels, Dmitrijs Merkulovs and Sandis Spolītis – in the category of Doctoral Theses.

In the competition organised by JSC Latvenergo and the Latvian Academy of Sciences, RTU researchers and students

received awards for research in the energy sector. RTU Deputy Vice-Rector for Research, Professor Gatis Bažbaviers and Director of Corporate Strategy at JSC Latvenergo, RTU doctoral student Uģis Sarma received the award for significant contribution to the energy sector.

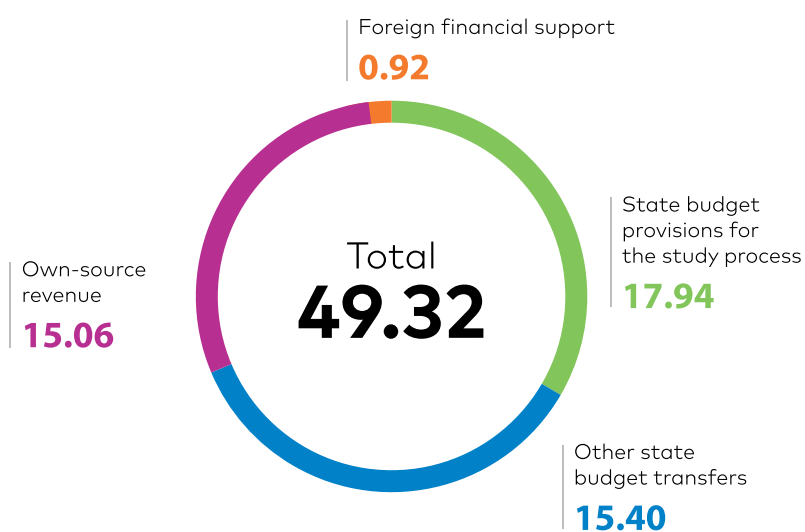
RTU young scientists Dmitrijs Antonovs, Ludmila Lavrinoviča, Baiba Ose-Zaļā and Ļubova Petručenko received the award for achievements in the energy sector. RTU young scientists Sergejs Kovaļenko and Artjoms Obuševs received the appreciation prize.

The young scientist prize «**Silver Owl**» was granted to the Research Assistant of the Institute of Organic Chemistry Technology of RTU Faculty of Materials Science and Applied Chemistry Kristers Ozols for acquisition of a new fluorescent compound.

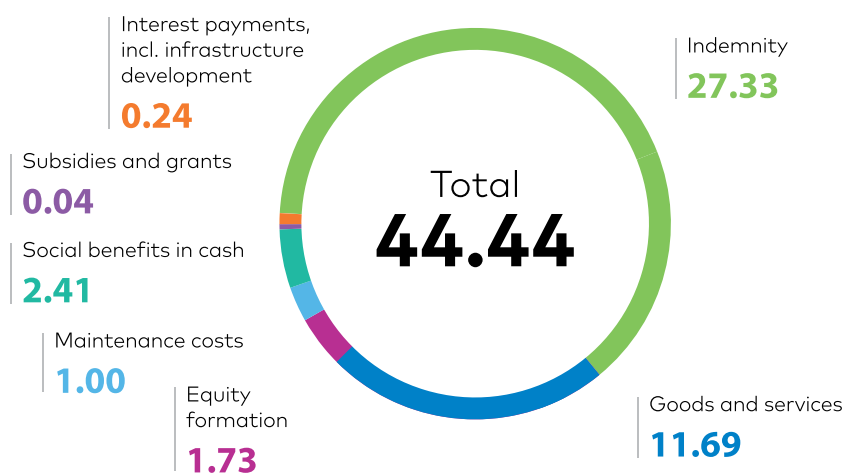
The Inspiration Award was granted to the Leading Researcher of RTU Institute of Materials and Structures Kaspars Kalniņš and the Research Assistant, Engineer of the Faculty of Computer Science and Information Technology Kārlis Berkolds. The Latvian Academy of Sciences granted Young Scientist Award to K. Kalniņš for his Doctoral Thesis on the application of the response surface methodology to the design of composite ribbed shells.

d. Financial Structure and Amount

Revenue in 2016, m. EUR

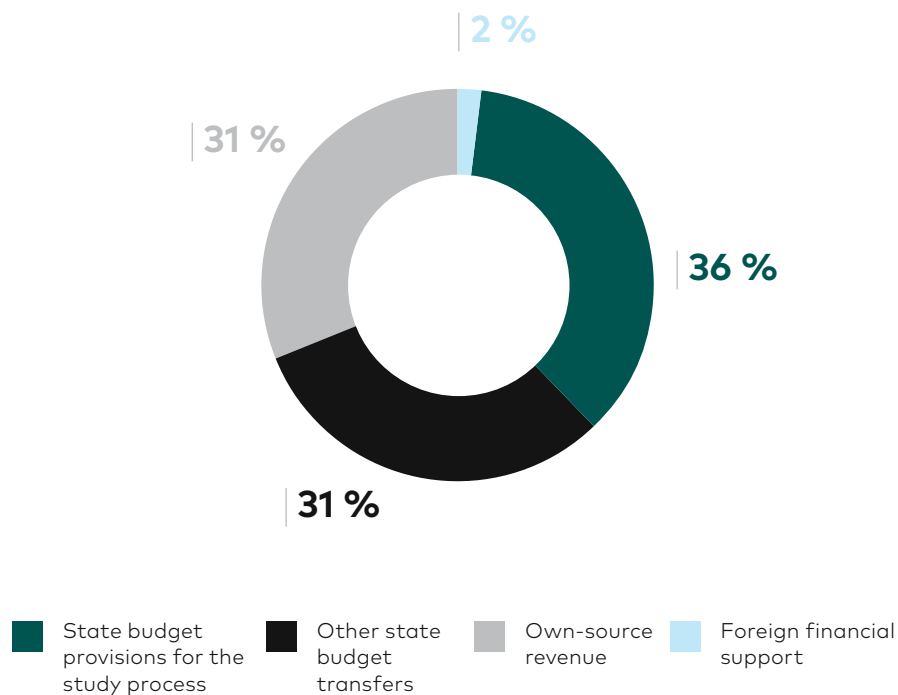


Expenses in 2016, m. EUR



RTU Revenue Structure

Own-source revenue makes up a considerable proportion of the total RTU revenue structure, which has shown a tendency to grow in the recent years. It can be explained by a closer cooperation between the University and the enterprises in the industry in the field of research and service provision, as well as by the increase of the number of foreign students.



Deloitte.

Since 2013, the audit of the consolidated RTU annual report has been performed by Deloitte Audits Latvia Ltd, a representative of international auditing company Deloitte in Latvia.

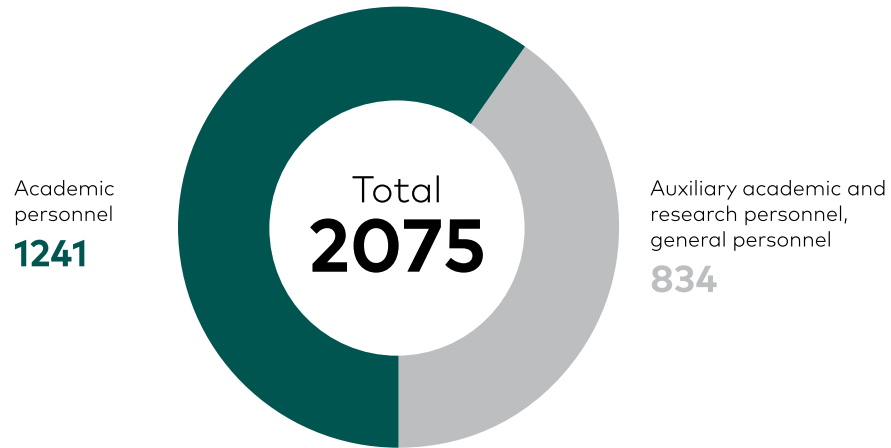
Deloitte will conduct the audit of the consolidated annual report of RTU and its subsidiaries, where RTU has a majority interest, also in 2016, 2017 and 2018 according to the agreement signed as a result of public procurement.

05 Personnel



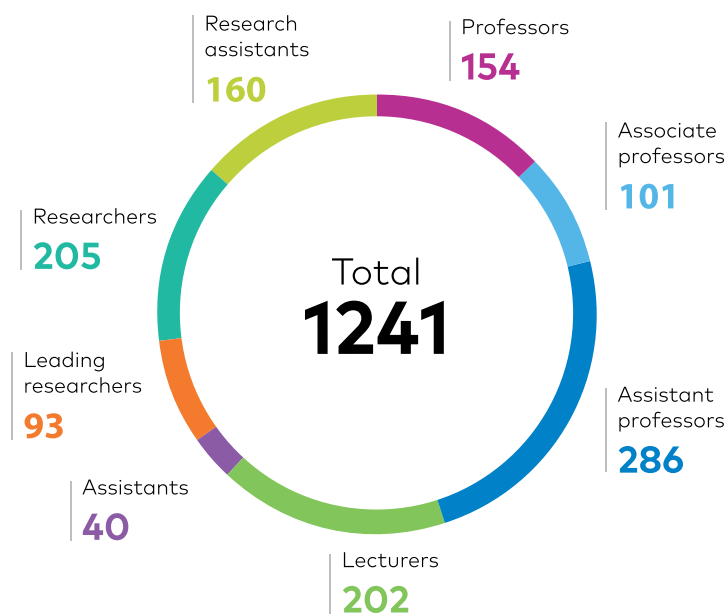
a. Total Number of Employees

As of 31.10.2016.



b. Academic Personnel

As of 31.10.2016.



Working Environment

Acknowledging that human resources are the main asset of RTU, the University creates a motivating environment for both its employees and students. Flexible working arrangements and growth opportunities are provided to all stakeholders. The EFQM based excellence system is being introduced to RTU management model.

06

Administration



a. Constitutional Assembly

Constitutional Assembly is a higher authorized representative and administrative institution and a statutory authority of RTU.

On 23 October 2014, the Parliament of the Republic of Latvia passed a law «On the Constitution of Riga Technical University», it came into effect on 5 November, 2014.

On 8 December 2014, RTU Academic Assembly approved the Regulations of RTU Constitutional Assembly. On 11 May 2015, RTU Academic Assembly was renamed the Constitutional Assembly.

The Constitutional Assembly comprising **200 people** is elected for three years by open ballot by academic personnel, students and general personnel.

All members of RTU Senate are included into RTU Constitutional Assembly, the remaining members are elected by administration, faculties, autonomous units and students' self-government ensuring proportional representation of each group.

Academic personnel constitute at least 60% of the Constitutional Assembly, the students make up 20%.

b. Senate

The Senate of RTU is a statutory collegial administrative body that approves the internal code of conduct and regulations governing all spheres of RTU activity.

Since 2014, the Senate consists of 50 members. The procedure of Senate meetings allows senators to get more actively involved in discussions and to vigorously represent the opinion of the delegating institutions. Apart from the Senate meetings, senators take active part in the work of the Senate commissions. The Senate commissions have been established in the major spheres of RTU activity.

Since 2016, the Senate meetings are held at the new building of RTU Scientific Library. On average, from



CHAIR OF
THE SENATE,
PROFESSOR

**Elīna
Gaile-Sarkane**

160 to 200 draft decisions are considered at 10 regular (planned) Senate meetings annually. Each year, the Senate announces competitions for not less than 30 vacant positions of professors and associate professors, awards the title of RTU Honorary Employee, approves 30–40 different RTU regulations, makes 25–30 amendments to different regulations, prepares a number of important decisions. Thus, in April 2016, the Senate approved the new graphic identity of RTU, which by the end of the year was successfully introduced and gained recognition. In 2016, the title of RTU Honorary Member was awarded to the RTU graduate and partner Vilnis Rantiņš, while the title of RTU Professor Emeritus was awarded to Juris Briņķis.

c. Rector



RTU RECTOR,
ACADEMICIAN

**Leonīds
Ribickis**

At the end of 2015, Leonīds Ribickis was re-elected the Rector of RTU. His candidacy was supported by a convincing majority of the Constitutional Assembly — 159 members.

After his re-election L. Ribickis said, **«Not the Rector alone, but we all together can achieve our strategic goals, which are high quality higher education, excellence in research and valorization. We have a lot of talented young people, and it is worth working for their benefit.»**

L. Ribickis was put forward as a candidate for the position of the Rector by the councils of all nine RTU faculties, RTU Advisory Board, Advisory Board of RTU Riga Business School, RTU Student Parliament, Chairman of RTU Constitutional Assembly Bruno Grasmanis and Chair of RTU Senate Elīna Gaile-Sarkane. L. Ribickis was also nominated by employers — RTU Advisory Board, which consists of business executives of the largest Latvian enterprises.

