CTU

CZECH TECHNICAL UNIVERSITY IN PRAGUE

ANNUAL ACTIVITY REPORT 2023

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Prague, May 2024

Annual Report on the Activities of the CTU in Prague for the Year 2023
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Rector's opening speech

Dear readers,

Welcome to the pages of the CTU annual report, this time for the year 2023. This year CTU has confirmed its significant position in the Czech and international comparison, both in the field of education and research.

There can be no better assessment of a university than when students are interested in it. This time too I can say with pleasure that we received a higher number of applications in 2023 than in 2022, and we have maintained the long-term trend that interest in studying at CTU has been growing continuously over the last five years.

I believe that the strategy set up to raise awareness of CTU and its disciplines among secondary school students contributes to this.

We continued to participate in various nationwide projects, competitions, popularization and educational events, etc., which not only introduce CTU to secondary school students, but generally promote their interest in mathematics, physics and technology. We continued to develop direct cooperation with selected schools, both at the school-wide level and, of course, within the faculties themselves. They are also increasingly organising the much sought-after entrance exam preparation courses and the popular Open Days. These are one of the occasions when secondary school students can talk directly to our current students, and they give generally positive references to CTU.

Care for students is unique at CTU

The support of students is essential for CTU. In 2023, the Centre for Information and Counselling Services of the CTU celebrated its 20th anniversary, providing unique support in solving study, personal, family and legal problems. Students with learning disabilities, autism spectrum disorder and other difficulties, as well as physical, visual and hearing impairments, are served by the ELSA Centre for Support of Students with Special Needs, which in 2023 launched a separate portal where a complete and clear range of CTU counselling services can be found. And one more novelty was the separate presentation of CIPS and ELSA at the Gaudeamus education fairs, with the fact that these units of the Rectorate's Department for Studies and Student Affairs are able to help not only our students, but already applicants before the entrance exams, suffering from ADHD, dyslexia or dysgraphia (which makes us unique in the Czech environment).

The ELSA Centre and the Career Centre of the CTU Rectorate were also awarded recognition in the "National Career Counselling Award 2023" competition for their holistic approach to students with specific needs at CTU. This is one more proof that the university is dedicated to its students and developing their support in the right direction.

A bonus for students is the effort to develop the Dejvice campus, where the promising Vektor Technická project, of which CTU is a part, has been created to diversify leisure activities.

Of course, mobility of students and their gaining experience with foreign study and environment is a necessity. This is done in many ways, in addition to the traditional ones, for example by developing and promoting "double-degree" programmes. In 2023, the European Union also decided to extend the funding of the prestigious EuroTeQ Engineering University alliance, of which CTU is a member from 2020. The funding was extended until 2027. At the end of 2023, the alliance expanded to include HEC Paris and IESE Business School (University of Navarra).

There is one more thing I must mention when listing educational and education-enhancing activities, and that is artificial intelligence. In 2023, it was widely discussed in society because of its potential for use and abuse in learning. No case of abuse has been recorded at CTU, so we have not considered abolishing bachelor's theses or similar measures. However, CTU proceeded to create framework rules for the use of AI for study and peda-

gogical purposes in bachelor's and master's studies and to set ethical rules.

Excellent research has commercial potential

Artificial Intelligence (AI) is one of our university's prides. As part of the prg.ai initiative, CTU scientists are involved in excellent research in this field. In general, CTU remains particularly strong in the research areas of artificial intelligence, computer science, cybernetics, quantum, civil, mechanical, electrical and nuclear engineering. Here let me remind you that in June 2023, the tenth nuclear reactor in the Czech Republic was commissioned at FNSPE - making CTU the only university in the world to operate two fission reactors and a fusion reactor at the same time. The research portfolio of the above-mentioned areas is complemented by the fields of architecture and biomedical engineering, which create a solid base for interdisciplinary problem solving.

Excellent research and interdisciplinary cooperation allow CTU to be uniquely involved in the commercial sphere. The long list of companies for which CTU is a sought-after partner continues to grow in 2023. We want these companies to benefit not only our scientists in the field of research and our students in internships and employment after graduation, but also to have a greater financial impact on the university's budget. This goes hand in hand with our efforts to reduce the university's existential dependence on public resources. That is why we have adopted the CTU Commercialisation and Fundraising Strategy 2023-2030. We intend to place more emphasis on commercialisation at the point of entry, to move towards higher value from the perspective of application partners (the market) in terms of how the output is delivered and, last but not least, to support fundraising of substantial volume university private equity funds, which will enable CTU and its researchers to conduct more ambitious research with higher commercial potential.

In addition to developing strategic cooperation with existing partners, CTU is of course also looking for new ones. Let me mention two with whom we have managed to establish cooperation at the university level and declare its clear contours in 2023.

Strategic promises

The defence of the country is a patriotic duty, which we at CTU have no doubt about. In April, we signed a Memorandum of Cooperation with the Army of the Czech Republic in the field of breakthrough technologies. In December, the Rector's Office organised a conference "Structured Scientific Research Dialogue between CTU and the General Staff of the Czech Army" (attended by the Chief of the General Staff of the Czech Army Karel Řehka), where specific working groups from CTU units have already held discussions. The cooperation between the Army and CTU in the development and application of unique defence mechanisms is successfully developing and, in the future, we can count on tangible results of our scientists and researchers and extensive investments of the Army in this development.

In November 2023, cooperation with Taiwan and the Taiwan Semiconductor Research Institute was also agreed. The Taiwanese are primarily interested in our research results in the areas of semiconductors and IC technologies. They intend to release funds in the billions for research by CTU experts.

In addition, an agreement was reached with accelerators to cooperate more closely in the identification, incubation and acceleration of CTU projects in order to increase the number of university spin-offs and start-ups in which the partners are prepared to invest. Testing of the most appropriate procedures for project identification or "co-creation" has been underway since mid-2023.

Investments have not stopped

That is why in 2023 we have not stopped developing and equipping prestigious research centres of excellence, laboratories and testing rooms that make CTU one of the leaders in education, science and research. And we have also managed to complete other investment projects, the most important of which include, after three years of reconstruction, the reopening of the Bubeneč Dormitories for students, which are now the most modern accommodation capacity of the CTU with almost 400 beds. The reconstruction of the former boiler room building in Strahov was also completed, creating adequate premises for the CTU Archive to move into. Speaking of Strahov, in 2023 CTU also advanced a project to build the world's largest technology hub and sandbox at Strahov Stadium and to support the creation of other national and European innovation projects in the academic, business and municipal spheres.

Even in terms of culture and sports, we have tried to develop them. For example, a new archery range was opened at the Podolí Dormitory. After years of functioning of the inter-university hockey club Engineers Prague, in 2023, it became our independent hockey team CTU Engineers. Our athletes have traditionally won medals in Czech and international competitions, both as university teams and individuals. Once again, the announcement of the CTU Athlete of the Year or the Rector's Day took place. Support for sport at CTU continues, not only within the school, but also through the participation of our staff and students in events such as the 17th November Run or the Prague Fifty.

The pride of the CTU has also become the Bethlehem Beseda project; it consists of the Bethlehem Chapel, the Bethlehem Palace and the Jaroslav Fragner Gallery, which was purchased by the CTU in 2020 and reopened under new management in 2023. We have also become proud partners of the Czech Radio Symphony Orchestra, for which the Bethlehem Chapel has become one of the concert venues.

Education across generations

As a strong institution, CTU operates across society. And because education is the foundation of everything, we offer education to different generations and professions. I'm not just referring to the University of the Third Age. In 2023, the new Code for Lifelong Learning at CTU came into force, which

regulates the detailed conditions for the implementation of lifelong learning at CTU, and a separate department of the CTU Rectorate was established - the Centre for Lifelong Learning. Last year, a total of 653 LLL courses were implemented at CTU, which is an increase of 118 courses compared to 2022. more. A new feature is also the completion of some of them with internationally recognised micro-certificates.

In November, CTU was ranked silver in the "School recommended by employers". It is awarded by the Czech Employers' Club, whose priorities include the development of education and the transfer of requirements from employer practice to various levels of education, including university, and the promotion of interest in technical education from primary school.

In addition to pupils and students, we also pass on knowledge to teachers. We have again offered English courses to primary and secondary school teachers, and we have now prepared a four-semester course "Study for Educational Counsellors" to strengthen psychological and educational support for pupils in primary and secondary schools.

Duty to help

As a university affecting all spheres of society, we are also obliged to help those who deserve help. Ukrainian refugees are undoubtedly one of them. At the end of 2023, 156 of them were living in our dormitories, and once again, in addition to other support, we prepared Christmas for them, when the staff of the Rector's Office and members of the Academic Senate of the CTU contributed to gifts chosen by Ukrainian children. I would like to hope that we will not organize such a Christmas again for the third time... but we are ready to help Ukrainians until the end of the war.

In addition, CTU not only joined the activities of foreign non-profit organizations, but also founded its own. Thanks to the activities of the Faculty of Biomedical Engineering, the Czech Health Technology Institute, z.s., a non-profit organization dedicated to improving the efficiency of health care and expanding its availability, especially in developing countries, was established.

The results are binding

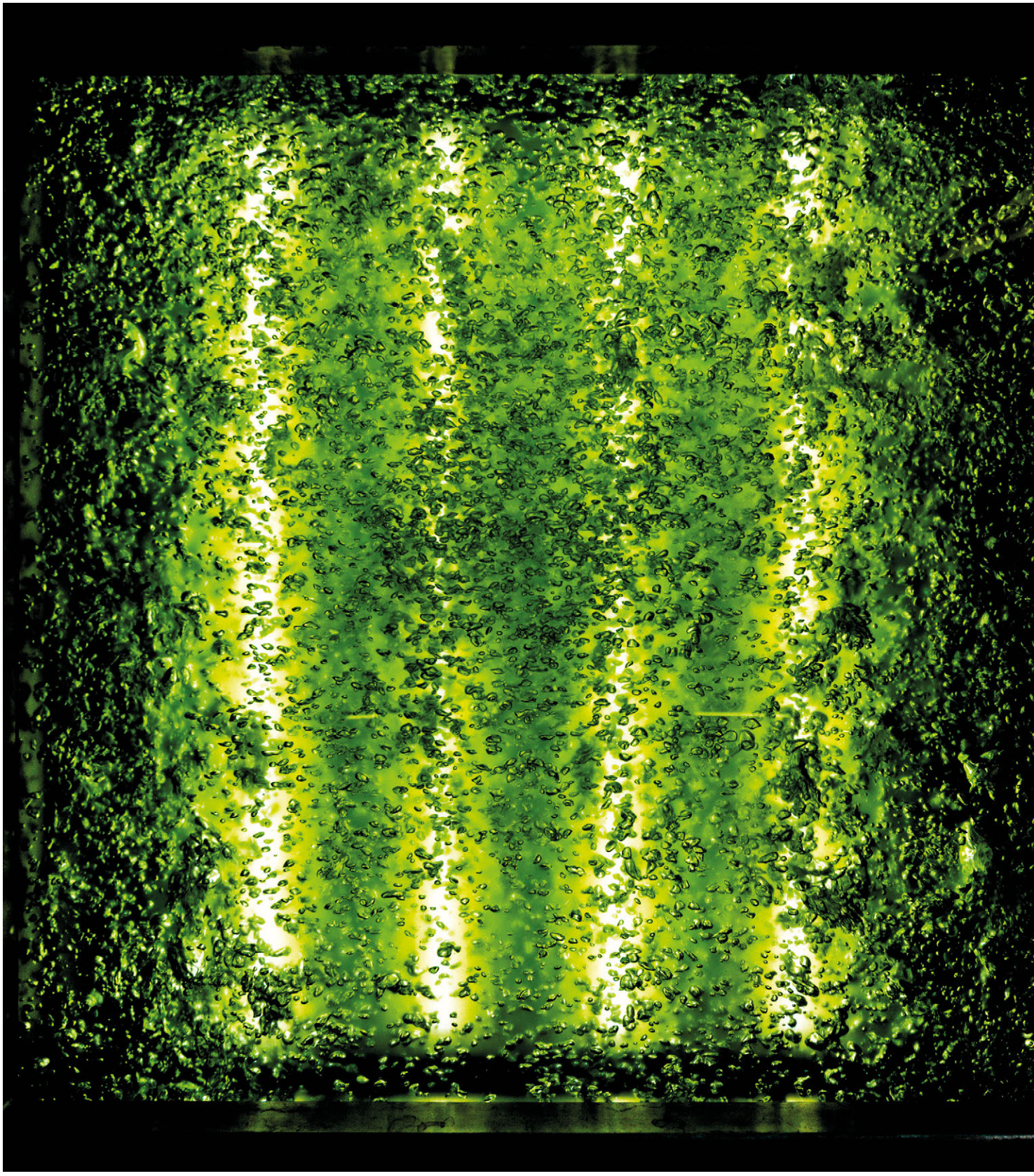
At the beginning I mentioned the growing number of applications, it is also worth adding that the number of researchers and scientists at CTU has increased in 2023. I will finish with CTU's position in the QS University Rankings; last year's ranking also placed us among the top five hundred universities in the world, we remained in the top three universities in the Czech Republic and we were again the best Czech technical university.

For the results of 2023, it is appropriate to thank all those who work and study at CTU, who earn their good name through their education here and who contribute their unique knowledge to the reputation of the University. I look forward to further cooperation!

Have a nice reading

doc. RNDr. Vojtěch Petráček, CSc.
Rector of the CTU in Prague

Stories of 2023



Sustainable future

Changes in climate, socio-economic links, but also dwindling reserves of mineral resources are forcing us to change our behaviour and thinking. Universities offer the highest possible education and space for innovation and research. They should therefore play a key role in teaching and developing technologies that respond to global challenges. Incorporating elements of sustainability into teaching across disciplines reinforces a whole-system mindset of social responsibility. As a result, students will be prepared to respond to current challenges in their employment. By adopting sustainable practices in its operations, the university will not only demonstrate the benefits to its students and staff, but also convey the necessary inspiration towards the public.

In 2022 and 2023, CTU was part of an inter-university project led by Masaryk University, supported by the Centralised Development Programme of the Ministry of Education, Youth and Sports. The common guiding principle was the activities for the implementation of the SDG's. The aim of the unique inter-university platform was to strengthen the role of universities as effective, accountable and inclusive public organisations by ensuring more effective collaboration in transferring good practice in implementing the SDGs into university operations. The project defined ten key areas (Biodiversity, Energy Management, Catering, Sustainable IT Infrastructure, Sustainable Mobility, Waste, Responsible Purchasing, Strategies and Strategic Partnerships, Sustainable Construction and Water Management) in which mapping was undertaken across the universities. Based on the findings, a set of recommendations applicable by the university management and their subsequent translation into practice by the necessary involvement of internal and external key people was created in 2022. In 2023, a unique set of generic sub-strategies were developed based on previous collaborations, which are interlinked, complementary and form a suitable basis for the development of a tailored sustainability strategy for the university. CTU Prague was the guarantor of the key area of Sustainable Construction in these projects.

As part of the Unilead II project, the universities were involved in the European Sustainable Development Week in September 2023. CTU prepared a questionnaire "Sustainable University" directed at both students and staff, which was informative about the Unilead project and was supplemented by a set of questions on the possibilities of incorporating sustainability into the university and teaching. The responses showed, among other things, that 85 per cent of students (84 per cent of employees) considered it important for the university to become more involved in sustainability. An important message from students is the interest in courses complemented by sustainability topics (73 per cent of student respondents) and only 21 per cent responded positively to the question of whether the student contributes to the development of sustainability in the field of study through their own student work.

Respondents expressed interest in incorporating sustainability into teaching and university operations. Key comments included improving the availability of information about sustainable activities at the university, encouraging more sustainable practices in daily life at the university, and strengthening the integration of sustainability into academic programs and research.

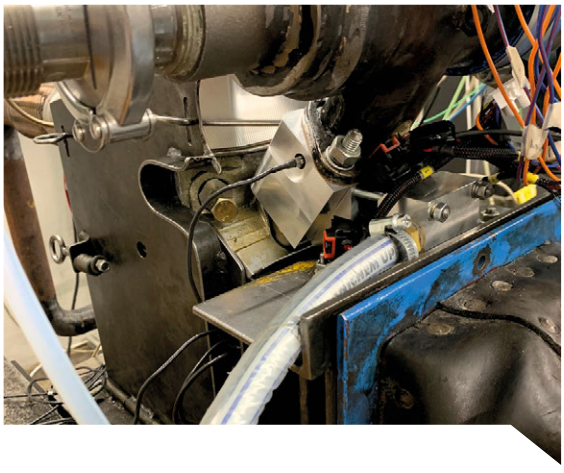
The mapping forms and project meetings during the year clearly showed the need for a conceptual approach to sustainability at universities. The establishment of a separate Office of Sustainability and the position of a Sustainability Manager is proposed as a suitable solution. The main task of the office, i.e. a body that would not be limited by tenure and would not lose continuity of work, should be to set up communication across the university, create a platform for sharing and possibly coordinate strategic documents related to sustainability. Collaboration on data reporting to the most followed QS World University Ranking, which included sustainability as a ranked category in 2022, should be an integral part of this. Improving its position in this ranking will be evidence of CTU's continued efforts to be a leader in this area as well.

Improved sustainability performance now has a direct impact on the perceived level of CTU's overall performance as an academic and research institution. Last but not least, the QS ranking is also important for internal evaluation and strategic planning of the university's development, as it provides clear evaluation indicators that can serve as inspiration.

Universities offer the highest possible education and space for innovation and research. They should therefore play a key role in teaching and developing technologies that respond to global challenges. Incorporating elements of sustainability into teaching across disciplines reinforces a whole-system mindset of social responsibility.

A sustainable future is discussed in the public sphere (political, lay and professional) at almost every turn. But what is the reality, what can be changed and invented to lead to a better tomorrow without a significant carbon footprint? Here are examples of projects and other activities in this area that were implemented by specialists at CTU faculties and institutes in **2023**.

Hydrogen technology

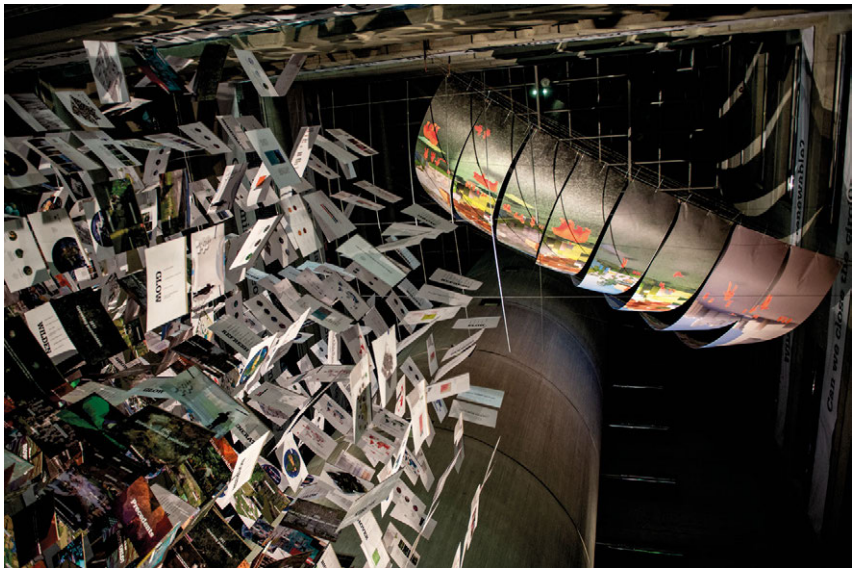


The current demand for alternative fuels and drives is caused by the need to address the impacts of climate change and the requirement to eliminate local emissions of pollutants. The use of hydrogen, ideally from renewable sources, appears to be promising. One of the fundamental aspects of the activities of the Centre of Vehicles for Sustainable Mobility of the Faculty of Mechanical Engineering is the pragmatic respect for technological neutrality. For this purpose, research and educational activities focus on the possibility of using hydrogen as a fuel for reciprocating combustion engines and, more recently, for use in hydrogen fuel cells.

The initial project to upgrade the Centre's extensive laboratory facilities was to build a facility for testing the hydrogen fuel cell drive and its accessories. The H2CleanGen electric generator with a hydrogen fuel cell and a proton permeable membrane with an output of 3 kW and a battery storage capacity of 9 kWh was supplied by the Czech company LeanCAT.

In cooperation with Škoda Auto a.s. and Tatra Trucks, a.s., the Centre operates two experimental single-cylinder hydrogen engines. The first corresponds to the cylinder unit of a passenger car and light commercial vehicle engine and the second represents the cylinder unit from a truck engine. In 2023, research on combustion of very lean mixtures of hydrogen and air was conducted on both engines. From the measurements, practical combustion, energy and emission characteristics of the engine are obtained. The results are used for mathematical simulations and model extrapolations.

Conducting experiments on real components of hydrogen propulsion systems enables the acquisition of own knowledge, which can be confronted with information previously obtained only from research of publicly available sources. For example, it has been found experimentally that the efficiency of a fuel cell electric generator as optimised by the supplier and under realistic operating conditions is comparable to a generator driven by an internal combustion engine.



The Biotopia presentation was accompanied by a large installation hanging in the atrium space, inviting everyone to explore new ways of using the faculty building. The study was presented publicly in January 2023 by representatives of the student group.

Biotopia

Winy Maas, architect, urban designer and landscape architect, is co-founder and principal architect of MVRDV, a global firm with offices in Rotterdam, Paris, Berlin, Shanghai and New York. Since 1992, he has completed countless projects around the world, including recent ones such as the Bastide Niel district in Bordeaux and The Valley in Amsterdam. In 2007, he became Professor of Urbanism and Architecture at TU Delft, where he founded The Why Factory, a think tank on future cities. Since 2010 he has been a visiting professor at a number of institutions including RMIT Melbourne, IAAC Barcelona and MIT Cambridge. Since 2022, he has been a visiting professor of urban planning and architecture at the FA CTU in Prague, where he focuses on future cities with both graduate and undergraduate students. The programme included both a world-scale study called "Biotopia" and a local assessment of the Czech Republic: "CZ2".

We must see the planet as a single city inhabited by eight billion or more human beings and countless other living creatures who should be recognized as individual agents with unique needs and abilities. Since moving off the planet seems to be a solution limited to a privileged few, we will have to face these challenges, not ignore them, and act before it is too late. We can only survive on this planet if we transform the Earth into a place where people can sustainably coexist with nature: respecting limits, minimizing waste, in a fully biodegradable, adaptable, recyclable, clean and energy-neutral environment. It is time to design with nature, for nature or as nature (no matter which preposition we choose). It's time to use our imagination, to invent and change; it's time to direct ourselves, our environment and our behaviour into the world of circular living. A world where we not only imitate nature, but also live in harmony with it. In short: a world determined by biology. Let us finally enter the age of biology. Let us build Biotopia.

During the first semester of their studies at The Why Factory studio at the Faculty of Architecture, the students, under the guidance of Dutch architect Wina Maas, a visiting professor at the Faculty of Architecture of CTU, explored the possibilities of creating a harmonious world in which the natural and man-made environment would return to balance. In a unique teaching format, a group of nearly 40 people had to organize themselves into a single research group that collectively analysed current methods and proposed new ones. Instead of 40 individual projects, however, the final output was a single comprehensive study including a list of so-called bio-inventions. These bioengineered products would eventually merge into a new unified ecological complex - a single "biomass" capable of providing light, producing energy, filtering, retaining and purifying water, housing plants and animals, expanding and contracting instantaneously, recycling, creating soil, nourishing, and even transporting. Biotopia explores this potential at the scale of small buildings and entire cities. The students presented these results in a public presentation at FA CTU associated with a major exhibition in January 2023. This included a series of objects that occupied the space of one of the atriums in an unprecedented way, challenging the entire faculty to explore new approaches in the use of its building. The complete research is leading to a book and film to be released in 2024.

Implementation team with local volunteers (photo: Jan Tilinger)

High school in Zambia

Sustainable construction in a social context is one of the topics that have long been dealt with at the CTU at UCEEB and at the Department of Architectural Engineering Structures of the Faculty of Civil Engineering, as part of the teaching of the field of Buildings and Environment in the compulsory course Specialized Project 2, which involves foreign consultants who deal with development projects. The topic is also covered in the elective courses Civil Engineering in Developing Countries and Natural Building Materials. At the same time, it is the subject of a number of theses and dissertations prepared in the Department of Architectural Engineering.

One of the current projects is the construction of a secondary school in the Kashitu area of Zambia, using partly natural materials. It is initiated by a local non-profit organization, New Renato Community Society, which now runs a kindergarten and a primary school in Zambia. On the Czech side, it is under the auspices of the International Centre for World Development (ICWD) founded by Jan Tilinger. Construction of the first building, the workshop building, started in June 2023. A key moment was obtaining a grant from the United Nations Development Programme (UNDP).

Petr Čanda participated in the implementation of the project in a managerial position, who assembled a team consisting mainly of students from the Faculty of Civil Engineering and the Faculty of Architecture of the Czech Technical University. Petr worked on the design of the Kashitu High School as part of his master's thesis and is now a PhD student at the Department of Architectural Engineering of the Faculty of Civil Engineering. As part of his thesis, he carried out measurements of noise from artificial rain on trapezoidal sheet metal roofing in the acoustic laboratory of the UCEEB. Under the supervision of Ing. Jiří

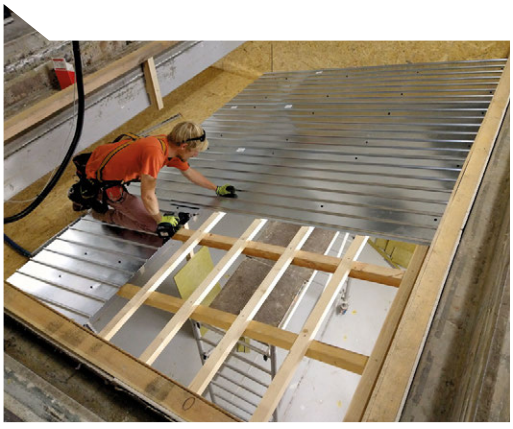
Nováček, Ph.D., they had the task to evaluate the influence of the acoustic noise source caused by raindrops on the comfort of users in the interior of buildings. The roofing solution is targeted at developing countries in subtropical climates. For the measurement of rain noise, a Plexiglas rain simulator and a system for its placement was designed to meet the standard requirements of EN ISO 10140-1. The dimensions of the rain simulator are prescribed, as well as the free fall height of the raindrops acting on the trapezoidal sheet corresponding to 3.5 m.

Between the two rooms within the acoustic laboratory, a test building was constructed on which different roof structure compositions with metal roofing could be changed. A ceiling can also be installed on the test object, which can reduce rain noise. In total, six variations of roof layers, constructible in developing country conditions, were tested. The best modifications to the roof structure were found to be a full-floor fold under the trapezoidal sheet and the installation of a roof soffit.

These measurements will be used for the Kashitu High School project, where rain noise causes considerable acoustic discomfort in the classrooms, which can lead to disruption of classes. The findings will be applied to develop a roofing system that reduces noise to the necessary limits for smooth teaching while reducing interior overheating, which is another negative aspect of using this material in subtropical conditions.

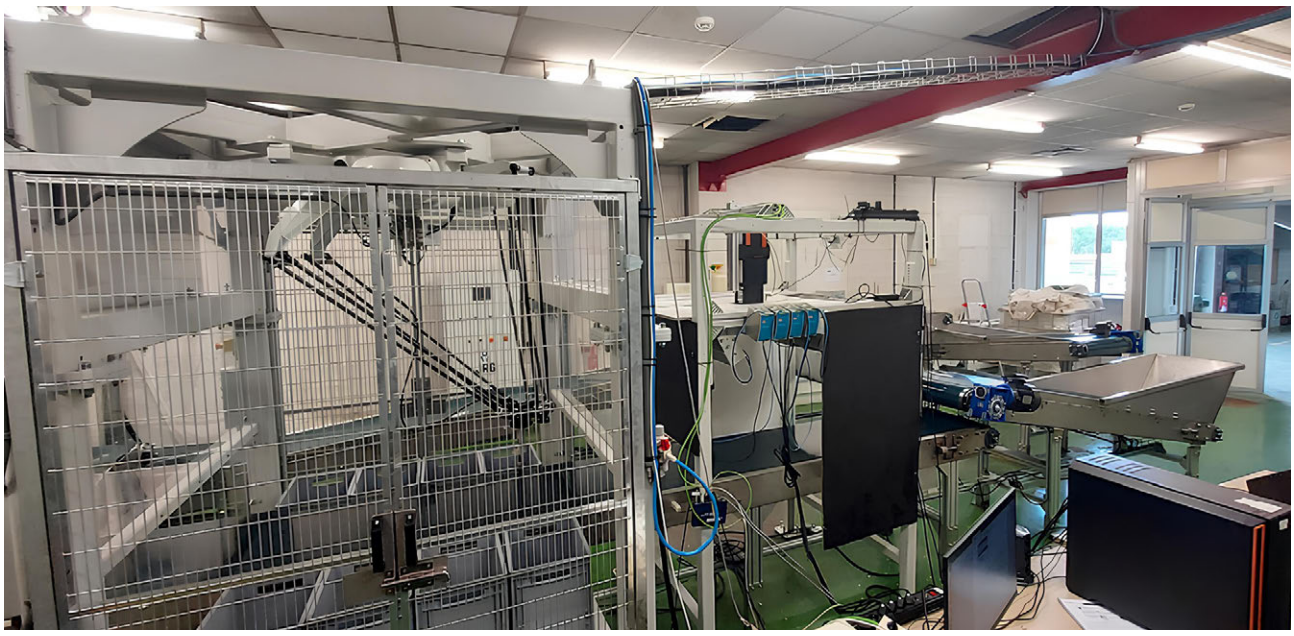
The other important member of the implementation team of the high school project in Zambia is Lukáš Bejček, also a PhD student from the Department of Architectural Engineering at FCE and a member of the Sustainable Construction research team at UCEEB. In his master thesis he investigated the technology of producing unfired clay bricks using a manual press. His PhD extends the use of this technology to the social context and focuses on the social aspects of sustainable construction. He tested the technology for the production of clay bricks and subsequently their mechanical properties according to given standards. Three clay brick pillars were subsequently constructed in the FCE Experimental Centre and stress tested to determine the optimal brickwork method.

Subsequently, two manual brick presses were designed and custom-made and shipped from the Czech Republic to Zambia. The clay brick technology allows the use of local materials and also the involvement of the local community in the construction process, which is crucial for the success of a project in developing countries. The technology was tested in situ in Zambia during the summer of 2023 during the construction of the first building. Lukáš Bejček trained local volunteers on site in optimising clay mixes and field trials. The main goal is to transfer this technology to the local community so that when the first building is completed, they will be able to replicate the construction process and use the knowledge in the construction of other buildings, not only the future high school campus. In addition to being responsible for the clay brick technology during construction, Lukáš Bejček is working under the guidance of Jan Růžička to establish criteria that extend the current approach to assessing the social impact of buildings on local communities using methodologies such as SBToolCZ, BREEAM or LEED. He has conducted a sociological survey with most of the volunteers and the management of a local non-profit organization, which he will work on evaluating as part of his research.



