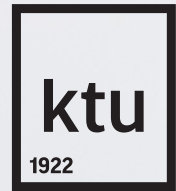


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ANNUAL REPORT

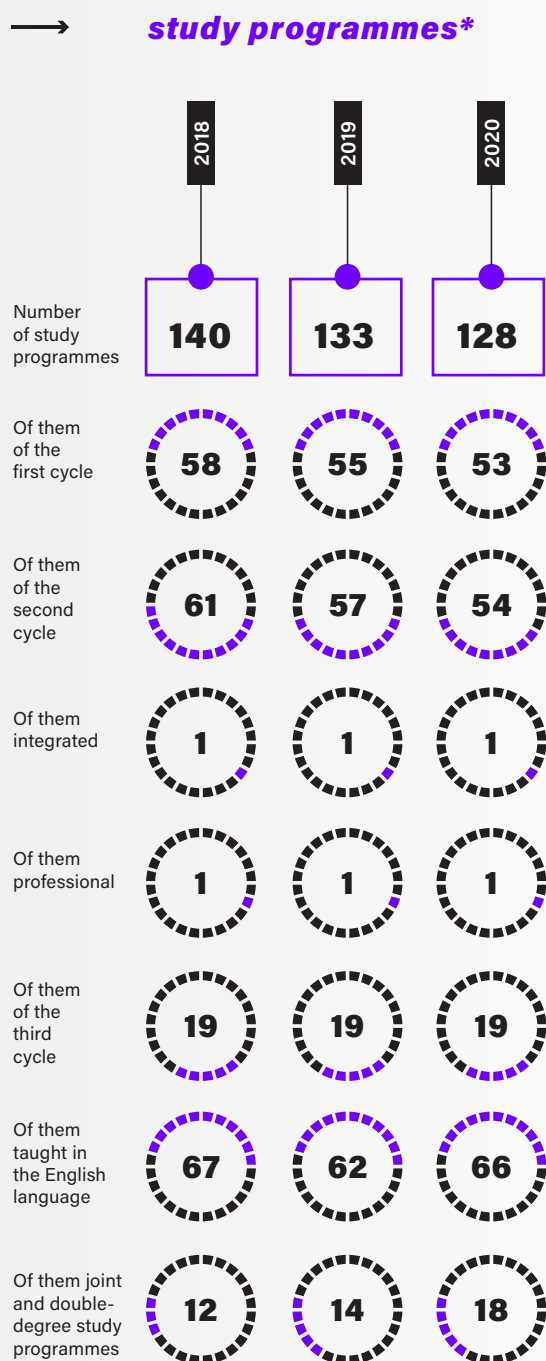


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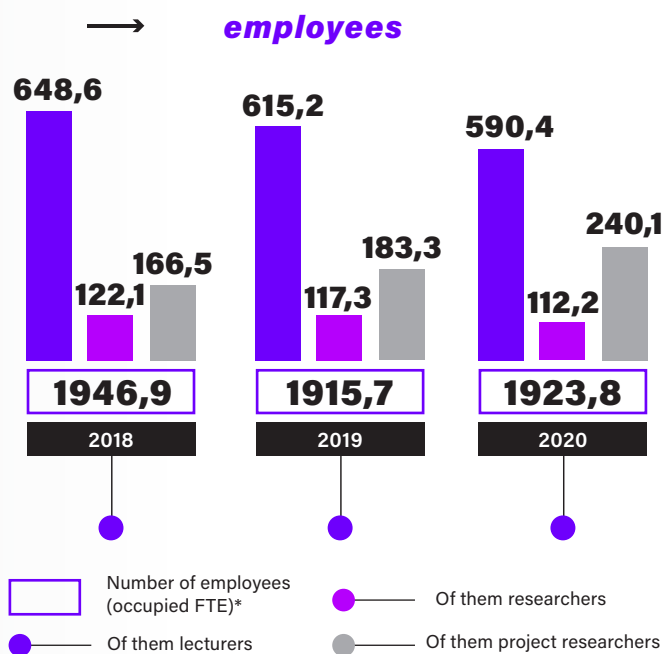
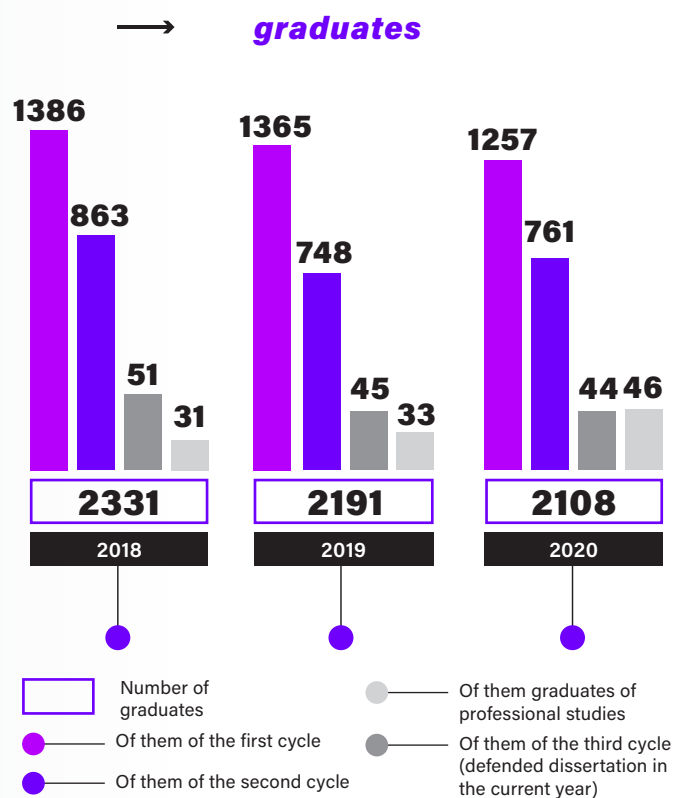
FACTS AND NUMBERS

→ **strategic indicators**

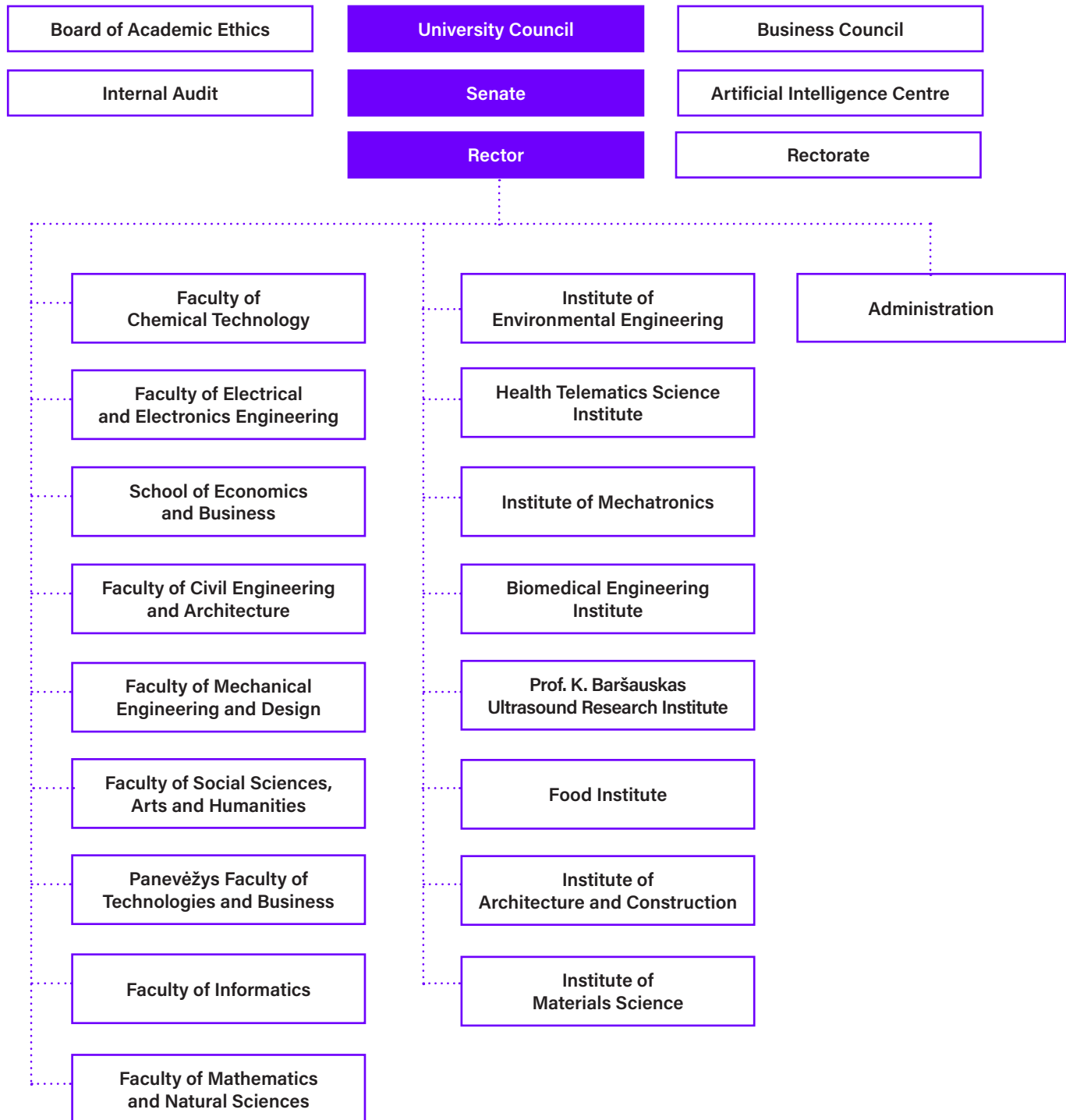
Indicator	2018	2019	2020
Income for R&D&I works and services, thousand EUR	2563,18	2865,61	3454,91
Income for R&D&I works, thousand EUR	1144,23	1285,34	1745,57
Income for R&D&I services, thousand EUR	1418,95	1580,27	1709,34
Income for research projects, thousand EUR	6321,19	6975,21	11825,16
Income for international research projects, thousand EUR	2101,61	1511,47	2091,23
Income for national research projects, thousand EUR	4219,58	5463,74	9733,92
Number of academic employees	1172	1114	1142
FTE of academic employees	929,95	921,16	914,41
Ratio of foreign and all academic employees, %	4,52 %	5,03 %	5,6 %
Ratio of the FTE of foreign and all academic employees, %	3,15 %	3,44 %	3,31 %
Number of students (all)	9034	8442	8060
first cycle	6671	6039	5583
second cycle	2010	2035	2089
third cycle	314	319	332
Number of foreign students (all)	907	1022	901
first cycle	290	334	368
second cycle	240	248	221
third cycle	61	68	79
partial studies	316	369	233