According to the Regulations for 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 RTU Constitutional Assembly members take part in the voting and the candidate wins more than a half of the Constitutional Assembly member votes.

d. RTU Advisory Board



CHAIRMAN
OF RTU
ADVISORY
BOARD

Āris Žīgurs

Chairman of the Board
of JSC Latvenergo



HONORARY
MEMBER OF RTU
ADVISORY
BOARD

Andris Bērziņš

President of the Republic
of Latvia 2011–2015



DEPUTY
CHAIRMAN
OF RTU
ADVISORY
BOARD

Juris Gulbis

Chairman of the Board
of Lattelecom Ltd.

RTU Advisory Board has been established to promote RTU growth, determining the course of its strategic development in accordance with the needs of the national economy.

The Advisory Board meets four times a year. It consults the Senate and Rector on the issues concerning RTU development strategy, discusses structural reforms and development perspectives, as well as considers and offers advice on university budget planning.

The Senate, Rector, or faculty councils can propose a specialist in the field of research, education, culture, or national economy as a candidate member of RTU Advisory Board. The candidate should not be permanently employed by RTU and should be capable of facilitating RTU development due to his/her professionalism and work experience.

Members of RTU Advisory Board

Andris Bērziņš	Honorary Member of RTU Advisory Board, President of Latvia 2011–2015
Āris Žīgurs	Chairman of RTU Advisory Board, Chairman of the Board of JSC Latvenergo
Juris Gulbis	Deputy Chairman of RTU Advisory Board, Chairman of the Board of Lattelecom Ltd.
Normunds Bergs	Chairman of the Board of Latvian Electrical Engineering and Electronics Industry Association, Chairman of the Board of JSC SAF Tehnika
Juris Binde	President of Latvijas Mobilais Telefons Ltd.
Vitālijs Aišpurs	Chairman of the Board of Arcus Elektronika Ltd.
Ivars Puksts	CEO of JSC Exigen Services
Maksims Jegorovs	Head of the Latvian Branch of Accenture
Andris Vanags	Chairman of the Council of JSC Sakret Holding
Raina Dūrēja	Executive Director of the Association of Latvian Chemical and Pharmaceutical Industry
Ivars Kalviņš	Director of the Latvian Institute of Organic Synthesis
Vilnis Rantiņš	Chairman of the Board of the Association of Mechanical Engineering and Metalworking Industries of Latvia
Juris Savickis	President of ITERA Latvija Ltd.
Vitālijs Gavrilovs	President of Employers' Confederation of Latvia
Ilmārs Rimšēvičs	President of the Bank of Latvia

Ieva Jaunzeme	Head of Administration at the Ministry of Economics of the Republic of Latvia
Ināra Pētersone	CEO of Izdevniecība Rīgas Viļņi Ltd.
Visvaldis Sarma	Head of Sarma & Norde Ltd.
Mārtiņš Straume	Chairman of the Board of the Latvian Association of Civil Engineers
Normunds Talcis	Chairman of the Board of JSC Rīgas Siltums
Viktors Puriņš	Ex-President of the Latvian Association of Civil Engineers
Adriāns Dāvis	Counsellor to Deputy Chairman of the Board of JSC Latvijas Gāze
Baiba Fromane	Chair of the Latvian Partnership of Building Contractors
Pēteris Druķis	Director of State Construction Control Office
Vilnis Krēsliņš	Chairman of the Board of Latvian Association of Power Engineers and Energy Constructors
Andris Lubiņš	Chairman of the Board of Grandeg Ltd.
Atis Sausnītis	Chairman of the Board of Baltijas Lāse Ltd.
Andrejs Aleksejevs	Chairman of the Board of JSC Severstal Distribution
Edvīns Bērziņš	President and Chairman of the Board of SJSC Latvijas Dzelzceļš
Gundars Strautmanis	Vice-president of Latvian Chamber of Commerce and Industry
Andris Bērziņš	Co-founder of TechHub Rīga

07

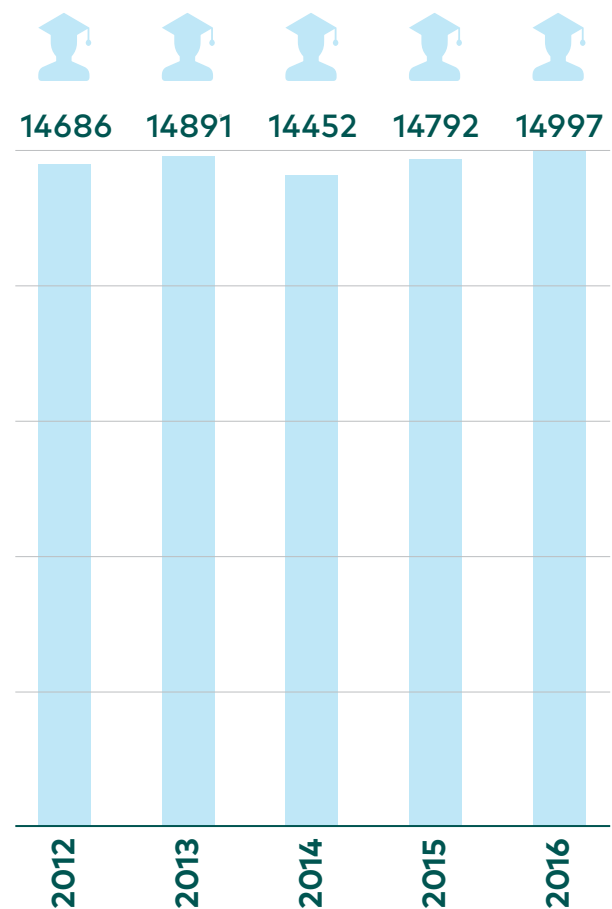
High Quality Education



a. Study Fields

- ◆ Architecture and Construction
- ◆ Economics
- ◆ Power, Electrical Engineering and Electrical Technologies
- ◆ Physics, Materials Science, Mathematics and Statistics
- ◆ Internal Security and Civil Defence
- ◆ Information Technology, Computer Engineering, Electronics, Telecommunications, Computer Control and Computer Science
- ◆ Chemistry, Chemical Engineering and Biotechnology
- ◆ Mechanics and Metal Working, Heat Power Industry, Heat Engineering and Mechanical Engineering
- ◆ Production and Processing
- ◆ Translation
- ◆ Management, Administration and Real Estate Management
- ◆ Environmental Protection

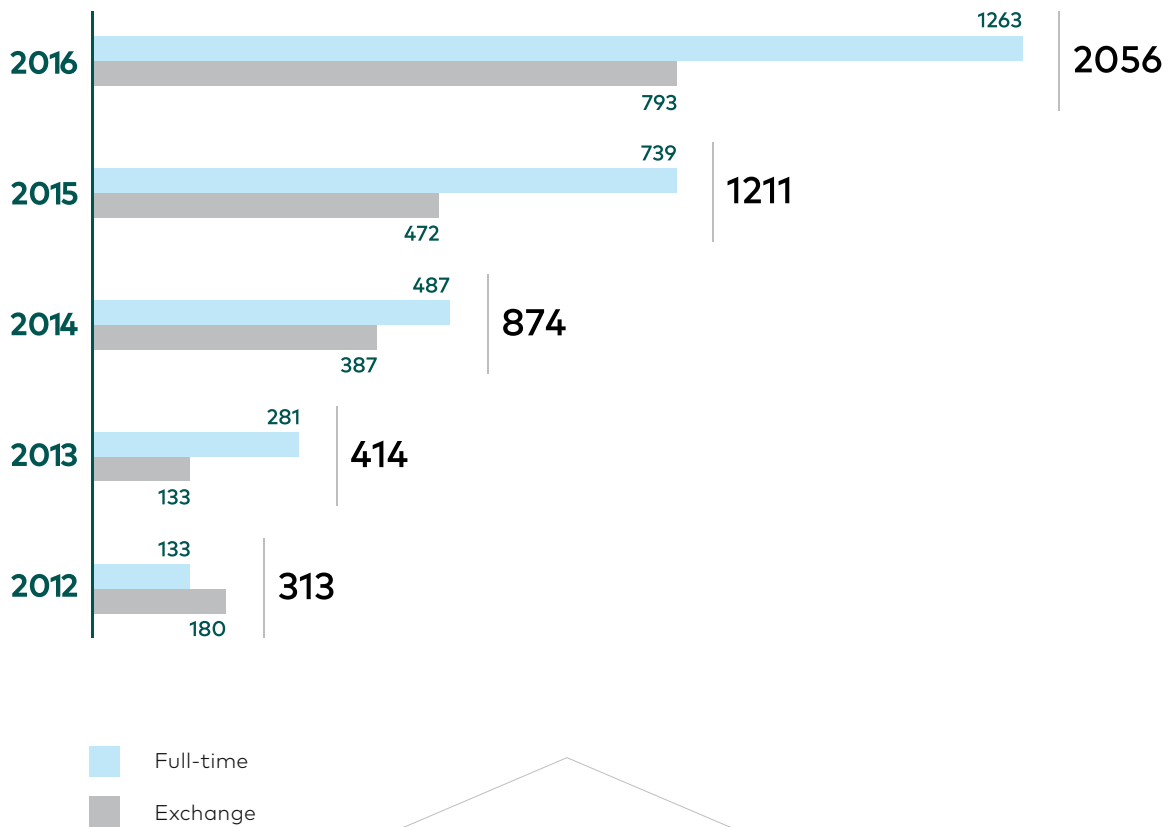
b. Total Number of Students by Year



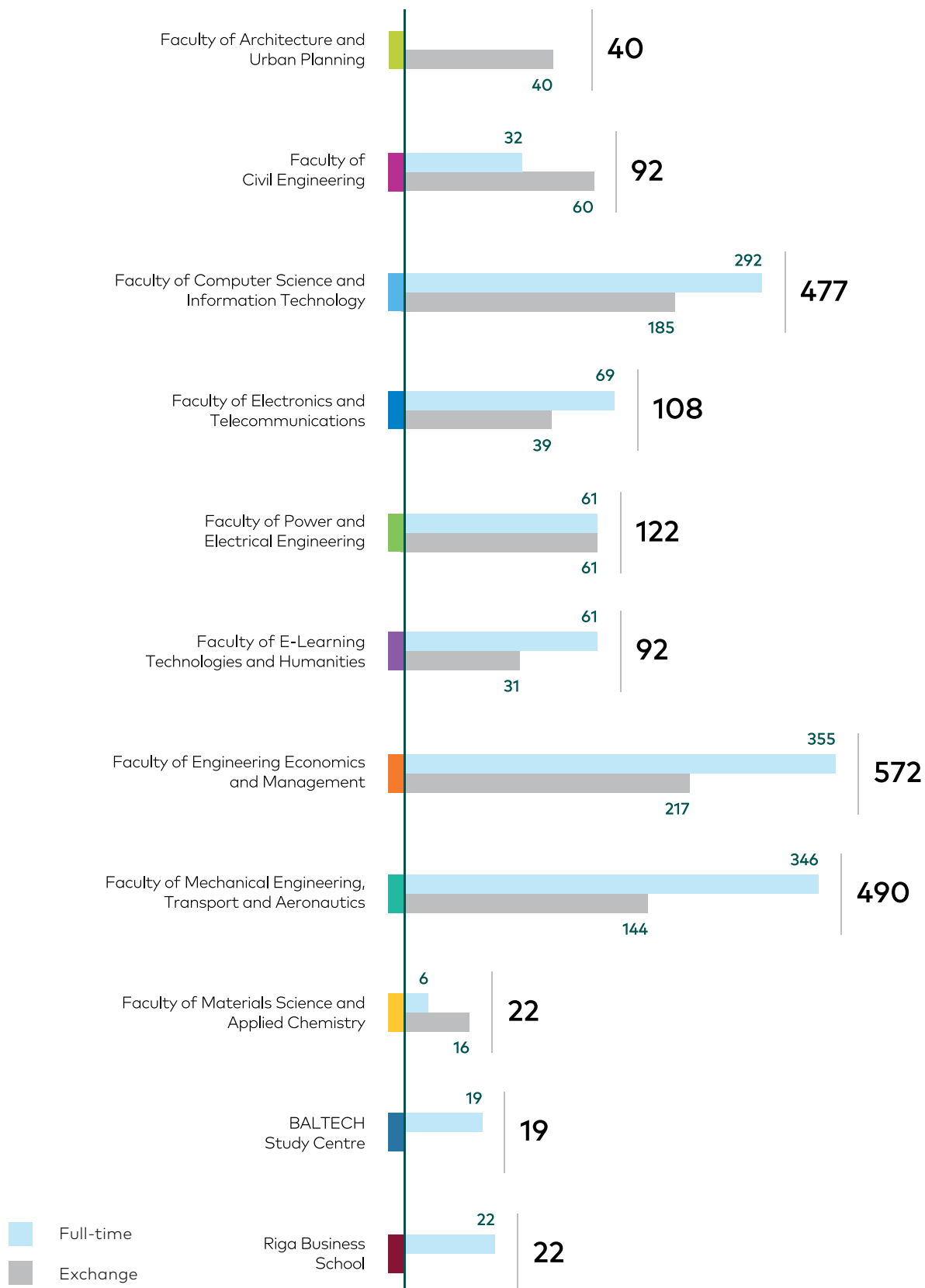
c. Number of Foreign Students

The total number of foreign students is one of the main indicators of the degree of internationalization.