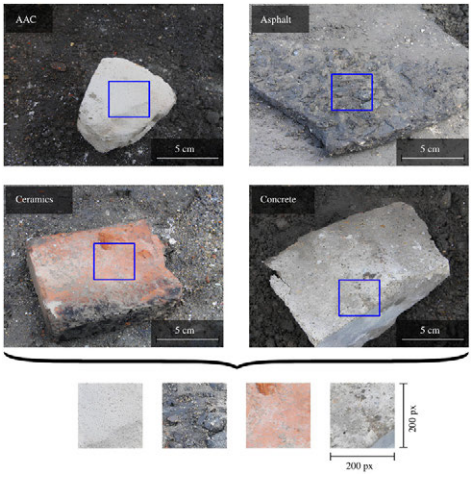
Jiří Nováček in the acoustic laboratory of UCEEB (photo: Petr Čanda)

The project for the construction of high school in the Kashitu region of Zambia with partial use of natural materials is initiated by the local non-profit organization New Renato Community Society, on the Czech side it is under the auspices of the International Centre for World Development of CTU (ICWD) founded by Jan Tilinger in cooperation with the non-profit organization Friends of New Renato. Construction of the first building, the workshop building, started in June 2023.



Robotic test line for classification and subsequent sorting of C&DW fragments (Tecnalia).

RECONMATIC – a prestigious Horizon Europe project



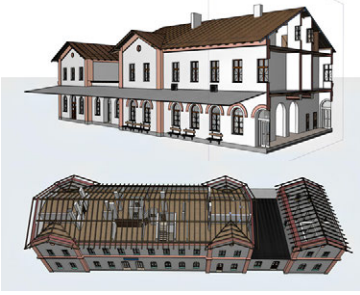
Localization of characteristic sets of pixels on the surface of C&DW fragments; the characteristics of these sets are used for fragment classification.

RECONMATIC is a European research project focusing on the areas of construction and demolition waste (C&DW) management, in particular focusing on new approaches for integrated decision-making to take into account all aspects of the generation, prevention and treatment of C&DW and to promote the involvement of all stakeholders. Since mid-2022, it has been coordinated by CTU, specifically by a research team from the Faculty of Civil Engineering led by doc. Jan Valentin from the Department of Road Structures.

The aim of the project is to design and develop a set of innovative tools and technical approaches to prevent or minimise the generation, management and treatment of construction and demolition waste based on detailed solutions. It is one of the projects of the European flagship science and research programme Horizon Europe.

The project has received funding from the European Commission and the UK Department for Research and Innovation. It has a total budget of approximately €9.6 million, started in July 2022 and will run until 2026. It involves five countries with 16 partners within the EU, as well as five partners from the UK and several partners from China, under the umbrella of the China Association for the Circular Economy (CACE).

Thanks to the teams of CTU and the main Spanish research centre Tecnalia, the possibility of automation for C&DW classification using machine learning algorithms and robotic off-site sorting of demolition waste is being developed as one of the concrete solutions. With other partners from the Czech Republic, a proposal for a methodology for the logistics of C&DW with regard to its automated and more efficient sorting and distribution is being developed, as well as a methodology to provide new value-added uses of C&DW aiming for higher value. In collaboration with the University of Manchester, the possibility of accelerating and automating the creation of digital models of existing buildings by using 3D scanning or converting existing 2D drawings into 3D models is being addressed.



Semi-automated digitization of the Kladno station passenger building before its demolition.

The Nobel Prize for juniors went to Dominika Burešová

In the prestigious competition The Global Undergraduate Awards 2023, which is so called the Nobel Prize for juniors, among the winners in the category of mathematics and physics was Bc. Dominika Burešová, a student of the Faculty of Electrical Engineering. She succeeded with her bachelor's thesis in a competition of more than 2,800 other students from 409 universities worldwide. No one from the Czech Republic has ever won this prize in the fields taught at CTU.

Dominika Burešová, under the supervision of Prof. Pavel Pták from the Department of Mathematics FEE CTU, summarized the results of her multi-year research on algebraic and state properties of quantum logics. During her studies in the Open Informatics (OI) programme, she continuously published partial results of her research; she has published one paper independently and co-authored three of them.

The opponent of the thesis, the Austrian physicist Karl Svozil, who is among others a collaborator of Nobel laureate Anton Zeilinger, evaluated the thesis as a significant contribution to the theory of quantum logics, which far exceeds the requirements for bachelor theses.

Dominika Burešová admits that she discovered her love for mathematics only at the Faculty of Electrical Engineering. "I was not at all focused on mathematics at high school," says Dominika, who started studying law after graduating. However, she was much more interested in ciphers and logic games, so in the fourth year she decided to quit her studies and apply to FEE. In the second semester of the OI bachelor's programme, I enrolled in a subject from the mathematics minor taught by Prof. Pták. Since then, I didn't want to do anything else but mathematics," she adds.

Very soon afterwards she joined Prof. Mirek Navara's research group at the Department of Cybernetics and deepened her mathematical education by taking a number of courses designed for PhD students. She is now continuing her studies in the master's programme in Electrical Engineering, Power Engineering and Management.

In addition to lecturing at Czech and international conferences, she used to swim competitively and play the soprano flute. Her positive attitude towards music has remained, and she prefers listening to classical music. She also enjoys reading classical literature and poetry.

The Global Undergraduate Awards have been held in Dublin since 2008. There are 25 categories in the sciences and humanities. The judges select from fully anonymised undergraduate entries from all over the world, without knowing the country of origin of the work. Dominika Burešová is the third person from the Czech Republic to succeed in this prestigious competition.

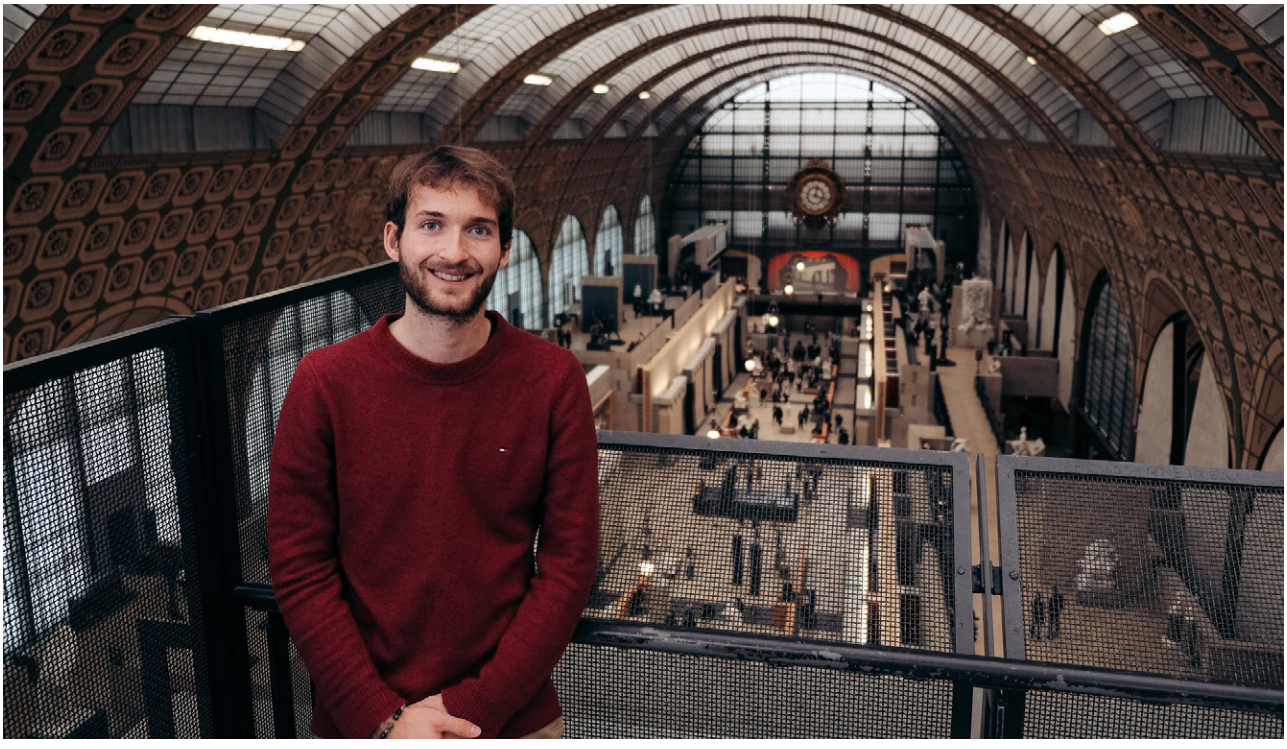
(photo: Petr Neugebauer, FEE CTU)

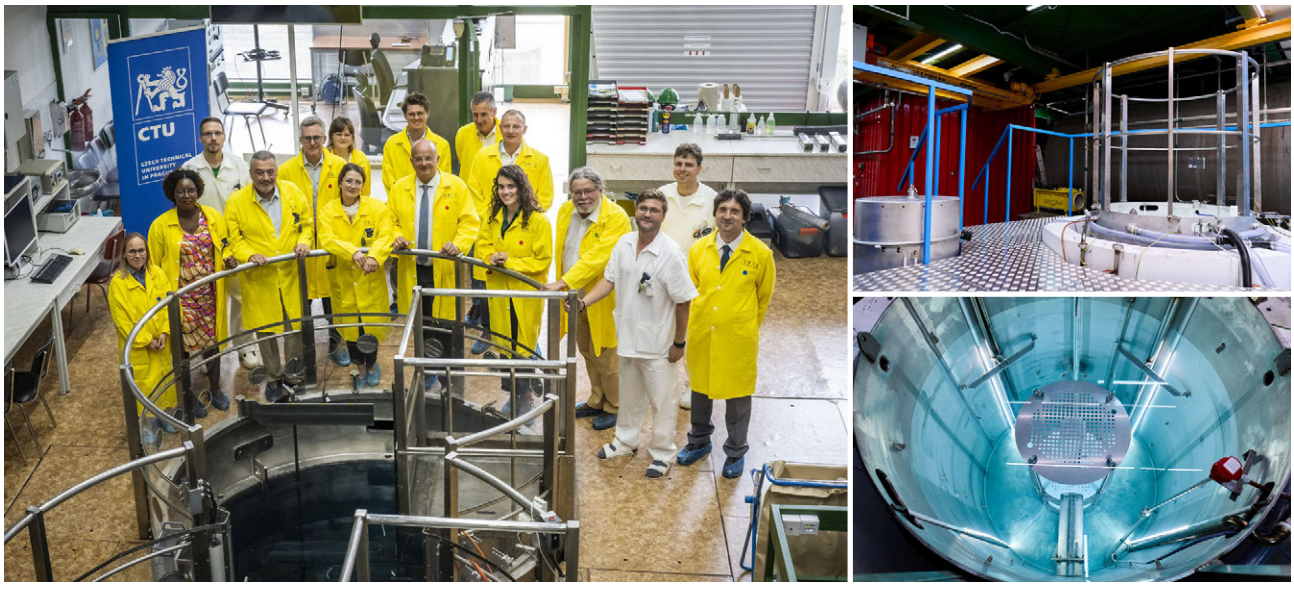
He established himself among the best in the USA

Petr Červenka studies production engineering at the Faculty of Mechanical Engineering of CTU and since his bachelor studies he has been working on fuel rod coatings for nuclear reactors. He gained his experience in nuclear engineering at the FCE CTU and at the Dukovany NPP, by working at UJP Praha and during internships at foreign universities. His desire to gain as much knowledge as possible led him to several Erasmus trips. He has studied in Lithuania, France, Romania, Hong Kong and now in the USA at the Massachusetts Institute of Technology (MIT), where he is researching thermomechanical behaviour and advanced characterisation of Accident-Tolerant Fuels. He conducts experiments on the resistance of new materials to hydrothermal corrosion and seeks to further characterize the degradation mechanisms associated with their behaviour at high temperatures. Peter says that MIT is an amazing experience and the university has a great attitude towards students. He has been given relatively free rein by his research supervisor, Professor Shirvan, and does some research in collaboration with industrial partners and other universities. He spends a lot of time working on electron microscopes and other equipment. In recent months, he has moved frequently between the Reactor and Nano Lab at MIT and the new CNS lab at Harvard. Fortunately, the campuses of both schools are only minutes apart and are somewhat interconnected. Students have round-the-clock access to the labs and can work independently with all the devices they need.

Peter tries to take advantage of every other opportunity. That is why he accepted the offer to speak at a conference in New Orleans about his research, the effect of neutron radiation and heat treatment on the corrosion properties of additively manufactured SIC fibres. He was surprised by the warm response to the lecture. He plans to publish the results of his research in a prestigious scientific journal.

Studying at MIT is known for its demanding nature and few people make it through. However, Peter succeeded. He has a simple explanation for this - the Faculty of Mechanical Engineering has equipped him with such knowledge that even at MIT he is among the best.





Delegation of MEPs, organized by Alexandr Vondra, visiting the VR-1 and VR-2 reactors (20 July 2023)

VR-2: the tenth nuclear reactor in the Czech Republic

Ribbon cutting ceremony for the launch of VR-2. In the picture doc. RNDr. Vojtěch Petráček, CSc. and Deputy Minister of MIT Ing. Petr Třešňák (6 June 2023)

The commissioning of the new nuclear fission reactor was undoubtedly the event of the year for the Faculty of Nuclear Sciences and Physical Engineering. In the Czech Republic, the number of such facilities rounded up to ten.

The project is unique in that the experts from the Department of Nuclear Reactors were able to design and implement it themselves - from the preparation of the documentation and all permits to the organisation of the technical and construction components. A number of other departments from other faculties of CTU also partially contributed to the project, providing assistance within their expertise during the construction.

VR-2 is a so-called subcritical reactor - it cannot sustain a fission chain reaction without an external neutron source. If the source shuts down, fission stops. This makes the reactor simpler and safer to operate, and can also make its design considerably simpler.

"The new fission reactor VR-2 will help us to better schedule teaching and scientific activities, because with the VR-1 reactor we were facing capacity limits. It serves not only the students of our faculty, but also students of other Czech universities, foreign students and, of course, also people from practice who come to us for various trainings," explains doc. Ing. Václav Čuba, Ph.D., Dean of FNSPE.

The press conference on June 6, 2023 to launch the VR-2 was accompanied by enormous media interest. Dr. Dana Drábová, Chairman of the State Office of Nuclear Safety, and representatives of the Ministry of Industry and Trade (MIT) and our partners involved in the construction were present. The ribbon was ceremoniously cut by the Rector of CTU doc. RNDr. Vojtěch Petráček, CSc., and Deputy Minister of MIT Ing. Petr Třešňák.

VR-2 is the first newly built research reactor in the western world for a long time (most recently ISSA - Inherently Safe Subcritical Assembly - in California in 2012), and so the experience of the construction and licensing process is of interest both here and abroad. For example, experts from the Philippines preparing to launch a similar facility have made several long visits to FNSPE. In July, a delegation of MEPs came to visit the new VR-2 reactor and the entire reactor hall, and in November a delegation from the French Embassy with Ambassador Alexis Duterte arrived.

In November 2023, the project "Subcritical Reactor VR-2" was awarded the prize of the Engineering Academy of the Czech Republic for the Outstanding Realized Technical Project 2023. The preparation and management of the construction and commissioning of the reactor was carried out by the collective of the Department of Nuclear Reactors of FNSPE, led by Ing. Filip Fejt, Ph.D., and Ing. Jan Rataj, Ph.D.

Hrabal's cottage, visualization

Hrabal's cottage

In 2021, the Central Bohemian Region bought the cottage where Bohumil Hrabal, one of our most important writers, lived and worked. He wrote many of his texts in Kersko and the house was also featured in the film A Feast of Snowdrops.

The Region initiated the reconstruction, the study of which was led by Martin Čtverák and was worked on by FA students Eliška Houdová and Jitka Zemanová. Their original semester work, which was created in the Architectural Heritage Restoration Studio of Prof. Václav Girsa, thus became a real assignment. The cottage is to be turned into a "house museum" with its original furnishings. The new exposition will follow the current one in the Polabský Museum.

The aim of the architectural design was to return the building to its original appearance and offer visitors an authentic experience. Hrabal is said to have lived two lives, one in Prague and the other in the countryside. The exhibition should show the famous writer in the Kersko version.

The cottage has undergone several building modifications in the past. The design retains the original concept, minimizes new massing, while at the same time considering whether to preserve existing structures. In this respect, the solution is also economical.

Hrabal had hundreds of small items and books in the cottage that are hard to return. Some of the furnishings that Hrabal gave to his neighbours were successfully found in neighbouring cottages, other pieces of furniture had to be made as replicas. "It was a detective story. The Polabské Museum supplied us with a number of pictures of Hrabal and his guests, but no one took pictures of the space directly. We had to piece together the interior from them. For example, we found a corner of a painting that we already knew where it was from another photo, so we moved on again. We also obtained the photos through a German press office," says Jitka Zemanová, one of the authors, about the whole process.

Eliška Houdová and Jitka Zemanová were awarded the Břetislav Štorm Prize for the project of restoration of Bohumil Hrabal's cottage.

The cooperation of the design team with the multidisciplinary committee has brought interesting suggestions. For example, literary historian Jakub Češka pointed out Hrabal's need to see the sky and free space. He advocated the return of the skylight on the first floor, a technically demanding but important detail for Hrabal, so that he could look at the stars directly from his bed.

The cottage will open to the public in the spring of 2024 to mark the 110th anniversary of the writer's birth.

Combination of top sport and demanding studies

Studying at university is challenging in itself, but combining it with top sport is even harder. At the Faculty of Biomedical Engineering, we are duly proud of the students who manage to do so. Among them is Ing. Vít Hlaváč, a top athlete in walking.

He met athletics in the second grade of primary school, when his coaches at the time first discovered his walking abilities. Vít began to devote himself fully to walking during his studies at high school in Kladno, where he achieved his first national team successes. After graduating from high school, he first headed to medical school, but in 2018 he decided to stop studying medicine and join FBME. "I was always more technically oriented, I liked physics and maths at school. But because of medicine, I started to profile myself towards biology and chemistry. So studying Biomedical Engineering was actually the ideal choice for me because it brings together medicine and technology," says Vít.

After completing his first year at FBME, he placed 11th at the European U23 Championships. In 2021, he successfully completed his bachelor's studies and in the same year he was nominated for the Summer Olympics in Tokyo in the 50 km walking event. "Participating in the Olympics is a dream come true for every athlete. The 50 km walking discipline requires a huge amount of training, which I could not have done without the understanding of my teachers, who always tried to help me combine my studies and sport," says Vít. He also thrived while pursuing his master's programme in Biomedical Engineering, when he started researching the optimisation of automatic ventilation control in immature newborns. It was also during this time that he achieved his greatest sporting successes to date, placing 23rd in the 35km race walk at the 2022 World Championships in Eugene and 9th at the European Championships in Munich. He is also the holder of several national records and more than ten national champion titles.

Vít completed his master's programme in 2023 with the topic of his thesis "Analysis of hypoxic episodes during automatic control of oxygenation in immature newborns" and his passion for sports and studies has not left him even after starting his doctoral studies. He is now working with his supervisor Ing. Jakub Ráfl, Ph.D., on the publication of his results and, among other things, he is also preparing for the Summer Olympic Games in Paris, where he would like to be nominated in the new discipline of mixed walking relay.

Journey through time in Hradec Králové thanks to virtual reality

The vanished historical buildings and landscape of the royal dowry town of Hradec Králové have come to life thanks to the project The dowry towns of Czech queens. The project was developed by the Faculty of Information Technology of the Czech Technical University in Prague in cooperation with the University of Hradec Králové, the Museum of East Bohemia in Hradec Králové and the Historical Institute of the Czech Academy of Sciences. Historians and IT specialists managed to virtually reconstruct the history of the city of Hradec Králové, create 3D models of historical buildings and objects and make everything accessible to the general public using augmented reality and a mobile application. Royal dowry towns, whose proceeds were donated by the monarchs to the queens, are a Czech phenomenon not found elsewhere in Europe. Of the nine towns, Mělník, Trutnov or Hradec Králové are among them, which belonged to the queens of the Přemyslid or Luxembourg families. The main outputs of the project are a structured mobile application and a web portal that serves as a specialized historical guide to the dowry towns and their urban landscape. It is possible to take a 3D journey through Hradec Králové through augmented and virtual reality and to see the now extinct urban areas and examples of period life. In practice, it looks like a visitor to the Hradec Králové Museum puts on a pair of 3D glasses and can take a close look at historical buildings and objects that have long since disappeared. The virtual reality application, as well as the mobile application for augmented reality, was developed by a team of IT experts led by Ing. Jiří Chludil from the Department of Software Engineering. FIT students were also involved in the project as part of their final theses. The scientific reconstructions of historical objects, i.e. the content of the application, were provided by historians, archaeologists and conservationists from the other participating institutions. The project uniquely connected completely different disciplines. Other outputs of the project included volumes of the Historical Atlas of Towns of the Czech Republic for Dvůr Králové nad Labem, Jaroměř, Poličká and Vysoké Mýto, a comprehensive specialist book monograph on royal dowry towns, a web and mobile guide to dowry towns and many others.

Transfer of experience in urban development and renewal planning to Moldova

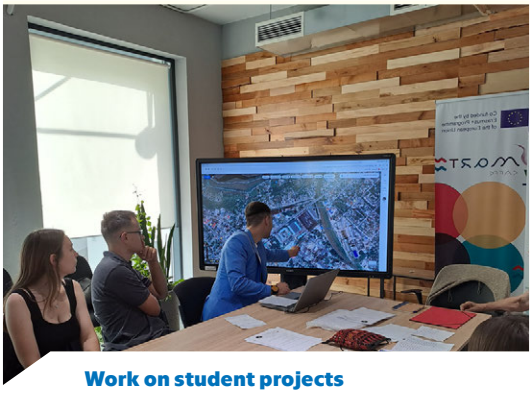
Foreign cooperation is one of the important components of urban and municipal development management. In 2023, the Masaryk Institute of Advanced Studies received funding from the Ministry of Foreign Affairs of the Czech Republic to transfer its experience in urban planning and renewal to the poorest and least developed country in Europe, Moldova. A group of experts from MIAS under the leadership of doc. Ing. arch. Vladimíra Šilhánková, Ph.D., within the framework of the project entitled "Transfer of experience in urban development and renewal planning", created and implemented a course for teachers, students and other interested persons, especially from the ranks of local city administration and local government, at the Alecu Russo State University in Bălți, Moldova. The aim was to strengthen the professional capacity of the public university, both by direct teaching and by providing know-how and teaching materials to a remote and underdeveloped region in order to strengthen its coherence with EU principles and values. The project was divided into several phases, the most important of which was the implementation of a five-day training course held on-site in Bălți at the end of September 2023. There were direct on-site lectures, translated into Romanian, interactive activities in the form of practice games and simulations (e.g. on participation or the formulation of strategic visions and objectives), or group project preparation addressing local issues. Experts from MIAS focused on the most relevant topics such as strategic and spatial planning, environmental and social aspects of regeneration and development (especially communication and participation), as well as on the issue of reconversion and revitalisation of brownfields.

Four different projects were also created focusing on aspects of the development of the town Bălți (revitalisation of an industrial area, creation of a recreational nature park around the town lake, reconstruction of a sports club and the first proposal for the separation and recycling of municipal waste in the town).

The course was very popular and more than seventy participants attended instead of the planned forty.

In the final part of the project, the best six graduates of the course took part in a study trip to Prague to see examples of good practice, organized by Mgr. Michael Pondělíček, Ph.D. He introduced the participants to important development projects and their organization, as well as the system of separate collection of municipal waste, the new line of the wastewater treatment plant and others.

The intention of the project was to show not only the academic community, but all stakeholders the way to carry out urban and municipal development and renewal planning in the conditions of a transforming economy and the management of limited resources in the conditions of Moldova.



Work on student projects

Brownfield of the former industrial site in Bălți

Tour of the development site on Rohan Island

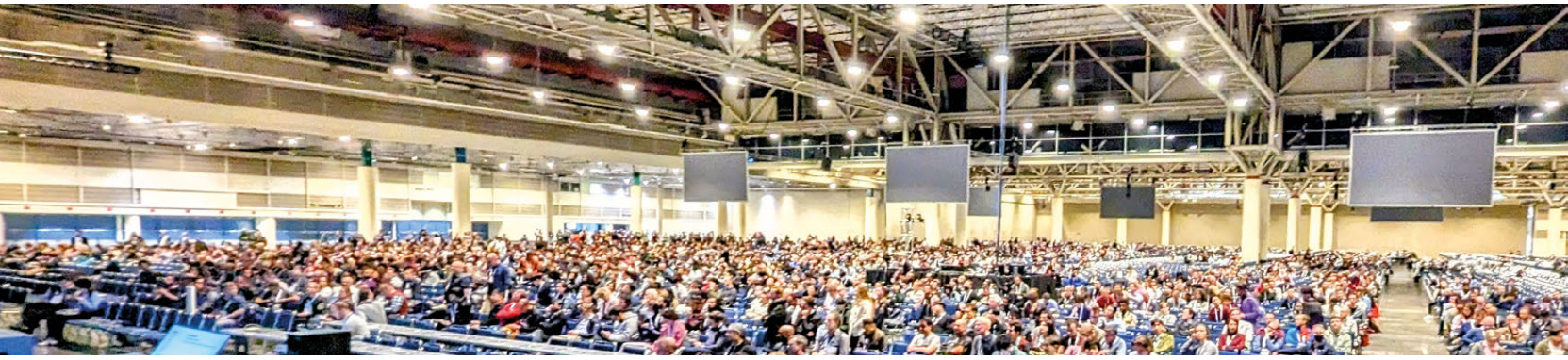


Photo from the packed hall of the NeurIPS 2023 conference, where Tomáš Mikolov was awarded for his groundbreaking research. (photo: archive by Greg Corrado)

The breaking point for artificial intelligence – GPT chat on the rise

The year 2023 was the year of the spread and popularization of artificial intelligence, especially thanks to Chat GPT, which both dazzled and terrified the general public. But what would the development of AI and large-scale language models have been like if not for the groundbreaking work of Tomas Mikolov?

At the end of 2023, Ing. Tomáš Mikolov, Ph.D., Head of the AI Basic Research Group at CIIRC, received the NeurIPS Test of Time Award for his revolutionary work that has significantly influenced the shape of current large-scale language models. The paper, titled "Distributed Representations of Words and Phrases and their Compositionality," which was written in 2013, has garnered more than 40,000 citations over the years and laid the groundwork for the vector representation of words known as word2vec.

Current Alquist team, on the photo from the left Petr Marek, Ondřej Kobza, Jan Šedivý, Tommaso Gargiani , David Herel and Jan Čuhel. (photo: Jiří Ryszawý)

Mikolov himself said about it: "I am really happy about the award for the word2vec paper from ten years ago! I think it's the first "the best paper" award I've ever received. In fact, the original word2vec paper was rejected at the first ICLR conference in 2013. This got me thinking about how difficult it is for reviewers to predict the future impact of research papers."

Without this key work, the development of large neural language models would certainly be slower. Ultimately, word2vec was groundbreaking in its time for several reasons - it was an algorithm that could process large amounts of text data quickly, but the reproducibility of the results was also important due to the release of an open-source implementation.

The development of artificial intelligence and large language models is also the focus of Ing. Jan Šedivý, CSc., and his team. Already in 2016 they started working on a simple bot. The Alquist conversational AI has repeatedly placed on the podium of the international Amazon Alexa Prize. "Language models that could generate outputs based on the context of a sentence gradually made their way into dialogue systems. At first quite artlessly, with the increasing number of parameters, the quality and meaningfulness of the generated sentences were constantly improved, eventually being one of the key technologies that helped the team win the prestigious Amazon Alexa Prize competition in 2021," says Jan Šedivý on the development of conversations with the robot. Alquist's success has not only ensured international popularity, but also interest from companies looking to provide better service to their customers.

Language models dazzle with their excellent imitation of our thinking, decision-making and communication. But people should retain critical thinking and the ability to make decisions.

Introduction of shared zones in the Czech Republic

From the beginning of 2024, it is possible to set up shared zones in the Czech Republic, also thanks to CTU. Shared Zone (Shared Space or Shared Street) represents a modern approach to the design of streets and other public spaces in selected locations, combining architectural quality with traffic engineering, which brings a more beautiful environment, a significant improvement in conditions for pedestrians and cyclists, the possibility of adding greenery and street furniture, a significant calming of motor traffic and increased safety for all users of the space. It also creates more favourable conditions for the local economy. It can be used, for example, in squares or to calm streets with an active ground floor, in forecourts or in areas in front of schools or other public buildings.

In recent years, the Faculty of Transportation Sciences has been part of a broader initiative, together with the Capital City of Prague, the CityDeal group and the Partnership for Urban Mobility, z. s., aiming to introduce the shared zone into Czech legal and technical standards. In the Czech Republic, the implementation of shared zones was practically not possible due to outdated legislation, and although they are one of the standard solutions for public spaces in many developed countries in Europe and worldwide, Czech municipalities could not use this proven principle.

Implementation into Czech legislation was based on a conceptual proposal prepared by Ing. Vojtěch Novotný, Ph.D., and doc. Ing. arch. Karel Hájek, Ph.D. Both of them work at CTU (Vojtěch Novotný at FTS and Karel Hájek at FCE), thanks to which this novelty was directly reflected in teaching. Already in the winter semester 2023/2024, a new elective course "Designing Public Spaces according to Shared Space Principles" has been created, in which students can try out the real design of a shared zone on a concrete case study in interdisciplinary teams of "traffic engineers" (FTS students) and "architects/urban planners" (FCE students). In the first case study, the choice fell squarely on Albertov, where a substantial part of the Faculty of Transportation Sciences is located. University campuses are one of the typical locations for the application of the shared zone, while at the same time Albertov is in a very poor state. "We are glad that the innovation was able to get into teaching so quickly. Solving a real assignment in interdisciplinary teams brings students new important knowledge, experience and skills that they will use as graduates in the future," says Vojtěch Novotný about the new course.

The Faculty of Transportation Sciences intends to build on this successful project by creating a new bachelor's degree programme explicitly focused on sustainable mobility and quality of life.