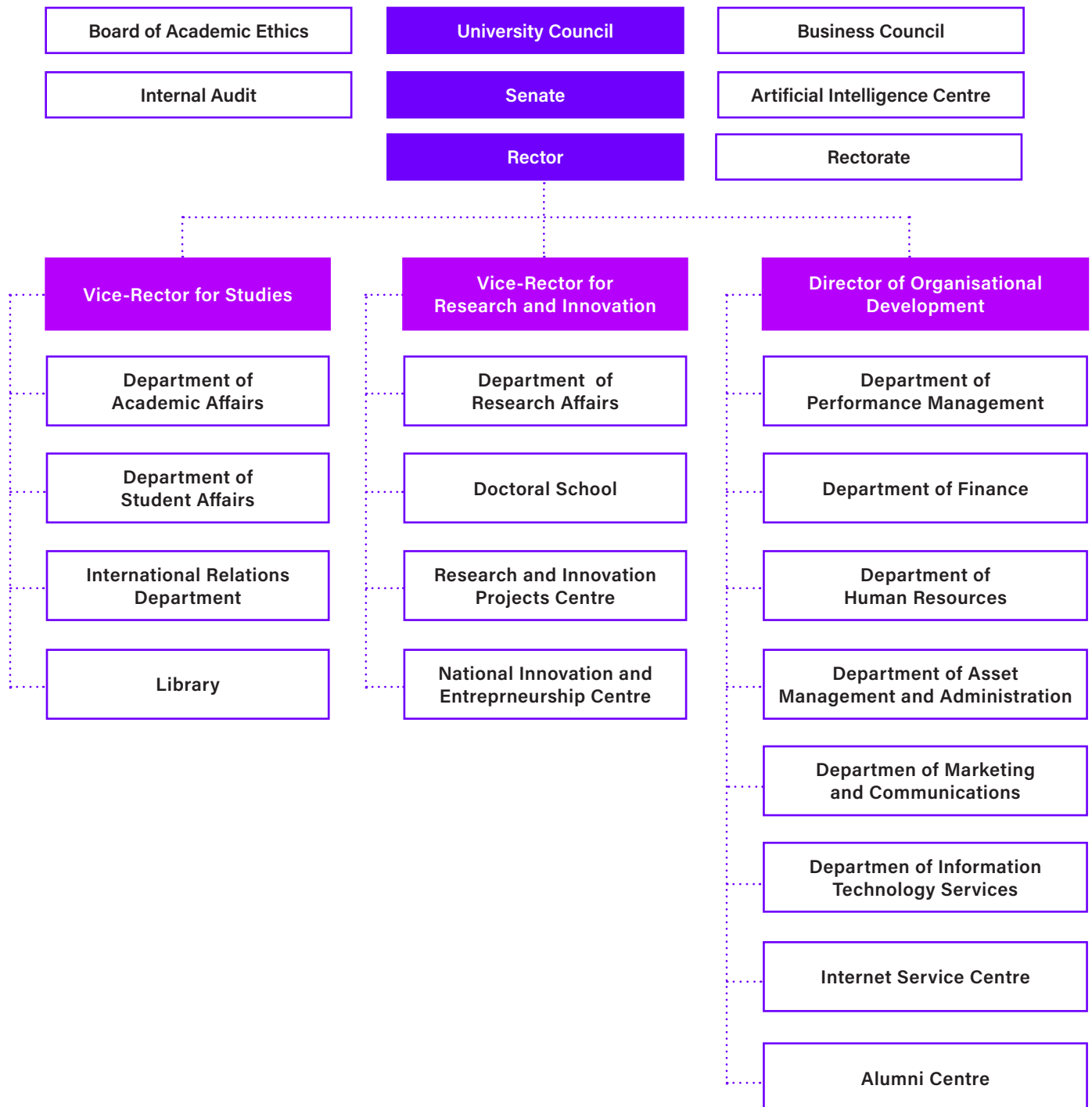


* Provided study programmes with at least 1 student.



* Data of 31 December.







*STRATEGIC
ACTIVITIES OF
THE UNIVERSITY*

The year 2020 was a period full of challenges and trials to Kaunas University of Technology (hereinafter – University or KTU) as well as the entire world. Despite various unpleasant surprises, the University's community has successfully continued their activities; furthermore, they even implemented many new ideas.

The necessity of a prompt response to the changes in the work and study environment encourages a more efficient introduction of changes in the area of study quality, insurance of rapid digitalisation of various processes at the University, enabling of successful performance of distance teaching/learning activities. Despite the occurrence of restrictions, KTU scientists and researchers managed to maintain continuous development of research, prepare new projects and actively contribute to the promotion of the progress of innovative technologies and the restrictions of communication and travelling have not stopped the pro-activeness of our community in the strengthening of the University's image in the international research and academic arena.

The last year was special to KTU because the University's community prepared one of the most important documents of the organisation – the operational strategy and activity plans. After working in solidarity and discussing, the members of the University's community have created a clear plan that will become our roadmap and help us concentrate on our work towards the common goals in the coming years. Taking into consideration the University's priorities for action, strategic goals, interested parties and created value, the University's main activities will be continuously implemented in 3 value-creation chains: studies, research and innovation, organisational development. The main goal of the value-creation chain in studies is the development of the high added-value future members of society. The main goal of the value-creation chain in research and innovation is the development of knowledge and technologies corresponding to societal needs and transfer them to students, business and public sector. The main goal of the value-creation chain in organisational development is focused on the objectives to ensure the performance of the University's activities and strengthen the competencies of human resources.

2021 will be the year of the University's intense growth and improvement. The unexpected but very valuable lessons of the last year and the organisation's new strategy will encourage KTU to continue its most important works as well as actively and with confidence begin a new stage of the University's activities based on efficiency, purposeful growth and development.

**→ development**

The University continues its participation in the project "ECIU University" of the initiative "European Universities" of the "Erasmus+" key action (KA2) "Cooperation for Innovation and the Exchange of Good Practices" which goal is the creation of a joint European university introducing an innovative model of higher education based on real-life challenges.

Enabling of challenge-based studies at the ECIU university: students are provided with an opportunity to solve 5 real-life challenges submitted by KTU partners and 8 micromodules providing theoretical, practical knowledge and skills. A study module "Development of Challenge-Based Innovations" is created; in this module, students apply the challenge-based learning method in the study process.

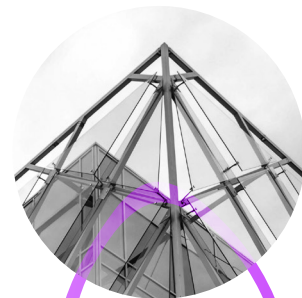
→ promotion

The fundamentals for promotion of the ECIU university are prepared: a website for publication of the relevant information related to the topic of the ECIU university is created, an annual ECIU event is promoted to Kaunas citizens and KTU community, a campaign for promotion of ECIU challenges is implemented.

→ focus for activities in 2021

Further development of the idea of the ECIU university in the development of a joint European university in cooperation with foreign partners.

Active involvement in the development of a virtual research institute of ECIU university.



- KTU ranks among the universities that take 801-1000 positions in the main international university rating "QS World University Rankings". The University has achieved the best results in the indicator "Student/lecturer ratio" indicating the number of lecturers for one student. According to this indicator, KTU takes the 478th position in the world. According to the reputation in the academic community and among the employers, KTU has reached 501+ positions and in the indicators of the number of international employees, students and publications, the University is rated 601+ positions.

- „In the rating "QS EECA" of the universities of developing European and Central Asian countries, KTU takes 50th position. We can rejoice in the University's evaluation according to the education of its academic personnel; it takes the 1st position among all the rated universities in the region according to this indicator. This criterion assesses the share of the university's academic personnel with a doctoral degree in comparison to all the academic personnel. In criteria assessing the university's image among the academics and employees, KTU takes 58th and 38th positions in the region, respectively.