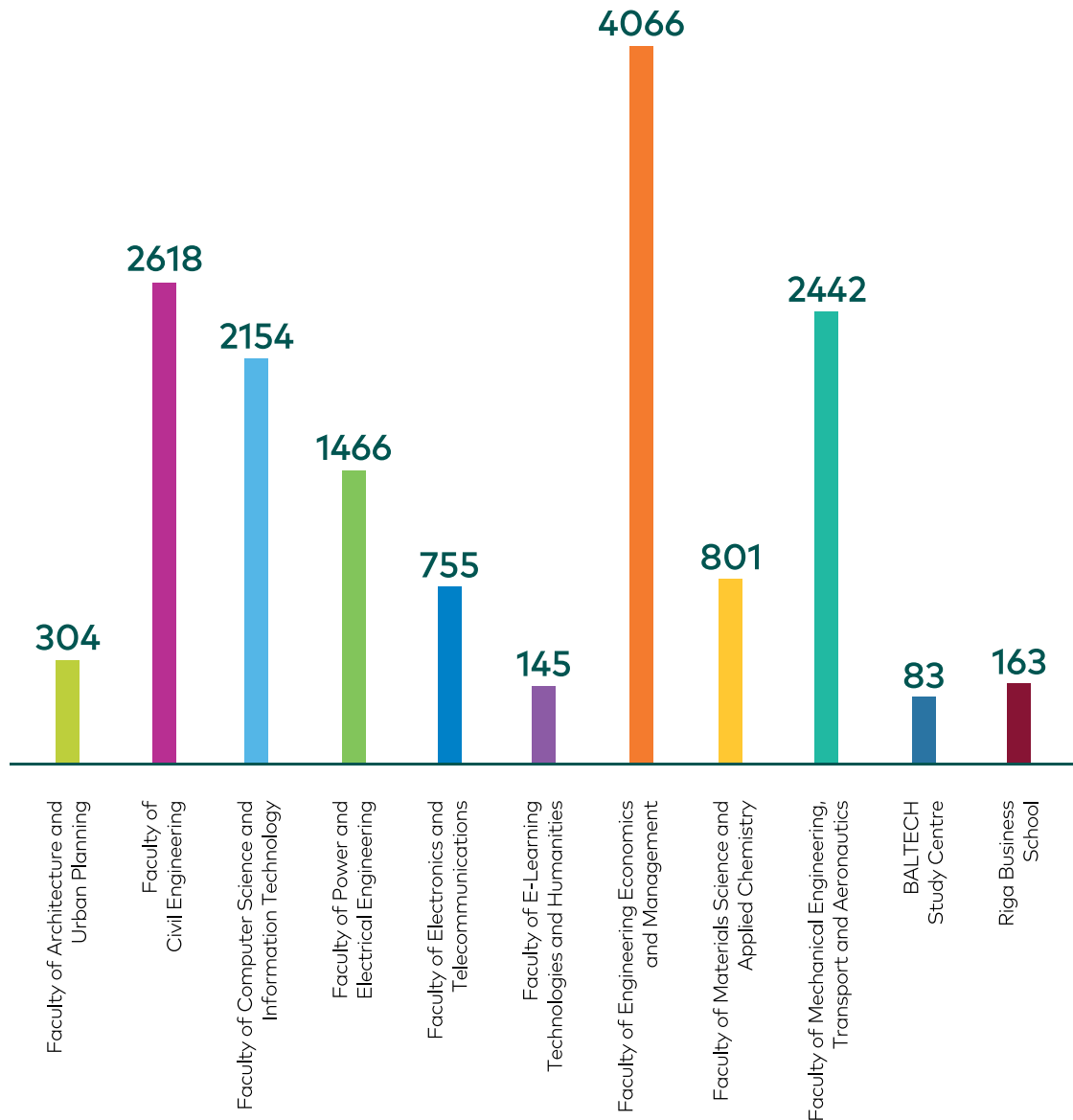
From 1 October 2015 to 1 October 2016, the number of foreign students increased, having reached 2,056 students.



**Number of Foreign RTU Students at the Faculties
01.10.2015. – 01.10.2016.**



d. Number of Students at the Faculties



Total
14997

Number of Alumni
2270

e. New Study Programs

In the academic year 2016/2017 RTU is modernizing the existing study programs by introducing special study module for promotion of creativity and entrepreneurship in order to teach engineering students the basics of business, so that in the future they could commercialize self-developed products establishing their own businesses. The first innovation of this kind was introduced at RTU Faculty of Mechanical Engineering, Transport and Aeronautics (FMETA). At the same time, RTU Cēsis Affiliation in collaboration with Draugiem Group offers a new study program - Mobile Application Development.

RTU also offers innovations within post-graduate studies. RTU Faculty of Civil Engineering in collaboration with Vilnius Gediminas Technical University opened a new international Academic Master Study Program in English «Innovative Solutions in Geomatics». The program allows students to use the latest and most advanced study tools that are available at both universities, as well as the expertise of most capable academic staff from RTU and Vilnius Gediminas Technical University.

f. Bosch Training Center

Bosch Training Center was established in cooperation between RTU and technology company Bosch. It is situated in the new RTU Laboratory Building, which will also house RTU FMETA Vehicle Exploitation Laboratory.

At the Training Center, theoretical and practical classes for RTU FMETA students are held, as well as highly qualified motor vehicle mechanics are trained. Company Robert Bosch has invested around 100,000 EUR in the Training Center. RTU and the company have signed a long-term cooperation agreement.

At the Training Center, it will be possible to investigate and design electrical and electronic systems of cars, which is important when working with modern cars that are equipped with lots of electronic equipment. It will also be possible to learn the fundamentals of maintenance of advanced automotive diagnostic equipment, as well as cabin

air-conditioning systems, petrol and diesel engine injection systems.

In the future, the Center will be fitted out with other equipment that will allow teaching a wider range of study courses.

g. Significant Anniversaries of Three Faculties

In 2016, three RTU faculties celebrated significant anniversaries.

Faculty of Engineering Economics and Management (FEEM) celebrated its 50th anniversary from 29 September until 1 October.

During the celebration period, an international scientific conference «Economics and Business» was organized and reception at Culture Palace Ziemeļblāzma was held.

In honor of the anniversary a new book «Rīgas Tehniskās universitātes Inženierekonomikas un vadības fakultātei 50» was published, as well as a film about the history, present days and future vision of the Faculty was released.

FEEM on its 50th anniversary in collaboration with the international company Experiential Simulations held a business simulation game «*Traction*» for high school students.



On 20 October, **Faculty of Computer Science and Information Technology** with a solemn plenary meeting noted its 55th anniversary. Minister of Education and Science Kārlis Šadurskis presented recognition and gratitude notes to the Faculty staff.



On 22 October, **Faculty of Electronics and Telecommunications** celebrated its 50th anniversary with the opening of its renovated building. RTU Rector Leonīds Ribickis presented recognition notes to 12 people who have worked at the faculty since day one. During the anniversary celebration, Latvian physics, informatics and interest education teachers and academic personnel of the Faculty discussed modern study possibilities.



h. Student Scholarships

RTU students may be eligible for a number of annual scholarships for achievements in studies, which are provided by companies and individuals in cooperation with RTU Development Fund.

- ▶ **For the first time Alfred Raister (a Doctor of Engineering of Latvian descent) scholarship in support of the sciences was granted. Riga Technical University and University of Latvia have received a testamentary donation of 446,000 US dollars to award scholarship to the students and to fund scientific projects.**

Alfred Raisters left 223,000 dollars by will to each university on condition that students having received his scholarship would dedicate part of their employment life to Latvia. Therefore, the recipients will have to work in Latvia for as long as they receive A. Raisters scholarship. The universities will also use the donation for funding scientific projects. A. Raisters bequeathed his life savings to five universities that had been important in his life and career, including RTU and the UL.

- ▶ For several years, students of the Faculty of Materials Science and Applied Chemistry are eligible for JSC Olainfarm funded scholarships named after Solomon Hiller, Ltd Z-Light scholarships and Professor Edvīns Vedējs supported scholarships named after Gustavs Vanags.

▶ Since 2012, students who study computer science and information technology are eligible for JSC Exigen Services Latvia scholarships.

▶ Since 2011 SJSC Latvijas dzelzceļš scholarships for obtaining practical skills are annually granted to 30 rail industry students (RTU Institute of Railway Transport) and technical college students for six-week long summer internship, and 24 students demonstrating the best results receive incentive grants throughout the next academic year.

▶ Since 2011, Ltd ITERA Latvija grants scholarships to the most outstanding students of architecture study program of the Faculty of Architecture and Urban Planning.

▶ JSC Latvijas gāze grants scholarships to the students of the Institute of Heat, Gas and Water Technology of the Faculty of Civil Engineering.

▶ Secondary school graduates whose material provision for studies is not sufficient and who begin their studies at any RTU Bachelor study program can participate in the competition «Future Professional».

▶ Both RTU and students from other educational institutions can also apply for practical skills promotion grants funded by largest companies in the industry. Thus, in 2016 a total of 290 students have acquired practical skills in 49 different companies and were granted a scholarship.

08

Excellent Scientific Research



a. Research Fields

The aim of RTU is to become one of the leading research and technology universities in Europe.

ENERGY AND ENVIROMENT

VISION

Leading energy and environment competence center in the Baltics

- Reliability of power supply system and optimal modes for its performance and economic increasing returns
- Methods and technologies for electricity and heat generation, management, distribution and consumption to increase the efficiency
- Methods and technologies to promote the use of renewable sources of energy to increase its independence in the region and reduce the environmental impact
- Climate technologies and environmental methods for closed-loop economy

CITIES AND DEVELOPMENT

VISION

Important urban development competence center in the Baltics

- Efficient urban infrastructure
- Heritage identification, protection and development
- Urban development (creation of new technologies)
- Urban planning economy
- Urban infrastructure activity and risk assessment of economic growth

INFORMATION AND COMMUNICATION

VISION

Internationally recognized leading knowledge technology platform in Latvia

- Research on usability of e-learning system and development of new e-learning technologies, methods and systems
- Research on the Internet of Things and high-volume data management and processing; information transmission

MATERIALS PROCESSES AND TECHNOLOGIES

VISION

Leading materials science, process and technology competence center in the Baltics

- Development and functionalization of the biocompatible and biodegradable materials integratable inside and outside the human body
- Development of high value-added materials from local and renewable resources
- Smart materials for environmental monitoring and treatment - development, research and integration into the current infrastructure
- Development of intelligent materials for alternative energy (H₂O cleavage, piezoelectric nanostructures)
- Research and development of electro-optical materials for construction, automotive industry and defense
- Organic chemical and pharmaceutical processes and technologies

TRANSPORT

VISION

Outstanding, internationally recognized research and expertise center for land and air transport in the Baltics

- Energy-efficient and safe road and rail transport
- Safe and cost-effective air transportation
- Efficient transport infrastructure
- Reliable and safe diagnostic methods of technical condition of transport and transport infrastructure

SAFETY AND SECURITY

VISION

Internationally recognized center for development of security products of strategic importance and their movement control

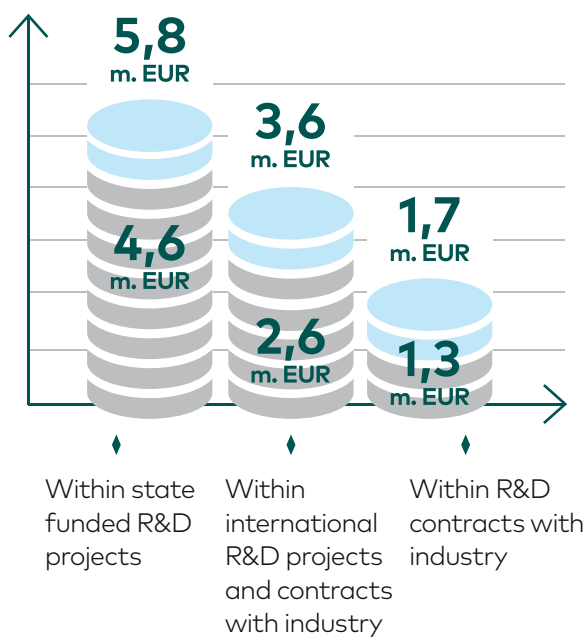
- Strategic products in terms of international security
- Border protection
- National economic security
- Civil defence



b. Research Funding Dynamics

RTU raised

■ 2015 ■ 2016



c. Research Projects

In 2015, RTU implemented

- 66** - International cooperation projects within ERA-NET, 7th Framework Program and Horizon 2020
- 29** - EU structural fund projects, including projects of research centres of state significance, competence centres and Cluster Program
- 55** - State funded research projects
- 39** - RTU internal research projects

In 2016, RTU implemented

- 41** - RTU internal research projects

d. Publications

Number of RTU publications in SCOPUS database

	Publications
2012	439
2013	421
2014	444
2015	639
2016	507

e. Doctoral Studies

RTU offers 20 Doctoral study programmes in engineering, natural sciences, architecture and social sciences

	Doctoral Students	Defended Doctoral Theses
2012	520	66
2013	484	65
2014	480	51
2015	532	58
2016	500	50

f. Doctoral School

RTU implements 20 accredited Doctoral Study Programs in engineering, natural sciences, architecture and social sciences.