Shared zone, Dornbirn, Austria (photo: Vojtěch Novotný)

Shared zone, Kufstein, Austria (photo: Vojtěch Novotný)

Secrets in splinters

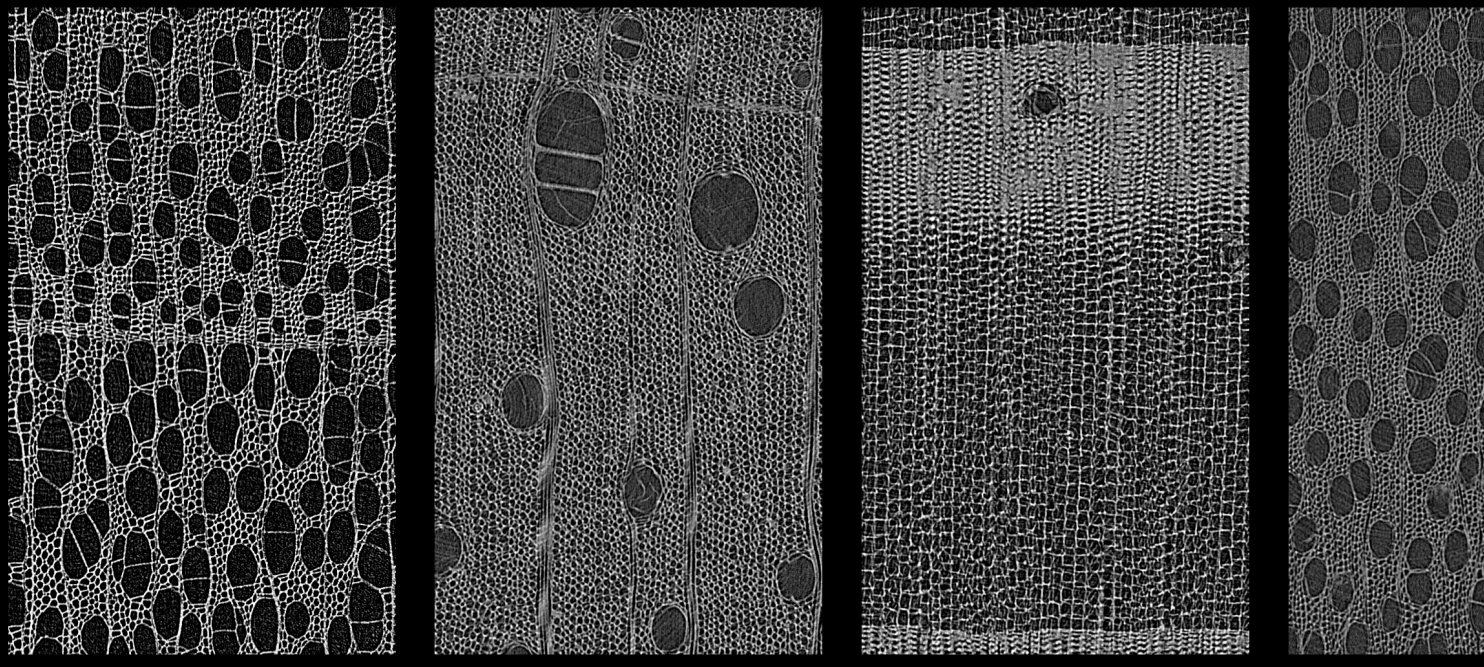
The Imaging Laboratory of the Institute of Experimental and Applied Physics of CTU started the year 2023 with the exhibition "In Depth and on the Surface" in the National Gallery in Prague. In the premises of the Convent of St. Agnes, the results of a five-year project entitled "Mobile device for imaging and analysis of layered painting and polychromy of ancient art" supported by the Ministry of Culture of the Czech Republic were presented. The exhibition was the result of a joint activity of the research team from IEAP CTU, the Institute of Theoretical and Applied Mechanics of the Czech Academy of Sciences and the National Gallery in Prague.

Nine stops included in the permanent exhibition "Medieval Art in Bohemia and Central Europe 1200-1550" presented the possibilities of modern non-destructive imaging methods for the needs of restoration research of medieval sculptures and panel paintings. Specific results illustrating the scope of the research project were presented with the help of exhibition texts, pictorial material and projected video.

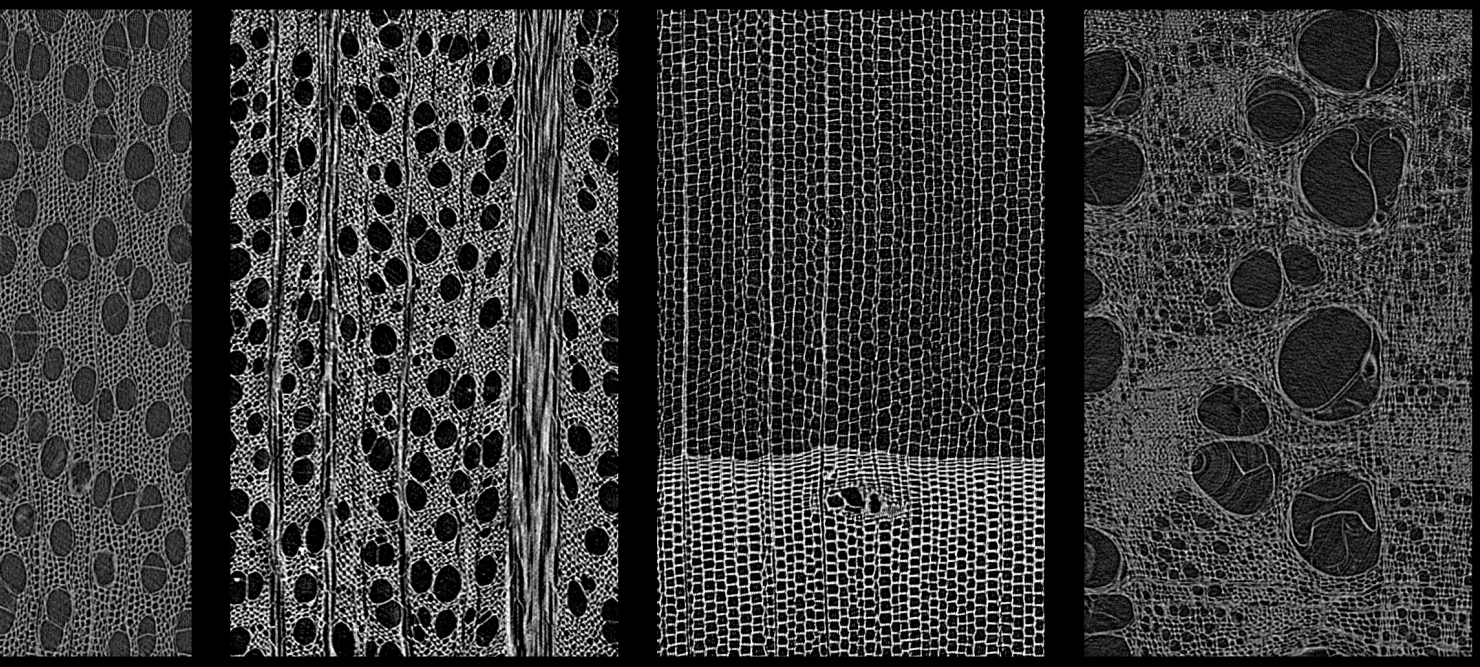
IEAP CTU has long been dedicated to the development of applications of semiconductor detection technologies, including non-destructive radiographic imaging methods focused on high spatial resolution in the order of micrometres. The reconstructed micro-tomographic data provide a detailed 3D model of the examined sample, which can be furthermore not only virtually sliced in arbitrary planes, but also segmented and analysed into regions or objects of interest.

Within the project, among other things, the standards of Czech woods that were historically used in the creation of sculptures and panel paintings were measured with high resolution. Detailed knowledge of the internal structure of the wood is crucial for identifying the type of wood used from the miniature-sized fragments that can be removed from the work as part of the restoration survey. For extremely small samples, the conventional method of optical microscopy often fails and 3D imaging using micro-tomography could be an effective solution in these cases.

Micro-CT sections of Czech wood species - from left: oak, spruce, beech, alder, pine, walnut, poplar - measured with 1.5 µm resolution.



The opening panel of the exhibition "In Depth and on the Surface" installed in the permanent exhibition in the Covent of St. Agnes (photo: © National Gallery in Prague).



Open Science Portal of CTU

At the beginning of last year, the Open Science CTU website was launched. It was created on the basis of a project submitted by the Research Support Department of the CTU Central Library in cooperation with colleagues from other CTU units. The aim was to create a central information point focused on Open Science (OS) issues, which would serve the needs of CTU. The aim has been fulfilled, the portal contains a lot of useful and practical information that allows interested parties to orientate themselves in the given issue. Scientists use it when they are preparing to publish in open journals or work with research data.

On the homepage, you can find a basic overview of the OS areas. The portal focuses on Open Access (OA) publishing and research data management in accordance with the FAIR principles. There is a quick search menu, a link to a glossary of terms and FAQs.

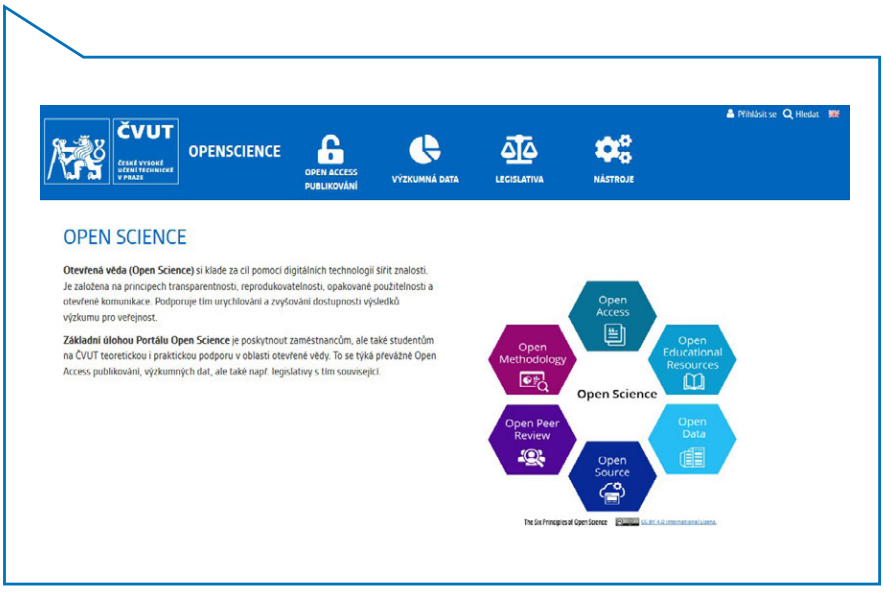
Open Access publishing already has a firm place in the scientific world. Scientists regularly encounter it in their practice and are now obliged to publish in open access journals as part of their projects. The section of the portal dedicated to OA publishing deals with the process of publishing a scholarly publication in Open Access. It is organised into subsections in chronological order as they follow each other in the publication process. Each subchapter can be clicked on for further information. The basic variations of OA publishing are clearly described, as well as what a predatory journal is and how to avoid it.

Research data became a later focus within OS. Currently, it is treated as an additional output alongside the publication itself. The aim is to transparently share research data where no relevant facts prevent this. The emphasis is on a detailed description of the different aspects of their management. Therefore, the next section of the portal explains the FAIR principles, outlines the life cycle of research data and presents the basics of creating and maintaining a data management plan. It also outlines the reasons why some data may or must remain unpublished.

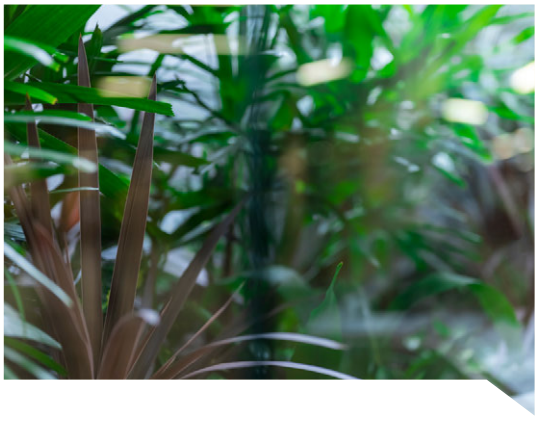
The website includes a section on legislation. It deals with licensing, protection of personal data, data and databases, copyright issues, and provides recommendations for negotiations with publishers.

The portal also offers an overview of online tools that can facilitate the work and solutions of various aspects of open science.

After a year of operation of the Open Science CTU website, it can be stated that it is being used and has become known to our academic community.



METROROST – prototype of low-maintenance metro plant installation with intelligent control



At Můstek station on the "green" line A, the METROROST installation filled with plants was created in November 2023, designed and built by researchers from the University Centre for Energy Efficient Buildings. The innovative urban furniture element, based on the principles of intelligent management and minimal maintenance, is being tested with the support of Prague Public Transit Company (DPP). The project is aimed at improving the quality of the indoor environment in problematic areas of Prague metro.

A smart measuring and control system takes care of the plants. Sensors are placed in the installation, which feed dozens of values into its "brain". This allows the UCEEB researchers to gradually optimise the pot's control algorithms to ensure a suitable environment for the vegetation to grow. They will take care of optimal irrigation, i.e. soil and air humidity. Energy for plant photosynthesis is supplied by broad-spectrum (pro-cognitive) artificial lighting from partner company Spectrasol. METROROST can also solve the problem of freezing weather in the winter months. Based on the measured temperatures, it should react to a crisis situation by increasing the air temperature not only in the environment of the above-ground parts of the plants, but also in the substrate and the lower part of the vegetation. It will also monitor CO_2 levels inside and outside the installation.

In addition to its atypical design, METROROST also boasts structural and technological maturity. Based on the demanding requirements for safety and easy reparability, a 3D engineering design of structural panels and connecting polyhedral blocks made of wood-based material with reduced flammability was created. These were subsequently manufactured by CNC by the project partner, the Secondary Industrial School and Higher Vocational School Volyně. The chosen procedure, which in the event of extreme vandalism allows for the rapid replacement of individual components of the structure, ensured, in addition to meeting safety requirements, the precision necessary for the realization of a geometrically complicated shape.

All this should solve the general problem of green and other installations in public space - their maintenance. One of the long-term goals of the METROROST project is to monitor its sustainability. Therefore, the UCEEB team has been monitoring the operational performance of the installation for several months now and uses the data to evaluate the effectiveness of the design and the algorithms deployed. If it proves sustainable over time, DPP will continue to work with this and similar elements.

According to DPP staff and UCEEB researchers, the metro should be a representative place that will motivate residents and visitors to the capital to use public transport. It therefore deserves similar care for the indoor environment as we give to buildings.

Footbridge in Solopisky

The footbridge installed in 2023 at the outlet of the pond in Solopisky is an excellent example of innovation and technological progress in the field of construction and architecture. Its construction was carried out using 3D printing, bringing a modern and reliable element to the village environment.

One of the main aspects that was given special attention in the design of the printing paths was the properties of the material used. The aim was to minimise the occurrence of shrinkage cracks during initial solidification. As a result, the absence of sharp corners and long straight surfaces were taken into account, contributing to the overall stability and durability of the structure.

The shape of the footbridge itself was empirically chosen to best fill the space between the two curves shaped by its own gravity. This approach resulted in a densification of the porous material and allowed efficient printing without significant vibrations that could be caused by rapid changes in the direction of the print paths.

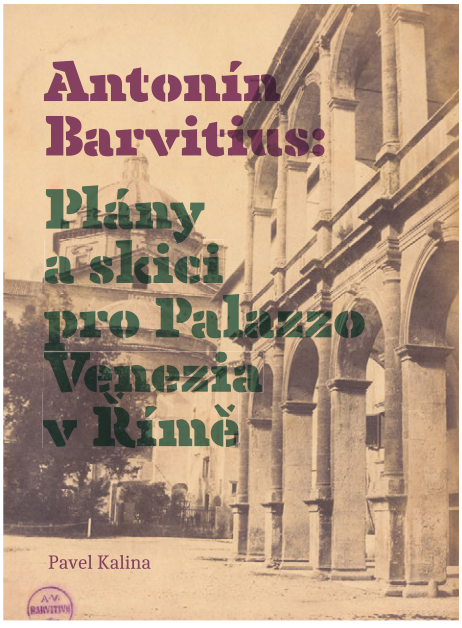
Before the installation of the footbridge itself, a thorough test was carried out, during which the structure was subjected to a uniform load of up to 1,700 kg, which it withstood without problems, confirming the high strength and reliability of the structure. The total production time of the footbridge was 6 hours, with a consumption of 0.6 m^3 of printing material and a weight of 1.32 tonnes.

The project under which the footbridge was produced is called "3D Printing in Construction and Architecture" and falls under the Operational Programme Science, Research and Education. This project not only produced a concrete result, but also served as a platform for research and development of new technologies and materials in the field of construction and architecture.

The authorship of the footbridge belongs to the students of the Klokner Institute's doctoral programme, namely Aleš Hvízdal, Michael Gabriel and Otto Melter. Their work represents a significant contribution to innovation in the construction industry and demonstrates the potential that 3D printing has for the future of this sector.

Prof. PhDr. Pavel Kalina, Ph.D.

Architect Barvitius: a perfectionist who did not pander



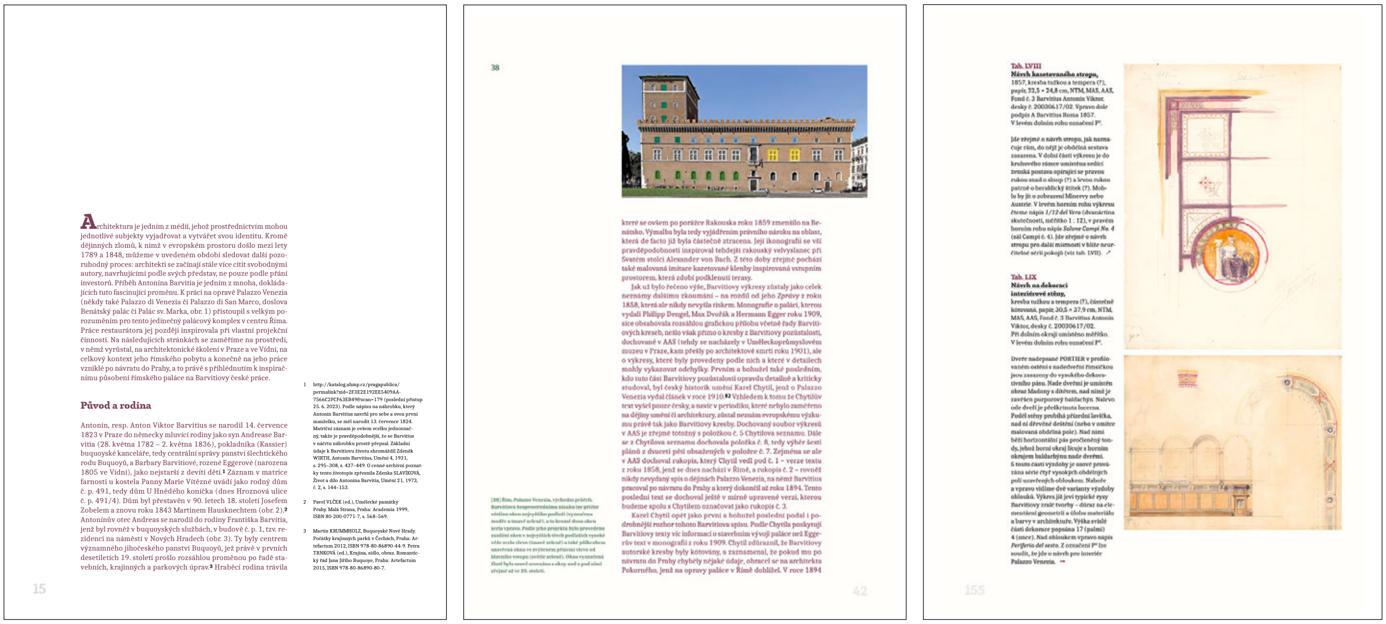
Prof. PhDr. Pavel Kalina, Ph.D.
Antonín Barvitius: Plans and sketches for the Palazzo Venezia in Rome
first edition, 200 pages, format 226 x 312 mm,
ISBN 978-80-01-07231-8

A great story is not only the life and work of Antonín Barvitius, but also the circumstances of the creation of a unique book about this architect and his work on the reconstruction of the Renaissance Palazzo Venezia in Rome, published by the CTU Publishing House in December 2023. Its author is Prof. PhDr. Pavel Kalina, PhD, historian of art and architecture with a focus on early modern architecture, iconology and the importance of the investor in the history of architecture, deputy head of the Department of Theory and History of Architecture at the Faculty of Architecture of the CTU. The publication was published in cooperation with the National Technical Museum, in whose collections Barvitius' drawings and other documents are stored.

The publication entitled "Antonín Barvitius: Plans and Sketches for the Palazzo Venezia in Rome" presents a leading monument of Italian Renaissance architecture, whose restoration was commissioned by the Austrian government in 1856. The main body of the expert book is the extensive set of drawings and sketches that Barvitius produced in preparation for the restoration of the palace. These are a unique resource for understanding Renaissance architecture and its restoration. Other realised and unrealised buildings of this personality and his life's vicissitudes are also presented.

Why is it that this book is the first modern scholarly monograph of Barvitius's work and his designs and sketches have been completely unknown until now? He was a major figure not only in the field of reconstruction of historical buildings, but also the author of new buildings, such as Prague's Main Station or Vienna's North Station, Gröbe's Villa in Vinohrady or St. Wenceslas Church in Smíchov... "Barvitius will probably always remain in the shadow of the nine years younger Josef Zítek, the author of the National Theatre and the House of Artists, which are still very popular buildings today. Then there is perhaps another hypothesis: perhaps Barvitius was too much of a perfectionist with high standards, and perhaps he preferred not to build rather than compromise. Therefore, his work is not so extensive as to demand our attention," says Prof. Kalina. "As far as his work for the Palazzo Venezia is concerned, the reason for this may paradoxically be its position at the interface of two cultures. Throughout the 20th and early 21st centuries, the Palazzo Venezia has been the focus of attention, particularly among Italian and German scholars. However, they apparently did not even think of looking for any sources for it in Prague. On the contrary, Czech scholars, if they dealt with Barvitius, mainly studied his buildings realized in Bohemia."

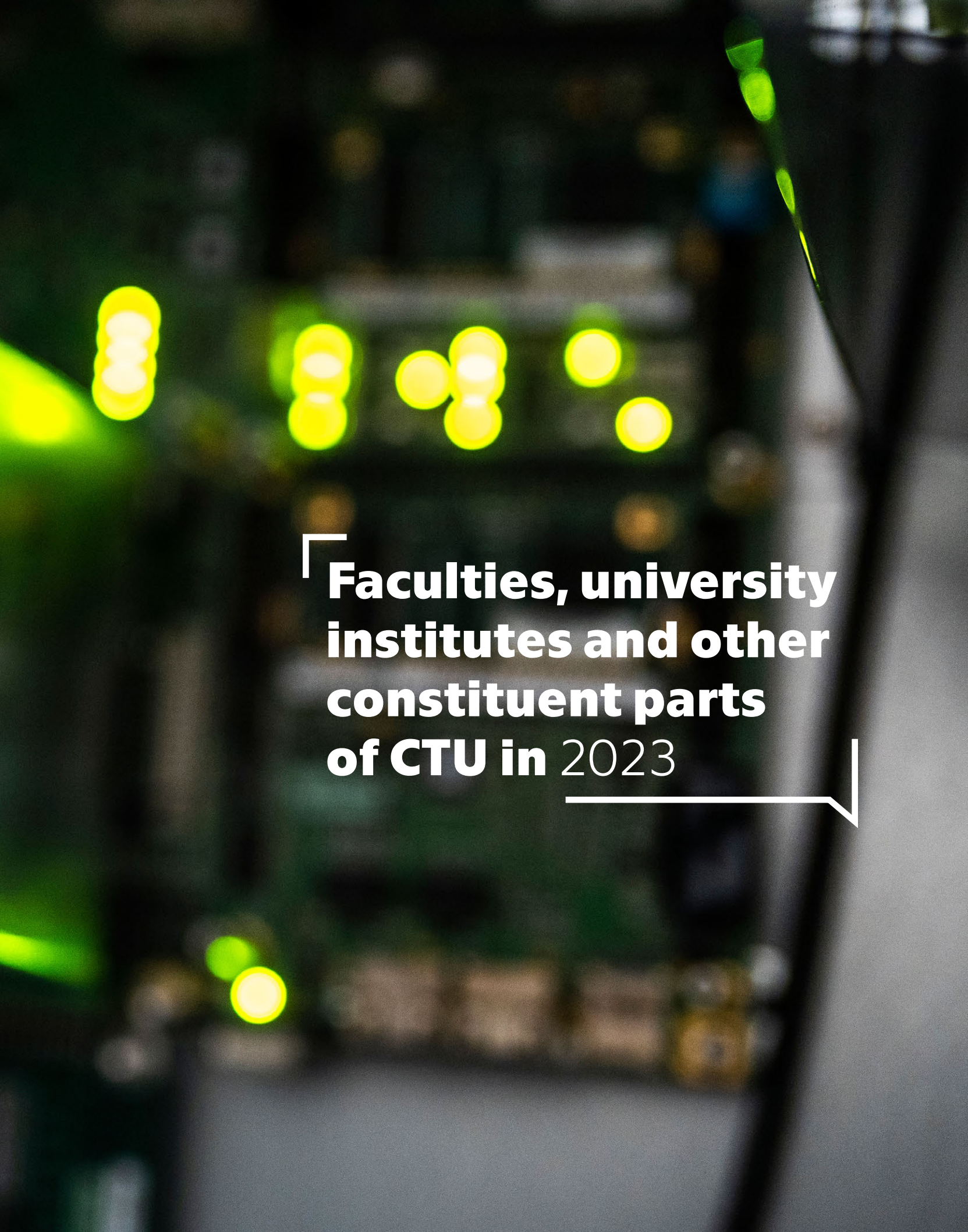
Professor Kalina is the discoverer of a set of Barvitius' plans and sketches, which he publishes in his book. How did he get them? "The plans in question are almost all from the National Technical Museum, where they were stored in several of Barvitius' files. These were labelled Italian Villas and Palaces, for example, so at first glance it wasn't that hard to find them. The funny thing was that the plans were usually not further described. The Palazzo Venezia is not some easy-to-read house, but a collection of buildings, which, moreover, has changed a lot since Barvitius' time. It was not difficult to identify the plans of the notorious parts of the palace. What was more difficult was to understand the plans of those parts of the building that have never been documented and which are not even commonly accessible. Fortunately, it was at this stage that I got to those inaccessible parts of the palace and was able to compare the Prague plans with the situation on the spot. Without that, I would not have got any further. Then it was necessary to identify the plans of those parts of the build-



"Throughout the 20th and early 21st century, the Palazzo Venezia was the focus of attention, particularly among Italian and German scholars. However, they apparently did not think to look for any sources for it in Prague," says Professor Kalina.

ing that were no longer standing and that had not even been properly documented. There was nothing to lean on when reading the drawings. And last but not least, it was necessary to describe the plans that did not show what was standing, but what Barvitius wanted to rebuild but did not. Basically, it was like looking for a needle in a haystack. It's not that difficult if the haystack isn't too big and if we follow a certain method. The problem is when we don't actually know what such an ancient needle might look like, and the most difficult thing is to imagine a jacket that someone once sewed with it...", Pavel Kalina comments on his research. The reconstruction of the Roman palace is very interesting not only for historians and architects, but also for laymen, who will surely enjoy browsing through the presented documents and illustrations. The life of this important architect, whose birth in July 2023 was 200 years old, is also extraordinary. The architect Barvitius lived at a pivotal time - historians consider the period from 1870 to 1910 to be one of the most important turning points in history. "For the architect, it meant navigating a dynamically developing society. He experienced the Revolution of 1848, then the Bach's absolutism, the last years of the Papal State in Rome, and then, on his return to Prague, the relaxation of conditions and the enormous building boom, partly stifled, it seems, by the economic stagnation after the collapse of the Vienna Stock Exchange in 1873. He experienced fantastic successes and hard defeats. And yet he still remained himself. In fact, all his life he was simultaneously learning something new and developing several themes: what a contemporary church, railway station, apartment building or cemetery should look like. He did not pander. He worked. In this, his legacy is still relevant."

Example of colour proofs of archival sketches and paintings in preparation of the book



Faculties, university institutes and other constituent parts of CTU in 2023

FACULTY OF CIVIL ENGINEERING

I was recently asked if the faculty is in good shape. I believe I can answer in the affirmative. We are striving to fulfil the basic mission of the faculty, characterized by three words: tradition - quality - perspective. I believe that we are also succeeding in creating a sufficiently welcoming environment for students, teachers and other employees. I consider it very significant that the quality of teaching is at a high level even at a time when financing of pedagogical activities is more demanding, there are fewer students and it is not easy to retain top professionals. A sign of our success is the long-standing high interest of employers in our graduates. Very important is also the effort for a constructive dialogue between the individual departments, the management and the Academic Senate. The consequence of this is the long-term stability of the faculty.

However, we have a number of tasks ahead of us. Perhaps the biggest is the reconstruction of Building B. I perceive the development in recent months as positive. We have managed to obtain pledges of funding from other sources, in particular the State Environmental Fund and the Jan Ámos Komenský Operational Programme. There has also been a shift thanks to the helpfulness of other faculties.

A major societal issue has recently been raised by our students, namely the issue of mental health while studying. A questionnaire survey was conducted among the students of the Architecture and Building Sciences programme, the results were shared with the academic community and now we are gradually trying to implement some measures.

At the beginning I mentioned the good condition and stability of the faculty. It must be said that this would not have been possible without the cooperation of students, academic staff and the rest of our employees. And for that, my sincere thanks go to them.

Prof. Ing. Jiří Máca, CSc.
Dean of the Faculty of Civil Engineering, CTU

Study Programmes

In 2023, there was still a confluence of ongoing and newly accredited (7 bachelor, 17 subsequent master and 24 doctoral) versions of study programmes. Teaching was mostly in Czech, but programmes or individual courses were also offered in English. A new professionally oriented bachelor's degree programme in Scenic Technology was introduced, implemented in cooperation between FCE, FME and FEE. The interest of applicants in this programme was higher than expected. The first quality assessment of the bachelor and subsequent master's study programme Architecture and Building Sciences was successfully carried out. The faculty focused on students' mental health, student ombudsmen started their activities and a Study in Peace survey was conducted.

Projects

Scientific, research and development activities are one of the key activities of the faculty, and it has long been successful in achieving excellent results in both basic and applied research. The research teams are involved in a number of projects of GA CR, TA CR and other national providers. The faculty has a long tradition of cooperation with commercial entities in the form of contract or applied research within the projects of TA CR or other providers. It also offers a wide range of services of authorized laboratories and consulting activities. External collaborations with other universities, institutes of the CAS, departmental institutes, enterprises and foreign institutions are also important. The focus of funding for scientific research activities is mainly on domestic projects. The faculty actively supports young scientists, awards grants within the framework of the Initiation Fund for their stabilisation at the faculty and actively supports the establishment of international contacts and the preparation of competitive international projects.

International cooperation

The priority is cooperation with more than a hundred foreign universities and selected prestigious institutions from all over the world, which takes place mainly in the form of study stays of students and academic staff. The dominant programmes are Erasmus+ and Athens. Within the Euroteq and Erasmus Blended Intensive programmes, international online teaching is implemented. The Erasmus+ grant also supports trips of FCE teachers. Of the trips, trips to Europe predominate. We also have quality representatives from the students in double degree programmes. Due to the transition of contracts to the EWP digital platform, existing faculty contracts were updated and new ones were concluded in 2023 with the aim of implementing a greater number of trips, especially in the A+S programme. The numbers of students going out have been steadily increasing since post-Covid 19. This is also due to the new project coordinator who actively presents and supports the programme.