- The rating "U-Multirank" gives an evaluation of each criterion instead of one final evaluation of the universities; it categorises the universities in five categories – from A to E – where A is the best evaluation and E – the worst. According to the latest data, KTU received the best category evaluations (A and B) in 11 indicators out of 37.

- According to the data of the journal "Reitingai" published by the National Rating Agency, KTU takes the 2nd position in the rating of all the Lithuanian higher education institutions. The best evaluation is for the criterion "Present and future academic personnel" in which KTU takes the 1st position. KTU is ranked 2nd in the criterion "Evaluation of the added value created by the alumni" and the 3rd in the criteria "Achievements of scientific, artistic and/or sports activities" and "Competitiveness in the international study arena".

- Journal "Reitingai" also rates the higher education institutions according to the study fields. In this rating, KTU is evaluated as the best university in 11 fields, takes the 2nd position in 9 fields and the 3rd position in 6 fields (evaluation of the bachelor's study programmes). The University is evaluated as the best in 9 study fields of the master's study programmes. The University takes the 2nd position in 20 study fields.

VALUE-CREATION CHAIN IN STUDIES



Table 1. Strategic indicators of the value-creation chain in studies

Indicator	2018	2019	2020
International trips of students	434	404	223
of them internship/traineeship trips	178	193	106
of them trips for part-time studies	256	211	117
Number of KTU lecturers who have taught at foreign universities	103	114	19
Number of the study programmes provided in the English language*	48	43	47
Student satisfaction in terms of the quality of educational and recreational environment	3,72	3,73	3,8
Number of joint and double-degree study programmes, units	12	14	18
Ratio of the students who graduate on time and the newly admitted students, %	56 %	56 %	55 %
Employability of graduates within 12 months after graduation, %	78 %	81 %	n.d.
Income of non-formal education, thousand EUR	495,7	518	389
Number of upskilled lecturers, units	300	266	377
Income of study projects, thousand EUR	2630,11	1623,35	887

* the third cycle study programmes are not included in the calculation of this indicator.

study programme portfolio

- In 2020, 117 programmes were provided for admission: 43 programmes of the first study cycle, 53 programmes of the second study cycle, 19 programmes of the third study cycle, 1 study programme of integrated studies and 1 study programme of professional studies.

- In 2020, the University provided 128 programmes: 53 programmes of the first study cycle, 54 programmes of the second study cycle, 19 programmes of the third study cycle, 1 study programme of integrated studies and 1 study programme of professional studies in the groups of study fields of engineering, technologies,

physical sciences, informatics, mathematics, social, educational sciences, humanities, health sciences, business and public management and arts. 21 programmes of the first study cycle, 1 programme of integrated studies, 25 programmes of the second study cycle and 19 programmes of the third study cycle were provided in the English language.

- Three new study programmes were accredited in 2020: the study programme "Artificial Intelligence" and two interdisciplinary study programmes: the study programme "Data Science and Engineering" of the first study cycle and the study programme

"Materials Physics" of the second study cycle.

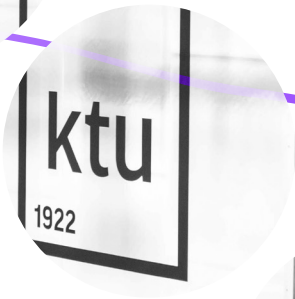
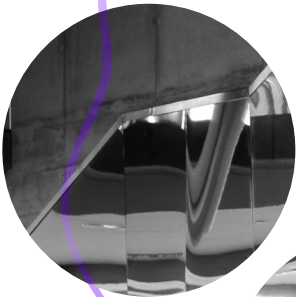
- 8 two-disciplinary and interdisciplinary study programmes for the achievement of the learning outcomes of two or three study programmes were provided in 2020. A degree in minor studies was acquired by 130 (10%) of the graduates of the bachelor's studies; an additional MA+ competence was acquired by 126 (17%) of the graduates of the master's studies. The University provides 17 MA+ interdisciplinary expert competencies in total. A BA+ interdisciplinary expert competence model consisting of 28 competencies will be provided from 2021–2022.



Table 2. Indicators of admission to the University

Study cycle	2018	2019	2020
First cycle and integrated studies	1599	1458	1328
Second study cycle	902	951	956
Professional studies	38	46	53
Third study cycle	78	70	78
Total	2617	2525	2415

2415 students were admitted to KTU in 2020, i.e., 4.4% less than 2019. The number of students admitted to the first cycle and integrated studies decreased by 8.9%, to the second cycle studies – increased by 0.5%, to professional studies – increased by 15.2%, to the third cycle studies – increased by 11.4%.



→ ***admission to the first cycle and integrated studies***

The students were admitted to 38 programmes of the first cycle and integrated studies; the University holds the share of 10.4% of the Lithuanian market of university studies 13.2% of the market of the state-funded studies. According to the total number of admitted students, KTU is in the 4th position and according to the students admitted to the state-funded study positions, the University remains in the 2nd position in Lithuania.

1328 students were admitted: 1141 of them to the state-funded and 187 of them to the state-non-funded study positions, 206 of them were the students who had received at least one 100 points evaluation for their maturity examinations (15.4% of all the students admitted to KTU). KTU holds the 4th position according to the percentage of the students who sign a learning agreement from all the candidates invited to studies (91.6%). These data indicate that KTU students have a strong motivation and preparation for studies.

The study programme "Software Systems" of the first study cycle remains in the list of top ten most popular study programmes in Lithuania for the seventh year in a row and the biggest number (235) of students is admitted to the state-funded studies of this study programme for the fifth year in a row. The students with a 100-point evaluation make 29.3% of this study programme's students.

→ ***admission to the second cycle studies***

The students were admitted to 50 programmes of the second cycle studies; the University holds the share of 14.6% of the Lithuanian market of university studies 19.7% of the market of the state-funded studies. According to the total number of admitted students, KTU is in the 3rd position and according to the students admitted to the state-funded study positions, the University is in the 2nd position in Lithuania.

956 students were admitted to the second cycle studies: 811 of them to the state-funded and 145 of them to the state-non-funded study positions. The number of the admitted students increased by 0.5% in comparison to 2019; 53.3% of the admitted students are graduates of the bachelor's studies at KTU. The biggest number of students is admitted to the following study programmes of the second cycle studies: "Big Business Data Analytics" (47), "Information Technologies for Distance Learning" (41) and "Management" (40).

→ ***admission to the professional studies of pedagogy***

The number of submitted applications at KTU increased by 121% in comparison to 2019. This increase indicates a strong interest in professional studies of pedagogy. The total number of students admitted to professional studies at KTU increased by 15.2%. KTU holds the share of 14.6% of the Lithuanian market of university studies and is in the 4th position in Lithuania according to the number of students admitted to the state-funded study positions.

53 students were admitted to professional studies: 15 of them to the state-funded positions, 20 to the state-non-funded positions and 18 of them to the state-non-funded positions with project funding.



- The methodology for the optimisation of the study programme portfolio has been prepared; its goal is the development of the University's competitive, student-centred study programme portfolio based on research and innovation results and corresponding to international practices, the needs of the state economic, social and cultural development, business and public sector.
- 8 investment plans for the development of study programmes were implemented: more than 50 study modules were updated introducing innovative study methods; the Faculty of Civil Engineering and Architecture became a member of the Building Smart training centre; new software (Siemens SIMIT V10.2, Siemens IoT, Aspen Plus, Aspen Hysys, DlgSILENT "Power Factory") was acquired, etc.
- Two study programmes of the first cycle studies – "Automation and Control" and "Informatics" were awarded the special quality labels "Investors' Spotlight" of the association "Investor's Forum" and direct foreign investment development agency "Invest in Lithuania".
- An agreement on cooperation in the study process was signed with the AEL network (American Esoteric Laboratories). During studies, the students of the study programmes of the first cycle studies "New Media Language" and "Translation of Technical Texts" were provided with the opportunity to receive the qualification degrees awarded by three universities (Kaunas University of Technology, University of Granada and Aix-Marseille University).
- The study programme of the second cycle studies "Textile and Clothing Technology" was integrated with the joint international study programme of the master's "We-Team", providing the students with the opportunity to acquire the master's diploma of the Ghent University (KTU is the associated partner).
- The interdisciplinary module "Product Development Project" (hereinafter – PVP) was prepared. Starting from 2021, it will be provided in more than 30 study programmes. 3 methodological tools were prepared: PVP guidelines for students, PVP guidelines for lecturers and PVP guidelines for social partners.
- 4 mass open online training courses for students whose achievements of state maturity examinations do not reach the higher level were prepared. The open online training courses will provide the opportunities to strengthen the fundamental knowledge in mathematics application, physics, chemistry and programming via distance individual learning. It is planned to also make these training courses open to pupils.
- To promote and increase the accessibility of artificial intelligence, the online informal learning courses are offered to the University's students and employees – "Elements of AI" ("Introduction to Artificial Intelligence") created by the University of Helsinki and the Finish enterprise "Reaktor"; In Lithuania, KTU curates this course in cooperation with the Agency for Science, Innovation and Technology; for advanced learners – KTU online course "Artificial Intelligence" prepared by KTU lecturers doc. dr. A. Paulauskaitė-Tarasevičienė, doc. dr. K. Štutienė and N. Dubauskienė in 2020.
- 357 KTU lecturers and 181 lecturers of other higher education institutions improved their didactic competencies in the training organised by EDU_Lab; there were 2 study seminars for the academic community's preparation for the autumn and spring semesters, 5 teachers cafes that included the discussions of the University's partners, lecturers and administration about the good practice in the improvement of didactics in higher education and 1 international event for quality enhancement in studies "ECIU University Days".
- 3 new training programmes for lecturers were prepared in 2020: "Implementation of Team-



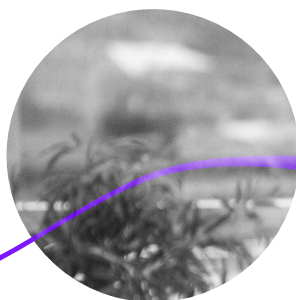
work", "Empowerment of Students to Learn Using Metacognitive Skills" and "STEM: from Provision of Facts to Development of Systematic Thinking".