RTU Doctoral School was founded in May 2010, with the aim of establishing a support structure for young researchers. Doctoral School's main tasks are to promote the professional development of doctoral students, research quality improvement, interdisciplinary and inter-institutional cooperation in the formation of new researchers, as well as the involvement of students in science and continuation of doctoral studies.

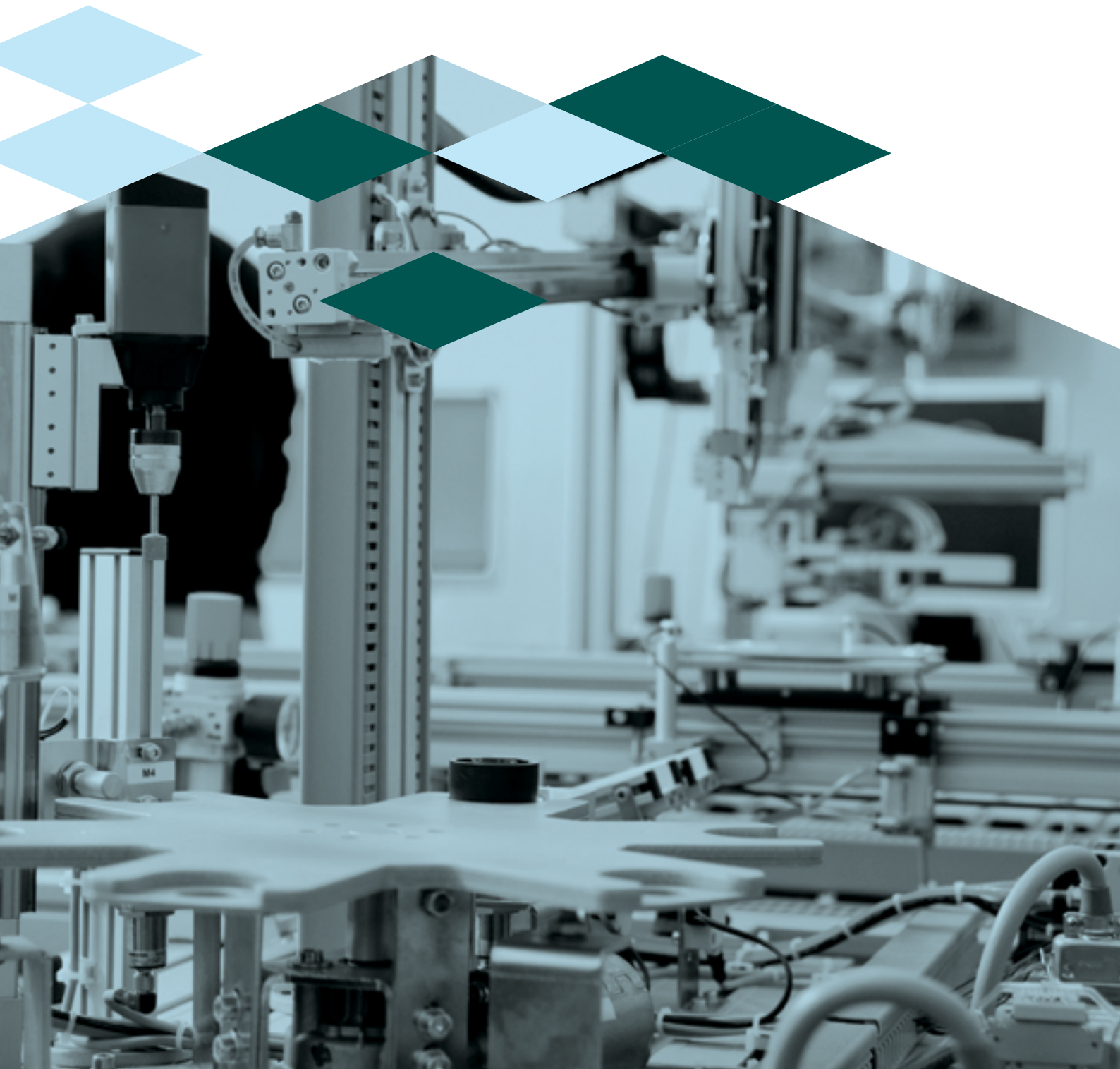
Doctoral Student of RTU takes 2nd place in the Competition *ResearchSlam* 2016 finals

RTU doctoral student Kārlis Kalniņš took 2nd place in the competition for young scientists *ResearchSlam* 2016 finals. He presented his research work on natural fiber composites, which were made from recycled materials. Already for the fifth year, competition *ResearchSlam* is challenging young

Latvian researchers to explain complex things in simple terms. 27 participants from five Latvian universities applied for the competition in 2016. Seven best candidates entered the finals, including RTU doctoral students - K. Kalniņš and Līga Grase, and RTU master student R. Rušenieks. K. Kalniņš and L. Grase participated in *ResearchSlam* offsite session in negotiations festival Lamp, as well in the FameLab 2016 - regional competition in Science Center AHHA, Estonia.

09

Sustainable Valorization



Valorization is one of the areas of RTU activity laid out in the university strategy that implies commercialization of the products developed at the university and promotion, patenting, and launch of results of applied research, and their use in establishing new enterprises.

a. Department of Business and Innovation

Goal

To commercialize knowledge and inventions developed by RTU, to facilitate RTU development, competitiveness and to implement RTU strategy (2014–2020). To establish a one-stop agency in cooperation with the faculties.

Main objectives

- To commercialise knowledge and promote RTU products in the market
- To design, experimentally produce and test invention prototypes
- To create a mentor network at the faculties
- To sell qualification advancement services
- To establish commercialisation support service
- To facilitate interuniversity cooperation, especially within the consortium of Latvian technical universities and high schools

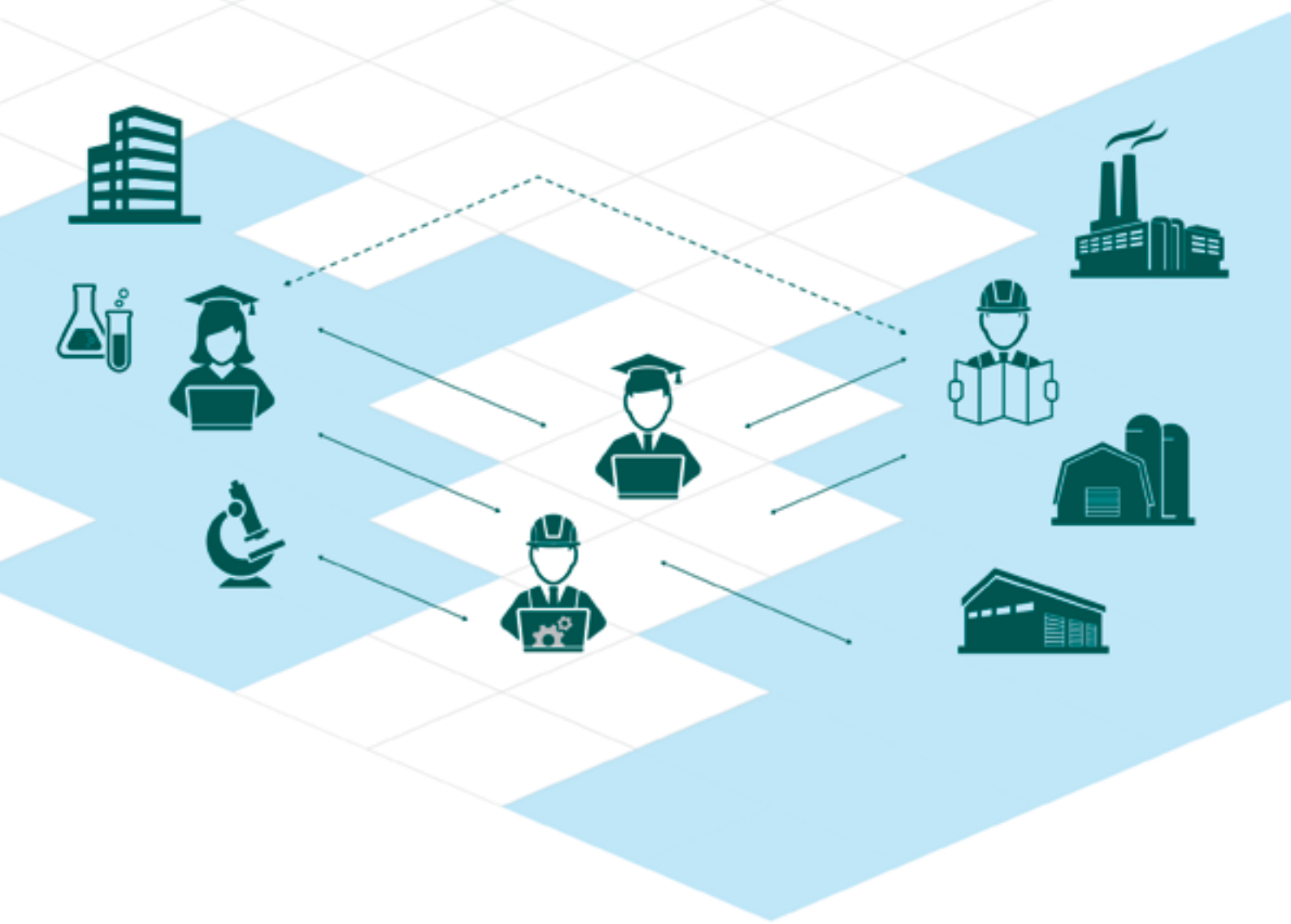
b. Innovation and Technology Transfer Centre

Goal

To promote RTU development and growth in the field of innovation and technology transfer, to ensure protection of intellectual property raising awareness of the researchers and students on the significance of intellectual property issues particularly in the process of commercialisation; to consult on patent application procedure; to raise competitiveness of the researchers facilitating creation of a conducive research environment open to innovations and new technologies; to cooperate with the industry representatives and to find the best solutions for both company development and commercialization of scientific ideas.

Main objectives

- To protect and develop intellectual property
- To identify and licence new technologies
- To ensure technology transfer
- To conduct technology and market research
- To provide individual consultations to entrepreneurs and researchers
- To organise conferences, seminars and cooperation visits
- To ensure dissemination of innovations
- To search for new cooperation partners



c. Cooperation with Companies and New Technology Commercialization

RTU offers new, innovative business ideas, expertise in creative solutions and advice in different fields. Companies are encouraged to invest in innovative knowledge and technology projects and in collaboration with RTU scientists to operate in the areas where high added value products are created.

RTU scientists actively cooperate with Latvian and foreign companies and organizations, providing the opportunity

to develop new products, technologies and services. It is important to emphasise rapidly growing cooperation with foreign companies in licensing and research. Every year RTU on average signs 150 cooperation agreements. RTU cooperation partners include such companies as SJSC Latvenergo, JSC Latvijas valsts meži, SJSC Latvijas valsts ceļi, Lattelecom Ltd., SJSC Latvijas dzelzceļš, JSC Latvijas gāze, JSC Valmieras stikla šķiedra, etc.

d. Business Incubators

In 2016, development of a business database was initiated in order to register enterprises that involve RTU employees or students as participants (co-owners).

27 companies are registered in this database, including RTU Engineering High School Ltd., Green Innovation Industry Center Ltd., Conelum Ltd., Institute of Biocomposite Materials Ltd., Autoekspertīze Ltd.