Awards

The autonomous robotic construction system, which was jointly developed by experts from DEK, a. s. and the Department of Construction Technology, won the main prize in the Business category of the TA CR 2023 Awards. Ing. Rostislav Šulc, Ph.D., and Ing. Vjačeslav Usmanov, Ph.D., together with other colleagues.

Doctoral student Ing. Jan-František Kubát from the Department of Landscape Water Conservation received a prestigious Fulbright scholarship. From the end of August 2023 until the end of May 2024, he will be working on the topic of water management in landscapes at the Arizona State University.

Employees of the Department of Steel and Timber Structures, Prof. Ing. František Wald, CSc., Prof. Ing. Michal Jandera, Ph.D., received awards from the British Standards Institution for their valuable work in project teams in the preparation of the second generation of European Eurocodes standards.

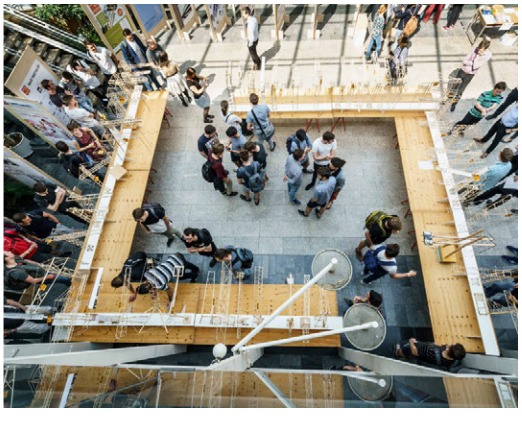
Significant events

Open Days for prospective students were held in January and November with record numbers of visitors. Three-day internships for secondary school students were held. In April, the international Hall of the Year competition was held in the categories - Junior, Academic and First Year Advanced for doctoral students.

Regular events included Concrete Week and the first annual Steel, Wood and Glass Week. The 21st Summer School of Dep. of Environmental and Building Services, GISday, FCE Water Day and the International Architecture Competition INSPIRELI AWARDS were held. The faculty participated in the projects Open House Prague, Night of Scientists, ScienceFest. Technical Thursdays offered students two dozen topics from practice both in person and online on YT and FB. The Builders at heart project continued with a series of other talks featuring interesting projects by academics and student achievements. The FCE gallery offered eight exhibitions. The faculty atrium hosted presentations by our academics and students. In December, a Christmas concert was held - violin virtuoso Jaroslav Svěcený and accordionist and bandoneonist Ladislav Horák performed.

Third role of the faculty

The aim of the faculty was to be in close, mutually open contact with the local, national and international community. Examples of activities include a number of studies and analyses that have been produced, bringing knowledge and technology to the professional and general public. Faculty staff provided professional services and consultation to legal entities as well as to individuals and government organizations, and the faculty also provided liFEEong learning, beginning a professionally oriented course culminating in a micro-certificate. Our experts were regularly invited to participate in media discussions and comment on major events in the construction sector. The faculty further developed cooperation with construction companies in the form of various partnerships, leading to an increase in the quality of teaching and the employment of graduates in the labour market.



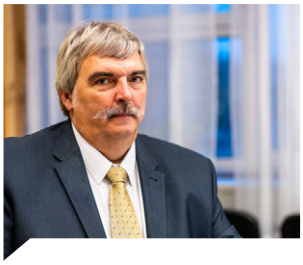
Personalities of the Year 2023

Prof. Ing. Petr Hájek, CSc., FEng.

In 2008-2023 he headed the Department of Architectural Engineering and also works in the Laboratory of Composite Structures at UCEEB CTU. His research interests include sustainable building construction, comprehensive building quality assessment, optimization of concrete structures in terms of sustainability criteria, non-traditional concrete reinforcement and the use of recycled materials in building structures. For his many years of activity in the international organization fib (International Federation for Structural Concrete), he was awarded the fib Medal of Merit in 2020 for his outstanding contribution to the field of structural concrete.

Filip Jícha

At the age of nineteen, the first-year student of the bachelor's programme Civil Engineering became one of the youngest Czechs to swim across the English Channel. He succeeded in the autumn, from 13 to 14 September 2023. He spent 13 hours and 41 minutes in the water, swimming a distance of approximately 60 kilometres due to strong currents. His act also had a charitable context, the funds raised, amounting to over 50 thousand crowns, were given to the children's home in Lednice.



FACULTY OF MECHANICAL ENGINEERING

The year 2023 has not been easy for the faculty or for society as a whole and has presented us with a number of current challenges. As engineers, we think about the future and the trends that need to be monitored and researched. We strive to contribute to rational developments in energy and mobility, and our cooperation with manufacturers of production technology, the aerospace industry and other industrial partners, with whom we jointly carry out a number of applied research projects, is significant. Examples of our joint successes include the award of the Industry 4.0 Prize from the Confederation of Industry for the optimisation and digitalisation of technology in PD-Refactories and the Innovation of the Year Award for the BUD100 multifunctional cylindrical grinding machine.

The faculty provides teaching in almost all mechanical engineering disciplines. We follow trends in science and research to prepare students for their work in dynamically changing conditions. The efforts have yielded results in the form of awards for ten students for outstanding achievements applicable in industrial practice.

I am happy that our researchers, teachers and some students are succeeding in developing things and technologies for practical use. Good application results have also been recognized by the Technology Agency of the Czech Republic with annual awards for cooperation. The successes achieved testify to the appropriate approach to increasing the competitiveness of our industry and the level of our faculty.

I am equally pleased with the success of our scientists in winning basic research projects. At the end of 2023, the Grant Agency of the Czech Republic announced the results of the competition to support standard projects starting in 2024, and five proposed projects from the Faculty of Mechanical Engineering were successful.

doc. Ing. Miroslav Španiel, CSc.
Dean of the Faculty
of Mechanical Engineering, CTU

Study Programmes

The Faculty of Mechanical Engineering provides education in two bachelor and twelve subsequent master's programmes. The three-year bachelor's programme in Mechanical Engineering provides students with comprehensive theoretical knowledge for easy continuation in subsequent master's programmes. In order to broaden the focus of study already in the bachelor's programme Mechanical Engineering, 16 profiles are now offered to applicants, which differ in terms of compulsory electives according to the student's preference. The four-year bachelor's programme Mechanical Engineering prepares students for technical practice. In October 2023, the Council for Internal Evaluation of the CTU in Prague approved the accreditation of the new specialization Space Technology of the follow-up master's programme Aeronautics and Astronautics. Three new study programmes are being prepared: Sustainable Mobility - Vehicles and Propulsion, Teaching of Mechanical Engineering Subjects for Secondary Schools and Nuclear Power Equipment, the concepts of which have been approved by the Scientific Council of the CTU in Prague. The Internal Evaluation Reports of the study programmes Environmental Engineering and Industrial Systems Management were submitted to the Internal Evaluation Board of CTU in Prague.

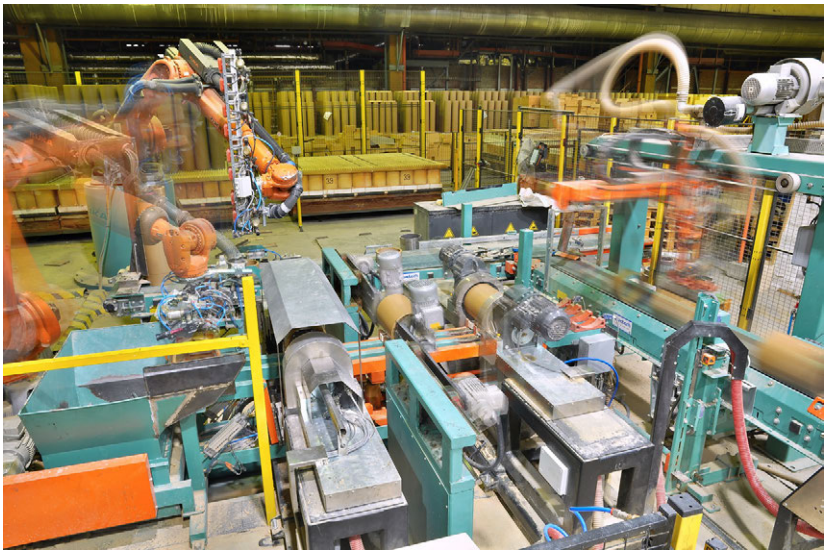
Projects

In 2023, the Faculty of Mechanical Engineering launched more than 30 new basic and applied research projects in which the faculty acts as a principal researcher or co-principal researcher. In the field of basic oriented research, four projects of the GA CR have been initiated and the faculty will participate in two projects within the closed call of OP JAK Top Research. The strongest is traditionally the area of applied research, where 19 projects supported by TA CR have been launched in 2023, including participation in six National Centres of Competence. One of the successful continuation of activities in the field of automotive is the Josef Bozek National Centre of Competence in Land Vehicle Engineering, of which the faculty is the beneficiary and principal investigator.

Foreign projects were also acquired in 2023. Among them is Horizon Europe: Twinning for Excellence in Morphing and Aero-Mechatronic Wing Control: A Leap Towards Eco-Smart Aviation. This is a direct follow-up to the successful activities of the Aerospace Research Centre, which is its principal researcher and coordinator of the entire international research team.

International cooperation

The Faculty of Mechanical Engineering participated in the organization of international workshops "The first EIT Manufacturing Workshop in Prague" (innovation in in-



Robotic production line P-D Refactories CZ

Hydronaut at the Dejvice Campus

dustry), "Stochastic in Fluids" (models and simulations in the field of environment, biomedicine and industry) and "Workshop on Computational Fatigue Analysis" (simulation of fatigue phenomena).

Students are also involved in international cooperation. In the second year of the transnational EuroTeQaThon competition, the winning team led by FME student met with representatives of the European Commission in Brussels and presented a project on waste heat recovery. Students from the faculty and the Israel Institute of Technology presented their joint projects in Haifa, Israel, as part of the unique Czech-Israel Partnership Accelerator programme.

A student of the master's programme in Production Engineering at FME, Bc. Petr Červenka, successfully joined the best young scientists in the USA at the Massachusetts Institute of Technology.

With the participation of Italian astronaut Paolo Nespoli, the Training and Research Centre for Simulated Space Missions Little Moon City Prague was officially opened in November 2023.

Awards with transnational reach

The Confederation of Industry of the Czech Republic awarded the Industry 4.0 prize for the optimization and digitalization of existing technology in PD Refactories. The Department of Machining, Process Planning and Metrology participated in this project of a robotic workplace in the production line of refractories.

Petr Červenka, a student of the master's programme in production engineering, received the Stanislav Hanzel Award. He is now researching thermomechanical behaviour and advanced characterisation of fuels with enhanced crashworthiness at MIT (USA).

Škoda Auto awarded the Laurin & Klement Award to Ing. Pavlína Šťastná. She received the award for her diploma thesis on "Indoor localization of objects in an industrial environment" in the IT department Shopfloor Solutions.

Awards of the Confederation of Industry at the MSV International Industrial Fair 2023

Ing. Tomáš Halada from the Department of Technical Mathematics won the Werner von Siemens Prize for the best diploma thesis. This was "Influence of boundary conditions in the SPH method", dealing with the geometry of pump station channels with respect to the height of the water levels and with the possibility of reducing pump outputs in irrigation systems.

Third role of the faculty

The Deep Lab - Hydronaut H03 deep laboratory was installed in the area in front of FME and FEE on 28 August 2023. The underwater habitat was designed for the purpose of interplanetary flight simulations, in particular for testing technical equipment and crew behaviour in the harsh conditions of long-term isolation in an adverse environment. The project also involved scientists from the Department of Fluid Mechanics and Thermodynamics, who designed and constructed equipment for long-term online monitoring of the state of the atmosphere inside the habitat, in particular temperature, humidity, pressure, atmospheric composition and the intensity or temperature of the illumination.

On 28 and 29 March 2023, CTU students had a unique opportunity to meet their future employer directly on the premises of the university. The second edition of the event called Career Days, co-organised by FME and FEE, was attended by over 80 companies and almost 5,000 students sought direct contact with them.

Personalities of the Year 2023

Doc. Ing. Oldřich Vítek, Ph.D., is a graduate of the Faculty of Mechanical Engineering of CTU. In 2006 he received his Ph.D. degree and six years later became the associate professor in the field of design and process engineering. He focuses mainly on research and development of turbocharged internal combustion engines for automotive applications and power generation. Since 2015, he has been the head of the Department of Automotive, Combustion Engines and Railway Engineering and teaches students in the master and doctoral programmes. He is actively involved in the activities of the Centre for Vehicles of Sustainable Mobility and he made a significant contribution to obtaining a project grant for the Josef Bozek National Centre of Competence in Land Vehicle Engineering (BOVENAC).

Ing. Bohumil Mareš, Ph.D., after graduating from the Faculty of Mechanical Engineering of CTU, obtained his doctoral degree in 2007 in the field of machines and equipment for transportation. After ten years of experience as an assistant professor and a Project Management methodology qualification, he became the executive director of the faculty's Centre for Vehicles of Sustainable Mobility (CVSM) in 2010. He has been involved in a number of research projects and grants. In 2022, he was one of those who prepared the project for the continuation of the Josef Bozek National Center of Competence in Ground Vehicle Engineering (BOVENAC) to ensure the continuation of CVSM activities.

FACULTY OF ELECTRICAL ENGINEERING

Year 2023 was a successful one for the Faculty of Electrical Engineering. Once again, in the fiercely competitive environment of contemporary international science, we managed to defend our position as the highest ranked electrical engineering faculty in the Czech Republic. We offer education in electrical engineering and computer science, electronics, telecommunications, automatic control, cybernetics, robotics, computer engineering and power engineering. FEE CTU has long ranked among the most important research institutions in the Czech Republic. The dominant share in citations and publications in impacted journals corresponds to this at the level of our university.

The fact that we have long maintained a high level of teaching and research is reflected not only in international rankings, but also in the interest in studying. Last year, the highest number of students enrolled in our bachelor's programmes in the last 12 years. Among other things, students praise our individual approach. There are only eight students per teacher. Thanks to this, they can also get to work on cutting-edge scientific projects during their bachelor's studies.

For me personally, the year 2023 was significant in other respects as well. The Academic Senate showed their trust in me and elected me Dean of the Faculty for a second term. It is an honour to lead such a successful institution, whose students and other members of the academic community know how to have fun alongside their demanding studies and hard scientific work. In this context, I would like to mention that in 2023 we have succeeded to continue the tradition of organizing faculty balls. It turned out great and we will repeat the ball this year!

I believe that 2024 will be at least as good as the previous year.

Prof. Mgr. Petr Páta, Ph.D.
Dean of the Faculty of Electrical Engineering, CTU

Study Programmes

In 2023, 811 students enrolled in bachelor's programmes, the highest number since 2011. Students from 36 countries are enrolled for full-time study with us, in addition to students from abroad on short-term study stays (mostly from France, Spain, Germany, as well as Taiwan, the USA, Mexico and South Korea). Our graduates receive the highest level of education in electrical engineering and computer science, electronics, communication technology, automatic control, cybernetics, robotics, computer engineering and power engineering. As a result, they are in demand on the job market and can compete internationally.

Projects

In May 2023, we presented the results of a five-year Research Center for Informatics (RCI) project focused on research in artificial intelligence, robotics and informatics. The research and the purchase of the equipment that the teams from FEE, FIT and FNSPE continue to develop, including a supercomputer for artificial intelligence research, was supported by the Operational Programme of MEYS Research, Development and Education within the framework of the Excellence in Research call for 580 million crowns. A total of 252 scientists from the Czech Republic and abroad participated in the research topics supported by the RCI project.

In the autumn of 2023, researchers from the Department of Telecommunication Engineering delivered an upgraded version of the F-Tester to the Czech Statistical Office worth almost CZK 10 million. Thanks to the measurement system, the controller can carry out long-term, uninterrupted testing of 4G/5G signal coverage quality on the move from test cars and transfer the results to map documents immediately after the measurement is completed.

International cooperation

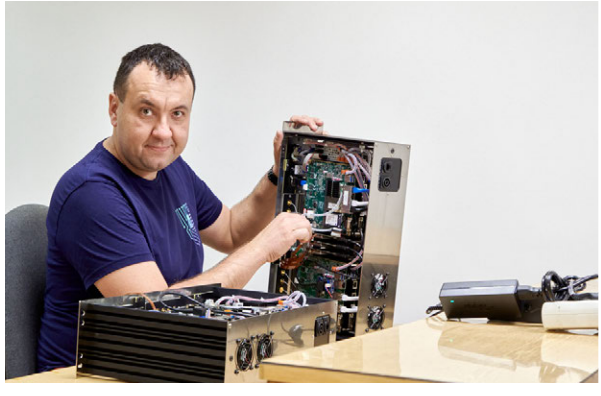
The Artificial Intelligence Centre at FEE CTU has joined the DNS4EU project, which aims to provide people, companies and EU institutions with a secure, privacy-friendly and powerful recursive DNS, the "phone book of the Internet", that allows web browsing using domain names instead of strings of numbers. The project will become an important pillar of European internet sovereignty.

In addition, scientists from this centre are also involved in the European CoDiet project, supported by the prestigious Horizon Europe programme. Its aim is to contribute to the fight against diseases of civilisation through a new approach to their prevention. Diet has a significant impact on the development of civilisation diseases, and the project will therefore result in an AI-based system that will offer people an effective and tailored nutritional plan. Czech scientists will contribute to this personalised nutritional advice by developing optimisation algorithms.

Researchers in the Department of Measurement have found that some communication technologies transmit female voices less well than male voices. Prof. Jan Holub's team applied a different calculation method than is commonly used in current tests of transmission technologies. The study resulted in a technical recommendation to the European Telecommunications Standards Institute (ETSI).

Awards

In the prestigious competition The Global Undergraduate Awards 2023, which is called the Nobel Prize for juniors, among the winners in the category of mathematics and physics was Bc. Dominika Burešová, FEE student of master's programme. In her bachelor thesis she summarized the results of her multi-year research on algebraic and state properties of quantum logics. With this thesis she succeeded in a competition of more than 2 800 other students from 409 universities worldwide. No one from the Czech Republic has ev
er won this prize in the fields taught at CTU. Ing. Lukáš Neumann, Ph.D., from the Department of Cybernetics, was awarded



Ing. Zbyněk Kocur, Ph.D. and F-Tester for CSO

The first year of the separate ball of the FEE CTU called the Faculty Electro-waltz

a Junior Star grant, which the Czech Grant Agency awards to projects that are expected to have an impact on science on a global scale. This highly selective competition is designed for excellent early-career scientists. Thanks to the above-standard support of 25 million crowns for 5 years, it will enable them to build a scientific team and focus on new areas of research. Ing. Lukáš Neumann, Ph.D., focuses his research on deep neural networks for computer vision and the search for the most suitable structures to work as accurately, as quickly and as energy-efficiently as possible.

Significant events

The year 2023 will forever be remembered in the life of the faculty because in October the first year of the separate FEE CTU ball took place, which was named the Faculty Electro-waltz. The name refers to the unofficial anthem of the faculty, the song Electric Waltz by Jaroslav Uhlíř and Zdeněk Svěrák. The impulse came directly from the dance-enthusiastic students of FEE. The programme of the gala evening in the Empire Hall of the Slovanský dům included performances by students, teachers and the faculty's alumnus Jan "Pokáč" Pokorný.

Third role of the faculty

FEE has long been involved in the popularization of science and technology. Physics Thursdays, a free series of lectures and seminars for students, teachers, professionals and the general public, continued in 2023.

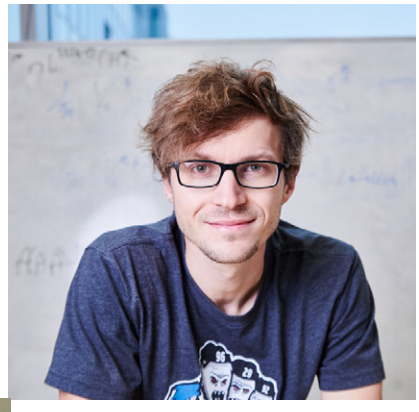
Our scientists also regularly appear in the media to talk about important issues that move society. FEE is the most active part of CTU in this respect, with 1,929 media mentions in 2023.

Personality of the Year 2023

RNDr. Zdeněk Mihula, Ph.D., is one of the first 30 members to sit on the newly established EMS Young Academy (EMYA). This council was established by the European Mathematical Society (EMS) to support young researchers in mathematics and is composed of doctoral students and recent doctoral graduates.

RNDr. Zdeněk Mihula, Ph.D., is a graduate of the Faculty of Mathematics and Physics of Charles University and currently works at the FEE Department of Mathematics, where he is involved in mathematical analysis. His main research interests are function spaces, Sobolev spaces and properties of Sobolev functions, weighted inequalities and operator interpolation. He is the chairman of the organizing committee of the International Mathematical Conference, which the Department of Mathematics organizes every other year. He spent the 2019/2020 academic year as a Fulbright Scholar at The Ohio State University.

In 2022, he received the FEE teaching award in the practitioner category.



Bc. Dominika Burešová

Ing. Lukáš Neumann, Ph.D.

(photo on double page: Petr Neugebauer, FEE CTU)

FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING

Smooth year brought a number of new developments to our faculty. Of our most significant achievements, the completion and inauguration of the VR-2 subcritical facility is particularly noteworthy. This is the second fission reactor that we have at our faculty, and its construction and commissioning is a remarkable achievement of the employees of the Department of Nuclear Reactors of FNSPE. It will serve not only for research, but also for teaching and training of operators, and will significantly increase our teaching capacity.

We also continued to gradually adjust the curriculum. Our long-term goal is to reduce the number of independent study programmes, increase the modularity of studies, reduce the number of contact hours and increase their credit evaluation.

A significant event of this year was the election of the first female ombudsman at our faculty. I am convinced that her activities will contribute significantly to open communication between teachers and students and to resolving any misunderstandings.

However, the past year has not only brought changes for the better. The war in Ukraine has continued and increasingly threatens to escalate into a conflict of greater proportions. In December 2023, there was a mass murder of students and teachers at the Faculty of Arts of Charles University. Such acts are not entirely unknown in our country, but fortunately they are rare. However, we have realised that we must take their existence into account and prepare for them as far as possible.

Finally, I will return to the positive: FNSPE is a proud part of CTU, in many areas we are among the best faculties of the university and we are working to increase the number of such areas. This is all thanks to our staff and students. Therefore, I look forward to more positive news every year.

doc. Ing. Václav Čuba, Ph.D.
Dean of the Faculty of Nuclear Sciences and Physical Engineering, CTU

Study Programmes

The faculty guarantees 12 bachelor's and 16 master's degree programmes taught in the Czech language. It offers doctoral students nine programmes in mathematics, physics, chemistry and IT with an overlap into medicine. For the second year running, there are also four bachelor's degree programmes for self-paying students, taught in English. Eight study programmes are open in the English master's programme.

In cooperation of four faculties (FIT, FNSPE, FEE and FME CTU) a new master's degree programme in Quantum Informatics is being created, targeting the most modern trends in informatics. The first students will be admitted in the academic year 2025/2026. Teaching will be in both Czech and English.

Projects

The year 2023 was a standard year at our faculty, when we again submitted around a hundred new project applications to external providers. We will know the results during 2024.

At the same time, we dealt with nearly 150 active projects, some of which we successfully completed. This was especially the case for all projects from the call of the Operational Programme Research, Development and Education (OP RDI). Among them was the Centre for Advanced Applied Science (CAAS), which with a budget of more than 500 million EUR was able to develop a new project. It was one of the largest projects at the faculty.

The project Extremal and probabilistic combinatorics solved by Mgr. Jan Volc, Ph.D., from the Department of Mathematics can be characterized as extraordinary. He succeeded with it in the call of the Grant Agency of the Czech Republic - Junior Star.

International cooperation

We are still working on expanding our network of international partners, which currently numbers more than a hundred, in both the academic and private sectors. We have deepened or newly established cooperation with TU Graz, ETH Zürich, Subatech Nantes and many others. Our faculty regularly participates in the international exchange courses ATHENS.

In the summer, we held our first Quantum Day event in cooperation with IBM Czech Republic. Representatives from leading academic institutions and the public and private sectors shared their experiences and plans in the field of quantum technologies. At the conference, organized by Professor Igor Jex from FNSPE, experts discussed the practical use of quantum technologies in industry, cybersecurity and defence, and the development of a national quantum ecosystem.

In mid-September, 70 particle physicists from all over the world came to FNSPE. They discussed the ongoing results and future research plans of the international ATLAS experiment at the LHC - the world's largest particle accelerator, located at the CERN laboratory near Geneva.

Awards

At the end of the year, the Martina Roesel Memorial Grant, which financially supports young scientists caring for a preschooler, was awarded to Ing. Veronika Dmitrievna Prozorova from the Department of Physics. She was thus among the ten promising faces of Czech science whom the IOCB

Excursion on the Golem tokamak (Night of Scientists at FNSPE, 9 October 2023)

Ing. Matěj Hývl, Ph.D.
(photo: Siemens)

Dean of FNSPE doc. Václav Čuba and doc. Jan Siegl during the celebration of the 50th anniversary of the FNSPE Fractography Department (19 January 2023)

Martina Roeselová Memorial Grant, Ing. Veronika Dmitrievna Prozorova (photo: NF IOCB Tech)

Tech Foundation will support with an annual scholarship of 150,000 crowns each. Dr. Matěj Hývl received the Werner von Siemens Prize in the category of Best Dissertation. His award is a summary of several years of systematic work on the unique topic of characterization of silicon solar cells by atomic force microscopy. The thesis was written under the supervision of RNDr. Antonín Fejfar, CSc.

Significant events

In addition to the aforementioned start-up of the VR-2 subcritical reactor, earlier this year we celebrated 50 years of fractographic analysis at our faculty. On the basis of the results achieved and the feedback at home and abroad, the FNSPE fractographic department is one of the unique scientific departments of CTU. The representative of the Japanese Ambassador Mr. Ikuo Shoji came to congratulate us on the anniversary.
In the past year, the faculty expanded the ranks of professors by three new names. On 18 May, the faculty the appointment decrees were presented to prof. Ing. Václav Klika, Ph.D. and prof. Ing. Jiří Mikyška, Ph.D. (both from the Department of Mathematics, FNSPE) for the field of Applied Mathematics; and prof. RNDr. Radomír Pánek, Ph.D. from the Czech Academy of Sciences for the field of Applied Physics.
FNSPE also has for the first time in its history its own ombudsman - Bc. Radka Mika Havlíková. She took office on 25 April after approval by the FNSPE Academic Senate.

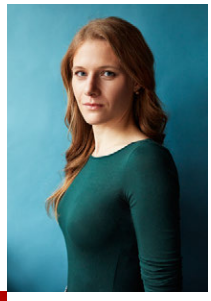
Third role of the faculty

The faculty has long been involved in the popularization of science and technology and supports lifelong learning. We organise specialised courses for primary and secondary school pupils, as well as U3A and vocational courses in the field of medical applications, radiation protection and nuclear chemistry. DVPP seminars broaden the knowledge of primary and secondary school teachers and we also raise awareness of nuclear science through talks and media appearances.

Personalities of the Year 2023

Ing. Kristina Jarušková

FNSPE has two representatives of the prestigious ranking for the past year Fobres 30 under 30.
In the Czech Republic, the editors chose Kristina Jarůšková, a PhD student from the Department of Software Engineering at FNSPE. Kristina is involved in the development of deep learning models used in particle detector simulations at CERN. These AI models offer a several orders of magnitude faster alternative to existing tools based on computationally intensive Monte Carlo simulations, and thus allow for the simulation of a much larger number of collisions.
(photo: Forbes)



Ing. Peter Švihra, Ph.D.

In Slovakia, Peter Švihra made it to the same ranking. Peter studied physics and fusion engineering at FNSPE and received his PhD from the University of Manchester. He has been awarded a prestigious Senior Fellowship position at CERN in 2021 and is focusing on applications and development of silicon pixel detectors. Peter's research is mainly focused on improving technologies for future experiments in particle physics, but his work has a large overlap with other scientific and applied directions such as quantum physics and molecular dynamics. In the everyday world, you might encounter improved detectors on CT scans in a hospital, for example.
(photo: Forbes)

FACULTY OF ARCHITECTURE

The year 2023 was the second year under the new leadership of the faculty, bringing many new developments and changes to its life.

The faculty ombudsman Dita Jahodová has been active since the beginning of the year. We have launched the Fair FA campaign, including a questionnaire survey among students. Since the summer, we have three new heads of institutes and research centre and six habilitated associate professors. In December, the President of the Republic appointed Pavla Melkova as a professor.

Our students have won numerous awards in competitions, including international ones. They have also been successful in cooperation with practice. In the summer, we presented student designs at Škoda Auto Mladá Boleslav and six new footbridges designed and manufactured by student teams for the Krkonoše National Park Administration. In the autumn, we awarded the best studio and diploma theses with the Dean's Prize, and the best bachelor's projects focused on residential buildings at the Second Skin exhibition. The best student work with a landscape architecture theme was announced by the Laurus competition.

The faculty's ranking in the QS Rankings, where it was among the 240 best architecture schools, is also a success. Dutch architect and urban planner Winy Maas continued his role as a visiting professor. His studio presented a project in collaboration with TU Delft and other architecture schools in the Czech Republic focusing on the future of the Czech Republic.

In addition to education, science and artistic activities, we also developed presentation activities. For example, the faculty hosted a travelling exhibition of models of buildings by the legendary Le Corbusier. The interest of secondary school students in open days, Architecture Day at the FA, our exhibition at Designblok and lectures we organize for the public is still growing.

doc. Ing. arch. Dalibor Hlaváček, Ph.D.
Dean of the Faculty of Architecture, CTU

Study Programmes

The priority of our faculty is the interconnection of theoretical and studio teaching and interdisciplinary cooperation, which is offered by the potential of three programmes under one roof - Architecture and Urbanism, Landscape Architecture and Design. We are preparing a new master's degree programme in Planning and Development, which responds to the growing need for an integrated approach to urban planning and development. It will provide graduates with the knowledge necessary for effective and sustainable urban development with an emphasis on economic, social, environmental and cultural aspects in the urban and real estate development processes.

Projects

More than 130 students from five schools of architecture in the Czech Republic and the Netherlands (FA CTU, ARCHIP, TU Delft, TU Liberec, VUT Brno) worked under the guidance of visiting FA professor Winy Maas. They thought about the future of the Czech Republic and came up with hundreds of ideas for forestation, national parks, industrial production, transport infrastructure, housing, demography, population density, ecology, sociology or economics. The CZ2: Visions for the Czech Republic exhibition opened in the FA building on 31 May.