- The methodological tool for lecturers – Assessment Methods for Student Achievements and Feedback – was prepared (authors: A. Daunorienė, B. Simonaitienė, K. Ukvalbergienė, A. Daubarienė, R. Česonienė, M. Ratkevičienė). It is a supporting tool for lecturers who create objective evaluation criteria.
- 7 lecturers and 2 teams of lecturers were awarded for innovations and quality in studies. Lecturers: V. Pilinkienė, K. Ryselis, T. Sidekerskienė, L. Piazzi, D. Žostautienė, E. Šerelis, R. Česonienė; teams: K. Kantmanienė, E. Paluckienė, E. Griškonis, N. Žmuidzinavičienė, R. Alaburdaitė, V. Valeika, A. Šulčius, G. Dervinis and G. Narvydas.
- The proposal by the team led by prof. dr. T. Blažauskas "Transferable Innovation Based on Gamification and Real-Life in the Virtual Environment for Experiment Implementation in STEM Subjects" was selected for the competition "Team Award" of the European Consortium of Innovative Universities (ECIU).
- The University's feedback system was improved: the alumni survey was prepared and implemented with the participation of 1040 (11%) graduates, the lecturer survey was prepared and the mid-semester survey was updated.
- The cooperation agreement was signed with the largest global laboratory of nuclear physics European Organisation for Nuclear Research (hereinafter – CERN). Under this agreement, KTU students will be able to participate in the programme "Creation of Challenge-Based Innovations" organised by CERN department "IdeaSquare" and contribute to solving real-life challenges.
- KTU School of Economics and Business met the requirements of "Bloomberg L.P." and was invited

to join the international network of high-level universities ELP established by "Bloomberg L.P."

- The team of the third-year students of the study programmes "Marketing" and "Finances" of the first cycle studies consisting of E. Blackus, Ž. Naujokaitis, M. Petraitis, D. Sabaliauskaitė and R. D. Viljučkevič was recognised as the winner of the European region in the Global Online Marketing Academic Challenge GOMAC 2020.
- The third-year student of the first cycle studies, the founder of the start-up EmPlastrum (solution for psoriasis treatment) A. Mazūras and his team won the support for project development "RIS Innovation Call 2020" provided by the European Innovation and Technology Institute (hereinafter – EIT).
- The master's thesis by the graduate of the second cycle studies D. Blaževičius "Electroactive Materials of New Structure for Organic Lamps" was the winner of the competition "The Best Master's Thesis" organised by the Lithuanian Society of Young Researchers in the area of technology sciences. The supervisor of the thesis – prof. dr. S. Grigalevičius.
- The master's thesis by the second cycle student V. Dirmeikis "European Union Support Impact on Agriculture in Lithuania" was awarded the second prize in the competition organised by the Lithuanian Society of Young Researchers and the Ministry of Foreign Affairs of the Republic of Lithuania. The supervisor of the thesis – prof. dr. I. Pekarskienė.
- The Scholarship of the President of the Republic of Lithuania Aleksandras Stulginskis was awarded to the fourth-year student of the study programme "Applied Physics" of the first study cycle G. Klimaitė for great academic achievements.
- The Scholarship of the President of the Republic of Lithuania Jonas Žemaitis was awarded to the second-year student of the study programme "Biomedical Engineering" of the second study cycle M. Rinkevičius.





Due to the global pandemic, the number of applications of international students to KTU decreased twice in 2020 in comparison to 2019 admission (2249 applications in 2019 and 1387 applications in 2020). The number of the candidates invited to studies remains similar (491 in 2019 and 447 in 2020); however, less than half of the invited candidates decided to come.

In 2020, KTU participated in 18 exhibitions of higher education and agents, virtual exhibitions (Kazakhstan, Azerbaijan, Ukraine, Georgia, Bulgaria, Greece, Ecuador, Colombia, Mexico, Turkey, virtual exhibitions with wider coverage in the Near East, South America, South-eastern Asia) and online seminars in 11 countries.

In the autumn semester of 2020–2021, 156 international students began their cyclic studies at the University. The most popular study programmes of the first cycle studies among the foreign students: "Mechatronics", "Informatics" and "Aviation Engineering", the second cycle: "Informatics", "Industrial Engineering and Management", "International Business" and "Electronics Engineering". 223 students and graduates participated in the academic exchange.

The beginning of the implementation of virtual personnel mobility.

26 students out of 155 candidates were admitted to the GIFTed Academy in 2020. In total, 82 students of 8 faculties participated in the GIFTed talent development programme last year.

In 2020, the students of the GIFTed talent development programme were actively involved in the event "Technorama"; one team won the prize of 1000 EUR. The joint teams of the students of the GIFTed talent development programme participated in hackathons and were awarded prizes: first prize to "HospitON", "Potyrių laboratorija" and "ActIn-Space", second prize to "I-Day Lithuania", third prize to "Biohakaton".

The specialised educational programme SKILLed FinTech started at the University in 2020. 13 students were admitted to this programme organised for the development of the bachelor's students in the area of financial technologies.

Implemented reorganisation of academic and research mentors by merging them into one academic mentorship.

The annual event "KTU WANTED Career Days" was organised virtually due to the pandemic. Three live broadcasts had 10 thousand views on the day of the event: 40 Lithuanian and foreign enterprises gave presentations during the live interactive broadcast on YouTube; lrt.lt broadcasted the conference "SMALL Talks" in which 13 presenters shared their experience and there was the forum "WANTED Talks" including 4 presentations and a discussion.

In 2020, there were 9 active sports teams and the University was represented in 8 additional sports. 320 students in total were members of the sports teams. 233 students and employees participated in recreational sports activities.

In 2020, the sports teams participated in 64 championships and 343 competitions. They were awarded 128 prizes in total: 42 first prizes, 50 second prizes and 36 third prizes.

In 2020, there were 6 active art societies with 267 participating members. The societies participated in the Lithuanian student festivals: "Ei, studente, sukis vėju", "Grok Jurgeli", Lithuanian Student Choir Festival (a video greeting was prepared, the festival was postponed to 2021).

In 2020, there were 22 operating student organisations, 120 student events and initiatives were organised. 32 148 EUR were allocated for the implementation of 57 projects of student organisations.

In 2020, 176 persons applied regarding the primary psychological consultations; the total number of provided consultations – 694.

9 papers and recommendations for students on the topic of mental health were published, 2 lectures on the topics of the psychology of bad habits and addiction were given in cooperation with the Lithuanian National Union of Students.



gift^{ed}

skill^{ed} | FinTech

guid^{ed}

want^{ed}

activat^{ed}

inspir^{ed}

unit^{ed}

→ non-formal education

In 2020, the University offered 196 adult non-formal education courses in the study fields of informatics, physical sciences, engineering, technologies, social, educational sciences, humanities, arts, business and public management. The biggest numbers of non-formal training are registered at Food Institute, the Faculty of Social Sciences, Arts and Humanities and the Faculty of Mechanical Engineering and Design.

KTU offered 40 training programmes for children. 480 children graduated from KTU Young Computer Users School in spring and 400 children began distance studies in the new academic year.

37 new non-formal education programmes were created and approved. 99 non-formal education training courses were organised and 2218 listeners participated in them.