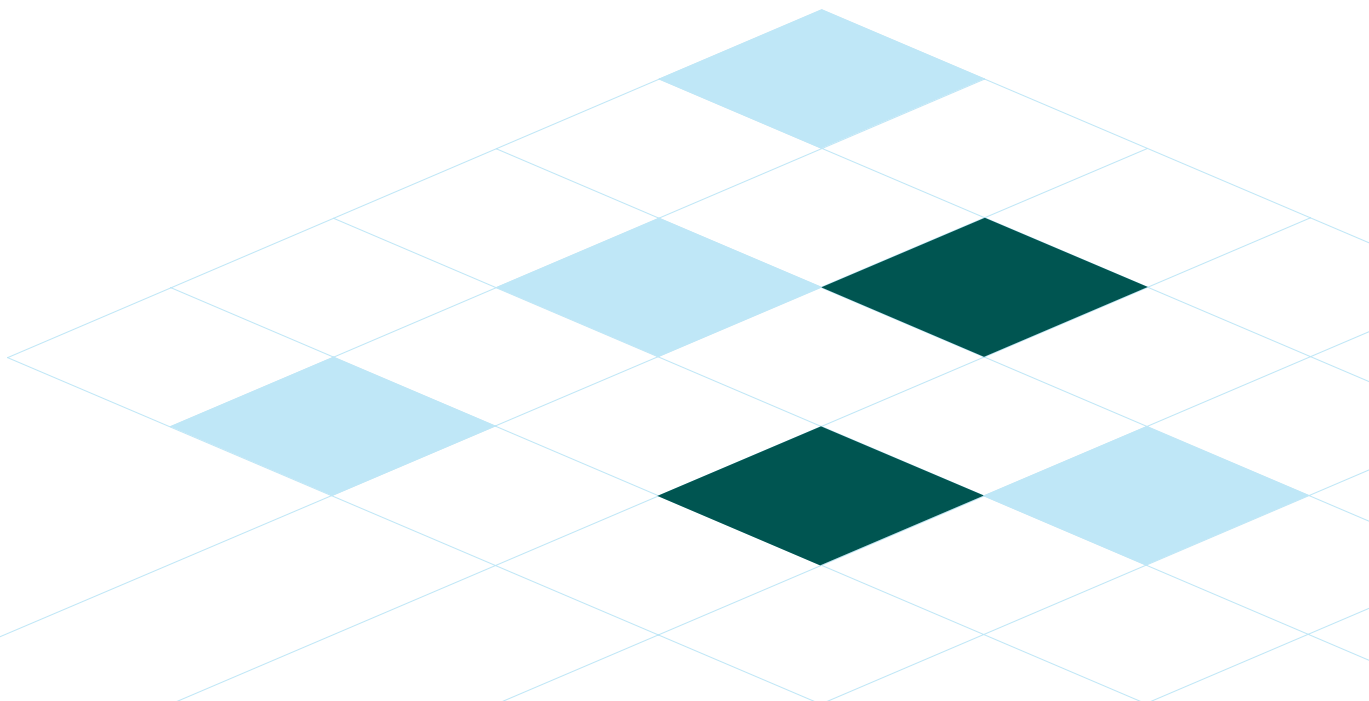
EHO Textiles

Smart textile company EHO Textiles received the Promising New Business Award at Finland's new business festival *Upgraded Life Festival*.

EHO Textiles is using specially developed technology for creating smart clothing, producing garments for people with reduced mobility for their body movement control, better training and rehabilitation process. The company developed pressure and strain sensors, which are produced by using so-called knitted structures to feel the pressure and tension load.

In collaboration with RTU Design Factory, smart sock electronics module was developed as well as its fastening elements that provide sensor data processing and transmission.

EHO Textiles was founded in 2016 thanks to the annual research work on smart clothing of RTU scholars, namely: Prof. Aleksejs Kataševs, Institute of Biomedical Engineering and Nanotechnology and leading researcher Aleksandrs Oks, Institute of Textile Material Technologies and Design.



Green Technology Incubator

Green Technology Incubator (GTI) is a joint project of RTU, University of Latvia and Norwegian industrial development corporation SIVA that is aimed at interdisciplinary cooperation and promotion of knowledge flow among Universities, research institutions, and green manufacturing enterprises. GTI goal is to support and facilitate entrepreneurship that is connected with innovations in green manufacturing.

In collaboration with the GTI, 25 RTU teams received funding for RTU product development, including:

- *Smart Street Lighting.* Planned electronic product development for minimization of electricity consumption in street lighting. During the project, it is planned to develop LED lighting control units and video cameras with integrated video processing function that performs accounting of the traffic. That would help control the level of road lighting in real traffic intensity in automatic mode.
- Biodegradable organic polymer production suitable for packaging, including biocomposite packaging material, biocomposite packaging boxes, pots, dishes, tapes, films, etc. Products are made from RTU developed biocomposite and are biodegradable in wet soil during four months period without creating toxic substances and polluting the soil.
- Indoor lighting optical fibers and monolithic TiO₂ / UV system (IIMR) for water treatment.

- Long-range motion sensor for smart street lighting system to improve energy efficiency.

- Smart socks with integrated textile system for electromagnetic energy collection. Foot and leg joint control system with an energy source that is charged from the ambient electromagnetic smog energy is being developed.

- Alternative energy charging station, which makes it possible to recharge your mobile device (phone, tablet, etc.) at any time of the day. The charging station works from solar energy by accumulating it in the battery.

- Aerobic composting heating reactor. It fundamentally differs from the heating boiler, where the heat is obtained by biomass residue composting without burning.

- Teacher-robot construction Sumo Boy. RobotNest Ltd. developed a new type of a teaching tool for teaching the basics of electronics, programming and robotics.

- Reusable ceramic sorbent suitable for water treatment from oil, and other pollutants. It will be produced from sufficient amounts of Latvian clay, on the basis of the RTU patented energy-efficient ceramic sorbent production technology.

44 commercialization applications have been developed and the data on them have been published on RTU home page. 32 applications were submitted in 2016.

Cooperation with Local Authorities

Cooperation strategies have been developed and the agreements with municipalities of Cēsis, Dobele, Daugavpils, Valmiera, Madona, Liepāja, Bauska, Ventspils, etc. have been signed. In 2016, cooperation agreements were signed with Limbaži Municipality, District Council of Preiļi, Mālpils and Valka.

Workshops in color detection technology, road conditions monitoring were organized in collaboration with cooperation partners, as well as forums in Liepāja, Preiļi, Mālpils, Dobele, Ogre, Bauska.

e. Intellectual Property Protection and Technology Licensing

Protection of intellectual property is an important activity in the context of RTU, given the huge potential of RTU scientists in the development of technologies and new products. The granted Latvian and European patents confirm contribution to the development of innovations and the competence of scientists in almost all fields of engineering.

	LV patent applications	Granted LV patents	Granted European patents
2014	20	40	1
2015	28	31	1
2016	24	7	7

RTU scientific activities result in creation of a variety of objects of intellectual property, which are mostly protected by patents or know-how. As it is the case with any property, it is possible to perform licensing or sale transactions with these rights. In case of licensing, third parties are granted the user rights without infringing RTU property rights, and thus the possibly to gain profit.

In general, it is a complex process and consists of a number of phases, but RTU successfully develops this expertise and in 2016, it signed four licensing agreements.

Intellectual property protection and technology licensing is provided by RTU Innovation and Technology Transfer Center.

f. RTU Design Factory

On Thursday, 13 October, RTU Design Factory (DF) was opened within the celebration of 154th Anniversary of Riga Technical University. Professor Kalevi Ekman from Aalto University (Finland), the author of Design Factory concept, attended the event. Professor Ekman received the José Vasconcelos World Award of Education for creation of the concept of Design Factory at the World Cultural Council award ceremony that was held in Riga.

RTU Design Factory commenced its work in October 2014 with the opening of the open laboratory «theLab», where RTU students, employees and researchers can put their ideas into practice. Thanks to technological possibilities, these ideas turn into prototypes, which later

become products and enter the market in collaboration with entrepreneurs. The DF is equipped with cutting-edge technologies, including four 3D printers of different sizes and other valuable equipment – laser cutting, engraving, large format printing, as well as electronics workshop. At the DF, students and members of academic staff from different RTU faculties work together by integrating extensive knowledge in creation of prototypes.

In 2016, more than 700 people have used laser cutting and engraving equipment at RTU DF open laboratory «theLab». Students have also access to large scale printing equipment, adhesive film cutting equipment and several 3D printers.

«RTU IdeaLAB» – The New Version of RTU Student Business Incubator

In 2016, a decision was made to create a new brand – «RTU IdeaLAB». It is one of the areas of RTU DF activities that promotes development of student ideas by providing vast support opportunities. «RTU IdeaLAB» provides training in team building, idea development, business modeling, trade and marketing, as well as offers expert consultations, co-creation space, networking, technical support for product development, accounting and legal services. Currently 65 teams that work on development of their ideas regarding technical equipment packaging have applied for «RTU IdeaLAB» program.



Students and Companies Implement Joint Projects

RTU DF has implemented half a year-long pilot project for creation and development of new products and technologies, involving students from various fields, mentors and technical advisors from DF, as well as the authors of idea – the company representatives. With an overarching objective to create the world's best hockey training equipment that could not only be able to throw hockey puck at speeds up to 80 km/h, but also keep track of the player's position in front of the goal by using camera sensors, and collect and store player growth supporting data, hockey coaching assistant was created. It is important that in the implementation of the project not only the vision about the design of unique equipment was created, it was also materialized by building a fully functioning prototype and demonstrating its action on ice.

Implementation of such projects allows turning the knowledge acquired in studies into useful and intentional skills, gain confidence in one's abilities and evaluate the role of the team when dealing with complicated and challenging problems. Bachelor, Master and Doctoral students can engage in the projects implemented by DF.

Equipment Development and Project Implementation

With the equipment and utilities available at the DF a range of scientifically important elements and auxiliary equipment has been created; they are used in scientific work, as well as in implementation of international projects.

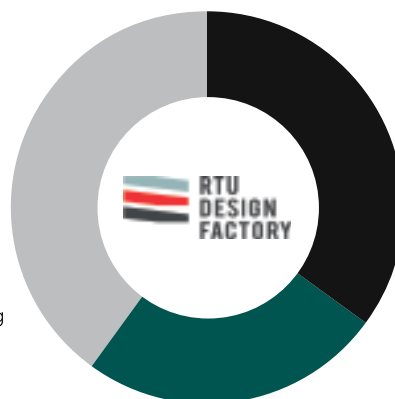
Some examples:

- modeling and creation of bio-cement manufacturing molds for cylindrical sample pressing,
- 3D printing equipment adjustment for biodegradable polymer printing, sample printing and giving recommendations,
- development of a device for preparation of tooth enamel sample and fixation in the X-ray machine,
- design and manufacturing of person's balance monitoring equipment.

DF Accomplishments

32 RTU internal cooperation activities with 18 RTU units.

Most intensive cooperation with the Institute of General Chemical Engineering of the Faculty of Materials Science and Applied Chemistry, Department of Civil Building Construction of the Faculty of Civil Engineering.



28 individual contracts.

20 with different companies/businessmen.

Including cooperation with such companies as SAF Tehnika, UAV Factory, Smart Engineering; start-up companies Focusd, Kaive Designs, as well as the National History Museum of Latvia, the Art Academy of Latvia.

Cooperation with Industry Partners

Cooperation with companies in development of technical solutions, as well as consulting, is a good opportunity to use knowledge, skills and experience accumulated at the University. The results achieved so far – more than 28 contracts implemented within a year and cooperation in creation of new products – confirm the ability to integrate into the demanding and even aggressive business environment. For example, classroom sound system and microphones developed by Certes Technologies were completely redesigned in close cooperation with the DF team.

Start-up and Spin-off Support

Design Factory equipment and qualification of staff ensures stable growth of the start-up companies established under the auspices of RTU and allows creation of new products without large investments in machinery and equipment. Such cooperation promotes rapid growth. Company Trace can be seen as a good example of cooperation. It began its operation in Student Business Incubator, continues to participate in RTU «IdeaLAB» and now has successfully created its own product – a device for improving sport shooting training process. It is made using equipment available at DF – computer-controlled cutting and high-resolution 3D printing equipment.

g. Promotion of Research Results

RTU presented the developed products and study programs at international exhibitions, conferences, forums, seminars, workshops etc., including *Hannover Messe, Tech Industry, Riga Comm, Riga Food, Baltic Dynamics, etc.*

Environmentally friendly composite material for 3D printing that was developed at RTU was included in photography exhibition devoted to European Day that was organized in May 2016 next to the building of the Cabinet of Ministers. The exhibition was featuring products developed in Latvia that were chosen by the Prime Minister and Ministers and that we can be proud of. The material developed at the Institute of Polymer Materials of RTU Faculty of Materials Science and Applied Chemistry was chosen for the exhibition by the Minister for Environmental Protection and Regional Development Kaspars Gerhards.