In May, construction of the Last House of Adolf Loos began in front of the National Technical Museum. The hitherto unrealized design was brought to life by students from the Department of Architectural Conservation under the direction of Prof. Václav Girsa in cooperation with the Department of Building Construction I. After completion, the building will be part of the permanent museum exhibition.

The publication Ambition by editors Petr Vorlík and Hubert Guzik from the Department of Theory and History of Architecture concluded the extensive project Architecture of the 1980s in the National Cultural Identity II programme of the Ministry of Culture of the Czech Republic.

International cooperation

Four autumn Mondays traditionally belonged to the November Talks lecture series. Subtitled "On Teaching", it offered various perspectives on teaching from international figures in architectural theory and practice. Guests included architect Pier Paolo Tamburelli, the Berlin-based collective Floating University, architect, theorist and educator Dubravka Sekulić and the duo Oliver Lütjens and Thomas Padmanabhan.

The exhibition Le Corbusier+ in models and paintings presented a unique collection of more than 150 models of the legendary architect's realised and unrealised buildings. The exhibition was held in collaboration with Singapore-based studio RT+Q Architects.

Awards

Three diploma theses from the Faculty of Architecture succeeded at the 24th annual Diploma Theses Competition organised by the Czech Chamber of Architects. Ruby Pavoučková won the 2nd prize of the Czech Chamber of Architects for her Concept of Landscape Design for the Revitalisation of the Upper Basin of the Lužická Nisa River (thesis supervisor Klára Salzmann). The Special Prize of Heluz company and the Honorable Mention of the Jury was awarded to the work Community Centre Tržnice by Laura Izabela Lukáčová (project leader Ondřej Císler). The Water Dam Fláje by Adam Zajaček (work leader Petr Hájek) received the Special Prize of the Czech Centres.

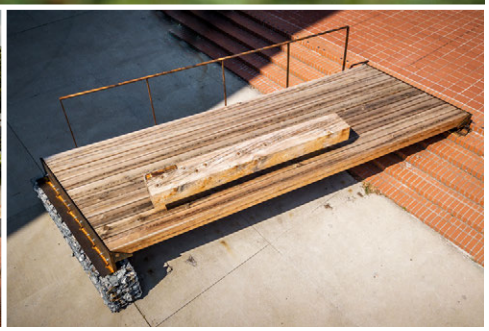
Eight students won the National Student Design Awards 2023: Petra Deáková, Tereza Horičková, Karolína Petřeková, Markéta Ptáčková, Markéta Vápeníková, Klára Vinklárová, Vojtěch Veverka and Martina Wimmerová. Mariia Sokolova (studio ZD Jaroš-Nezpěváková) won the second prize in the 27th International Model Young Package Competition. With her design Flat Juice Package she succeeded in a large competition of 240 prototypes from 29 countries.

Our teachers were also successful. Prof. Vladimír Šlapeta received the Jean Tschumi Award for Architectural Writing and Criticism from the International Union of Architects (UIA). The jury appreciated his outstanding contribution to the field in the field of teaching. The faculty had three successful projects in the Czech Architecture Award. Three Resistance Movements Memorial by Tomáš Hradečný and Klára Hradečná and their former students was awarded by the President of the Senate of the Parliament of the Czech Republic, Miloš Vystrčil. The prize of the Ministry of Regional Development was awarded to the SOKEC cultural centre by Martina Buřičová, Jan Novotný and Jonáš Krýzel. Michal Kuzemenský's studio was also among the six finalists.

Significant events

Last year marked the 300th anniversary of the death of architect Jan Blažej Santini-Aichl. Prof. Pavel Kalina, a leading expert on this creator, prepared an international conference together with foreign colleagues to mark the anniversary, which took place on 6 and 7 June in Rome.

In June, student teams from the Department of Architectural Design II completed six new footbridges to the Krkonoše Mountains. The design-build project, in which ideas are brought to fruition with one's own hands, is the third successful collaboration with the Krkonoše National Park Authority.



Personalities of the Year 2023

Prof. Ing. arch. Pavla Melková Ph.D., received her professorial appointment decree in December. The architect, researcher and theoretician of architecture has been teaching at the FA CTU since 2015, and also works in her own architectural studio MCA. She is engaged in free artistic work, theoretical, lecturing and publishing activities and organizing exhibitions.

Bc. Šimon Knettig received the Josef Hlávka Award. He graduated with the bachelor's degree from the FA CTU and the master's degree from TU Delft, where he was involved in the research think-tank The Why Factory. In 2022 he worked at the FA as a studio assistant to visiting professor Winy Maas.

Mgr. art. Lucia Tóthová, a PhD student at the Department of Theory and History of Architecture, has been awarded the Stanislav Hanzel Prize for the best students of the CTU. Lucia's research focuses on the functioning of design institutes and their studios in the second half of the 20th century in Bohemia and Slovakia.

FACULTY OF TRANSPORTATION SCIENCES

The Faculty of Transportation Sciences was celebrating 30 years of its existence in the year 2023. Its establishment at CTU was not at all easy. It was the work of several personalities, most notably Professor Petr Moos, the first dean of our faculty, and Professor Petr Dunovský, who helped define our identity and define our role in relation to other faculties.
We commemorated this important anniversary at a number of events, including a gala evening at the National Technical Museum, organized as part of the 9th IEEE International Smart Cities Symposium Prague 2023 conference, a social evening and a concert at Bethlehem Chapel, where we also thanked the employees who help ensure the smooth running of the faculty.
In September 2023, the management of the faculty presented a set of measures including its slimming down and changing or refining the focus of individual institutes to achieve greater synergy. We have started intensive preparation of major projects, e.g. within the Jan Amos Komenský Operational Programme, we have deepened our cooperation with secondary schools, the web portal Move the Future and related campaigns are still reaching our potential students. Not only within the Industrial Council, we have established even stronger links with our industrial partners and the state administration. We are also preparing attractive new accreditations. These are just a selection of the activities through which our colleagues are constantly contributing not only to the development but also to the transformation of the Faculty of Transportation Sciences.

Prof. Ing. Ondřej Přibyl, Ph.D.,
Dean of the Faculty of Transportation Sciences, CTU

Study Programmes

In 2023, the Faculty of Transportation Sciences offered standard teaching in its accredited study programmes, which are divided into the main sections Transportation and Transportation Systems and Technology, the specialised Technology of Aviation Maintenance and the Professional Pilot programme. The latter, in both English and Czech, was re-accredited in 2023 and the faculty has thus received a new 10-year accreditation for both variants.
In the master's programme, students could choose one of the standard accredited study programmes focused on Transport Systems, Logistics, Intelligent Transport Management, Air Transport or Smart City. The double degree programmes, Intelligent Transport Systems and Smart Cities, saw a significant increase in enrolments in 2023, due to which the capacity of the seconded students was completely exhausted. The faculty is very supportive of this trend.
In 2023, the preparation of new accreditations in the bachelor's degree also started, mainly as an effort to expand the areas of transport and to follow new trends, i.e. the development of low-emission mobility, sustainable mobility in general, etc.

Projects

For the second year, the prestigious GA ČR Junior Star project on fast X-ray imaging of dynamic experiments was solved. The research team achieved significant successes in the form of the first X-ray measurements of impact experiments of heterogeneous materials and structures.
Work culminated in the international STAFFER project focused on European trends in railway staff training. The international ELABORATOR project was launched, addressing a holistic approach to planning and implementing specific technical innovations towards safe, inclusive and sustainable urban mobility. In addition, the international CORDIS project was launched, exploring sustainable and inclusive urban regeneration. An excellent final evaluation was given to the joint project of CTU and AŽD Praha, which resulted in the VEXA expert system, a completely unique solution in the field of autonomous train control on a national and international scale.

International cooperation

In May 2023, the faculty organized the the 9th IEEE International Smart Cities Symposium Prague. It also included the 21st European Transport Congress under the auspices of the European Platform of Transport Sciences, of which we are a member. The conference was preceded by a two-week workshop for our students and students from our partner The University of Texas at El Paso (UTEP). The results of the student projects were presented in the thematic section of the symposium with the participation of the Dean of UTEP College of Engineering, Dr. Kenith Meissner.
In September 2023, the Ambassador of the Czech Republic to the USA, Miloslav Stašek, visited El Paso and UTEP together with rep-

resentatives from the Faculty of Transportation and he significantly supported the unique cooperation between the Faculty of Transportation and the UTEP College of Engineering. During his visit, a meeting was held with UTEP Rector, Dr. Heather Wilson, and the Mayor of El Paso, Oscar Leeser. The Ambassador was interested in the only joint dual program between the two universities as well as the research activities focused on Smart Border.

Also in 2023, the faculty continued to develop strategic partnerships with leading universities in Europe, such as TU Berlin and TU Dresden, as well as in Asia, where the Dean of the Faculty, Prof. Ondřej Přibyl, visited Taipei Tech and signed a Memorandum of Cooperation.

Awards

Three of our students were awarded in the national competition Czech Transport Construction, Technology and Innovation. Kryštof Kaše was awarded the Rector's Prize of the CTU in Prague for his work "Design of alternative solutions for selected intersections on the road No. 113 in Český Brod". The Dean's Prize of the Faculty of Transportation Sciences of CTU in Prague was awarded to Daniela Götzová for her thesis "Solution of traffic on the road I/48 in Frýdek-Místek after the construction of the bypass". And the prize of the company SWIETELSKY stavební, s. r. o., was awarded to Tereza Šimková for her work "Safety analysis of the design of shock absorbers". The Stanislav Hanzl Award was received by Ing. et Ing. Radim Dvořák and the Josef Hlávka Award was awarded to Ing. André Maia Pereira.

Significant events

In 2023, the Faculty of Transportation Sciences celebrated 30 years since its foundation, which was reflected in a number of social events. Among the most important ones was a gala evening at the National Technical Museum, which was organized as part of the 9th IEEE International Smart Cities Symposium Prague 2023 conference, a social evening and a concert by virtuoso Matyáš Novák and the Prague Cello Quartet in the Bethlehem Chapel. The important event from the series Guest Armchair, this time with the Minister of Transport Mgr. Martin Kupka.

Third role of the faculty

The Industry Council, as an advisory body to the Dean of the Faculty of Transportation Sciences, which consists of more than 20 prominent personalities from the transport sector, worked on joint projects in 2023. These included the preparation of our graduates in accordance with the current needs of the labour market, but also the further deepening of cooperation with our partners. As part of further overlapping into practice, an agreement was signed with AŽD on cooperation in the establishment and use of a modern Competence Centre, where the teaching programmes of the Faculty of Transportation Sciences are also to be implemented.

Personalities of the Year 2023

Prof. Ing. Petr Moos, CSc., dr.h.c.

In 1993, he was the founder of the CTU Faculty of Transportation Sciences and was its first ever dean. Gradually around him, an expert team was formed, which to this day develops areas related to automation and traffic management, intelligent transport systems and the issue of smart cities and regions. In 1998, he served as Minister of Transport of the Czech Republic. He contributed significantly to the initiation of faculty cooperation with The University of Texas at El Paso in the USA. He received the Medal of Merit from the President of the Czech Republic in 2015. He is the author or co-author of more than 120 journal articles, four monographs and dozens of teaching scripts. His life's work has been recognized not only by the faculty, but also by many national and international research institutes and universities.

Ing. Eliška Glaserová, MSc.

She is a doctoral student in Smart Cities. She also completed her master's degree in the form of a double degree program in collaboration with The University of Texas at El Paso, USA. In 2023, she completed a six-month internship to further her research and scholarly activities. Her current research interests include urban logistics, sustainable mobility and demand modelling in the transport sector.

FACULTY OF BIOMEDICAL ENGINEERING

The Faculty of Biomedical Engineering of the Czech Technical University in Prague continued in 2023 to build a confident, dynamically developing and successful faculty. The renovation of another building, which we started in 2023, will provide our students and academic staff with decent facilities with adequate laboratories. We have seen a significant increase in the number of prospective students and learners. We increased the number of new associate professors and one professor was also appointed. Personally, I am pleased that the faculty has established its status as a respected academic and scientific research institute among medical faculties, medical institutions, the Army of the Czech Republic and departments of the Czech Academy of Sciences. I am convinced that in the years to come its position will become even stronger.

Prof. MUDr. Jozef Rosina, Ph.D., MBA
Dean of the Faculty of Biomedical Engineering, CTU

Study Programmes

In 2023, the faculty obtained an extension of the valid accreditation of the doctoral study programme Assistive Technologies to include teaching in English and new accreditations of the follow-up master's study programmes Biomedical Laboratory Methods and Systematic Integration of Processes in Healthcare.

Projects

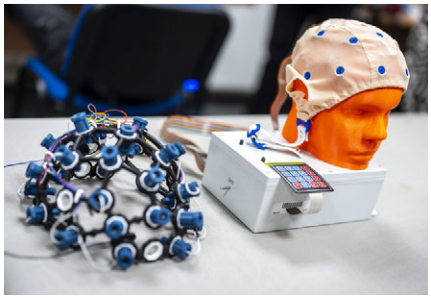
In 2023, faculty solved more than 115 inter-disciplinary projects, including 15 newly acquired ones. It has become a member of the innovative and educational project Caelestinus, whose main themes are improving the prevention, diagnosis and treatment of major diseases using technology or other ways to support patient care. The faculty team received financial support in the Transfer Vouchers 2023 programme for research organisations provided by the Central Bohemian Innovation Centre. The project resulted in the obstacle detector, an assisted orientation device in space for the blind and visually impaired. An invention application has been filed in the Czech Republic for this unique solution.
FBME was selected to present its projects at the Annual Conference of the OP RDE and OP JAK: modernization of the doctoral study programme Biomedical and Clinical Technology and biomedical engineering laboratory with the aim of developing a quality infrastructure of the doctoral study program Biomedical Engineering. Five new laboratories were built and three others were upgraded. The faculty participated in the Little Moon City Prague project, simulated space missions with international overlap, which will be used by the Hydronaut project.

International cooperation

A significant international activity was the assistance of the faculty in Cambodia under the leadership of Prof. Roubik. In 2023, there were several missions with the main goal of reducing maternal and under-five mortality and supporting the new study field of biomedical engineering as well as the position of biomedical engineers in local hospitals with the support of the Czech Development Agency.
FBME staff and students actively participated in a conference on analogue space missions „Get-together: Analogue missions" organised by ESA BIC in Prague, where they used the results of cooperation with foreign partners such as the National Taiwan University of Science and Technology. The European Federation of Senior Citizens, in cooperation with the faculty, organised the EURAG international Conference on Healthy and Unhealthy Ageing of the Human Brain.

Awards

Ing. Šimon Walzel was awarded at the international conference Poster 2023. Bc. Ksenia Kulakova won the main prize in the competition for the best student poster at WE Local Conference 2023 in Barcelona. Bc. Jakub Kollár won the second place for his contribution in the Best Student Paper Award competition and Prof. Jan Vrba and Prof. Lorenzo Crocco from Italy won the Session Organizer Award for organizing the session. During the graduation ceremony, the Dean's Awards - medals were presented to graduates for their contribution to the development of the faculty. Ing. Tereza Ptáčková, Ing. Matěj Krása, Ing. Tomáš Nagy and Ing. Michal Verbovský. At the "EHB International Conference on e-Health and Bioengineering" in Bucharest, recognition was given to doc. Vladimír Rogalewicz, CSc., and Ing. Simon Walzel was awarded third place for his contribution. Honorable mentions or prizes for their contributions were awarded to Ing. Marija Gorelova, Ing. Karla Mothejlova, Denisa Kaňoková and Ing. Valeriia Trukhan. At the international congress of the European Spa Association ESPA 2023 in Karlovy Vary, Ing. Aleš Příhoda received two of the prestigious ESPA Innovation Award. Student Ing. Vít Hlaváč won the 70th Run of 17th November and the 60th Academic Cross-Country Championship of the Czech Republic.



Significant events

CTU, through FBME, participated in the establishment of the Czech Health Technology Institute, z. s. (CHTI), a non-profit organization. Co-founding members were the Association of Manufacturers and Suppliers of Medical Devices and the medical cluster CZECHIMPLANT, z. s. This is a very important step in the cooperation with the application sphere. The importance of CTU is also accentuated by the fact that the Rector of CTU delegated doc. Ing. Jiří Hozman, Ph.D., as vice-chairman of the Board of Directors. The faculty organised an expert seminar on the anniversary of the scientist and inventor Professor Otto Wichterle. We were also visited by the Chief of the General Staff of the Czech Armed Forces, genpor. Ing. Karel Řehka, who met with the students. The Bio-electromagnetism research team designed and implemented a system for electroporation on adherent cell cultures, within which a prototype electrode system was constructed.

Third role of the faculty

The staff of the State Institute for Drug Control visited the faculty. They got acquainted with the research projects that our teachers are working on and saw the unique equipment and instrumentation.

The faculty traditionally participated in the International Fair of Ophthalmology, Optometry and Ophthalmology, in the OPTA Forum section Bc. Petra Dunovská gave a lecture, which had a considerable response. We received praise from patients for the activities of our students, for example a letter from patients from the Regional Hospital in Příbram. The faculty implemented events for the elderly, e.g. excursion to its laboratories. For the fourth time, future paramedics drew attention to the shortage of donors with the event "Donate blood!" at the Kladno Regional Hospital.

Personalities of the Year 2023

Ing. Jana Matějková, Ph.D., was awarded in 2023 as the author of the most cited publication of the year 2020 of the international journal Biomedical Papers (her article already has 36 citations). The publication discusses the current modifications of titanium implants for better cell adhesion and proliferation, and thus for better osseointegration of implants in bone using tissue engineering. She is also a member of the successful Bioreactors for Tissue and Organ Replacement research team, which received two new medical projects in tissue engineering in the last year. Over its eighteen-year history, the faculty has produced a number of exceptional alumni who have achieved significant success in their professional lives, volunteered or made a positive impact on public life. This was one of the reasons for the announcement of the CTU FBME Alumni Awards. From very high-quality nominations, the committee selected two alumni in the second year, namely Dr. Anna Stejskalová and Ing. Petr Brůža, Ph.D. The awards were presented to the personalities at the graduation ceremony on October 19, 2023 in Bethlehem Chapel. Ing. Lukáš Roubík is among the outstanding and successful graduates of the faculty. He is the founder of the Institute of Modern Nutrition.

Dr. Anna Stejskalová

Ing. Petr Brůža, Ph.D.

FACULTY OF INFORMATION TECHNOLOGY

Looking back on 2023, it was a rich and intense year. Once again, FIT was the most requested faculty at CTU. Over 3,000 applicants apply every year and the number is still growing. I accept this fact with great joy. I know that we have a unique opportunity, but also a commitment to prepare excellent professionals in all areas of IT who will be able to succeed in practice or cutting-edge science. This includes providing the conditions for high quality teaching and at the same time supporting faculty development activities contributing to modern teaching, scientific research and the link between theory and practice. Eleven new courses were introduced in 2023 in both bachelor's and master's studies.
I consider the opening of a new master's specialization in Digital Business Engineering with the University of Antwerp to be a great benefit. It connects IT, business and economics in an international environment. Students get two master's degrees at the same time. I am very pleased about the cooperation with the House of Lobkowicz. The main goal is to digitise and make the Lobkowicz collections accessible to the public using the most modern technologies, especially the conversion of cultural and historical heritage into virtual reality. I am glad that this will enable the public anywhere in the world to "touch" this history.
Together with FNSPE, FEE and FME, we have started the preparation of the master's degree programme Quantum Informatics. We are responding to the rapid growth of interest in quantum technologies, which open up further possibilities for the use of IT, especially in the field of security, communication and demanding computations that are not yet effectively computationally manageable.
In the coming year we will continue to further develop the faculty from improving teaching, through science to cooperation with practice.

doc. RNDr. Ing. Marcel Jiřina, Ph.D.
Dean of the Faculty of Information Technology, CTU

Study Programmes

FIT offers bachelor, master and doctoral studies in the Informatics programme. Students can choose from ten bachelor's and ten master's specializations. The studies cover all areas of computer science from information security, management informatics, computer graphics to artificial intelligence. Students apply for one degree programme in Informatics and choose their specialisation from the second year onwards. Doctoral students can complete a doctorate carried out in collaboration with a company (the so-called Industrial Ph.D.). Studying at FIT is not just about programming or software, but about a broad interdisciplinary approach. FIT offers a flexible and individual teaching approach with the possibility to collaborate on real projects, linking computer science with a wide range of application areas.

Projects

Scientific and research activities are among the key priorities of FIT. We have long-term cooperation with companies (e.g. ŠKODA Auto, Profinit, Datamole, Comerzbank or Siemens) and foreign universities (e.g. University of Technology Sydney or University of Antwerp). Important international projects in which the faculty participates include RiGiD, aimed at developing a methodology for rigorous data analysis that can be used in practice, ELIXIR, aimed at planning and data management as well as designing algorithms for solving hard problems in computational social choice, and the logicMOVE project for logical reasoning in motion planning for many robotic agents. The project Analysis of encrypted traffic using network flows was already rated outstanding in the initial phase. In cooperation with University of Hradec Králové and the Institute of History of the CAS, the project Dowry Towns of Bohemian Queens succeeded in virtually reconstructing the history of Hradec Králové. Research projects are also carried out within the framework of the student programme Research Summer at FIT (VýLet). The results of these projects are often presented at conferences and find use in practice.

International cooperation

The faculty has a long-term goal focused on science and research and on networking with major foreign universities and research organizations. FIT collaborates with the Netherlands in an international infrastructure for life sciences data called ELIXIR. The output is the Data Stewardship Wizard tool, which is also recommended by the European Commission. FIT is a member of Informatics Europe and part of university consortia such as EuroTeQ or the Magalhaes Network. It is working on a number of projects with the University of Antwerp, deepening mutual cooperation in research and education.

The 25th anniversary of CHES 2023, the world's most important conference in the field of hardware cryptography

Memorandum of Cooperation with the House of Lobkowicz

In addition to research activities, the faculty cooperates with foreign universities in the framework of the mobility of students and academic and administrative staff.

Awards

As part of the prestigious international competition European Healthcare Hackathon Bc. Michal Šolc and his teammates won the Data Analysis as a Life Saver challenge. Bc. Jan Pokorný presented a scientific paper at one of the most important international conferences in the field of AI AAAI23. Andrea Jeřábková and her teammates won the EuroTeQ Colliders competition with their solution for processing paper waste from beer labels. Pierre Donat-Bouillud's research project on how to detect data errors in programming languages won the Seal of Excellence. The international award for the best student paper Evaluation of Recommender Systems was presented to Ing. Petr Skalický. Daria Objeleanscaia received the Professor Miroslav Vlček Extraordinary Scholarship for international students.

Significant events

FIT organized the 25th edition of CHES 2023, the world's most important conference in the field of hardware cryptography. It was held for the first time in the Czech Republic and brought 520 experts from 37 countries to Prague. Other important conferences include the PESW International Research Meeting, the Technology in Society Conference, LAW FIT or IEEE CBI 2023 focused on management informatics. FIT also hosts regular Informatics Evenings, where experts from the faculty, partner companies or successful alumni speak about current topics and trends in IT.

Third role of the faculty

Through its activities, FIT contributes to the dissemination of scientific knowledge among experts and the general public, and through its projects it participates in the social scene. In 2023, it continued to publish the faculty podcast Ones and Zeros with the aim of bringing IT closer to all listeners. FIT actively participated in events such as Scientists' Night, ScienceFest, Maker Faire and AI Days. In the Český Vševěd competition for the best science popularizer, FIT was represented by Mgr. Petr Šimánek. The results of student research are often used in practice, such as text recognition in historical archives or automated interior design using AI. Within the CTU, FIT participates in the prg.ai initiative, which supports cutting-edge science and research in the field of AI.

Daria Objeleanscaia received the Professor Miroslav Vlček Extraordinary Scholarship for international students

Personalities of the Year 2023

Doc. Ing. Pavel Kordík, Ph.D., is an expert in AI and data science. He is an innovator whose work focuses on connecting academia with industry and innovation in AI. He teaches Computational Intelligence Methods and Data Mining Algorithms. He is one of the founding members of the prg.ai initiative and the expert guarantor of the non-profit initiative AI for Children. He is dedicated to the education and popularization of AI. Computerworld magazine voted him as the TOP IT personality for 2023.

Ing. Jiří Chludil

He is the head of the Network Multimedia Laboratory and co-founder of the computer graphics specialization at FIT. In addition to his academic and research work, he is involved in the analysis of information systems design for healthcare administration and education. Last year, he was part of the team that successfully completed the Dowry Towns of Bohemian Queens project, where he led a team of IT experts from FIT who developed a VR and augmented VR application to bring the ancient history of the town of Hradec Králové to life. Computerworld magazine voted him as the TOP IT personality for 2023.

MASARYK INSTITUTE OF ADVANCED STUDIES

The year 2023, after the pandemic and finding solutions to help refugees from Ukraine, has finally brought more time for systematic and conceptual work. This was reflected in the preparation of the Strategic Plan of the Masaryk Institute of Advanced Studies, which went through internal discussions and was finally approved by the Academic Senate of the CTU in Prague. It is an important tool for the MIAS to further develop the quality of study programmes, research and socially relevant activities. Since January 2023, the Centre for Law, Finance and Technology has started its activities at the MIAS, with the aim of building an interdisciplinary workplace focused primarily on basic and applied research in the field of law and finance, responding to the challenges posed by new technologies in this area. The emphasis on further development of the Institute was reflected in the intensive preparation of projects related to the Jan Amos Komenský Operational Programme, which should lead to an increase in the quality of the educational process, the use of new technologies in teaching and the professional development of staff. The economic study programmes have been re-accredited, with the bachelor's degree programme in Economics and Management becoming strongly professionally oriented. This demonstrates the high quality of cooperation with practice, which has received a lot of attention in recent years. This is also related to the deepening of contract research, the solution of TA CR projects and the promising practice of our students in important business and public institutions. The internationalisation of teaching, research and development aid has not remained on the periphery of our interest either.

Prof. PhDr. Vladimíra Dvořáková, CSc.
Director of the Masaryk Institute
of Advanced Studies, CTU

Study Programmes

The extension of the accreditation of the bachelor's degree programme in Economics and Management and the follow-up master's programme Innovation Project Management enables for another five years the development of a new practice-oriented study format. Cooperation with practice does not only mean that students gain practical experience during their studies, that experienced experts from practice enter the teaching or that a partner company fair is held, but also that there is feedback – from companies and students. And that is what we have been looking at in depth in 2023. First, an analysis was conducted of what knowledge and skills companies lack in students and what students are struggling with in their internships, and the new topics identified were then incorporated into the syllabus of selected courses, including the course materials in the LMS Moodle system.

Projects

Solving projects is an important part of academic life, although the availability of research grants is very limited in the Czech environment. In 2023, we successfully completed one and started another TA ČR Beta 2 project, continued to work on a Norway Grants project in cooperation with Transparency International on "The Digital Age and Threats to Human Rights" and started cooperation with five other universities in Europe within the European Commission ERASMUS+ project "Building Digital Resilience by Making Digital Well-being and Security Accessible to All".
The foreign development cooperation was reflected in the project „Transfer of experience in urban development and renewal planning to Moldova".

International cooperation

The Institute continues to pay great attention to international cooperation. The excellent language training of our students allows us to develop a range of activities. Student mobility is constantly increasing, with an increase in both outgoing and incoming students taking part in courses offered by the institute. The successful IPW (International Project Workshop) course was once again implemented, this time involving two foreign universities, the Université de Lille in France and the Mykolas Romeris University of Vilnius in Lithuania, together with the MIAS. The aim of the project is to enable students to test their theoretical knowledge in practice and to work in international teams.
They worked on specific projects prepared by TotalEnergies, L'Oréal, Cofidis, Linet, Komerční banka and Rhea Group, to whose representatives they presented the results of their three-month work at the final meeting in Vilnius. The week-long course within the Athens programme on Performing Security Management in a Digitised World, held in March and attended by 29 students from six European technical universities associated in the Athens consortium, was also very well received.
In May, 13 representatives of 11 universities from around the world gathered at the MIAS to exchange experiences in student mobility, recruitment of foreign students and Erasmus+ projects as part of the first year of Prague International Week.
During a visit from the Ostbayerische Technische Hochschule (OTH) in Amberg-Weiden under the guidance of Professor Lederer, German students joined the teaching at the MIAS and presented scientific papers in a joint course. The innovative way of teaching and cooperation between the universities was very well received and is planned to be repeated in future years.
A completely new activity was the semester stay of students from Virginia Tech, USA, for whom the MIAS also provided teaching.

Significant events

In the autumn, two interesting meetings with prominent international academic figures in the field of economics took place. The first event, in cooperation with FEE CTU, was a research colloquium with

Teaching within the Athens 2023 project

Research Colloquium with Prof. Robert Frank

Discussion with Prof. Tuugi Chuluun

Professor Robert H. Frank from Cornell University USA on "The Libertarian Welfare State: Regulation, Redistribution and Methodological Individualism". The textbook Microeconomics and Behaviour, which he authored, is used by many of our teachers in their teaching thanks to the translation by Prof. Fialová from FEE. Prof. Frank also gave a lecture for students and academics as part of the event.

On another occasion, the MIAS welcomed Professor Tuugi Chuluun, Ph.D., from Loyola University in Maryland. The meeting took the form of a roundtable discussion where research topics and new teaching methods were discussed. Again, this is the author of the seminal textbook International Financial Management (Eun, Resnick and Chuluun, 2021). Tuugi Chuluun has been nominated for the Fulbright-Czech Technical University Distinguished Scholar Award. If approved by the Fulbright committee, she will be welcomed to the Masaryk Institute of Advanced Studies in 2025 for a semester-long residency focused on both teaching and research, which we are very much looking forward to.

Third role of the institute

The Masaryk Institute of Advanced Studies has always tried to fulfil the social role of universities, knowing that they are the place where freedom and democracy were historically born. That is why our staff participates in a number of social activities that are not recorded in scientific journals but contribute to the development of the whole society, for example, cooperation with secondary and primary school students and their teachers (lectures, workshops). Also important were the conferences attended by three members of the institute - 'Stepping up the fight against corruption: whistleblowing' and 'Stepping up the fight against corruption: conflict of interest', organised by the Ministry of Justice (EEA funds).

KLOKNER INSTITUTE

Dear colleagues,
In this report, we assess the past year 2023, which unfortunately was again a very turbulent year. However, I can say with some relief that this has been a positive and successful period for the Klokner Institute. I would like to thank all my colleagues for their work. The Klokner Institute is mainly focused on research, teaching, expert and forensic activities in the field of construction engineering. However, our work is becoming more and more multidisciplinary and includes the fields of mechanical engineering, computer science, digitalisation and, surprisingly, robotics.
In 2023, we continued to work on a wide range of grant projects funded by various grant agencies (TA CR, GA CR) or ministries (NAKI III program). The Klokner Institute is a member of the NCK National Centre of Competence for Industrial 3D Printing and places a strong emphasis on research in the field of robotic additive manufacturing (3D printing). Naturally, a strong emphasis is placed on the renewal and expansion of instrumentation. In 2023, a JEOL JSM-IT200 electron microscope and metallography laboratory equipment were acquired for materials research purposes.
We also continued to participate in the university-wide internationalization project CTU Global Postdoc Fellowship, which supports international mobility of staff. In 2023, we continued our expert collaboration. The framework agreements Directorate for bridge inspections and diagnostics were fulfilled with the Road and Motorway and with the Technical Road Administration of the Capital City of Prague. We successfully participated in a number of tenders and started cooperation with new partners from the public and private sphere.