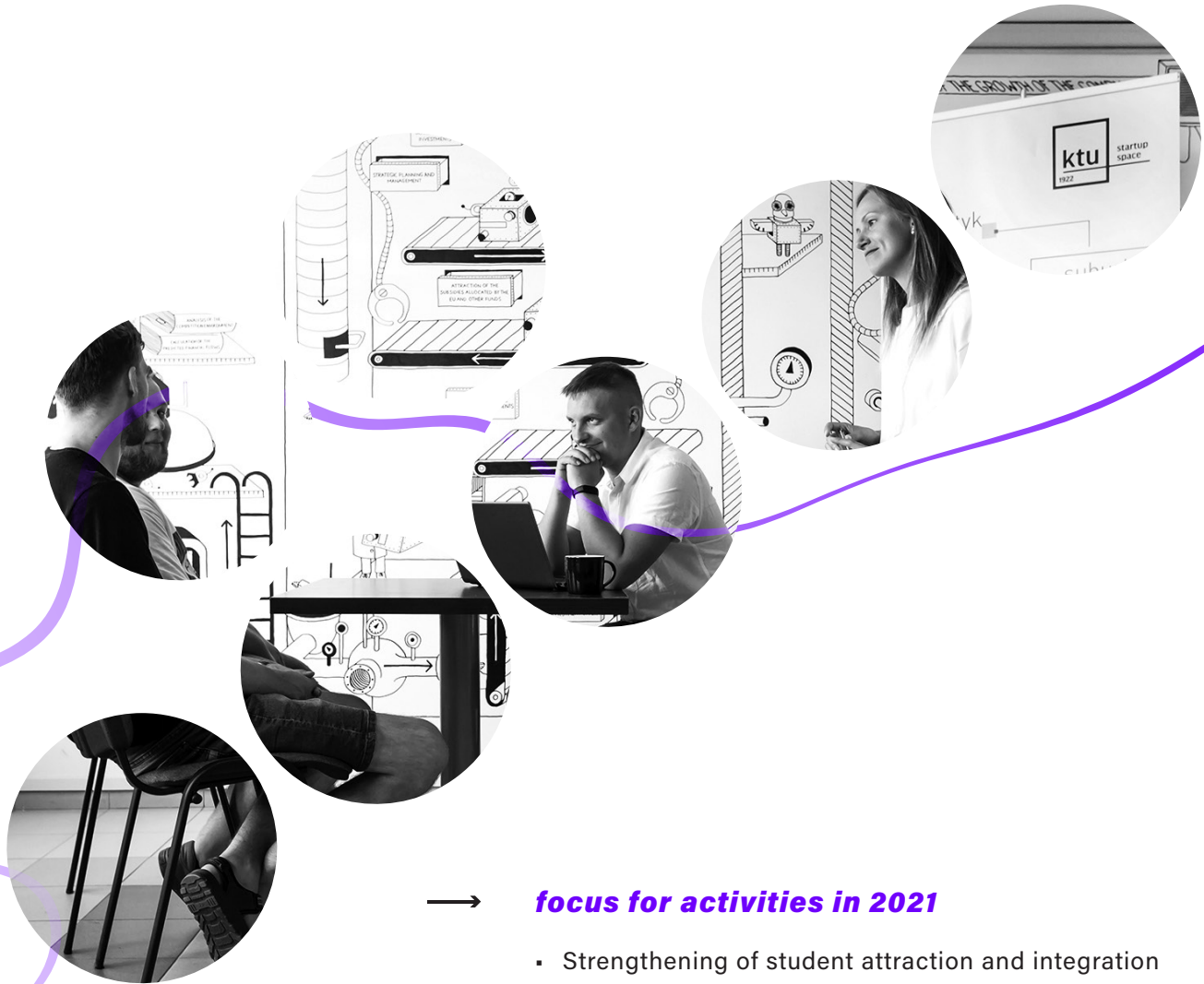
→ study projects

In 2020, 106 projects of academic activities were implemented; of them:

- 38 international projects, 36 of them under the "Erasmus+" programme, 1 under the programme "NORDPLUS", 1 under the programme of the Swedish institute;
- 68 national projects, 66 of them under the activity "Development of the Skills of Students Through Research During Semester" of the measure No. 09.3.3-LMT-K-712 "Development of Competencies of Scientists, Other Researchers and Students Through Practical Research Activities" of the European Union structural funds.

In 2020, the implementation of the project "Optimisation of Study Programmes and Strengthening of the Pedagogical Competencies of the Teachers of Physical and Technological Sciences" financed by the European Social Fund under 2014-2020 European Union funds' investments action programme No. 09.3.1-ESFA-V-738 "Improvement of the Network of Higher Education Institutions" continues.

The collaborative platform for the teachers of higher education institutions is developed in the implementation of the project "The Collaborative Platform for Teaching Innovation in Higher Education (Collab)" under the "Erasmus+" programme (KA2).



focus for activities in 2021

- Strengthening of student attraction and integration in the University.
- Strengthening of student-centred studies.
- Modernisation of the management of the study process using digitisation and enhancing the efficiency of performance processes.
- Development of the service model for career management and talent development.
- Development of the service model for student career planning.
- Development of the system for the recognition of the lecturers' pedagogical competencies.
- Development of a non-formal education system.



*VALUE-CREATION
CHAIN IN RESEARCH
AND INNOVATION*



Table 3. Strategic indicators of the value-creation chain in research and innovation

Indicator	2018	2019	2020
Number of papers in the scientific publications with impact factor by foreign publishers	353	378	471
of them number of papers with co-authors of foreign institutions in the scientific publications with impact factor by foreign publishers	182	181	229
Number of papers in the scientific journals with an impact factor of at least the second quartile (Q2)	281	306	423
of them in the open access scientific journals	84	105	208
Number of the publications compatible with the Regulation on Annual Evaluation of R&D and Artistic Activities of the Ministry of Education, Science and Sport	622	581	626
Number of the foreign scientists participating in the process of doctoral studies	n. d.	n. d.	63
Number of patents (USA, Japanese, European patents)	4	0	2
Number of patent applications (for the USA, Japanese, European patents)	2	5	8
Income from the transfer of licences/rights, thousand EUR	6,75	13,03	26,95



R&D&I achievements

2020 Lithuanian national culture and art premium was awarded to the University's associate professor architect G. Balčytis for the architecture open to the city and people.

2020 Kaunas city science premium was awarded to professor habil. dr. V. Ostaševičius for the achievements in mechatronics in Lithuania.

2020 premium of Kazimieras Simonavičius in the area of mechanics by the Lithuanian Academy of Sciences was awarded to dr. D. Zeleniakienė, G. Monastyreckis, dr. S. Kilikevičius and dr. K. Žukienė.

2019 premium of Albinas Rimka in the area of economy by the Lithuanian Academy of Sciences was awarded to dr. V. Pilinkienė, dr. V. Deltuvaitė, dr. A. Daunorienė and dr. V. Gaidelis.

2020 Lithuanian national scholarships by the World Federation of Scientists were awarded to D. Gudei-

ka (energy), dr. G. Kručaitė (energy), dr. E. Kumpikaitė (cultural pollution) and dr. E. Misiulis (medicine and biotechnologies).

2020 prizes of the competition "Best Theses of Young Scientists and Doctoral Students" organised by the Lithuanian Academy of Sciences were awarded to dr. D. Tavgenienė and dr. T. Dambrauskas, citations – dr. V. Gružauskas and dr. A. Jurkevičiūtė, and the winners of the competition "Scientific Works of the Students of Higher Education Institutions" were D. Blaževičius, I. Knabikaitė, K. Leitonas and D. Rubinitė.

2020 winner of the competition "Best Dissertations 2019" organised by the Lithuanian Society of Young Researchers – T. Braukyla (chemistry).

2020–2021 young scientist scholarships of the Lithuanian Academy of Sciences were awarded to dr. I. Žičkutė and dr. T. Dambrauskas.





- In the development of international level interinstitutional research, 8 joint projects funded by the internal funds of the institutions were implemented by the scientist teams of the institutions of "Santaka Valley" association (Kaunas University of Technology, Lithuanian University of Health Sciences, Vytautas Magnus University and Lithuanian Energy Institute).
- In 2020, 16 research projects were implemented by young researchers in the priority research fields, funded by the university's funds. Even though the projects include various research, most of them were related to the application or development of artificial intelligence methods.
- The University's most innovative scientists of 2020 – dr. D. Leskauskaitė and dr. V. Marozas. The winners of the 2020 competition "The works of the Most Active Young Researchers" (within 7 years after the award of the doctoral degree) organised by the University – dr. O. Bezikonnyi, dr. M. Pukalskienė, dr. M. Syrpas, dr. F. Rabitzandr, dr. Ž. Stankevičiūtė.

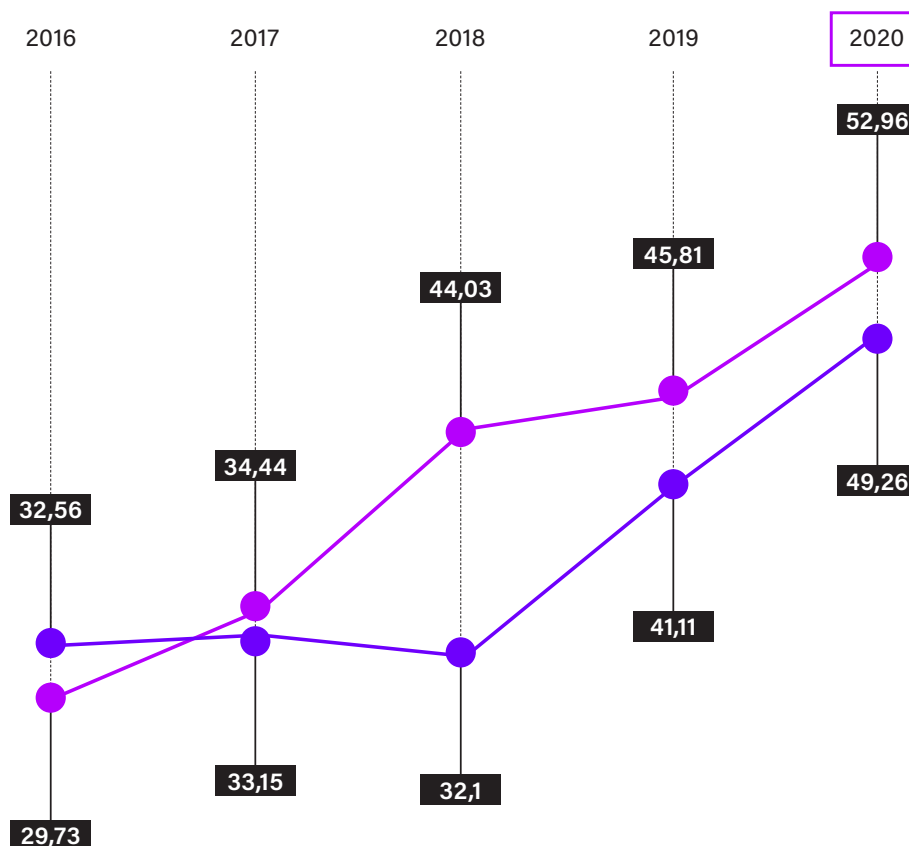
In 2020, 836 papers were published in peer-reviewed scientific journals or conference material, 674 of them in the publications of foreign publishers. 520 papers were published in the journals with impact factor indexed in Clarivate Analytics Web of Science or Elsevier Scopus databases, 471 of them published by foreign publishers and 229 with foreign co-authors. 423 papers were published in scientific journals with an impact factor of at least a second quartile (Q2), 208 of them in the open access scientific journals.