Hannover Messe

Exhibition *Hannover Messe* was held in the German city of Hanover in 2016 from 25 to 29 April. 5,200 companies from 75 countries participated in the exhibition, 190,000 visitors, including 50,000 foreign visitors, attended the exhibition. This was the second time RTU participated in the international industrial exhibition *Hannover Messe*. *Hannover Messe* is a platform where the world's

leading companies demonstrate the newest and most significant technological achievements.

At *Hannover Messe* RTU presented the latest technologies for efficient energy use. At the exhibition, scientists demonstrated the advantages of DC power supply in production, special system for electric storage heater use in housing, as well as automation system of innovative energy-efficient buildings that allows saving up to 50% of thermal energy.

At the exhibition RTU was represented by the Institute of Industrial Electronics and Electrical Engineering of Faculty of Power and Electrical Engineering and the Institute of Heat, Gas and Water technology of Faculty of Civil Engineering.

Baltic Dynamics 2016

International innovations conference «*Baltic Dynamics 2016*» Innovation and Technology Convergence – Strategy for Smart Growth was organized on 15-16 September 2016. The conferences have been held since 1996; it is the initiative of the Baltic Association of Science/Technology Parks and Innovation Centers (BASTIC). Conferences on a rotating basis are held in one of the Baltic countries – Latvia, Lithuania or Estonia.

These conferences focus on the role of innovation and technology at all levels – from science and business up to education and social welfare. RTU organized the session «*Third Generation of Universities*».

Industry Day in Ādaži

To inform entrepreneurs and scientists on the needs of the Latvian National Armed Forces in the field of provision, «*Industry Day 2016*» was held by the Ministry of Defence of the Republic of Latvia in cooperation with the Federation of Security and Defence Industries of Latvia on 24 February. Approximately 150 participants from nearly 70 companies, municipalities and educational institutions

attended the Industry Day.

The aim of the Industry Day is to inform entrepreneurs about the Ministry of Defence of the Republic of Latvia and the Latvian National Armed Forces procurement plans for 2016–2018 and to get acquainted with production and service development plans of entrepreneurs and scientists, as well as to promote dialogue between the defence sector and Latvian entrepreneurs and researchers about the opportunities to participate in the development of the armed forces capacity and provision of maintenance.

Application of Practical Training Method

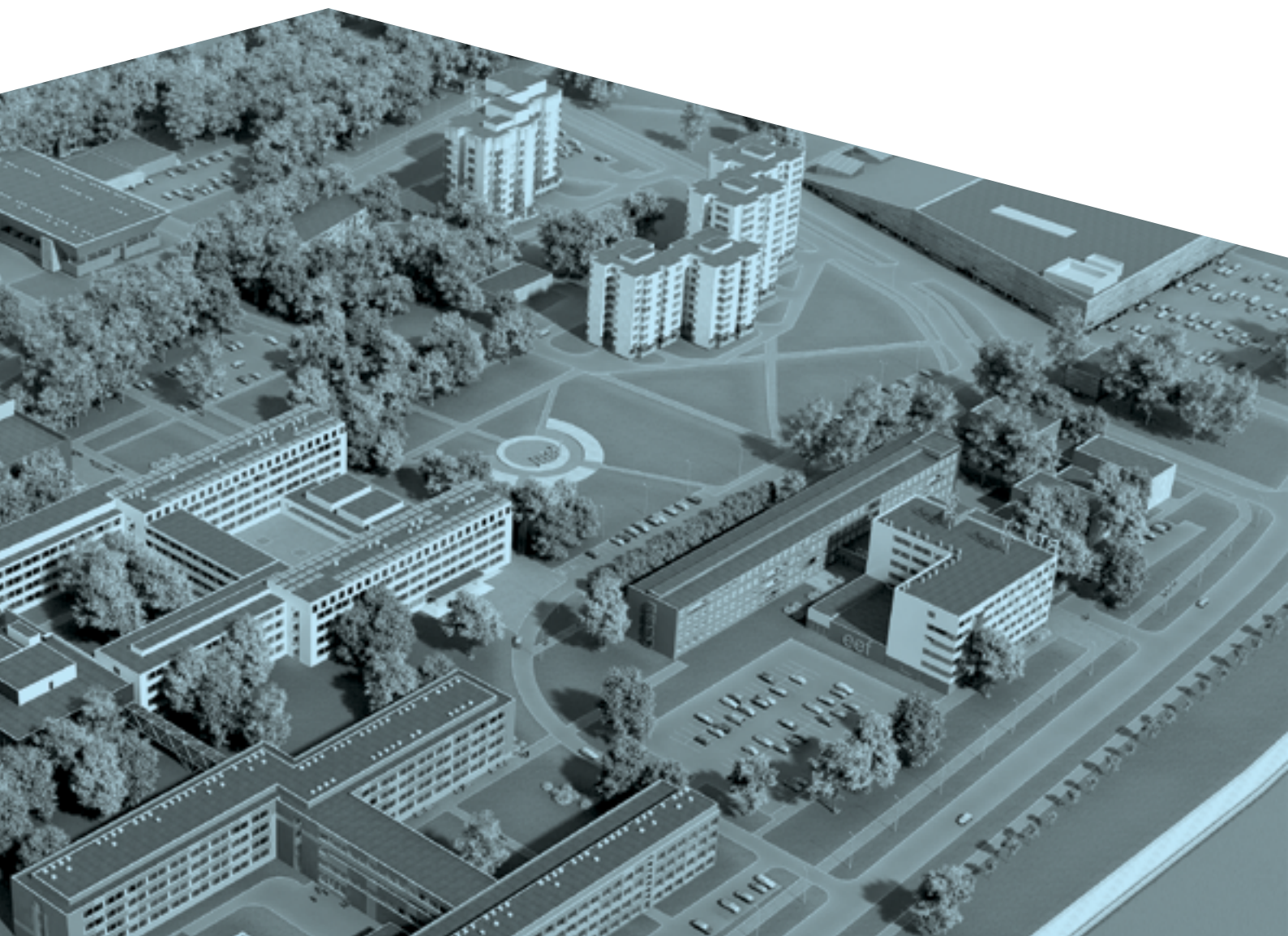
European Platform for Innovation and Collaboration between Engineer Students (EPICES) was created on the basis of project-based distance learning cooperation framework and the method that is based on the existing and new technical platforms promoting cooperation and engineering tools.

In the analysis of practical teaching materials required by the academic staff and development of assessment methods, particular attention is paid to the role of the academic staff and practical training of the students.

Student team «RTU Auto» of the Faculty of Mechanical Engineering, Transport and Aeronautics for the first time participated in the international engineering student competition «*IX International Aventics Pneumobile Competition*» in Hungary.

10

Development of RTU Ķīpsala Campus



RTU has been purposefully developing its infrastructure building the first campus in Latvia on the Ķīpsala Island. It is envisioned that upon completion the campus will become the most modern engineering studies center in the Baltic Region, which will house RTU faculties, Laboratory Building, Scientific Library and administrative buildings. The next stage of construction started in 2016. It is planned that by 2020 the majority of RTU students will study in Ķīpsala.

Development of RTU Campus can be conditionally divided in three stages: during the first stage in the Soviet period, a well-designed infrastructure was developed in the carefully selected location. Construction started in 1965 and in 2016 the Faculty of Electronics and Telecommunications, which was established in 1966, celebrated its 50th anniversary. Since the reestablishment of independence of Latvia, numerous RTU faculty buildings have been built in Ķīpsala, as well as student dormitories, Scientific Library and a swimming pool. The construction of sports hall has also started.

In 2015, several buildings erected in the Soviet period were renovated; a number of new buildings were built. Using the funding provided by ERAF and Climate Change Financial Instrument (CCFI), as well own RTU funds, a new building of the Faculty of Power and Electrical Engineering, Laboratory Building and a new building of RTU Scientific Library were erected. The buildings of the Faculty of Architecture and Urban Planning, Faculty of Electronics and Telecommunications, Faculty of Materials Science and Applied Chemistry, student dormitories and RTU swimming pool were renovated.

In the next planning period, it is envisioned to renovate the building of the Faculty of Civil Engineering, to erect a new building of the Faculty of Computer Science and Information Technologies, and to move the Faculty of Mechanical Engineering, Transport and Aeronautics to Ķīpsala; this process has already started.



Faculty of Electronics and Telecommunications

Tasks Completed

The building has been fully renovated, including the change of all engineering systems and installation of the ventilation system. The building has been adapted to the needs of people with functional disabilities.

Implementation period – 2014–2015

In the renovation process, the building frame was retained, as well as its constructive and functional structure, including location of staircases and sanitary facilities on the floors. External walls built from silica bricks were insulated with rock wool. Narrow, long and dark passageways in the central part of the building in some

sectors were broadened, developing the light pockets as student recreation zones. Internal premises of the building were refurbished to receive more day light. Acoustic panels were installed on the upper section of the passage walls, ensuring sound resistance of the lecture rooms. The ground floor hall was fully remodelled, and a new passageway linking the building with the Faculty of Power and Electrical Engineering was constructed. The building was equipped with the lift. Microclimate regulating equipment was installed in the roof superstructure, thus not reducing the usable floor area. New facade fibre cement plastering with green bands around window openings gives the building an attractive modern look.



Laboratory Building

Tasks Completed

Construction of a new Laboratory Building, various laboratories.

Implementation period – 2014–2015

New Laboratory Building houses Research Center of State Significance on Energy and Environment Resource Acquisition and Sustainable Use Technologies and Faculty of Mechanical Engineering, Transport and Aeronautics (FMETA) laboratories, which is seen as the beginning of gradual relocation of FMETA to Ķīpsala. Along with the construction of the building, the premises of Faculty of Civil Engineering (FCI) and FMETA have been joined, thus implementing a future concept of all buildings at RTU Campus being united. To create the optimal building volume, laboratory premises that should be located only on the ground floor were

carefully selected, taking into consideration the weight of the equipment and the necessity to maintain open access to outdoor spaces. Warm ceiling panels were installed in the premises with increased requirements with regard to air purity.

In June 2015, a FMETA training helicopter *Mi-2* was moved from the Air Vessel Maintenance Laboratory at Lomonosova Street to the new RTU Laboratory Building and placed on its roof.

A piston engine airplane *Socata - 883 RALLYE* manufactured in France, which came into possession of RTU in 2012, was also moved from the Laboratory at Lomonosova Street to the new Laboratory Building. Several unique combustion gas turbine and piston engines, air vessel bodies and system elements, installations and units were also relocated.



Scientific Library

Tasks Completed

New building adjacent to Scientific Library joining the Library with the Faculty Materials Science and Applied Chemistry (FMSAC) building, adapted for the needs of persons with functional disabilities.

Implementation period – 2014–2015

Uniting the branches of RTU Scientific Library formerly scattered around Riga in one place, the largest engineering library complex in Latvia with a vast book stock has been established.

The building houses book depositories and reading rooms, some of which provide 24-hour access. Thanks to large glazed areas, the volume of the new building is full of light. The entrance is made of the stones coming from the quay of Zunda Canal.

Ķīpsala Swimming Pool

Tasks Completed

Partial renovation of the swimming pool.

Implementation period – 2015

During the reconstruction of Ķīpsala Swimming Pool, profiled roof sheets, heat insulation and roofing were replaced. Facade and roof windows were also replaced. Facade lighting was renewed. In the course of reconstruction, energy consumption was reduced by more than 25 % in the heating season.



Project for Remodelling of the Building at 6b Ķīpsalas Street

Continuing relocation of all RTU units to Ķīpsala, and adapting the infrastructure for the needs of Faculty of Mechanical Engineering, Transport and Aeronautics (FMETA), construction project design for remodelling of the building at 6B Ķīpsalas Street as part of the Center for Engineering and Intelligent Technologies was completed in 2016. As soon as the funding is received, it is planned to start remodelling works at 6B Ķīpsalas Street 6B, Riga (former 16 Āzenes Street) to locate FMETA units in the existing building volume avoiding unnecessary floor area expansion.

Remodelling project envisions changes in the internal planning of the building, retaining the existing passageways and stairwell locations. All utility systems will be replaced. To increase the useful floor area of the building, the volume of the utility shafts installed in the Soviet period will be reduced. Additional floor will be built at the lower part of the building, thus levelling the height of the adjacent buildings and creating additional space for lecture halls and premises for academic personnel.

Environment

In 2016, RTU approved the Environment Policy. It sets the most important aims reaching which the University will reduce its impact on the environment. To promote meeting these aims, RTU is continuously improving infrastructure of the property managed by the University, educates its employees and students on environment protection issues, as well as promotes development of environment-friendly innovations.