Prof. Ing. Jiří Kolísko, Ph.D.
Director of the Klokner Institute, CTU

Study programmes

Graduates of the master's degree can continue their further education at the Klokner Institute in two doctoral study programmes: Materials Science, Diagnostics and Structural Reliability in Construction and Civil Engineering. In the first field, students are introduced to new trends in the areas of concrete technology, development of high-value concretes and structures by additive manufacturing (3D printing), rehabilitation of concrete and masonry structures, production and testing of building materials and diagnostics of building structures using drones and image analysis, etc. The second course is accredited until the end of 2024 and can no longer accept new students. A doctoral seminar was held in the last quarter of 2023, where students presented the academic and practical results achieved during their studies. The best presentations were awarded prizes.

Projects

Research activities of employees and students are funded through grant and operational programmes. In 2023, four scientific projects were started - two standard projects funded by the Grant Agency of the Czech Republic, one from the OP TAK programme and one funded by the Technology Agency of the Czech Republic. Within the two projects awarded by the GA CR, the employees of the Klokner Institute are acting as additional applicants. At the same time, in 2023, the projects from previous periods continued to be solved, three of them were successfully completed. Students of the KI actively participated in the Student Grant Competition, where two projects were supported. Mobility of postdoctoral foreign staff was implemented.

International cooperation

In 2023, the staff of the Klokner Institute served as members of editorial boards of prestigious professional journals (Structural Safety, Structural Concrete - Journal of fib, International Journal of Heritage Architecture, International Journal of Structural Glass, Advanced Materials Research, Acta Polytechnica) and on the committees of a number of international conferences. KI actively supports postdoctoral fellows from abroad. In 2023, Dr. Vera Obradovic continued her research work at KI. Following a competitive selection process, a promising foreign researcher - Dr. Lenganji Simwanda from the University of Stellenbosch - was selected to start a two-year internship focused on the reliability of structures made of innovative cement-based materials in early 2024.

Awards

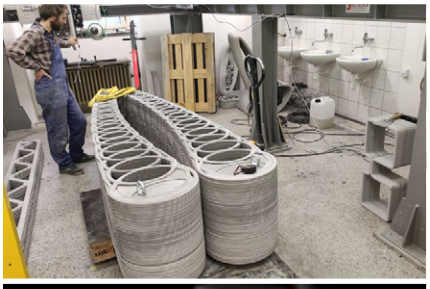
In July 2023, the Štvanice footbridge (also known as HolKa) was put into operation, connecting Karlín, Štvanice and Holešovice in Prague for pedestrians and cyclists. The Klokner Institute developed the material and participated in the mix design, including static and dynamic calculations, UHPC technology and static and dynamic load tests. Thanks to special technologies and material, the large span bridge has a minimalist appearance. The bridge was awarded the title of Construction of the Year 2023.

Significant events

The Klokner Institute has traditionally prepared a social event for its employees in September, which helps above all to strengthen the working team. A Christmas concert was organised for the institute's industrial and university partners and friends, where the singer Radůza performed.
In November 2023, KI hosted the International Conference on Rehabilitation and Reconstruction of Buildings and WTA CZ "Rehabilitation and Reconstruction of Buildings". The Klokner Institute was frequently mentioned as an expert body in cases of the repair of the railway bridge in Vyšehrad or the reconstruction of the Libeň Bridge.

Third role of the institute

The range of activities of the Klokner Institute and its staff is very broad. In addition to scientific activities, in 2023 the staff was also engaged in expert, innovative, teaching, forensic and standardisation activities. In 2023, the institute produced 110 test reports within the Experimental Department, 291 expert reports, 785 Accredited Testing Laboratory reports, and 36 expert reports.
Many outputs of the Klokner Institute's scientists find application in everyday life and are widely used by the commercial sphere. Technology transfer is the alpha and omega of scientists' work today. It is



essential that the results of research find application in practice. This can only be achieved through close cooperation with renowned industrial partners and government organisations. In 2023, the Klokner Institute cooperated with a number of them (e.g. the Railway Administration, the Road and Motorway Directorate of the Czech Republic, the Waterways Directorate of the Czech Republic, TSK Praha, a. s.; the Vyšehrad National Cultural Monument, etc.). It participated in the evaluation of important constructions in the energy sector, including buildings in nuclear power plants.

As part of innovation activities, it had one scientific result protected by the Klokner Institute and its commercial partners in the form of a European patent application in 2023. In total, the Klokner Institute holds 30 valid IP protection decisions, including one European patent, nine patents within the Czech Republic, 18 utility models and two industrial designs.

Personalities of the Year 2023

Ing. Milan Hrabánek, Ph.D.

He has worked his entire professional career at the Klokner Institute, where he is the Deputy Director. As a supervisor he supervises PhD students and is involved in scientific projects (GA CR, TA CR, NAKI). His professional activities are mainly in the field of diagnostics and evaluation of buildings, including historical buildings, testing of structures and materials in the laboratory and in-situ, assessment of defects and failures of structures including design of measures and long-term measurements and monitoring of structures. He is the author of more than 700 expert reports on building diagnostics and 150 forensic reports.

Ing. Ivo Šimůnek, CSc.

He has been working at the institute since 1986 and has gradually become a key expert in the fields of diagnostics, fault identification, reconstruction and strengthening of constructions with a focus on dynamically loaded structures and constructions in the energy sector. For example, he has been involved in the evaluation of foundations of turbine generators, cooling towers and chimneys, both in the Czech Republic and abroad. He is an experienced expert witness, chartered engineer and member of the examination committee of the Czech Chamber of Chartered Engineers and Technicians. As an expert witness, he is involved in the evaluation of defects, failures and accidents of transport, industrial and residential constructions. He is a guarantor of doctoral studies.

CZECH INSTITUTE OF INFORMATICS, ROBOTICS AND CYBERNETICS

The year 2023 can be marked as a certain milestone in the development of the CIIRC. We have celebrated the tenth anniversary of our foundation and have shown that in Czech conditions it is possible to build a workplace of European importance if people are sufficiently motivated and given space. We can say with a clear conscience that we have not only fulfilled everything we set out to do at the beginning, but in many ways, we have surpassed it.

Our aim in founding the Institute was primarily to combine excellence and research quality, to build an institute with an appropriate reputation in Europe and, last but not least, to become an incubator for PhD students with an emphasis on quality education. These goals have already been achieved in 2021, including the fact that three hundred researchers and PhD students are involved in research and, thanks to the cooperation with FEE, we will be an independent training institute from 2024.

We have managed to obtain funding and build a new building to house not only the CIIRC, but also part of the CTU rectorate, startups and branches of other universities. It is a great satisfaction that it was completed without any additional increase in funding, but to the required quality. It is not only an architectural landmark, but also an important centre of the modern Dejvice campus.

At the same time, we are aware that we are facing challenging times, artificial intelligence is now neglected by the Czech state, despite its proclamations, and we are in danger that the international teams and state-of-the-art infastructure we have built will not be able to be financed. We are taking a proactive approach, researching, publishing cutting-edge publications, collaborating with companies and supporting the transformation of Czech industry and energy towards a digital and sovereign superpower. But without long-term funding, this is unsustainable.

Mgr. Ondřej Velek, Ph.D., Director
of the Czech Institute of Informatics,
Robotics and Cybernetics, CTU

Education of doctoral students

CIIRC employees supervise nearly 100 doctoral students at various faculties and universities in the Czech Republic and abroad. In 2023, in cooperation with FEE, we managed to arrange the establishment of an independent training facility at CIIRC for PhD education in the fields of Informatics, Cybernetics and Robotics and Bioengineering. It will start its activities in 2024.

Projects

The CIIRC has a long-standing focus on winning major development projects and individual excellence grants from national and European sources to build research capacity, infrastructure and transfer results into practice. This is evidenced, for example, by the success of the ROBOPROX project in the OP JAK Excellence in Research call, which develops interfaculty collaboration on a unique scale, not only across CTU. Dr. Josef Šivic was awarded the prestigious ERC Advanced Grant for the FRONTIER project for research in the field of intelligent computer systems capable of learning in a dynamically changing world. In addition to the already running European Networks of Centres of Excellence projects ELISE, TAILOR, euROBIN and VISION, CIIRC is also a new partner in ELIAS, focused on sustainable use of AI for solving societal problems. Through the INPACE project, CIIRC is actively supporting the implementation of the Digital Partnership policy with Japan, the Republic of Korea, Singapore and India by creating a sustainable Indo-Pacific European Hub. In January, the implementation of projects to support the digitisation and deployment of innovative Artificial Intelligence (AI) solutions in industry was launched: the EDIH CTU and AI-MATTERS (called TEF - Testing and Experimentation Facilities).In 2023, the CIIRC was involved in a total of 75 national and 30 European projects.

International cooperation

In March, the foundation was laid for the Mařík Institute for Artificial Intelligence, Robotics and Cybernetics, which is being modelled on the CIIRC and is being built at NIMS University in Jaipur, India, and is expected to start operations in autumn 2024. Exchanges of students, researchers and joint research projects in the fields of biomedicine and industrial robotics are already being planned.

In 2023, CIIRC signed a Memorandum of Understanding with Tunghai University in Taiwan. This agreement marks the establishment of closer cooperation between the two institutions and facilitates the mobility of researchers.

The CIIRC is part of the European ecosystem in the field of AI, data and robotics and is an active member of the CLAIRE and ELLIS initiatives, whose Czech branches it manages. It is also a member of ADRA, IDSA and Gaia-X. He is an active member of the EIT Manufacturing community and leads the Czech EIT Manufacturing RIS Hub. It is gaining attention in the field of Industry 4.0 solutions thanks to the RICAIP Testbed Prague, a state-of-the-art workplace for intelligent manufacturing, on which he cooperates with CEITEC VUT in Brno and the German institutes DFKI and ZEMA from Saarbrücken.

Awards

Prof. Ing. Vladimír Kučera, DrSc., dr. h. c., was elected a member of the highly elite American Philosophical Society as only the fourth Czech citizen after Presidents Masaryk (1936), Beneš (1939) and Havel (1995).

The distinguished Test of Time award was given to Ing. Tomáš Mikolov, Ph.D., and his team at the NeurIPS conference for their revolutionary work that has significantly influenced the shape of current large-scale language models. The paper, titled "Distributed Representations of Words and Phrases and their Compositionality," which was written in 2013, has already collected more than 40,000 citations and laid the groundwork for a vector representation of words known as word2vec.

The contribution of doc. Ing. Tomáš Pajdla, Ph.D., and his colleagues "Viewing Graph Solvability in Practice" was one of 17 papers nominated for the Marr Prize at the ICCV 2023, the leading computer vision conference.

Significant events

In 2023, CIIRC celebrated its tenth anniversary with a series of events called Industry-AI Days. During the festive morning,

10th anniversary of CIIRC CTU

10th anniversary of CIIRC CTU

Mařík institute

Vladimír Kučera

Tomáš Pajdla

Tomáš Mikolov

the CIIRC Silver Medals were presented to Mirek Topolánek, who as Prime Minister at the time first supported the idea of the new institute, to Vít Dočkal, whose bold visions and achievements in project management helped make the CIIRC a reality, and to Holger Hoos, an AI scientist who has supported the CIIRC in the European research community and helped it gain an international reputation. Industry-AI Days also included an International AI Symposium, a National Industry Summit, an AI Open Day aimed at educating a broad audience, and an Industry 4.0 Open Day. A unique introduction of the ecosystem for Industry 4.0 was the joint stand of the National Centre for Industry 4.0, RICAIP Testbed Prague and the Centre's partners at the International Engineering Fair in Brno.

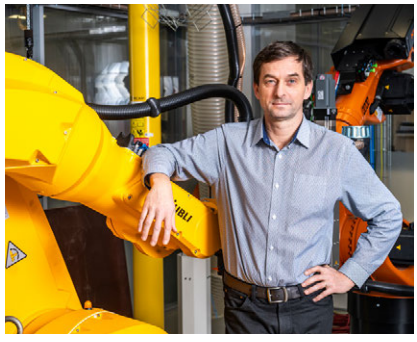
Third role of the institute

In 2023, we organised or participated in a number of educational events for the general public and children - Night of Scientists, Children's University, Open House architecture festival, Technology Literacy workshops for pupils and students, concerts by the CTU Academic Orchestra. We also educate the public in the field of AI. For example, the conference Why Not to Be Afraid of Artificial Intelligence was organised together with the Equilibrium Institute and resulted in a publication of the same name for the general public. We have also helped, for example, to develop the Cogni Trainee app to help detect Alzheimer's or Parkinson's disease at an early stage. Ing. arch. Michal Postránecký has developed a methodology for the planning, location and implementation of vertiports for UAM (Urban Air Mobility), which is being prepared to create the transport infrastructure of the future.

Personalities of the Year 2023

In the ERC Advanced Grant FRONTIER, Dr. Ing. Josef Šivic will, among other things, develop a new generation of large-scale neural models for machines that operate in a dynamic 3D world and interact with the surrounding environment. According to Research.com, Josef Šivic is one of the best computer scientists in the Czech Republic, he is the head of the IMPACT research group and director of the ELLIS Unit Prague at CIIRC. He is also the chairman of the AICZECHIA initiative since 2022. In 2023 he won the AI Award in the R&D category awarded by an expert jury under the auspices of prg.ai, Brno.AI and CzechInvest.
Prof. Dr. Ing. Zdeněk Hanzálek is the principal researcher of the extensive ROBOPROX project, which aims to contribute to the transformation of Czech industry and its international competitiveness. ROBOPROX will involve up to 180 top experts. The project coordinated by CIIRC was prepared in cooperation with Brno University of Technology, UWB in Pilsen and VSB-TUO. At CTU, this is a truly university-wide collaboration involving top researchers from FEE, FME, FCE, FIT and IEAP. Zdeněk Hanzálek is the Head of the Industrial Informatics Department, and in 2023 he was awarded by the Dean of FEE for outstanding teaching achievements.

Josef Šivic



Zdeněk Hanzálek

UNIVERSITY CENTRE FOR ENERGY EFFICIENT BUILDINGS

In 2023, we successfully continued to pursue our goal of promoting energy efficient buildings that are both environmentally friendly and provide a healthy and comfortable indoor environment for their occupants.

We have been successful in promoting ourselves in the field of international research projects, in which we are gaining an increasingly important position. We have also established interesting cooperation with a number of domestic partners. For example, with the support of the Prague Public Transit Company, we have started a trial run of an intelligent low-maintenance installation filled with plants in the lobby of the Můstek metro station, which should thrive even in such an inhospitable place without significant human intervention. If all goes well, Prague's metro may in the future be transformed into a pleasantly green space with a positive effect on the mood, cognitive function and overall mental health of passengers.

We were very pleased to receive the prestigious international award for the Sunflow biodynamic circadian lamp, which was developed by our lighting specialists led by Ing. arch. Lenka Maierová, Ph.D. I believe that this lamp will find many satisfied users all over the world thanks to its proven positive effect on the human circadian system.

Ing. Robert Jára, Ph.D.
Director of the University Centre
of Energy Efficient Buildings, CTU

Study programmes

There are no study programmes within UCEEB, but we participate in teaching at individual faculties of CTU, which allows us to transfer knowledge from applied research to their study programmes.

Projects

In 2023, we solved a total of 85 grant projects and 229 research contracts. Among the most significant of these were the newly launched international projects WEEEWASTE and Circular WEEP, which are aimed at exchanging experience and knowledge in the field of waste electrical and electronic equipment management across European Union member states. Based on the data collected, a strategy for the implementation of pilot projects within the Czech Republic will be developed in the coming years, which are expected to raise awareness of the ways and possibilities of managing e-waste. Basic parameters for future modification of the supporting legislative instruments for the European market for electrical and electronic waste will also be defined.

International cooperation

In 2023, we addressed 29 international projects. Within the second call of the Interreg Europe international programme, under which the above mentioned WEEE-WASTE project falls, UCEEB became the only Czech representative in a leading role. We also play an important role in the implementation of the Horizon Europe project ASCEND, which aims to accelerate the emergence of energy-plus and carbon-neutral neighbourhoods contributing to a faster transition of cities across Europe to climate neutrality.

Awards

In the LIT Lighting Design Awards 2023, a global lighting design competition with more than 800 entries from 58 countries, the biodynamic circadian LED Sunflow floor lamp, developed by a team of lighting specialists from UCEEB led by Ing. arch. Lenka Maierová, Ph.D. In addition to its striking design, the lamp offers its users three lighting modes that are in line with the twenty-four-hour natural cycle and thus benefit the human circadian system. These are provided by an integrated LED module that has been patented for its unique, balanced and pro-cognitive properties. Thanks to it, Sunflow took first place in the category of table and floor lamps.

At the 25th Air Conditioning and Ventilation Conference, doc. Ing. Tomáš Matuška, Ph.D., received the award of the European Federation REHVA, which brings together national associations focused on heating, ventilation and air conditioning. He was awarded for his outstanding scientific achievements and contributions to improving energy efficiency and the indoor environment of buildings.

Significant events

The Nošovice brewery brewed a limited batch of Futur lager. They used water extracted from the humidity in the air using technology developed by scientists at UCEEB. The EWA device was created as one of the successors to the S.A.W.E.R. system for producing water from desert air. The creation of the limited batch of Futur beer was part of Radegast's long-term efforts to raise public awareness of the issue of water loss in the landscape.

Co-produced by UCEEB and the online TV channel Tvize, a series of four moderated discussions took place between academics and representatives of companies from the construction and energy sectors, who shared their experiences and sought ways to make buildings more sustainable. This gave the general public the opportunity to learn more about wood buildings, renewable energy, decarbonisation of the construction industry and recycling of building materials. Interested parties can play all episodes for free on the Tvize website, as well as on YouTube and Vimeo platforms or audio podcast apps.

Third role of the institute

Our other activities include long-term support in the development and amendment of standards in cooperation with the Czech Agency for Standardization, for which we have solved a series of analysis tasks with a focus on the amendment of standards in the field of fire safety of buildings. We continued to work with the Ministry of the Environment of the Czech Republic and the Ministry of Regional Development of the Czech Republic on the preparation of subsidy titles and other instruments to support sustainable construction in the Czech Republic. We organised specialised seminars for the professional public and trained both designers and implementation companies. We have systematically promoted sustainable construction at national and international level.

Personality of the Year 2023

Ing. arch. Lenka Maierová, Ph.D., from the Indoor Environment of Buildings research team, is an architect and lighting expert. She solves interdisciplinary projects in the field of lighting technology, chronobiology and architecture. Since 2014, she has been working at the University Centre for Energy Efficient Buildings CTU in Prague, where she leads, among other things, the Platform for Healthy Lighting. She is a member of the international professional society Daylight Academy and the International Commission on Illumination (CIE). She is interested in the process of non-visual perception of light and its influence on regular daily rhythms in the human body, such as the alternation of sleep and wakefulness, activity and regeneration. Along with health aspects, she also assesses the quality of the lighting environment inside and outside buildings in terms of visual comfort. She leads a team of lighting specialists from UCEEB who were involved in the development of the Sunflow biodynamic circadian lamp, which won the table and floor lamp category of the international LIT Lighting Design Awards

INSTITUTE OF EXPERIMENTAL AND APPLIED PHYSICS

IEAP operates as an experimental base of CTU with a broad focus on research in particle and nuclear physics. We strive to consistently develop progressive detector technologies for fundamental experiments having a wide application potential. In the context of involvement in underground laboratory activities, the Institute is developing technologies for low background experiments in neutrino physics, the search for dark matter in space, and applications in medicine and biology. Relevant theoretical physics disciplines are also being developed at IEAP. Through an attractive scientific programme in the framework of international collaborations, we continue to attract talented foreign workers to science and research in the Czech Republic (their share in the institute exceeds one third of the scientific staff).

doc. Ing. Ivan Štekl, CSc.
Director of the Institute of Experimental and Applied Physics, CTU

Educational activities

The institute is active in the field of education. Last year, it focused on supervising the professional work of students from other faculties of CTU and other universities in the Czech Republic and abroad (a total of 12 bachelor students, 20 master students and 14 doctoral students). The institute acted as a training centre for three foreign students sent to CTU by IAESTE. The internship of the winners of the national round of the Physics Olympiad took place here. As part of lifelong learning, teachers were trained in the accredited programme of MEYS "Progressive detection methods in teaching subatomic and particle physics at primary and secondary schools" and we organised courses Secrets of the microworld and Laws of the microworld for the University of the Third Age.

Projects and cooperation with industry

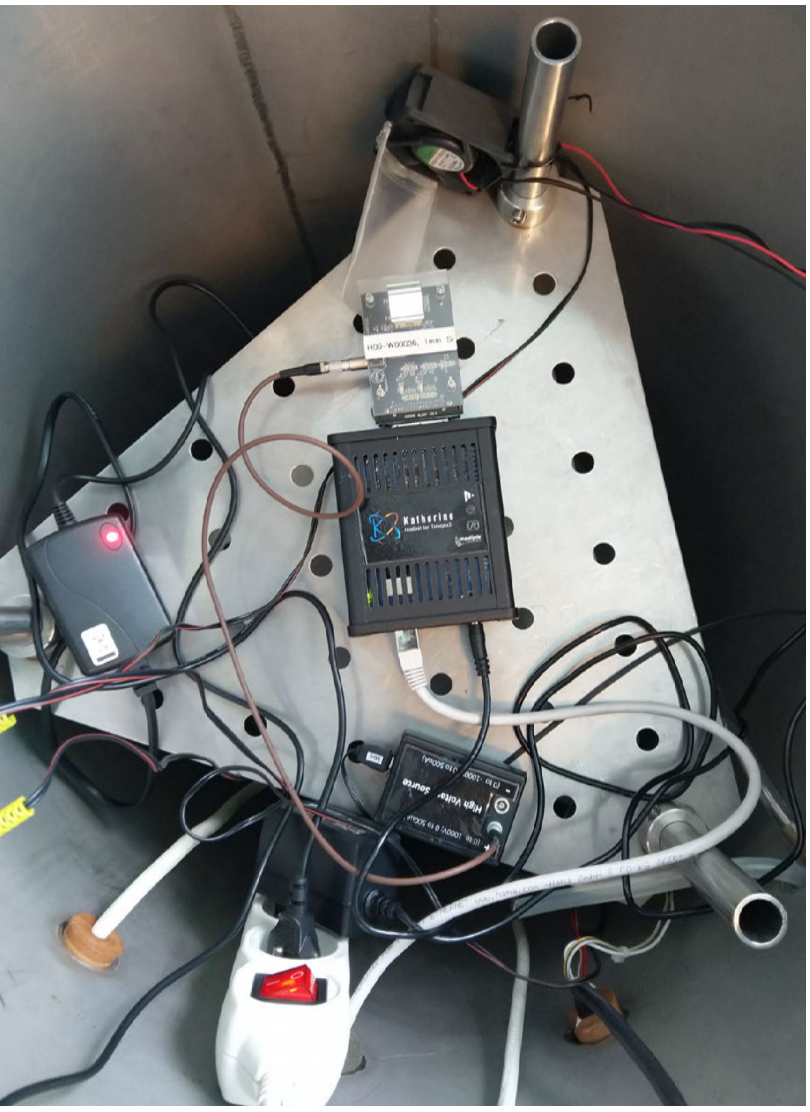
In 2023, we managed to get several projects into grant competitions in the Czech Republic. These are e.g. two major projects of the GA CR, "Exploring the Properties of Neutrinos through Double Beta Decay: An Interplay between Theory and Experiment", researcher F. Šimkovic, and "Experimental and theoretical studies of astrophysical high-energy neutrinos in KM3NeT neutrino telescopes", researcher Y. Shitov, who came to us from University College London, and two projects of TA CR "Significant Improvement in Scintillator Production Efficiency through Extrusion Technology" in cooperation with NUVIA, a. s., and "Complex innovation of equipment for the suppression of radioactive gases from the air" in cooperation with ATEKO, a. s. (researcher I. Štekl).
SpaceX's Falcon 9 rocket carried the HardPix radiation detector, developed at IEAP CTU and manufactured by BD Sensors, into space on 12 June at 23:35 CET. HardPix was launched aboard the ION satellite of Italian company D-Orbit as part of the "Improved Radiation Measurements for Space and Aviation" project, led by the UK government agency Science and Technology Facilities Council, Rutherford Appleton Laboratory (STFC RAL Space), and part of the space weather monitoring programme Space Weather Innovation, Measurement, Modelling and Risk (SWIMMR) of the government's UK Research and Innovation (UKRI). The success is all the more valuable because it was a commercial contract. HardPix detectors are planned for future missions to the ISS, Lunar Gateway and Cassini, and are also being considered as detectors for the search for water on the Moon.
It is clear from the above that close cooperation with industrial partners is very important for the development of the institute and the qualification of its staff. Here, the importance of linking activities with ADVACAM, a. s. (manufacturer of pixel detectors), NUVIA, a. s. (in the field of scintillation detectors), ATEKO, a. s. (in the field of gas purification), and BD Sensors (development of space equipment) should be emphasised.

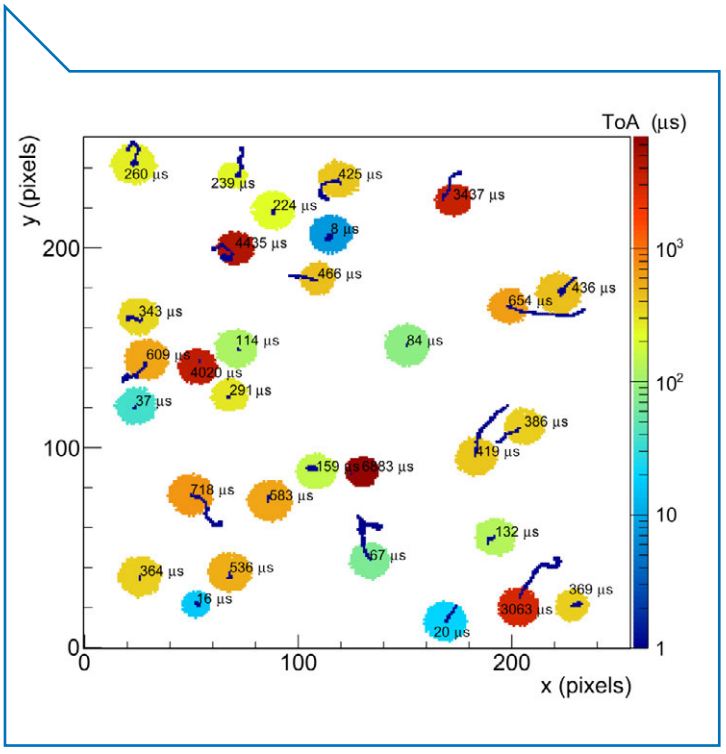
International cooperation

Most of the institute's activities were carried out within the framework of international cooperation, mainly with the CERN research institute (ATLAS, Isolde, ATLAS TPX, MoEDAL, Medipix, etc.) and the underground laboratories LSM (France) and SNOLAB (Canada). The synergistic collaboration between the KM3NeT experiment (part of the European Strategy Forum on Research Infrastructures) and the LSM underground laboratory (part of the Roadmap of Czech Large Research Infrastructures, 2023-2026) is developing positively, where measurements of the intrinsic background of the detection modules (28 photomultipliers with associated electronics) are being carried out in an environment with negligible cosmic rays.

Significant events

The institute co-organised the major ANIMMA conference "Advances in Nuclear Instrumentation Measurement Methods and their Applications", with R. Hodak as Vice-Chairman of the organising committee. The institute has also been active in the field of theoretical neutrino and nuclear physics for a long time. Last year it organized the regular international conference MEDEX'23 (Matrix Elements for the Double beta decay EXperiments) focused on the issue of neutrino physics and dark matter. Our theoreticians managed to realize the entry of a joint





Equipment used by J. Jelinek and visualization of decay events in the pixel detector.

group of astrophysicists from different institutions in the Czech Republic (SU in Opava, MFF UK and IEAP CTU) into the international group EuCAPT (The European Consortium for Astroparticle Theory), with A. Smetana becoming the representative of the group. In cooperation with MFF UK, the theoretical group organised the AMLITUDES workshop, which was attended by the eminent theoretician Nima Arkani Hammed.

The institute and the support of outstanding students

One of the tasks of the Institute from the very beginning has been to support gifted students. This is a comprehensive activity, involving cooperation with secondary schools, the organisers of the Physics Olympiad, the involvement of students in practical activities during their undergraduate and graduate studies, and the facilitation of PhD studies at foreign institutes. Currently, 22 students work full-time at the Institute.

It is customary to cite a so-called success story; IEAP has two positive examples. The first one is the doctoral study of Mgr. Petr Mánek at UCL, a university ranked 22nd in the World University Ranking. P. Mánek is a graduate of MFF UK, where in 2018 he won the IT SPY, which is an elite competition that evaluates the best theses in the field of IT (1 607 graduates from 17 faculties of Czech and Slovak universities fought for the victory in 2018). As part of his master thesis, he implemented an improved Compton camera based on the Timepix3 detector at the IEAP. In 2019 he became a PhD student at UCL under the supervision of Jennifer Thomas (UCL) and B. Bergmann (IEAP). It is very instructive to compare the demands and organization of his studies at a prestigious university with the reality of CTU. P. Mánek, for example, had to complete a six-month internship at Hewlett Packard Enterprise, where he worked on the development of software for optimizing running programs on servers. The second example is the activities of MSci. Jindřich Jelínek. He is one of the 2017 Physics Olympiad winners who studied physics at the University of Cambridge. The institute enabled J. Jelinek to do interesting work during the summer holidays with modern pixel detectors. During this internship, he studied the decays of the isotopes Po214 and Po212 using the Timepix3 detector and determined the half-lives of these isotopes with an accuracy of 300-500 ps, which is the most accurate measurement ever. He continues to work at the IEAP and is also a PhD student at the University of Geneva under the supervision of Prof. Xin Wu and B. Bergmann (IEAP).

INSTITUTE OF PHYSICAL EDUCATION AND SPORT

Physical education and leisure and sport activities are seen as an integral part of university life. Sport at CTU connects students across all faculties, compensates for mental load, develops their physical skills, expands their knowledge in the field of active lifestyle and helps in the prevention of civilisation diseases and negative social phenomena. In the past year, the efforts of the IPES were also aimed at maintaining and improving the quality of physical education and sports and creating positive motivation for exercise.

We perceived the year 2023 as very successful in terms of students' interest in sports. This was evident across all our activities, in the teaching of physical education, in the provision of other sporting activities for students and staff, in the organisation of winter and summer training courses and in the provision of sports representation of the CTU at university competitions.