According to the data of the Clarivate Analytics Web of Science database (hereinafter – WoS), the number of the publications with foreign co-authors in scientific journals was increasing and made 53% in 2020 (*fig. 1*); the share of these publications published in the open access scientific journals changed slightly and made 48.5%. However, the share of all the WoS publications in the open access scientific journals increased significantly and made 49% in 2020 (*fig. 1*).

1 scientific monograph and 22 parts of scientific monographs were published by internationally recognised publishers in 2020. In total, 33 monographs, science studies, books, publications of scientific sources or parts thereof were published.

Fig. 1

Share of the WoS publications with foreign co-authors in scientific journals and share of all the WoS publications in the open access scientific journals



- In 2020, the University provided doctoral studies in 19 research fields (in the areas of natural sciences, technologies, social sciences and humanities) and admitted 11.4% more doctoral students than in the previous year. In 2020, 66 state-funded positions of doctoral studies were allocated to the University in 2020 and the scientists won 13 additional positions of doctoral studies funded by the European Union structural funds project "Development of Doctoral Studies".

- The number of the candidates to doctoral studies

increased – in total, 156 persons applied in 2020, 78 were admitted (19 of them were foreign citizens); it made 1.97 applications to one study position.

- At the end of 2020, 332 doctoral students were studying at the University; it is 4% more than in 2019. The largest number of students were studying in the research fields of materials engineering (42), informatics engineering (30) and chemical engineering (30). The foreign citizens from 25 countries made almost one-fourth of all the doctoral students of the University ([fig. 2](#)).

- The numbers of the University's dissertations that were defended on

time and prepared in the English language increased significantly – 98% of the dissertations defended at the University in 2020 were defended within one year after graduation and 70% of them were prepared in the English language ([fig. 3](#)).

- In 2020, the University's doctoral students received 71 incentive scholarships for the published scientific papers in the international scientific journals with high impact factor (51 scholarships in 2019) and 42 incentive scholarships to the winners of the competition "Most Active Doctoral Students 2020" (38 scholarships in 2019).

Fig. 2

Changes in the number of doctoral students according to their nationality

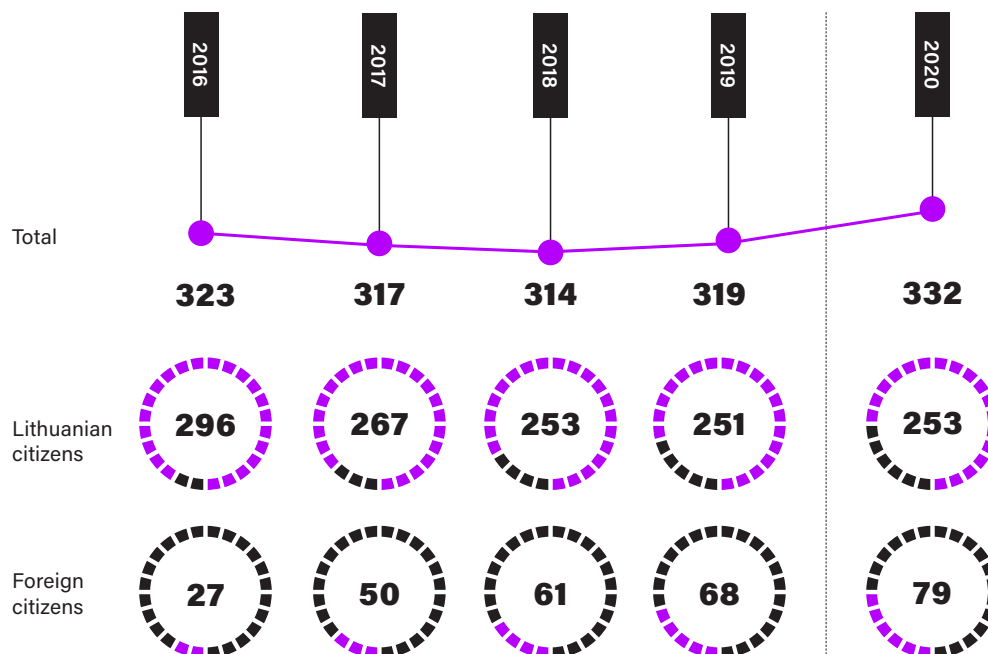
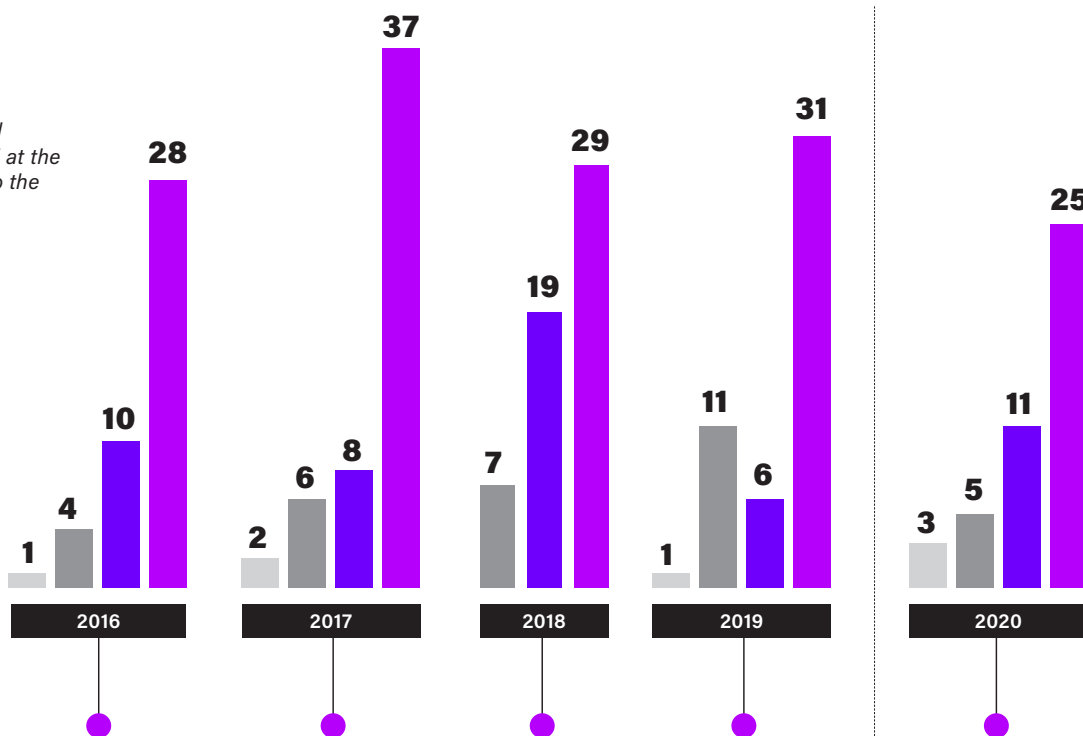
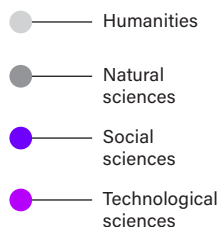


Fig. 3

Number of the doctoral dissertations defended at the University according to the research areas



- In 2020, 23 scientists of the University were upskilled in the training for the supervisors of doctoral students organised for the second time and provided by the joint team of foreign lecturers from Rovira i Virgili University (Spain).

- In 2020, the University continued and expanded its cooperation with the University of Bologna (Italy) by signing an interinstitutional agreement. Under this agreement, the doctoral students of the research fields of electrical and electronics engineering, civil engineering, environmental engineering, informatics engineering, materials engineering, measurement engineering and management

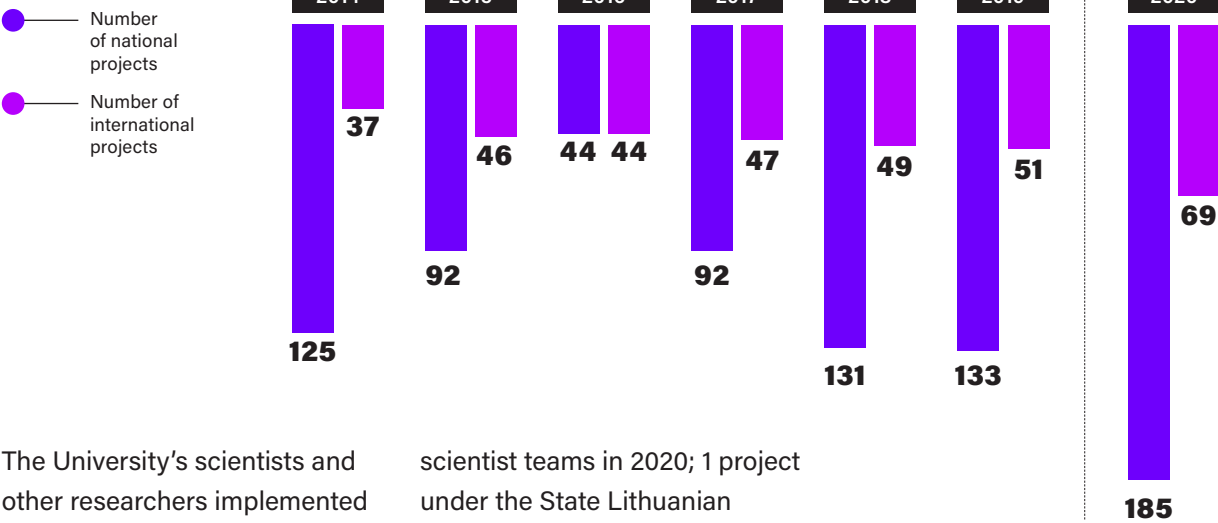
of both institutions are provided with the opportunity to acquire a double doctoral degree. A double doctoral degree of KTU and University of Bologna was awarded to two students of the University in 2020.