Faculty of E-Learning Technologies and Humanities

Tasks Completed

Partial renovation of the building.

Implementation period – 2015

Basic renovation works were conducted in the building – plastering, installation of new electric lines, water supply system, sewage system, low-current lines, door repairs and change. The premises were adapted for the needs of the Faculty of E-Learning Technologies and Humanities. The roofing was changed, the upper slab was insulated on the attic side.

11

International Cooperation



Promotion and implementation of international cross-institutional cooperation is one of the corner stones of RTU Development Strategy. Academic and research cooperation is maintained within a wide network of partner institutions on the global scale. RTU is a member of numerous international organizations and associations, and this promotes student and staff mobility offering wider opportunities to exchange experience and participate in the work of research centers around the world.

a. Agreements

In academic year 2015/2016 RTU participated in 320 effective cooperation agreements within Erasmus+ program. In terms of recipient countries, Germany retained its leading position followed by France, Poland, Spain and Italy.

b. Erasmus+

In 2015/2016, RTU implemented **284** mobility exchanges, including

147 student mobility programs;
72 internship mobility programs;
65 staff mobility programs.

The countries most favored by RTU students for studies exchange programs are:

1. Germany (25)
2. Lithuania (14)
3. Czech Republic, Sweden – 12 each
4. Spain (11)
5. Croatia (9)

c. International Events

RTU International Week (23.05. – 27. 05.2016)

RTU International Relations Department in cooperation with Foreign Students Department and Department of Financial Planning and Management organized the International Week. During the event, representatives of international cooperation and financial management departments discussed good practice of their universities and internationalization related issues, as well as budgeting and application of fund financing.

This year the event, which was held for the fifth consecutive year, united the record number of participants – 35 representatives from nine countries: Czech Republic, France, Greece, Island, Kosovo, Poland, Portugal, Spain, and Germany.

The program of the International Week was divided into two thematic blocks: the first block comprised practical classes aimed to promote experience exchange, advance competences and facilitate existing cooperation among universities, as well as to establish new contacts; the second offered an extensive cultural and entertainment program showing Riga as an attractive destination not only for high quality studies but also for spare time opportunities.

International Architecture Summer School «*Instant*» (23.07. – 06.08.2016)

28 participants from 17 countries gathered in Cēsis to study small-scale instant architecture – easily adaptable various forms responding to essential modern needs. The most notable historical manufacturing site of Cēsis – old brewery – became the building site of this year summer school. The site is slowly turning into an art and science center.

The installations created this year became the largest in the history of the summer school. Outdoor installation «*Archive of Truth and Bluff*» is a wooden grating, which guides one on a trip through the history of the brewery to its potential future. It is crowned with a terrace in the clouds opening the view to the Castle Park. The object was created under the guidance of Latvian architects Austris Mailītis and Andra Odumāne, as well as their colleague from Japan Reiji Kobayashi.

The second installation – 13 meter long bridge «*Night Train*» – is a railway with a movable car, which in four different positions serves different functions and activates the space around it. A table is located at one end of the bridge and an awning – at the other, opening a view of the Castle Park. A movable car serves as a source of both sound and light to accentuate one of the symbols of the brewery – a funnel. The workshop, which created this installation, was led by a Latvian architect working in Vienna Niklāvs Paegle and his colleagues from London Thomas Randall-Page and Theodore Molloy.



International Summer School for Master and Doctoral Students
«Product Development: Green Technologies»
 (15.08. – 19.08.2016)

This year, the summer school organized by RTU Doctoral Department and RTU Design Factory brought to light the issue of product design, including such topics as creative thinking, business modelling, market research and product presentation.

In the course of the summer school, young researchers faced five different challenges: use of a bioreactor in industrial greenhouses, children education on green energy issues, development of a flood forecasting platform adapted to the needs of various users, involvement of the public in odour pollution determining, and development of an urban garden on the water. These challenges were developed by RTU researchers in cooperation with Sarkandaugava Development Society and research center ZINOO.

International Summer School
«A Journey Beyond the Traditional Wooden Craft and Art»
 (22.08. – 28.08.2016)

13 participants from six countries came to the Wood Technology Workshop of the RTU Institute of Textile Materials Technologies and Design to acquire knowledge on wood processing work benches under the guidance of the Head of the Design and Materials Technology Laboratory Artūrs Ķīsis. The participants designed their own wooden products.

In turn, at the *Vienkoču Park* its creator and craftsman Rihards Vidzickis informed the participants on the manual wood processing tools, which were used by the students to create log troughs and tableware, as well as individual idol posts.

d. International Cooperation

Students from China Study the Latvian Language

New year at RTU started with a visit of the Director of Academic Affairs Division of BISU (Beijing International Studies University), Professor of English Literature and Cultural Studies Zhang Xihua.

Deputy Rector Igors Tipāns notes, «Cooperation with BISU has been developing very well, our universities signed a cooperation agreement, and 20 Chinese students study Latvian at BISU. To ensure high level studies, in September 2015 RTU sent its lecturer Aija Veldruma to work at BISU. The first semester passed, and at the end of December Chinese students could already deliver presentation in Latvian. It is planned that Latvian language studies in Beijing will continue for one more year, then the students will go to RTU to advance their knowledge.»

Guest Lectures

Maintaining cooperation with CERN, the European Organization for Nuclear Research, that started in 2012, also this academic year its researchers visited RTU.

Paul Collier – the Head of Beams @ CERN, in his lecture reported on the topical issues related to renewed work of the Large Hadron Collider and the introduced improvements in luminosity upgrade, antimatter issues, expansion of the range of future energy and neutrino research.

At the same time, Christoph Schaefer in more detail discussed Higgs boson and elementary particles, as well as provided insights into recent research on Universe.



e. Associations

RTU is a member of the most significant university associations:

European University Association – EUA

European Society for Engineering Education – SEFI

Conference of European Schools for Advanced Engineering Education – CESAER

Association for International Educators – NAFA

Asia Pacific Association for International Education – APAIE

Baltic Sea Region University Consortium for Science and Technology – BALTECH

Baltic University Programme – BUP

Baltic Sea Region University Network – BSRUN

University Industry Innovation Network – UIIN



12

Student Self-Governments and Parliament



RTU Students Parliament (RTU SP) is an organization rich in tradition – it is the oldest Latvian student self-government, which was founded on 23 April, 1992. RTU SP unites a large number of dynamic students from all faculties, consolidating student self-governments from all RTU faculties.

Evija Kaminska is President of RTU SP (2015-2016).
Dzintars Striks was the first president of RTU SP.

Student Activities

- ◆ In 2016, RTU SP stood for students' interests both at the university and state level. Students March organized by the Latvian Students' Union took place on 31 October. Students marched to the building of the Parliament and the Ministry of Education and Science to attract attention to tertiary education funding – students consider it insufficient.
- ◆ Academic year of 2016/2017 started with the Introduction Ceremony held in Ķīpsala Colonnade. In October, freshers were initiated and the largest Students' ball in Latvia was organized in their honour – *Fukšu* Ball. More than 1,500 students attended the ball in BT1 Hall.
- ◆ First year students also participated in Technical Creativity Days, however, not as participants, but rather as organizers. Within Technical Creativity Days, workshops for almost 650 children were organized in three cities.
- ◆ In 2016, RTU SP established cooperation with a new RTU TV studio. Before the opening of the studio, SP participated in the development of its concept. Using the existing resources several SP video projects were started, for example, «RTU SP News» and «Bed Chef».
- ◆ In 2016, within the framework of the initiative fund RTU SP supported and helped implement numerous ideas to the amount of 8,800 EUR. Seven sessions of Discussion Club «Science Rocks» were organized within a year, 150 students attended the sessions.
- ◆ RTU SP within BALTECH visited student unions of Kaunas University of Technology and developed cooperation plans.
- ◆ RTU SP has developed a new home page adopting new approach to web page design. New logo of RTU SP was designed; it features an image of RTU SP bear in line with a new graphic identity of RTU.
- ◆ RTU SP participated in 2016 Science Night, helping FMSAC to organize laboratory visits. Several experiments were conducted in the Ķīpsala Colonnade.
- ◆ In 2016 the event «RTU Nibble», when students together go fishing, was re-established.
- ◆ Spaghetti bridge construction competition «STiKS» also raised student interest. The winners went to Hungary where they became world champions.
- ◆ In cooperation with RTU Sports Club SP organized RTU Sports Days at Ronīši Recreation Base.
- ◆ RTU SP organized electro mobile competition determining which RTU faculty or department is the fastest and thriftiest. For the second consecutive year the race was won by the Rector's Office team.

13 Culture

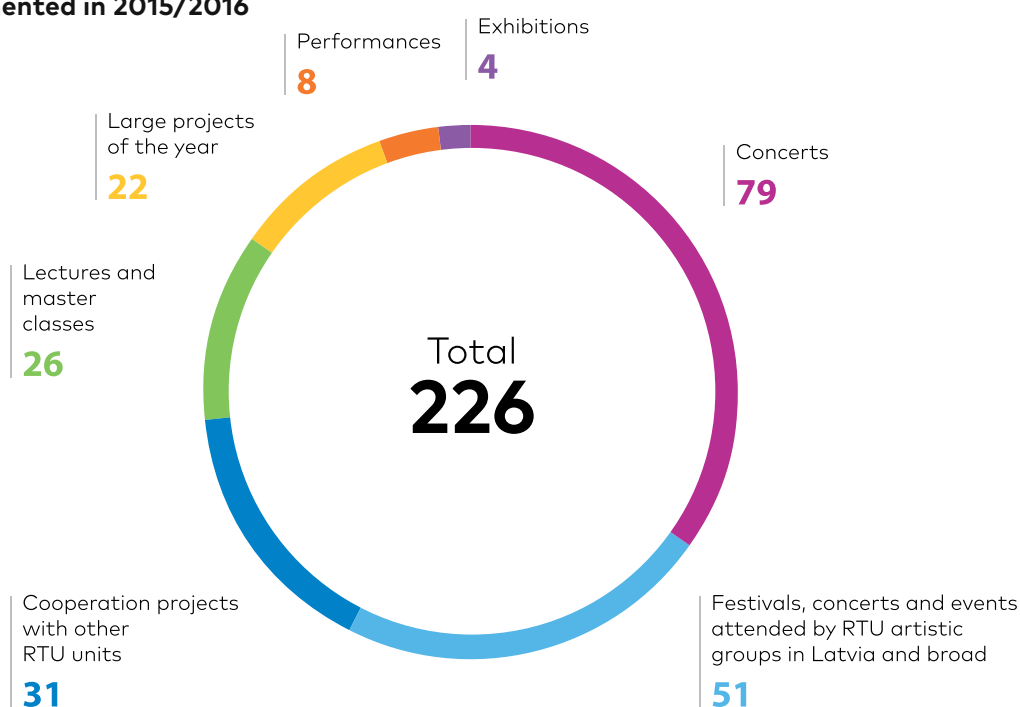


RTU Culture Center (CC) throughout the year actively participated in all important events organized by the University. Inauguration of RTU Rector, Academician L. Ribickis, anniversaries of RTU faculties (FMETA, FET and FEEM), state holidays of Latvia and World Culture Council Award Ceremony, held in Riga on 14 October during celebration of the 154th Anniversary of RTU, were celebrated with festive concerts. The Award Ceremony was organized in the Ziedonis Hall of the National Library of Latvia and RTU artistic teams – choirs *Gaudeamus*, *Delta*, *Vivere* together with student wind band *SPO* for the first time performed the work by Selga Mence «Veni, Creator Spiritus» – «Come, all creative spirit».

Artistic director and conductor of *RTU Big Band* Jānis Amantovs, artistic director and main conductor of the mixed choir *Vivere* Gints Ceplenieks, as well as Director of RTU Culture Center Asja Visocka, project manager Inese Krūma and artist Inita Grīnberga received RTU Annual Prize in Culture *Simbioze* as a gratitude for their contribution to RTU culture life. The prize was established in 2008.

At present, about 400 people work in RTU Culture Center, they spend their free time at one of 12 artistic groups – four choirs, two orchestras, a dance group, two student theaters, two vocal and one string ensemble, as well as numerous interest clubs. Under the guidance of CC, RTU erudite competition «RTU Spice» and Latvia's Student Theater Days on the theme Freedom were organized.

RTU Culture Center Projects implemented in 2015/2016





The head of *Vector* Uldis Šteins transfers his lead to Dagmāra Bārbale

The head of RTU folk dance ensemble *Vector* Uldis Šteins, who celebrated his 80th anniversary in 2015 and 55 years of holding this position, symbolically transferred his reins of the head of *Vector* to a new leader of the group, a talented choreographer Dagmāra Bārbale (Leja) at the concert «All Changes» organized in the Latvian National Theatre.