The number of students who regularly participate in physical education is slightly increasing and is proof of the increasing interest in sports activities and confirmation for us of the correct direction of the teaching focus. We also see a great demand for winter and summer training courses as well as opportunities to represent our school. Students have been successful in university competitions, especially in the Czech Republic. Cooperation with university sports clubs is also important, where students are mainly involved in performance competitions.

Thanks to the understanding of the university management, it is possible to maintain and modernize the school's sports facilities and equipment for teaching. In these dynamic times, we try to follow new trends and incorporate them into our teaching.

Thus, it can be concluded that the year 2023 was a year of stability and further development of the activities of the institute.

Assoc. PaedDr. Jiří Drnek, CSc.
Director of the Institute of Physical Education and Sport, CTU

Physical education and sport

Regular teaching of physical education and sports is the main mission of the IPES. Students can choose from a wide range of up to fifty different sports activities in which they can improve during their studies. We emphasize the quality of teaching and the importance of regular exercise and physical and mental balance.

We also offer methodological videos on the institute's website, which are used both for teaching with the possibility of creating training plans and for the individual needs of students and staff. In 2023, videos of fitness exercises at home, tennis and swimming were created as part of the internal competition IP 2023.

Sport courses are an integral part of teaching PE

In 2023, 14 winter ski and snowboard courses and specialised courses for the paramedic profession were offered with a total participation of 653 students. The offer is varied and participants can choose between domestic and foreign courses, with the foreign courses being among the most attractive.

In the summer period, the institute organised 46 courses with the participation of 1 077 students. As in previous years, the range of these activities is very diverse and is updated each year according to the interest of the participants. In 2023, courses were organised focusing on archery, self-defence, yoga, water tourism, windsurfing, volleyball, beach volleyball, cycling (road and mountain bikes), horse riding, golf, tennis, hiking, etc.

A great benefit for students entering the first year is the familiarisation courses organised in cooperation with the faculties. Thanks to them, the participants have the opportunity to get to know their future classmates better, to get acquainted with the offer that the school offers in the field of sports and physical activities, but also to get the necessary information from the management of the faculties and senior colleagues for a successful entry to study at CTU. The courses have long been positively evaluated by students.

"Amateur" sports

The physical education classes are complemented by a wide range of one-off sporting events, such as the Rector's Sports Day or cycling trips, as well as by organising and participating in academic championships, the Czech Academic Games, Cross Campus and smaller tournaments and matches.

The sports offer at CTU is significantly expanded by the activities of the university physical education units VSK CTU, VŠTJ Technika Praha and ST FNSPE CTU Tralalalala. They offer a wide mosaic of sports and physical leisure activities in their units and cooperate with the institute in organising large sporting events such as the 17 November Run.

A semester-long course for seniors at the University of the Third Age in two groups of thirty participants each is also part of the annual programme.

Representation

In cooperation with the faculties, the institute also provides sports representation of the school at university championships in the Czech Republic and at international sports events. In the past year, CTU students were successful in competitions within the Czech Republic, but CTU did not participate in foreign events this time. The most important domestic achievements included the first place overall at the Czech Academic Indoor Athletics Championships and excellent results of our athletes at the Czech Academic Games held in Olomouc. CTU took fourth place there and won a total of 31 medals, 7 of which were gold.

The CTU is actively involved in the newly established university competitions, university leagues organized by the CUSA, in six team sports. Our university is represented in all university leagues by nine teams of men and women - in basketball (men, women), floorball (men, women), volleyball (men, women), futsal (men),

"Study in a sporting manner"

football (men) and hockey, where we are represented by the team CTU Engineers Prague.

Proof of CTU's appreciation of outstanding student representatives is the regular awarding of extraordinary scholarships for successful representation of the school, which are awarded by the deans of individual faculties on the proposal of the management of the institute. The culmination of these awards is the annual

competition for the best CTU athlete under the auspices of the Rector. In 2023, the first place was taken by Nikola Dryjáková, a student of FBME, water motorsport. The second place was taken by Dominika Hronova, also from FBME, taekwondo WT, and the third place was taken by Antonia Galušková, FTS student, water slalom.

Under the auspices of the MEYS and in cooperation with VSC Victoria we are involved in the UNIS project for top athletes studying at the CTU. The project creates conditions at the university for dual careers of student-athletes with exceptional sports performance. In 2023, 27 top athletes were included in the project.

Computing and Information Centre

We act as the central IT operator for the faculties, institutes and other parts of CTU and with a staff of 80 we run a wide range of services for both students and university employees.

We hold ISO 9001 (QMS quality management), 20 000 (service management) and 27 001 (information security management) certificates for the management, operation and development of information systems.

Often, only specific applications and functionalities related to studies, science and research, licensing or support of daily administration in the HR and economic areas are visible to users. A large part of the infrastructure is hidden in the background, but without its flawless operation the CTU IS could not function. Backbone networks, servers, identity services (authentication and authorization), issuance of ID cards and passes, access and access control are only part of these services.

In 2023, projects were the main source of funding for development activities and outputs. We implemented or participated in eleven Strategic Management Support Programme projects, NPO projects and the DKRVO project.

As part of the expansion of electronic circulations in administrative processes, we successfully deployed AEDO system modules at other constituent parts of CTU. The deployment of these modules simultaneously met the extended legislative requirements. These include, among other things, the marking, maintenance and archiving of documents created.

The interface for downloading publications and citations from WoS was upgraded in the V3S application. The logistics of automatic citation validation were also made operational in this area.

At the request of faculty and unit officers, a webmailer view of the real project budget was added to the iFIS application EZOP. Furthermore, the functionality of the EZOP-FIS link providing a check on an existing and at the same time free contract in iFIS has been extended. The modification also allows for future extension of this link to other types of contracts (contract research, other agreements).

In the study IS, we have focused on two main areas, the continued digitisation of processes and the optimisation of the internal functioning of the study component of KOS. In terms of digitization, we have focused on improving the admissions process, extending the functionalities of the agenda of fees and integration to the Signature Book. We also implemented support for the use of Citizen Identity in the admission process and the application for study funding.

In the area of internal optimization, we have fully completed the migration to the latest version of the FORMS interface, started a complete rebuild of the registration and sending method of emails generated by the system (two new forms were created, the so-called email catalogue and the overview of faculty-set emails). Last but not least, we launched a new Nostrification application to support the fully digitized process of recognition of foreign studies.

In 2023, we continued our collaboration on the eSign project by implementing a new version of the EWP (Erasmus without paper) interface.

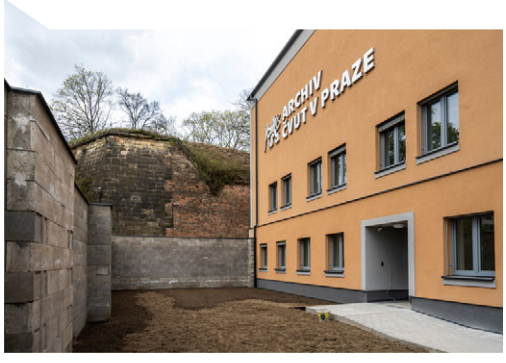
Among other things, we deployed the remote issuance of CTU passwords in UserMap, which allows for selected groups of CTU IS users to issue passwords via email if defined conditions are met (not applicable to employees). The FNSPE email services have been transferred to Exchange, and we are continuing the ongoing transfer of selected FCE mailboxes. In the CARD2 project, we continued to prepare a new, modern application for the life cycle management of ID cards.

In the context of the NPO A1 2023/2024 project, we addressed the modernization of the CTU backbone network. This will increase its transfer speed to 100 GB and ensure secure and sufficiently fast operation of the newly acquired central data storage. The network upgrade was implemented on the CISCO platform to ensure operational continuity with the already operating facilities. At the same time, the individual sites were given the opportunity to upgrade their local networks to ensure optimal interconnection of local systems with the new central data storage.

The premises were approved in May and the archive collections are being moved in.

CTU Archive

The year 2023 was a turning point for the CTU Archive in terms of the change of its headquarters. The approval of the new modern building in the Strahov dormitories, at Olympijská 1904/4, took place in May this year. The department now has air-conditioned depositories equipped with a high-quality shelving system and a permanent fire extinguishing system. It also offers a research room, connected to a multi-purpose area and pleasant facilities for visitors, or a reprographic room. So far, the staff offices, the library and about one third of the archive files have been moved from their original location in Dejvice, with the help of a specialised forwarding company and the Archive staff themselves. The material is also gradually undergoing sterilisation or at least mechanical cleaning where necessary. The timetable for the expected phases of moving the collections and opening the Archive to researchers will depend on the availability of funds in the coming year. Researchers' searches of historical collections and administrative requests are still handled mainly by correspondence.



In addition to the logistics of the move, the Archives staff has dealt with two important tasks in particular. The first was to learn the issues of organizing archival files with respect to the implementation of the CAM statewide information system for describing so-called archival entities or access points (person, corporation, geographic object, work, event, etc.). The second area was active contribution to the process of implementation of the new electronic filing system, both in terms of methodological support and coordination of electronic document selection and preparation of data for migration to the new information system, and in terms of creating and commenting on related internal standards and testing the new application. Administrative tasks related to the processing of requests for confirmation of studies and study results of CTU graduates were also rationalized, whether for social security, career purposes or purely personal reasons. In particular, the possibility of operatively issuing a duplicate diploma and a supplement to the diploma is of great interest.

CTU Central Library

Provides information security and support for studies and scientific and research activities of the university. It serves students, academic staff of CTU and the professional public. We traditionally build and make available specialised collections of printed and electronic documents. We also offer support in the field of Open Science, evaluation of the results of the university's research and development activities. We also support and develop students' information literacy, which is one of the key competences important for their studies, future profession and personal life.

The range of our educational activities is diverse. We adapt the topics and content of the lessons to different target groups, their needs and knowledge, and offer various forms of education: lectures/webinars, e-courses, individual consultations or information on the CL website (e.g. the Academic Writing section).

From September 2023, a series of "Information Half Hours" for bachelor and master studies. Three regular sessions - online and face-to-face (Information Sources, Research in Practice, Citation) and one "bonus" session are scheduled for each month in the SS and WS.

Last year we expanded the range of consultations to include additional areas: publishing support, Open Science, analysis and evaluation in science and research, including help with corrections in the Web of Science and Scopus databases. As part of Open Access Week 2023, together with representatives from other parts of CTU, we organised Open Science consultation points.

In 2023, we expanded our e-course offerings. We made available the English version of the e-course Information for Science and Research (339 pages of text divided into six separate thematic modules). We have also expanded our cooperation with other units - we have newly opened a full-time form of this course at the Klokner Institute. Its organization was adapted to the needs of local PhD students and the course was supplemented with new topics and activities (possibilities of commercialization of research results at CTU, reporting for RIV and work in V3S, submission of projects, etc.). We launched e-courses for students of bachelor and master students in Czech and English language versions.

In cooperation with the MIAS, we organized an extraordinary 6th block of Doctoral Days (DD) - one-day, thematically focused webinars in September 2023. It was (exceptionally) a face-to-face course on the development of pedagogical, didactic and social psychological skills for doctoral students of CTU. Under the banner of DD, workshops were also held in October 2023, implemented by CIPS and the Career Centre with the subtitle Good practices, which focused on the development of specific pedagogical skills and time management.

In the field of popularization of science and research, we also try to participate in CTU events. Last year was really good for us. In February, we welcomed the children from the LeSnění Forest Nursery, where we used the ongoing exhibition of students' work to connect the library and the arts. We hosted an Easter board games sesstion at the FTS library. We participated in ScienceFest (June 2023), the largest outdoor popular science event in the country, and developed a program for Scientist Night (October 2023) at the Faculty of Transportation Sciences.

Last year we successfully introduced new activities, modified existing ones, in close cooperation with all faculties and units of CTU. We hope we will succeed in a similar spirit in the years to come.

CTU Publishing House

Even in 2023, we were faced with high printing prices, which increased enormously during the covid pandemic (especially the shortage of packaging and paper material increased prices in this market sector). The need for savings in the face of a worse financial situation, mainly due to increased energy costs, inflation, etc., was also manifested in the publishing sector at the university. In the last ten years, 221,490 editions have been published under the banner of the CTU. The overall "numerical" trend is downward due to digitalisation and other changes, not only the number of publications is decreasing, but especially the number of copies of individual titles (this is where expensive printing has a big impact). Publishing is moving to the online space. In spite of the difficult conditions, the publishing house has managed to meet all its objectives in 2023 and to be a professional base for the university.

Within the CTU publishing series, a total of 25 titles (ten technical books and fifteen scripts) were published by CTU Publishing House in 2023, which is seven fewer than in the previous year. Since 2013, we have published a total of 446 titles of scripts, technical books and university textbooks.

In addition, the publishing house is involved in the preparation of other publications "under the university banner", such as the CTU Annual Report, proceedings, catalogues, PR publications, etc. In 2023, 158 of these publications were published, 42 of them electronically (on-line) and 7 on CD/DVD.

In addition, we prepared six issues of the university journal Pražská technika, with an expanded scope of forty pages, and one autumn issue of TecniCall, a journal for the transfer of science into practice, for the Rectorate. We were also involved in graphic design, editing and pre-press preparation of publications of the university components and we were also involved in commissions for external collaborators.

Among the significant publishing ventures that demanded greater attention and involvement, both in scope and in the quality of editorial, graphic and printing work, were two unique titles in 2023 - the book by Prof. Ivo Kraus Technically Talented Women and Their Inventions and Prof. Pavel Kalina's narrative publication entitled Antonín Barvitius: Plans and Sketches for the Palazzo Venezia in Rome, which was published in cooperation with the National Technical Museum, in whose collections Barvitius's drawings and other documents are stored.

Another interesting new book was the publication Masaryk Dormitory - Reconstruction and Reopening in the 1990s, authored by doc. Zdeněk Vospěl (CTU Rectorate), for which the publishing house provided editing and graphic design as well as other publishing services.

Service Facilities Administration

The year 2023 was a year of great change for the Service Facilities Administration. There has been a gradual increase in the number of clients using both the dormitories and the canteens. There was also more use of the hotel facilities and the conference centre. The increased number of clients enabled the SFA to embark on the completion of a number of delayed or suspended projects and to start new ones.

One of those that was able to be completed during 2023 was the renovation of Bubeneč Dormitory. On September 1, 2023, in the presence of the Rector and other distinguished guests, the dormitory was reopened after four years since its closure and from the said date, students could make accommodation reservations. At the moment Bubeneč Dormitory is the most modern accommodation facility of CTU, it offers 378 beds in a total of 103 rooms of various types, whether it is a cellular 2+2 or 2+1, or separate single rooms. In cooperation with experts, rooms for immobile clients have been designed and equipped so that they can function on their own, while their assistants can be accommodated with them if necessary. It concerns two specific rooms 1+1.The students are generally very satisfied with living in a bright environment, rooms with customized furniture and a short walk from the Dejvice campus, as shown by the occupancy rate of the college. As of the end of 2023, there were no vacant beds for accommodation. The dormitory offers residents a laundry, drying room, bike room or a suitcase room. The space for other activities has also increased - there is a large study room, an outdoor floodlit playground or a student clubhouse For Drum, a dormitory club of the CTU Student Union, which exercises student self-government at the dormitory. There is also an outdoor barbecue or seating on the terrace for leisure activities. There is one more interesting feature in the dormitory - five rooms with a total of 10 beds have been built, where university guests can be accommodated for a temporary period. They have their own kitchen with a dining room.

Another important project is the start of the gradual modernisation of the blocks at Strahov Dormitory. Work started in May on block 11, where the first two floors were being structurally modified during operation. Students have been living in the new renovated rooms since June. Over time, the entire block will become single rooms. One extended bed for a single person or for couples provides more space and, together with the bespoke furniture and the overall refurbishment of the room, creates a very pleasant living space.

Block 4 at Strahov Dormitory was closed at the end of June, the entire block will remain double rooms with new furniture. Renovation of the sanitary facilities is also underway, with a change in layout. The first students will start here with the new academic year 2024/2025.

Work is also underway in other CTU dormitories. Painting, renovation of kitchens and sanitary facilities are being gradually carried out. The aim of the SFA is to make students feel comfortable in the dormitories, which is an important support in their journey towards higher education.

The end of 2023 brought a change in the catering sector. The SFA listened to the demands of diners, and the CTU canteens started cooking one purely vegan meal in a test mode. This way of eating is very popular all over the world, and it is no different for the boarders of SFA. In order to expand the offer, the plan is to gradually introduce one vegan meal per day in all canteens and food counters of the CTU.

On September 1, 2023, in the presence of the Rector and other distinguished guests, Bubeneč Dormitory was reopened after four years since its closure, and from the said date students could make accommodation reservations. At the moment, Bubeneč Dormitory is the most modern accommodation facility of CTU, it offers 378 beds in a total of 103 rooms of various types, whether it is a cellular 2+2 or 2+1, or separate single rooms.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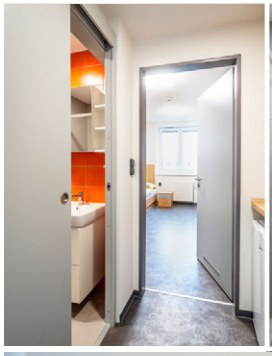

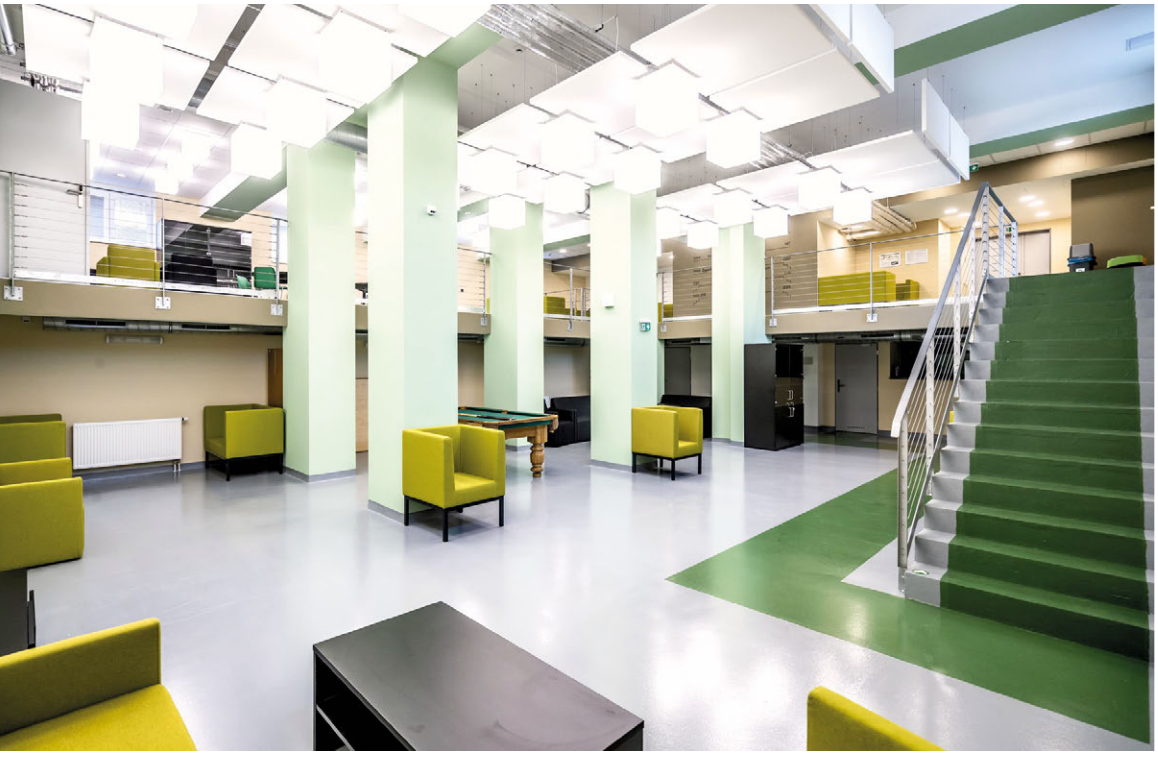

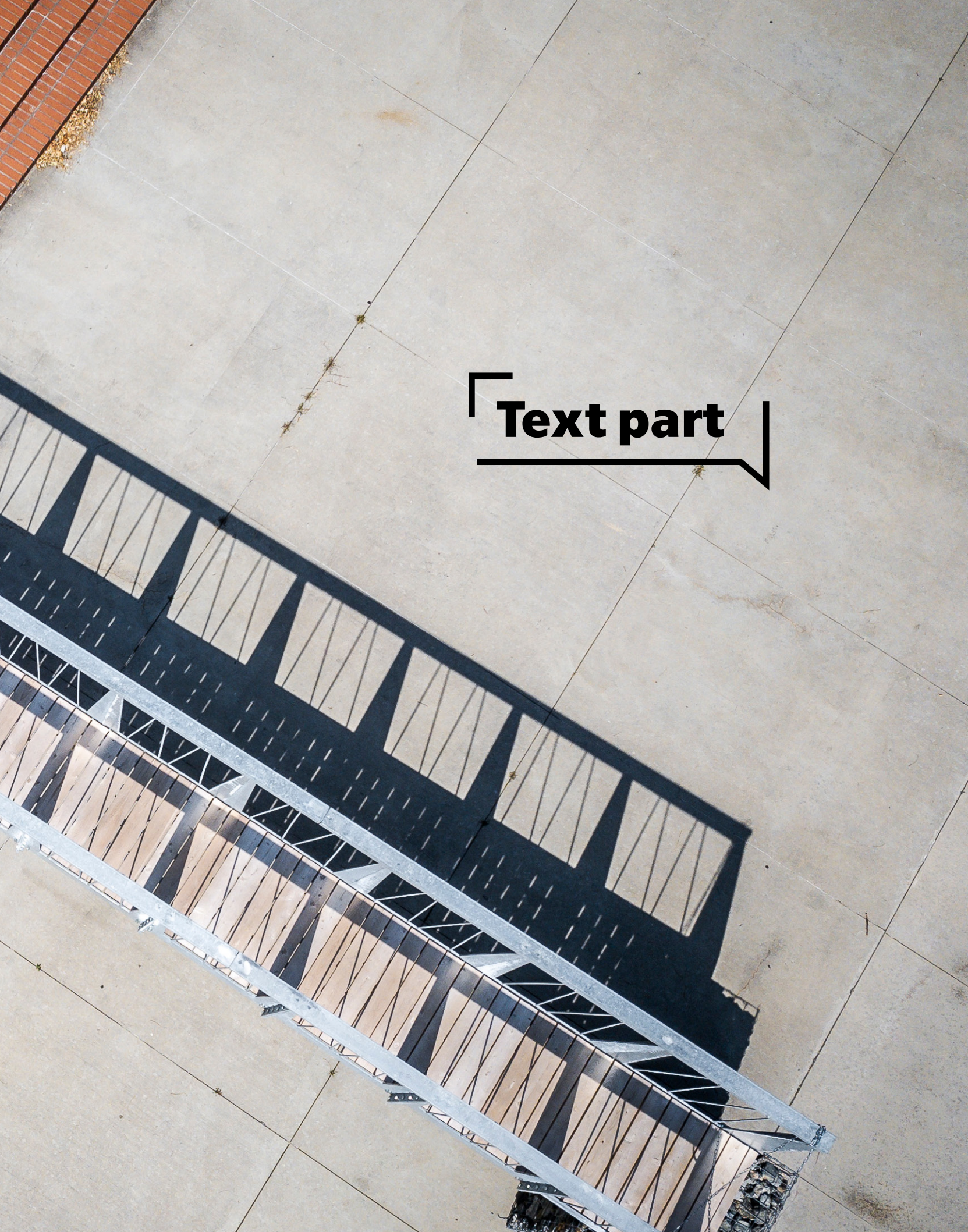

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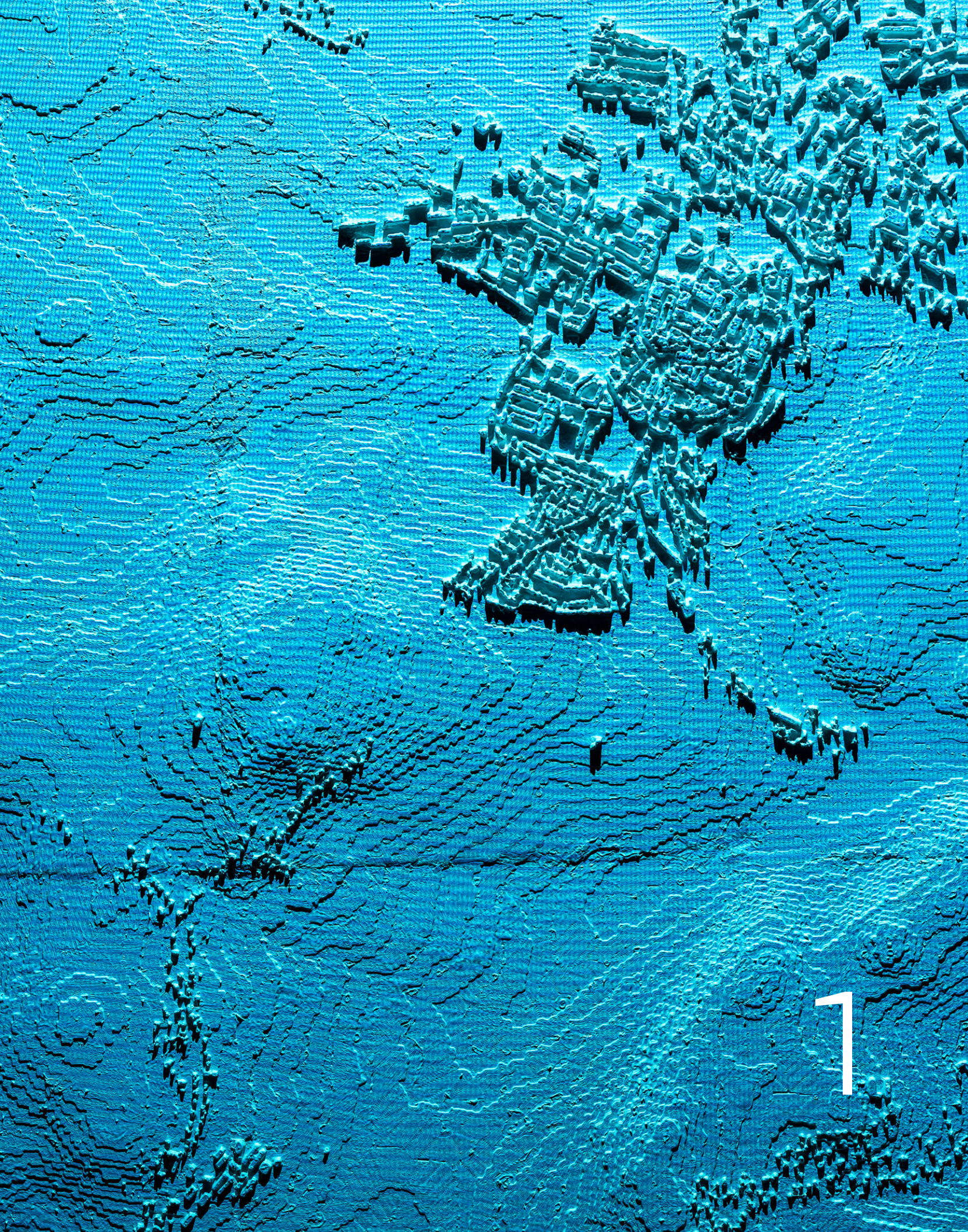

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ČVUT
ČESKÝ INSTITUT
INFORMATIKY,
ROBOTIKY A
KYBERNETIKY
CIIRC

1 Basic information about the university

CZECH TECHNICAL UNIVERSITY IN PRAGUE
Registered address:
Jugoslávských partyzánů 1580/3
160 00 Praha 6 - Dejvice

The Czech Technical University in Prague (hereinafter referred to as CTU) is a public university-type higher education institution established under Act No. 111/1998 Coll., on Higher Education. The function of the statutory body is performed by law by the Rector of the CTU, doc. RNDr. Vojtěch Petráček, CSc.
CTU consists of eight faculties, six university institutes, three special-purpose facilities, including the CTU Rectorate, and two other constituent parts. The organisational chart, the composition of the decision-making bodies, the representation of the University in the representation of Czech universities and other data on the University are presented in the **Table Annex to the Annual Report, Section 1**.

Mission

To maintain internationally recognised, competitive excellence in education, science, technology, innovation and applications contributing to the improvement of the quality of social life.

Vision

To be at the forefront of technical universities in the Czech Republic and to strengthen its position as an internationally recognised research institution developing the talents and skills of students, academic and other staff. Participate in increasing technological literacy, advancing technical knowledge, promoting digital skills and innovation, and engaging in societal challenges. To move towards world-leading education, science and research.

Fulfilling strategic objectives

CTU fulfils its set strategic objectives in the areas of studies, science, research, creative activities, human resources and environment, financial management, organisation and processes. It focuses on participation in major international projects, cooperates with renowned Czech and foreign scientific teams and external industrial partners, and implements development projects focused on strategic management. It emphasizes the transfer of knowledge from the scientific environment to the application sphere. It also confirms its excellence on a national and international scale within the framework of interdisciplinary cooperation of all faculties, university institutes and constituent parts. It demonstrates that its mission, vision and strategic goals are in line with the requirements of the dynamically changing needs of a global society. It confirms the ability to compete, to offer unique solutions and to respond without hesitation to change in both the approach to education and the use of science, technology and innovation to improve the quality of social life.

CHANGES TO INTERNAL REGULATIONS

In 2023, CTU made changes of an organisational and financial nature.
As of 5 July 2023, minor changes to the CTU Statute came into effect, namely Article 10 concerning academic titles, Article 35 concerning the appointment of an Associate Professor and Article 46(2), to which the Statute of the Associate Professor of CTU was added as an internal regulation.
On the same date, a change in the Statute of the CTU Internal Evaluation Board came into effect, increasing the number of its members from 15 to 18.
With effect from 1 September 2023, Article 2(5) of the Rules of Procedure of the CTU Scientific Council expands the scope of secret ballot to include voting on the appointment and dismissal of members of the Ethics Committee, as well as paragraphs 12 and 13. Article 7 on the election of members of academic self-government bodies nominated by the Academic Senate is added.
On 31 October 2023, the new CTU Lifelong Learning Regulations came into force, which regulate more detailed conditions for the implementation of lifelong learning at CTU.

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doc. Dr. Ing. Gabriela Achtenová,
Vice-Rector for Bachelor
and Master Studies

"The availability of various AI-based tools in late 2022 has not only created new opportunities for learning during 2023, but also concerns about the control of study results and the provability of authorship of student works. The CTU proceeded to create framework rules for the use of AI for study and pedagogical purposes in bachelor and master studies in the form of a methodological guideline and to set ethical rules. At the same time, the processes in bachelor and master studies, especially the process of graduation, were reviewed, and new documents were created and revised.