- Two agreements on joint supervision of doctoral students were signed with the University of Antwerp (Belgium) and Ivane Javakhishvili Tbilisi State University (Georgia) in 2020. 5 doctoral students studied at the University under such cooperation agreements with foreign higher education institutions in 2020.

- 2020 m. The Research Council of Lithuania conducted the quality and efficiency assess-

ment in the University's doctoral studies of 6 research fields for the period of 2014–2019. The quality and efficiency of doctoral studies in the research fields of art history, chemistry, informatics, chemical engineering and materials engineering have received a positive evaluation and it was permitted to continue doctoral studies. The University was suggested to correct the provision of doctoral studies in the research field of informatics engineering according to the remarks of the experts and submit the plan of intended measures for the quality improvement and enhancement of efficiency in doctoral studies to the Research Council of Lithuania within 3 months.

Fig. 4
Number of research and
innovation projects that
brought income



The University's scientists and other researchers implemented 69 international and 185 national R&D&I projects in 2020 (fig. 4).

The University has implemented 27 projects under the European Union research and innovation programme "Horizon 2020", the implementation of 9 of them began in 2020.

The implementation of the project coordinated by KTU "Digital Healthcare Ecosystem (Platform) Research and Innovation Capability Building (DiHECO)" under the funding instrument "Twinning" of the action "Spreading Excellence and Widening Participation" under the project "Horizon 2020" began in 2020.

The Research Council of Lithuania funded 46 projects of

scientist teams in 2020; 1 project under the State Lithuanian Studies and Dissemination Programme for 2016-2024, 1 project under the national scientific programme "Welfare Society", 1 project under the national scientific programme "Healthy Aging", 1 short-term targeted research project, 6 applied research projects for the preparation of solutions to the consequences of COVID-19 (coronavirus) pandemic, 13 international projects implemented under the intergovernmental agreements, 2 projects under the programme "For Research and Innovation on Materials M-ERA.NET", promoted the preparation of project proposals for the programme "Horizon 2020".

In 2020, the University's scientists implemented 3 research

projects funded under the EIT programme, 2 of them were implemented under the instrument Raw Materials and 1 under the instrument Manufacturing, 5 projects of the European Union Territorial Cooperation Programme "Interreg Europe" (1 of them was coordinated by the University), 17 research projects funded by other international programmes or institutions.

The Agency for Science, Innovation and Technology funded 15 projects implemented by the University's scientists: 3 technological development

projects, 1 project for the needs of national defence, 11 projects under the instrument "Promotion of Commercialisation and Internationalisation of R&D&I Results" of the 2014-2020 European Union funds' investments action programme, 2 of them were implemented under the international cooperation framework EUREKA, promoted the applicants of "Horizon 2020" project proposals with partners in Latvia and Estonia.

The Lithuanian Academy of Sciences funded 1 project under the 2018-2020 Action Plan for Involvement in CERN Activities.

The University's scientists implemented 80 projects in

total under the 12 instruments of the 2014-2020 European Union funds' investments action programme in 2020.

In 2020, the University had 30 grant agreements signed with the Research Council of Lithuania for implementation of the scientists' research idea exchange, research visits from and to Lithuania.

5 projects funded by the National Paying Agency under the Ministry of Agriculture of the Republic of Lithuania were implemented in 2020 m.

The University's scientists and other researchers participated in 63 activities of the programme COST (European Cooperation in Science and Technology) in 2020.

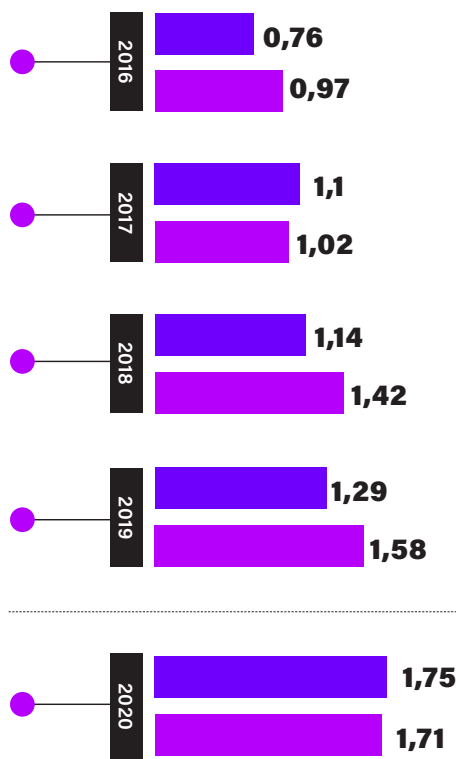
In the development of international cooperation networks, the University's scientists and other researchers implemented 7 projects under 2014-2020 European Union Territorial Cooperation Programme INTERREG in 2020 (2 of them were coordinated by the University).



Fig. 5

Dynamics of the income of R&D&I works and services for Lithuanian and foreign entities (million EUR)

- Income of R&D works for entities, million EUR
- Income of R&D services for entities, million EUR



- In 2020, the University performed R&D&I works and services to Lithuanian and foreign business entities and other organisations for 3454.91 thousand EUR (**fig. 5**), of them, the orders of the foreign entities made 20.5 % – 706.92 thousand EUR.

- In the implementation of its R&D&I activities, the University has cooperated with 46 organisations and enterprises from 16 countries: Austria, Belarus, Belgium, Denmark, United Kingdom, Estonia, Latvia, Poland, Netherlands, Norway, France, Finland, Sweden, Switzerland, Ukraine and Germany.

- At the end of 2020, the University signed the joint venture agreement with Vilnius University, Vilnius Gediminas Technical University, Lithuanian University of Health Sciences established the “TTO Lithuania”. It is the first such network of research and academic institutions in Lithuania. Its goal is to unite the knowledge and technology transfer professionals working at the research and academic institutions providing them with the possibilities to exchange their practical knowledge and upskill in the areas of knowledge and technology transfer and intellectual property management.

- A digital publication – a review of the University's R&D&I competencies – was prepared.

- At the end of the year, the 12-partner consortium “DI4LithuanianID” coordinated by the University was nominated by the Ministry of Economy and Innovation of the Republic of Lithuania to submit an application to the European Commission under the European Digital Innovation Centres (hereinafter – ESIC) funding instrument.



→ **protection and management of intellectual property**

14 international patent applications and 9 patent applications were submitted to the State Patent Bureau of the Republic of Lithuania.

10 Lithuanian patents and 5 foreign patents – 2 patents from Germany, 2 from the USA and 1 from Canada – for inventions were received on behalf of the University.

The patents of priority Lithuanian patent application for the invention “Non-invasive System for Monitoring and Characterising Atrial Arrhythmias in Patient with Post-Stroke Conditions”, developed in cooperation with the scientists of Vilnius University, was received. The invention of 2020, based on algorithm and technology that will allow to identify and notify the person about the arrhythmia was licensed to the enterprise UAB “Teltonika Telemedic” that undertook to commercialise and manufacture the smart bracelet adapted to this technology.

→ **establishment and development of the enterprises manufacturing innovative products and promotion of entrepreneurship**

33 new enterprises were established in 2020 for the development of the technologies created by the University.

In 2020, the activities of the 2014-2020 Interreg V-A Lithuania-Poland Cooperation Programme “Acceleration of Business Support System (ACCESS)” began. The project includes the updates of the interactive platform for new entrepreneurs istartup.eu, preparation of the pre-acceleration programme and the guides for the development of the ecosystem for cross-border institutional cooperation.

On 25 September, the constantly growing innovation exhibition-competition “Technorama 2020” was organised virtually for the first time. 50 innovative inventions and ideas created in various areas were presented during the event. The best 9 teams of the authors of inventions shared the prize fund in the value of 6800 EUR.

The University signed 56 cooperation agreements with business entities in 2020. Including the successful relations with the enterprise providing software design services and operating in Finland and Japan which helped to organise free training courses on the fundamentals of artificial intelligence for the University’s community. Successful cooperation continues with the enterprises of one of the largest agricultural and food business groups in the Baltic States UAB “KG Group LT”, the relations with the enterprises UAB “TeleSoftas”, UAB “Visma Lietuva”, UAB “Tesonet assets”, etc. operating in the area of information technologies are strengthening.