Ensemble *Vector* under the lead of D. Bārbale already gained the first place in the international dance festival «New Life», which was held from 28 June to 3 July in Georgia. Artistic groups from Kazakhstan, Russia, Ukraine, Armenia, Georgia, Estonia, Poland, Iran and Dagestan participated in the competition together with *Vector*.

Choir *Vivere* receives Gold Diploma in the international festival

Under the lead of the conductor Gints Ceplenieks and Sintija Šmite RTU mixed choir *Vivere* received Gold Diploma and the 2nd place in Grand Prix competition at the International Choir Festival and Competition of Sacred, Advent and Christmas music «Cantate Domino» held in Kaunas in December 2015.

In June 2016, a new long concert program «Put on a White Shirt» was developed in collaboration with the director Dace Micāne Zālīte and conductor and arranger Andris Gailis based on Imants Kalniņš music and Imants Ziedonis poetry.

In December 2016, *Vivere* attended Latvian churches with a sacred and Advent music program «Gabriel's Message», as well as performed a charity concert in the church of Brukna Estate together with the piano player Toms Juhņevičs.

Choir *Delta* performs in France

Responding to the invitation of the mixed choir *Cantilena* from a French town of Vogüé, in October 2015 RTU female choir *Delta* went on a concert tour to France, where it performed three concerts in a fully packed house. In May 2016, French choir paid a return visit to Riga. *Delta*, *Cantilena* and SPO took part in a joint concert at the Small Guild Concert Hall, concluding the concert with M. Braun's composition «Saule, Pērkons, Daugava». Friends from France would never forget the concert at Rundale Palace, jolly joint performance at the Ethnographic Open-Air Museum of Latvia and Lido recreation centre, as well as the afternoon of 4 May, when the guests were invited to take part in the White Tablecloth Festival. Choir *Delta* is a stable collective with 55 years long established traditions.

Old Town Singers (Vecpilsētas dziedātāji) turn into *Daba San*

RTU post-folk band, which since 1988 was called *Vecpilsētas dziedātāji*, in 2016 received a new name – *Daba San*. In 2016, the band released its second album «Vaiņags». The title song of the album «Debesu kalējs» (Sky Smith) was included in the album «Native music», which represented Latvia at the world music trade fair. In 2016, *Daba San* presented its first music video. Latvian post-folk festival *Gavīles* celebrated its 5th anniversary, and members of *Daba San* were among its organizers.

RTU male choir *Gaudeamus* released a new program

In 2016, for several months the participants of RTU male choir *Gaudeamus* developed their vocal improvisation skills under the lead of Dana Indāne. This helped the singers develop courage to go beyond their emotional and vocal borders. Thus a new program was conceived – «Dvēseļu izlaušanās» (Breakthrough of the Souls), voice improvisations to music by Maija Einfelde, Kurts Vails and Ēriks Ešenvalds, which was performed in the tower of JSC Latvijas gāze in Vagonu Street.

At the same time, performance of the folk music cycle by Uģis Prauliņš «Pagānu gadagrāmata» (Pagan Yearbook) created in honour of the 55th anniversary season of the choir, was performed in Riga, in the music hall Daile, in Dīķi, at the festivals «Zobens un lemess», «Peldu ielas ražas svētki».

Anniversaries of RTU student theatres

In November 2015, RTU student theatre *Spēle* (Play) celebrated its 15th anniversary with a performance

«When we were younger than 16».

In the anniversary evening, the director of the theatre Romans Grabovskis, who celebrated his 70th anniversary, was honoured.

In turn, on 5 November 2016, RTU student theatre *Kamertonis* celebrated its 35th anniversary with a new documentary and performance «35 Movie Images in the Kamertonis History», which united former participants from Russia, Germany, and the USA. Actors of the student theatre successfully unite studies and work at RTU with a tough rehearsal schedule. Since its establishment, *Kamertonis* is directed by Ludmila Stančika.

Student wind band *SPO* shows good results

RTU student wind orchestra *SPO* under the lead of the conductor Māris Martinsons won the 2nd place at VIII Latvian Wind Band Competition, starting in the 5th – the most complicated – band group. Orchestra *SPO* successfully performed in the 17th international wind orchestra competition in Guilianova, Italy (*Festival Internazionale Bande Musicali e Mojerettes Giulianova*), where it won the 2nd place competing with larger orchestras from Japan, Hungary and seven orchestras from other countries. All orchestras performed numerous concerts for city residents and guests.

New Artistic Groups

RTU Big Band greeted the RTU family with a concert on 14 October 2016 at the 154th Anniversary of the University.

In December 2016, the band celebrated its 3rd anniversary with a Christmas spirit jazz concert. The solo was performed by Marta Prole. Mixed choir of RTU Engineering High School conducted by Elīza Hvane also joined RTU team.



14 Sports



RTU has with honour retained its title of the sportiest university.

This is testified not only by the fact that students – members of varsity teams – take part in the Latvian regional competitions, but also their international achievements.

♦ **Latvian record in breast-stroke is broken**

The graduate of RTU Faculty of Engineering Economics and Management (FEEM), a swimmer Aļona Ribakova as a member of the Latvian national team took part in the XXXI Summer Olympics in Rio-de-Janeiro, Brazil. She improved her own Latvian record in 200 meters breast-stroke – her result was 2:30:82. However, this did not allow A. Ribakova to qualify for Olympic semi-finals.

♦ **Victory in the Winter Swimming World Championship**

The 1st year Master student of RTU FEEM and a graduate of RTU Faculty of Civil Engineering Olga Šišlova won the 1st place in the 10th Winter Swimming World Championship in the distance 50 m and the 2nd place in 25 m distance freestyle. Good results were also demonstrated by the swimming coach of RTU Sports Department Pāvels Šišlovs, who got the 4th place in 200 m swimming and the 4th place in the swimming relay together with O. Šišlova. Winter Swimming World Championship took part in Tyumen, Russia. In total, 1,275 participants – 806 men and 469 women representing 42 countries and 368 cities – took part in the competition.

♦ **Victory in the overall standing in the XXVI Latvian Universiade**

RTU students won the 1st place in the total standing in XXVI Latvian Universiade, in men's competition overcoming athletes from Latvian Academy of Sports Education (LASE) and bronze medal winners from the University of Latvia (UL).

In women's competition RTU gained the 2nd place, giving in to LASE and overcoming UL students. It should be noted that overall RTU and UL had equal number of points, but since during the Universiade RTU athletes gained more 1st places than UL, in the total standing RTU received silver medals.

XXVI Latvian Universiade was held throughout academic year of 2015/2016, and students from 27 Latvian universities participated in the competition. Men competed in 16 different kinds of sports, in the total standing summing up the best achievements in 12 kinds. In turn, women in XXVI Latvian Universiade competed in 11 kinds of sports, in the total standing summing up the best achievements in 8 sports, where the best results were achieved.

♦ **2nd place in Sports Games of Baltic Technical Universities**

RTU gained the 2nd place in the 50th Sports Games of academic personnel and employees of Baltic technical universities, which took place from 3 to 5 June in Palanga, Lithuania. Academic personnel and employees of RTU, Kaunas University of Technology and Tallinn University of Technology took part in the Sports Games competing in basketball, volleyball, tennis, table tennis, badminton, chess and fishing.

♦ Triumph of RTU volleyball players

RTU volleyball players gained the 1st place in the competition among 11 universities in the international Student Games of Finnish and Baltic universities – XXXII SELL. RTU team won 10 sets out of 11 in five games, persuasively winning over Latvia University of Agriculture in the finals.

RTU men's volleyball team coached by Raimonds Vilde in the international completions was represented by students of the Faculty of Computer Science and Information Technology Aleks Kuļeševičs, Vladimirs Visockis, Pēteris Lanka, student of the Faculty of Mechanical Engineering, Transport and Aeronautics Reinis Grīnbergs, students of the Faculty of Engineering Economics and Management Oļegs Holodņuks and Vilnis Tīnuss, student of the Faculty of Civil Engineering Jānis Muižnieks and student of the Faculty of Electronics and Telecommunications Andrejs Zavorotnijs.

In turn, RTU volleyball team RTU/Robežsardze received prizes for the title of Latvian Volleyball Champion. Prizes were received by athletes of RTU/Robežsardze Gatis Garklāvs, Oļegs Holodņuks, Ingars Ivanovs, Rolands Ozoliņš, Vladimirs

Visockis, Andrejs Zavorotnijs, Edgars Igaunis, Aleks Kuļeševičs, Pēteris Lanka, Antons Nazarovs, Aivars Siļutins, Ruslans Sorokins, as well as the main coach of the team Raimonds Vilde, coach Edgars Zaiženijs, coach assistant Ainars Cīrulis, team doctor Imants Ganuss and team manager Ainārs Dakša.

♦ RTU floorball players – vice-champions of the Premier League

Mogo-RTU/Rockets floorball players became vice-champions of the Latvian Floorball Premier League in the season of 2015/2016, in an exciting finals giving in to its rivals from Lielvārde.

♦ Weight lifters – the best Latvian team

RTU team in the competition among 12 teams in the 5th Latvian championship series in weightlifting – strikes – won the title of the champion.

RTU team brought home the largest number of cups and titles, as well as the 1st prize as the best team of 2016.

♦ Gold in the Baltic Weightlifting Championship

In summer 2016, RTU weight lifter Andrejs Makuha won the 1st place in the Baltic Weightlifting Championship. The Latvian national team represented by the athlete



gained the 2nd place in the competition, giving in only to the championship home team – the Lithuanians, but overcoming our northern neighbours Estonians. In the open championship in weightlifting in Gdynia, Poland, A. Makuha won two medals – silver in double-event and bronze in long cycle exercises.

In turn, Ingus Leja won bronze medal in the World Championship in Weightlifting in Dublin in 2015. I. Leja in the long cycle exercise showed new personal record lifting 32 kg weigh 61 times. The record number of athletes took part in the World Championship in Weightlifting – more than 560 athletes from 37 countries.

➤ Vice-champion in summer biathlon

1st year student of RTU Faculty of Power and Electrical Engineering (FPPE) Daumants Lūsa won the title of vice-champion in the second series of the Latvian championship in summer biathlon in Madona in autumn 2016.

➤ Close to the medal stand

5th year student of RTU Faculty of Civil Engineering Raivo Kivlenieks won the 4th place in the competition among 30 athletes in pursuit distance in the FISU Orienteering World University Winter Championship. The athlete finished the distance in 00:33:32. The 3rd place was missed by 1 second. The championship was held in the Russian town of Tula.

➤ Squash European top ten

In September, a student of RTU Faculty of Civil Engineering Ineta Mackeviča gained the ninth place in the individual European Squash Championship held in Prague. She is seven times Latvian champion and the only Latvian squash player, who competes in the tournaments of World Squash Federation. I. Mackeviča occupies 94th place in the PSA Ranking.

➤ Badminton senior champion

Assistant professor and acting director of the Institute of Textile Materials Technologies and Design of RTU FMSAC Uģis Briedis won Latvian Seniors Badminton Championship in his age group in both individual and mixed doubles.

➤ Third best in the ultramarathon

3rd year student of RTU Faculty of Computer Science and Information Technology Reinis Skorovs got the 3rd place in his age group in one of the most prestigious mountain ultramarathons Ultra-Trail du Mont-Blanc in the Alp Mountains. His running lasted for 28 hours. Mont-Blanc mountain ultramarathon is the second mounting running of this complexity in R. Skorovs' experience – in April 2016 he won the 1st place in his age group in 85 km distance ultramarathon in Innsbruck, Austria.

➤ RTU overcomes UL team

RTU overcame the team of the University of Latvia (UL) in basketball tournament «*Krastu mačs*» (Match of the Banks) and the rowing race, which took place during Riga City Festival. In 2016, «*Krastu mačs*» was organized for the seventh consecutive time. RTU and UL teams were trying one's strength against each other, RTU team represented the left bank of the Daugava and UL – the right bank. Both teams were represented by university academic staff and employees. One minute before the end of the game the results was 30:32 in favour of UL. Winning the ball and counterattacking UL, RTU player Uldis Lencis with a successful three points ball won the victory – 33:32. Members of RTU team: Vice Rector for Research Tālis Juhna, professor Jānis Grabis, coach of RTU basketball team Dainis Bertāns, researcher Uldis Lencis, computer system and computer network administrator Māris Umbraško, researchers Didzis Avišāns and Ansis Avotiņš, staff of the Sports Department Egils Pāns and Mārcis Pliens, and Director of Maintenance Department Sandis Kārkliņš.

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Edited by RTU Department of Public Affairs
Design: Valda Kaupuža