→ **focus for activities in 2021**

- Active involvement in the new European Union research and innovation programme “European Horizon” by submitting project proposals.
- Development of the key competencies of doctoral students and strengthening of the managerial competencies of supervisors.
- Strengthening of R&D&I ecosystem – coordination of the establishment of the ESIC centre.

VALUE-CREATION CHAIN IN ORGANISATIONAL DEVELOPMENT



Table 4. Strategic indicators of the value-creation chain in organisational development

Indicator	2018	2019	2020
Evaluation of the employee satisfaction	3,52	3,37	3,6
Number of the employees who have participated in traineeships or training at foreign institutions	276	334	43
of them number of academic employees	133	154	38
of them number of non-academic employees	143	180	7
Number of the employees who have participated in the training organised by the University	817	887	664
of them number of academic employees	650	726	460
of them number of non-academic employees	167	161	204
Excess/deficit, thousand Eur	114,8	137,5	137
Investment costs, %	1,85	2,87	5,2
Share of management costs in income, %	13,97	12,1	6,3



marketing and communication

A new KTU image video "Technology for Humans" with an accompanying website based on smart solutions **www.enterktu.com** was created and presented to the public. The video had more than 180 thousand views in 4 months and the website had more than 30 thousand visitors.

Two art exhibitions promoting the University – "Human Side of Technology" and "Artech" were prepared and presented.

KTU classic souvenirs were updated and new, souvenir lines with characteristic unique designer solutions were presented.

An updated futuristic KTU was presented at 3 studies exhibitions in Klaipėda, Kaunas and Vilnius visited by approximately 50 thousand representatives of the target audience.

An ad campaign for admission to studies with the motto "**Human Side of Technology**" started. This ad campaign reached more than half of the Lithuanian citizens.

The descriptions of the study programmes of bachelor's and master's studies were updated, almost 50 visuals for ads were created. It was reflected in the obtained results: the number of visitors to the websites **ktu.edu** and **stojantiesiems.ktu.edu** increased approximately 30 %.

Communication with pupils was conducted virtually: personal consultations on "Facebook" social network, virtual visits that attracted 3 times more visitors and special brain battles for the senior pupils were organised.

3 new cooperation agreements were signed with PI Kaunas Fortress VII Fort and 5 schools from local priority regions.

KTU has become even more open to society – all the interested people can visit the expanded KTU virtual tour and test their knowledge in the special game of the virtual tour.

A virtual graduation ceremony was organised – a broadcast film and website were created and a virtual diploma award to the graduates of each faculty was performed.

KTU Christmas reached the employees at home. 2000 gifts were packed using 4567 metres of gift ribbon and 70 kilograms of decorative packing shavings. The furthest shipping of the gift reached the addressee in Nida.



- The e-textbooks and interactive learning material has been acquired from international publishers Pearson, Wiley, Routledge, McGraw Hill. The community could 456 172 e-books (420 843 in 2019), 123 798 e-journals (105 691 in 2019), 25 166 of them are full-text scientific journals (26 428 in 2019). The use of e-resources has increased; in 2020, the community members have downloaded 1 382 884 documents (904 329 in 2019).
- The University has used the offer of the enterprise "Coursera" providing mass open online courses and provided the opportunity to all the employees and students to complete the training courses organised by this enterprise. More than 1300 of the University's employees and students have used this opportunity and completed more than 1400 unique courses.
- The virtual learning environment "Moodle" has been updated, the open code system of virtual lectures "BigBlueButton" has been installed and adapted for a large number of users, the licences of the video conference software "Zoom" have been acquired. The "BigBlueButton", "Zoom" and "MS Teams Meeting" systems have been integrated into "Moodle".
- "Moodle" virtual environment services to schools (vma.lm.lt) have been expanded: more than 250 schools are using the services; more than 8 thousand teachers participated in "Moodle" online training seminars organised at the beginning of the quarantine; 404 educators completed the upskilling programme "Organisation and Management of Learning Process in the Virtual Learning Environment "Moodle" of 60 academic hours organised in the autumn. The help for schools in their fight with COVID-19 disease (coronavirus infection) was acknowledged by the Prime Minister of the Republic of Lithuania.
- The insulation works funded by the public investment programme were finished at the buildings located at Studentų st. 50 and Studentų st. 48.
- The activities scheduled in the investment programme "Investment of the State Real Estate into Kaunas University of Technology and Increase of Authorised Capital" approved by the Government of the Republic of Lithuania have been organised (design works were completed and building works began).
- The implementation of the second stage began in the project "Repair Works of the Facades of the Training Building 1C3p at Radvilėnų pl. 19, Kaunas", funded under Priority No 5 of the European Union Funds Investment Operational Program for 2014–2020 year "Environment, Sustainable Use of Natural Resources and Adaptation to Climate Change" 05.4.1-CPVA-K-303 Measure "To develop public and private cultural heritage".
- An application has been prepared for the funding of the installation of the solar power generation plants and ensuring a partial energy supply from remote solar power generation plants at the objects located at Radvilėnų pl. 19, Studentų st. 54, Studentų st. 56, K. Baršausko st. 59, Kaunas, under the Programme for Climate Change.
- A funding agreement was signed regarding the "Installation of Energy-Efficiency Measures at the Buildings at Vydūno al. 25, 25A and Pašilės g. 37, 39, Using the Repayable Subsidy Instrument by the Public Investment Development Agency". The activities (design works) of the project "Installation of Energy-Efficiency Measures at the Building at Studentų st. 56, Using the Repayable Subsidy Instrument by the Public Investment Development Agency" were performed.
- Technical project preparation works for the twelve-storey dormitory No. 10 (Gričiupio st. 13, Kaunas) were performed (the dormitory will be completely renovated internally and externally ensuring the accommodation services corre-

sponding to the contemporary student needs). Repair works were performed in three dormitories implementing Resolution No. 458 "On the Allocation of Funds" of the Government of the Republic of Lithuania of 6 May 2020.

- Activities of the project "Updates of Infrastructure of the Food Institute and the Faculty of Chemical Technology" were performed: the laboratories were equipped, the ventilation and

sewerage systems in the worst condition were renovated.

- The activities (project preparation works) for the establishment of the experimental development and pilot production centre with incubation services (at Tunelio st. 60, Kaunas) have begun.
- Technical project of the centre of experimental and prototyping laboratories of physical and technological sciences "M-Lab" was prepared.



financial management

The unified document regulating the key provisions of the University's financial management and accounting policies – the University's Financial Management Regulation – has been prepared and approved.

The digitisation of the financial management and accounting processes has been implemented, including:

- Drawing up of the budget;
- Formation of the budget implementation reports;
- Electronic approval of payment packages;
- Automatic verification of the outstanding amounts of secondments;
- Automation of the process of the dormitory overpayments/refund of advance payments.

- The works for the integration of the University's accounting processes into the Financial Management and Accounting subsystem of the State Budget, Accounting and Payments system (hereinafter – FVAIS) have begun.





The continuous development of the employees' priority knowledge and competencies has been successfully conducted. 200 employees participated in the English language studies and leadership development programme. Taking into consideration the changes in activities and organisation of non-formal education activities due to the quarantine and pandemic, all the development programmes for employees are implemented remotely, constantly providing the training employees and lecturers with organisational, informational and technical support.

An accounting system for the employee upskilling data has been prepared. It allows recording the cases of the employee upskilling.

The multifunctional employee cards have been created and installed. They allow the identification of the persons as KTU employees and grant the right to conveniently use the University's accesses and services.

The "Work at KTU" part of the website ktu.edu has been updated. It is useful for the people interested in job and career opportunities at the University and provides extended information on

the organisation's environment, strengths, advantages, benefits, career and development prospects in academic and non-academic activities. The templates for job offers and ads have been updated to correspond to the general image of the University.

The digitisation of the secondment, remote work and other personnel applications have been performed. It allowed the acceleration of the processing, administration and accounting of these processes.

The evaluation of the job positions of the administrative and service personnel of the faculties has been conducted clarifying the main functions and responsibilities and evaluating the added-value created by the job positions.

To improve the professional-personal life balance of the employees and implement the measures of KTU as the responsible employer, a summer camp for the children of KTU employees was organised in cooperation with KTU Sports and Wellness Centre. The camp has 4 shifts and 71 participating children.





implementation of equal opportunities

The University performed the analysis of gender breakdown in study fields and the stages of academic career aiming to raise social awareness about the prevailing stereotypes and gender disbalance in the selection of study fields.

As a member of the Conference of European Schools for Advanced Engineering Education and Research (hereinafter – CESAER), KTU has approved the Declaration on Equality, Diversity and Inclusion at Universities of Science and Technology. In October 2020, the Equality, Diversity and Inclusion working group was established at CESAER, including the representative of KTU.



focus for activities in 2021

- Creation and development of the integrated communication system including the admission campaign.
- Development of the internal communication system.
- Introduction of energy-efficiency solutions in the University's buildings.
- Digitisation of financial management and accounting processes (identification of interfaces with the FVAIS).
- Digitisation of the human resource management processes.
- Preparation of the model of KTU competencies.
- Development of the employees' adaptation process.
- Enhancement of the involvement of the University's alumni in the University's activities.

ktu.edu

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© Kaunas University of Technology
ISSN 2669-297X (online)



SL 344. April 14, 2021. 4,5 printer
sheets, Order No. 112
Publishing House "Technologija"
Studentų 54, LT-51424, Kaunas
Designer Evelina Garliauskienė