The establishment of the Centre for Lifelong Learning was an important step in the field of further education. Its main tasks include methodological support for lecturers and guarantors in the creation of new courses, the creation of implementation regulations and guidelines and, last but not least, the administration of the Lifelong Learning Portal (https://czv.cvut.cz/), where all LLL courses at the University are published.

In order to support the integration of foreign students in English study programmes, a course called Survival in the Czech Republic was prepared and offered to foreign students, in the teaching of which teachers from all constituent parts also participated."

2 Study programmes, other educational activities

ACCREDITED STUDY PROGRAMMES

In 2023, the CTU had a total of 254 accredited study programmes, including 74 bachelor's, 89 master's and 95 doctoral programmes, both full-time and combined. Compared to 2022, the number of accredited study programmes was reduced from 322 to the mentioned 254, of which 66 were foreign language programmes. In 2023, a total of 17,584 students studied at CTU, of which 5,593 were women and 3,421 were foreigners, which is not a significant change compared to 2022. Detailed statistical data from faculties and university institutes are presented in the **Table Annex, Section 2**. An overview of the current accredited study programmes of individual faculties and university institutes is provided on the CTU website https://www.cvut.cz/prehled-akreditovanych-studijnich-programu-a-oboru.

Faculties and university institutes present their study programmes during open days. Internationalization is very important in today's world and therefore more emphasis is placed on bilingualism and the development of quality services for international students as well as students with specific needs. Support for girl students and mothers also plays an important role. Young women's interest in technical education is supported by the Girls, beware! Project.

The admission procedure for bachelor's, master's and doctoral studies is conducted in accordance with the Statute of the CTU in Prague. The faculties offer various types of preparatory courses to applicants to increase their success rate. Within all study programmes of CTU, students are allowed to participate in research projects as well as in cooperation with industrial and foreign partners from the first year. Thanks to the highly equipped laboratories and testing rooms, CTU students are able to orient themselves towards the application sphere.

COOPERATION WITH THE APPLICATION SPHERE

By offering study programmes, CTU responds promptly to the development of social challenges in all areas of its activities.

From the very beginning of their studies, students are guided towards the application sphere, which is also made possible by the state-of-the-art equipment of laboratories and testing rooms. In order to support cooperation with the application sphere, individual faculties and university institutes nominate external workers from practice to the committees assessing bachelor's or master's theses, involve them in teaching and in providing professional practice. Experts from the application sphere are involved in the design and implementation of study programmes, assist in the assignment of qualification thesis topics in line with the trend in the field and are involved in consultancy activities in the management and solution of projects. Most of them were involved in teaching in 2023 in the Faculty of Transportation Sciences, Faculty of Civil Engineering and Faculty of Biomedical Engineering. Thanks to the activity of the Faculty of Biomedical Engineering, a non-profit organization Czech Health Technology Institute, z.s. was also founded, which is dedicated to improving the efficiency of health care and expanding its accessibility, especially in developing countries. By supporting innovative and smart solutions, it contributes to better functioning and higher quality of healthcare.

LIFELONG LEARNING, UNIVERSITY OF THE THIRD AGE, FURTHER EDUCATION

Within the framework of lifelong learning (LLL) and the University of the Third Age (U3A), preparatory courses for studies, professionally oriented courses, interest courses, career courses, and courses for teaching staff are offered. New are internationally recognised microcertificates.

Under the National Renewal Plan (NRP), seven new LLL courses are gradually being developed by the Faculties of Transportation Sciences, Architecture, Civil Engineering, Mechanical Engineering, Information Technology and Biomedical Engineering. At least three of these courses will culminate in a microcertificate. In March 2023, a separate department, the Centre for Lifelong Learning (https://www.cvut.cz/centrum-celozivotniho-vzdelavani), was established. A new LLL Code was also approved, which regulates internal processes and changes the structure of the advisory and organisational bodies.

The main tasks of the new centre include methodological support for lecturers and guarantors in the creation of new courses, the creation of implementation regulations and guidelines and, last but not least, the management of the LLL Portal (https://czv.cvut.cz/), where the complete range of courses is published and which was completely modernised during the year. There has been a restructuring of the course categories, the addition of several new training formats and the integration of microcertificates into the existing structure. The LLL portal is not only a sign-

post for potential course applicants, but also serves to collect statistical data for internal record keeping and reporting.
U3A is a specific, interest-oriented type of lifelong learning with the aim of personal development of individuals in post-productive age (60+) eligible for retirement pension, which provides access to knowledge in the field of technical and natural sciences, history and culture at the level of university studies. Graduates of the U3A receive a certificate, which is presented at the end of the academic year at a ceremony in Bethlehem Chapel. The amount of payment for U3A courses is governed by the Rector's Order on payment for extraordinary and extra administrative tasks. A list of U3A courses is also published on the website https://czv.cvut.cz/.
The CTU provides space and education for the youngest generation as well, within the University Primary School and the University Nursery School Lvíčata. Detailed information about this educational system is provided under Chapter 11 Third role of the university.
Faculties and university institutes are involved in LLL in 2023 according to their field of specialization.
The Faculty of Mechanical Engineering has prepared a new offer of professional education and retraining courses for the improvement of the qualification of the application sphere. The topics of these courses cover the entire breadth of engineering, starting with individual production technologies and ending with business intelligence tools for effective business management. The vocational training offer was also presented at the faculty exhibition at The Internation Industrial Fair in Brno.
The Faculty of Information Technology has offered a special new course Progressive Technologies in Informatics and their Applications in the LLL programme.
The Faculty of Nuclear Sciences and Physical Engineering organised Preparatory Courses in mathematics and physics for secondary school students, and courses for further education of teaching staff in Mathematics for Life and Chemistry at the CTU. A new course for secondary school teachers was the accredited course Introduction to Block Programming.
In 2023, the Faculty of Architecture organized a professionally oriented course Real Estate Development - Building, culminating in a certificate. In the framework of the U3A there were courses e.g.: Towards Sustainable Architecture, ARCHITECTURE and UNIVERSUM, Technique of Linocut, Transformations of Prague architecture in Czech and German, Transformations of Prague architecture in Czech and French and Italy not only from the linguistic point of view.
As part of the EuroTeQ - Engineering University initiative, a professional course Person responsible for legal compliance according to EU regulation 2017/745 (MDR) and its role in companies, which is prepared as a microcertificate, was held at the Faculty of Biomedical Engineering. Another novelty was a course on 3D printing for medical applications.
The Masaryk Institute of Advanced Studies implemented language courses for employees and the public, Czech language courses for foreign students and foreign employees of the CTU, and a specialisation course for coaches. English language courses were offered for primary and secondary school teachers, especially supplementary didactic studies, and a newly prepared four-semester course, Studies for Educational Counsellors, which responds to the need to strengthen psychological and educational support for pupils in primary and secondary schools.
The Masaryk Institute of Advanced Studies, the Faculty of Mechanical Engineering, the Faculty of Transportation Sciences, the Faculty of Nuclear Sciences and Physical Engineering, the Faculty of Biomedical Engineering and the Faculty of Architecture were the most involved in the admission preparation courses. The Masaryk Institute of Advanced Studies was particularly involved in career courses. The Masaryk Institute of Advanced Studies, the Faculty of Mechanical Engineering and the Faculty of Nuclear Sciences and Physical Engineering offered professional courses.
The Institute of Physical Education and Sport provides regular sports activities for the elderly as part of the U3A programme. The interest is in table tennis, exercises for a healthy back, fitness training, archery, Nordic walking, spinning and circuit training.
In 2023, a total of 653 LLL courses were implemented at CTU, which is 118 more courses compared to 2022. A total of 3 613 participants have completed them. Most of the courses were oriented towards careers in the fields of information and communication technologies (276 courses) and technology, production and construction (172 courses). Courses in arts and humanities were the most popular (1,573 participants in total, 387 more than last year), with 691 participants participated in Information and Communication Technology (an increase of 254 participants compared to 2022). Programmes and qualifications - General Education (664 participants), Science, Mathematics and Statistics (437 participants) maintained the same number of participants.


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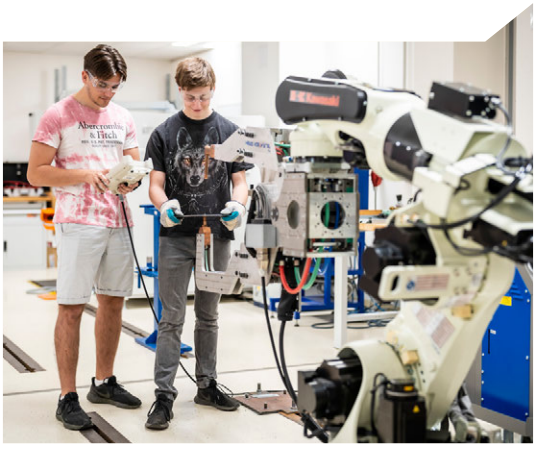


3 Students

MEASURES TO REDUCE ACADEMIC FAILURE

The overall failure rate has increased from 29.0% to 30.8% in 2022, in all types of studies. Doctoral students were the least successful in 2023 (the failure rate increased by almost 3%). The failure rate for the bachelor's students increased by less than one per cent. From this perspective, the most successful students appear to be those on the continuing master's programme (only 0.6% increase in the failure rate).

In terms of faculties, a significant decrease in the overall study failure rate was recorded at the Faculty of Civil Engineering (by 6.5%) and the Faculty of Mechanical Engineering (by 1.7%). On the other hand, a significant increase was shown at the Faculty of Nuclear Sciences and Physical Engineering (+15%) and the Faculty of Information Technology (+7.3%). The Faculty of Transportation Sciences saw a 3% year-on-year increase in academic failure.

A detailed analysis of the data and information on the structure of students in each field and level of education, together with the scholarships distributed, is presented in the **Table Annex, Section 3**.

Students come from secondary schools with different levels of knowledge, especially in mathematics, and it is necessary to compensate for the differences at the very beginning of their studies. The faculties of the CTU therefore organise various events and provide preparatory courses for the entrance exams. For example, the Faculty of Information Technology offers a preparatory course in mathematics and an introduction to Linux to prospective students, as well as to already admitted students. Every year, the FIT also organises the FIT Computer Correspondence Seminar, where it is possible to try out interesting programming tasks. If a candidate passes it successfully, he/she can be admitted without an entrance exam. The Faculty of Civil Engineering traditionally offers the opportunity to take a "mock" mathematics admission test as part of the open day. The Faculty of Electrical Engineering also organises preparatory courses for the entrance examinations in mathematics and physics. For secondary school students to broaden their knowledge in the field of electronics, it also offers an Embedded Technology Club via Facebook. It also combines electronics and computer science through experiential learning and enables students to develop their knowledge and skills at the FEE Camp held at the Orlická Dam. Admitted students are given an introduction to practical electronics, programming, mathematics and physics. The Faculty of Biomedical Engineering also organises annual courses aimed at preparing for the entrance exams as well as for the start of studies. BioŠrot 2023 was designed for prospective freshmen bachelor's students, and in one week they received an introduction to mathematics, biology, physics and chemistry. FyzioTmel 2023 prepared Physical Therapy students to learn anatomy while helping to improve the physical fitness of its participants. The faculty also prepared introductory courses for Paramedic students. The Faculty of Nuclear Sciences and Physical Engineering has also long offered preparatory courses in mathematics and physics for entrance exams and graduation. A Preparatory Week is organised for new students where the basics of mathematics and physics are discussed.

At the Faculty of Mechanical Engineering, a data-driven monitoring of the fulfilment of study obligations is used to reduce academic failure. With the help of "artificial intelligence", the "at risk" status is predicted according to the study results in each week of the examination period or credit week. Targeted assistance is offered to the students thus identified in the scheduling of the exam period. In most cases, the prediction of risk, early notification of at-risk students, and the offer of specific assistance leads to success. Of the 40 or so ‹at risk› students identified, 20% took up the offer of help. Even so, this targeted method of managing academic failure has been shown to increase ‹pass rates' through the critical first year and means an increase of 10-15 new engineers on exit.

To help students get acquainted with the university environment, the Masaryk Institute of Advanced Studies organises an adaptation day for first-year students. In teaching, it makes extensive use of the LMS Moodle application, which contains a number of study aids, texts, worksheets, didactic tests, methodological guides, instructional videos, etc. The rate of academic failure within individual years, semesters and courses is monitored by the guarantors of study programmes and coordinators for student affairs through the KOS information system. Data are evaluated throughout the course of studies, as well as indicators relating to the percentage of successful completion of studies, on the basis of which measures are proposed for specific adjustments to the content and didactic approach to teaching.

The Faculty of Nuclear Sciences and Physical Engineering offers students in their first year the opportunity to enrol in courses complementing mathematical and physical fundamentals.

A team of tutors, experienced students, works under the direction of the Vice Dean for Education and provides free tutoring to all students.
The Faculty of Architecture has a long-standing high success rate in both bachelor's and master's programmes. Even so, it organizes, for example, art courses for students preparing for remedial summary work. The completion rate is also monitored and evaluated. Since 2023, the ombudsman has been involved in mapping the causes of academic failure, as well as in creating a socially safe environment for students and teachers.
The Faculty of Transportation Sciences, after a thorough analysis of student failure rates, found that the greatest risk of failure occurs in the pass rate. It has therefore taken specific measures. Tutoring courses in mathematics and physics lead to a levelling of students' knowledge already during the first year of study, and upper-year students help younger students not only with general orientation in the university teaching method, but also in specific more demanding subjects.
Therefore, the faculties try to eliminate academic failure before the start, during the first months and throughout the study. For example, elective courses are offered as a standard, the so-called repetition courses, designed for the repetition of learned material, or individual consultations with teachers and study advisors. Various forms of established or newly applied on-line mentoring by teachers and more experienced students are also well established. Each semester, feedback is obtained from students through a course evaluation survey. The results are handled individually by the faculties and institutes.

FINAL DECISIONS ONANNULMENT

During the year 2023, no final decision was issued on the invalidation of the state examination, its components or the defence of the dissertation, or the appointment as associate professor pursuant to Sections 47c, 47f and 47g, or pursuant to Sections 74a, 74d and 74e of Act No. 111/1998 Coll., on Higher Education.

MEASURES TO LIMIT THE PROLONGATION OF STUDIES

Faculties and parts try to limit as much as possible the extension of the length of studies. Teaching is supplemented by lectures by experts from practice. The maximum capacity for tutorials has been reduced to allow teachers to give more individual attention to students. This has been helped by updates to the Study and Examination Regulations during 2023.
The Faculty of Biomedical Engineering organizes for students especially in the last years the so-called Citation Thursdays, where participants are introduced in detail to the issue of citations and copyright. It also uses the already established method of RNDr. Eva Feuerstein, Ph.D. For teaching mathematics, she prepares real examples from practice, supplemented by visualizations. Solving problems in pairs, with the constant possibility of assistance from the teacher and at their own pace, is beneficial for students and they achieve better results.
The Masaryk Institute of Advanced Studies recommends sample study plans and provides more information and guidelines for writing qualifying papers.
Another motivational tool to limit the extension of studies is the assessment of study-related fees for exceeding the standard study period increased by one year in accordance with the Higher Education Act.

SCHOLARSHIP PROGRAMMES

The scholarship is a motivational element that supports especially talented and outstanding CTU students who are involved in research projects, co-author research publications or excel in (inter)national competitions. Students are also rewarded for an excellent bachelor's or master's thesis or for the best studio project. Study abroad is also encouraged. Of course, scholarship support is available for students in difficult social situations.
The CTU Global Postdoc Fellowship Programme is funded by the CTU Future Fund for early career researchers who have completed their PhD studies or have worked on research abroad in the last two years. After a successful selection process, they become members of research teams led by a mentor. So far, more than 30 "postdocs" from all eight faculties as well as from the Klokner Institute, CIIRC, the Institute of Technical and Experimental Physics, the Masaryk Institute of Advanced Studies and the university Centre for Energy Efficient Buildings have joined the Programme.
In 2023, 21 395 students were supported with scholarships and the average amount of the scholarship was CZK 15 704. Compared to 2022, the average amount of scholarships decreased by CZK 522.
The faculties use the scholarship programmes differently, but always in accordance with the CTU Scholarship Regulations.

INFORMATION AND COUNSELLING SERVICES FOR STUDENTS

Information and counselling services for students are provided by the Centre for Information and Counselling Services of CTU, the Career Centre and the ELSA Centre for Support of Students with Specific Needs. Also, during 2023, several projects were implemented aimed at improving the professional qualifications of the staff of these centres, the quality of the services provided and their expansion in accordance with the individual needs of students. The aim of these institutions is also to promote an open, friendly and quality relationship between the student and the university and to create conditions for a smooth and successful transition through studies, professional and personal life.

Centre for Information and Counselling Services of CTU

The Centre for Information and Counselling Services (CIPS) provides its services to students of all forms of study and study programmes throughout the entire study cycle, from enrolment to graduation. Those who have problems with social or

study adaptation, as well as those who are dealing with personal problems, can confidently take advantage of individual study, psychological, personal-development, socio-legal and spiritual counselling with special emphasis on dealing with study-risk situations. Counselling and information services are also offered to international students. During the academic year, CIPS organises seminars, workshops and lectures aimed at acquiring the necessary competences for the development of good mental health and a successful academic, professional and personal life, as well as creative workshops. It also offers coaching, speech therapy and wellbeing support services.
CIPS activities are primarily aimed at creating an environment for CTU students that minimizes obstacles during the study cycle and reduces the risk of early graduation. Cooperation between CIPS and the ELSA Centre for the Support of Students with Specific Needs and the study departments of individual faculties and university institutes is a matter of course.

CTU Career Centre

CTU provides services for the personal development of students and their preparation for future careers through the Career Centre (CC). In the personnel counselling centre, it is possible to prepare for the selection procedure and create a professional portfolio. The career counselling office is also an important service, which recommends a career path based on an analysis of weaknesses and strengths, together with an appropriate working style and its effectiveness.
CC not only helps students in self-discovery, but also introduces them to the workings of the labour market and helps them develop their attractiveness to potential employers. It teaches students to think entrepreneurially, guiding them to determine whether a career in science or business or as an employee is more suitable for them. It helps to complement professional knowledge with communication skills, motivates and guides students to find solutions to career problems. CC services are also available to graduates three years after graduation and all CTU employees. In addition to professional counselling activities, the CC participates in fairs and student events, where it provides professional and entertainment programmes, manages social networks and a website through which it advertises job positions and informs about all services.
New for 2023 are nine ambassadors from CTU faculties and parts who are involved in internal promotion of CC services and "career" awareness through their own experience and development. As part of the CRP project, the CC was involved in organising the How to Live CTU event for first-year students, with two lectures on Career Planning during Studies and Time Management. As part of the so-called Doctoral Days, a series of lectures and a debate took place, aimed at sharing experiences and "best practice". The Doctoral Hub platform was created and continues to operate. In cooperation with ELSA, CIPS, the VŠCHT Counselling and Career Centre and the Dejvice Campus, the CC conducted a two-day Well-being Days event during the exam period, the theme of which was the need for healthy and effective rest between studies. Thanks to a financial contribution from the Programme to Support Strategic Management, the CC created a career course called Career Planning and Development in cooperation with the MIAS. In it, students learn the basics needed to create a portfolio, present themselves in the job market and have a successful career path. The block classes started in the summer semester of 2023/2024.
Cooperation with companies and maintaining awareness of the development and needs of the labour market and regular training of CC staff are necessary for the successful functioning of the CC.

SUPPORT FOR STUDENTS WITH SPECIAL NEEDS

Students with learning disabilities including ADHD (attention deficit hyperactivity disorder), autism spectrum disorder and other difficulties (chronic illness, psychiatric disorder or disease, impaired speech and communication skills, etc.), physical, visual or hearing impairments are served by ELSA Support Centre for Students with Special Needs (Department of Education and Student Affairs of the Rector's Office of the CTU).
ELSA offers students with specific needs the possibility of providing study literature in accessible form, using the centre's digitisation and library services, visualisation and note-taking services, including sign language interpretation and simultaneous transcription. ELSA provides personal and study assistance with technical service consisting of the loan of special technologies and aids. In addition, its activities are also focused on functional diagnosis, diagnosis of specific learning disabilities and related modalities such as modification of teaching and examination procedures together with individual teaching and time compensation.
The service of the Centre is provided in accordance with the valid document of the Ministry of Education and Science, which defines the general conditions for the provision of studies for students with specific needs and contains a methodological standard for their implementation. ELSA's activities are covered by the 2022 Methodological Instruction of the Vice-Rector for studies on the support of students with specific needs at CTU. Modifications to the study conditions are carried out in close cooperation with CTU faculties and institutes through the direct work of lecturers, contact persons and clerks of study departments. ELSA offers cooperation throughout the study cycle, but also before it starts. Applicants with specific needs are offered the possibility to request adjustments to the course of entrance examinations and study conditions. Teachers are regularly informed about students with special needs who are registered with ELSA and are provided with guidelines on how to communicate and work with such students. In 2023, ELSA started communication with ombudsmen whose positions have been established in the Faculties of Architecture, Civil Engineering, Nuclear Sciences and Physical Engineering.
The main activities of its specialised workplace ATELION were, besides setting up support and modifications for students with visual impairments, also providing comprehensive service and development of the Haptic Map, operated in cooperation with the Mapy.cz portal. Thanks to the financial contribution of the Czech Radio Foundation - Světluška collection, ATELION joined a project called Building and Supporting the Hmaták Partner Or-

ganisation Network, which aims to provide accessible and well-developed haptic graphics for people with visual impairments in the Czech Republic and Slovakia.
In 2023, ELSA implemented a series of seminars on the topics of supporting study strategies, study motivation, procrastination, as well as coping with challenging sections of study (the 'Thesis defence - the mock test' activity). The Centre also offers services to incoming international students.
In 2023, the ELSA Centre, together with CIPS and CC, actively participated in the Well-being days and How to Live CTU events, the purpose of which was to equip first-year students with the basic knowledge and skills they will need for successful studies. These included soft skills such as time management, effective study methods, career planning, financial literacy and stress management. The topics of the seminars were selected based on counselling experience within CTU.
In 2023, the ELSA Centre prepared and launched www.portal-podpory.cvut.cz, where it is possible to find a complete and clear offer of CTU's consulting services.
Together with CIPS, ELSA realized a familiarization event for students of CTU and VŠCHT Let's connect. An interactive game Don't Get Lost at CTU was also created, which introduces applicants and students to the Dejvice campus and the FBME campus in Kladno.
From September 2023, ELSA has four new ambassadors, students who inform prospective students or classmates about the counselling services provided at CTU. They take part in open days, introductory courses and Gaudeamus fairs, for example.
Thanks to ELSA's collaboration with the DOX Contemporary Art Centre, students were able to attend interactive screenings using virtual reality, such as the film "Darkness", about living with depression, or a ten-hour window on sexual harassment.
ELSA and CC were recognized in the 2023 National Career Counselling Award 2023 for their holistic approach to students with specific needs at CTU. In 2023, 343 students with specific needs were registered at CTU, 20 fewer than in 2022.

SUPPORT FOR EXCEPTIONALLY GIFTED STUDENTS

CTU's strategic goal is to increase interest in study among quality domestic and foreign applicants and excellence in research. Therefore, it supports exceptionally talented students who are or have a chance to become part of excellent national and international research teams in the future.
In 2023, two students of the Faculty of Transportation Sciences succeeded in the prestigious Transport Construction of the Year competition. Kryštof Kaše, who designed an alternative solution for selected intersections on the road No. 113 in Český Brod, and Daniela Gotzová with a traffic solution for the road I/48 in Frýdek Místek after the construction of the bypass. The faculty selects talented and quality students already among high school students, for whom it has organised a competition for the Dean's Prize of the Faculty of Transportation Sciences in 2023. The students had the opportunity to test their proposals for various transport solutions in direct confrontation with experts and students of the faculty.
The Faculty of Biomedical Engineering is also looking for talented students in secondary and primary schools, through direct cooperation of faculty schools with experts and scientific teams. Students of bachelor's and master's studies are rewarded for their publishing activities with a monthly stipend for the duration of their studies.
The Masaryk Institute of Advanced Studies also cooperates with secondary schools in the preparation of future teachers. The best bachelor's and master's theses receive the Director's Prize.
The Faculty of Architecture supports outstanding students in the Dean's Award competition. The award is given for outstanding semester, diploma and scientific research work. The winners of each category received a total of CZK 140 thousand in 2023.
The Faculty of Information Technology organizes professional practice for selected candidates from secondary schools. Gifted secondary school students are admitted to study without entrance exams on the basis of their success in mathematical and physical Olympiads and national competitions, e.g. in the field of programming. The faculty supports gifted bachelor's and master's students financially, e.g. within the framework of the annual research summer programme VýLeT, and involves them in scientific research activities, where they are guided to independent scientific work and publication.
The Faculty of Nuclear and Physical Engineering has been a long-term partner of secondary school competitions and Olympiads. It supports successful students who pass the first semester and meet the rules for the award of an extraordinary scholarship with a one-off payment of CZK 10-15 thousand. It also financially supports students staying abroad. In 2023, it distributed CZK 250 thousand in the form of extraordinary scholarships.
The Faculty of Electrical Engineering pays an extraordinary incentive scholarship to support the best applicants from secondary schools who pass the Mathematics Extension Exam (CERMAT) with a success rate of 86% or higher or successfully pass the matriculation exam and during their secondary school studies they have placed 1st in the regional round or 3rd in the national round of the Secondary School Olympiad announced by the MEYS in the fields of mathematics, physics and programming. The winners of the Robo Competition and the Technology, Electrotechnical or Energy Olympiad are admitted to study without entrance examinations. The Dean awards motivational scholarships in the amount of CZK 10,000 to outstanding students in the first semester of bachelor's studies who pass the examinations with an "A" grade and obtain all classified credits.
The Faculty of Mechanical Engineering organizes the STRETECH student project conference for talented secondary school students. The faculty also selects talented students at the Taste Mechanical Engineering event, which was attended by almost 50 students in 2023, or at the Summer School of Robotics, in which 20 secondary school students expressed interest.
Within the framework of the MEYS Victoria Unis project, top athletes studying at CTU are supported not only with the opportunity to combine their studies with a sports career or the offer of using the university's sports facilities, but also financially. Every year the Institute of Physical Education and Sport proposes extraordinary sports scholarships to excellent student athletes who represent CTU in national and international competitions.

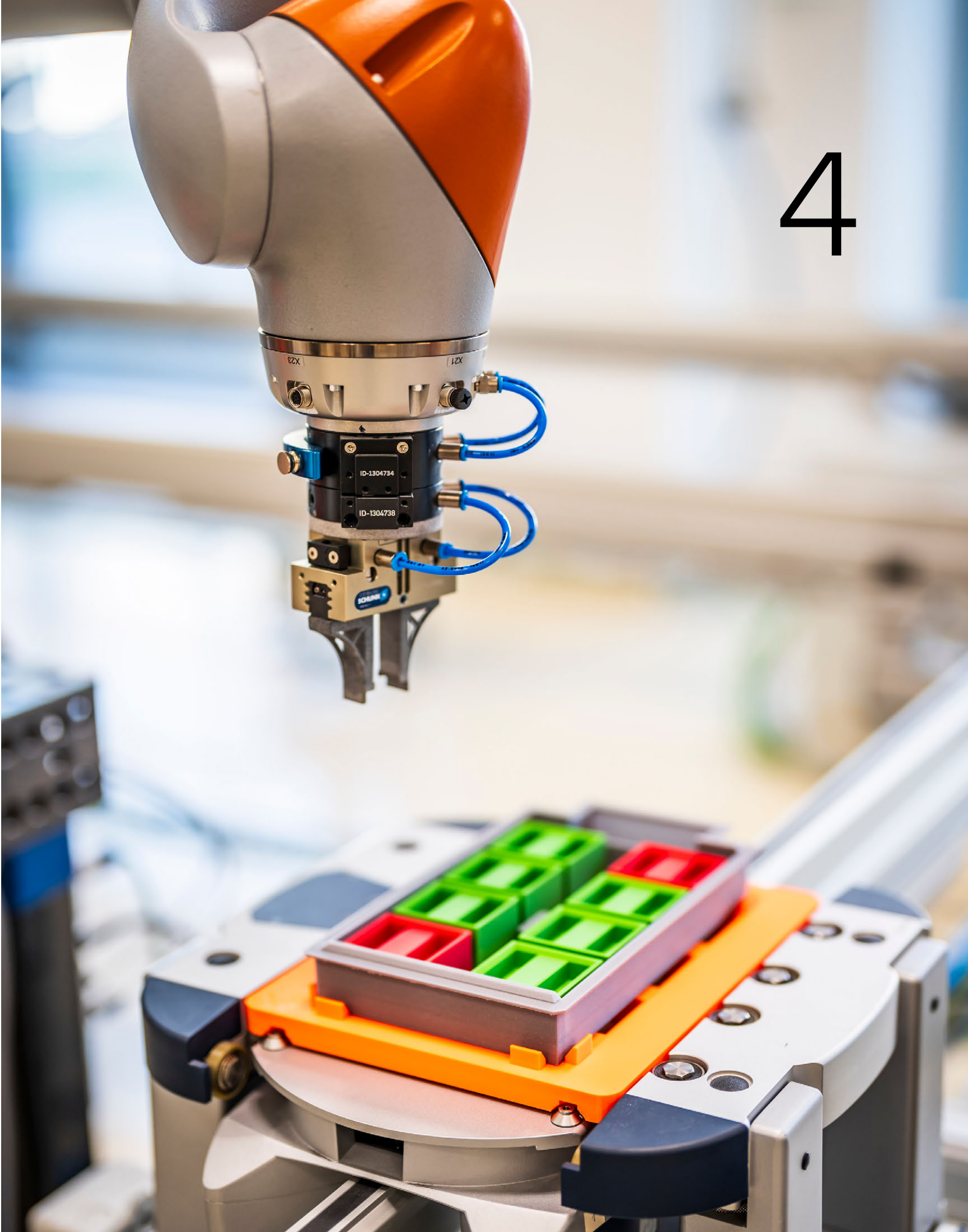
SUPPORT FOR STUDENTS IN DIFFICULT LIFE SITUATIONS

Support for students in difficult life situation is provided at CTU through the CIPS and ELSA centres, but also by individual faculties. To overcome socio-economic disadvantages, social or special-purpose scholarships are awarded on the basis of an application and documents proving a difficult living situation. Students with socio-economic disadvantages are also identified on the basis of individual work by study officers or coordinators. In addition to financial assistance, for example, curriculum adjustments or other forms of benefits are offered. In 2023, 44 students in a difficult social situation were awarded scholarships, the average amount of which was CZK 32,333.5. Compared to the previous year, the number of students supported by scholarships decreased, but the average amount increased.

SUPPORT FOR STUDENTS IN THEIR ROLE AS PARENTS

The role of a student parent is undoubtedly a demanding one, and it is up to the university to decide what options it will offer to those who have joined the school as a parent or become one during their studies. One such option is to extend the standard length of study or deadlines for meeting study requirements. Other options include modification of studies, advice on the development of an individual study plan, adjustments to interruptions in studies or deduction of recognised parenting time from the total period of study. For the third year in a row, the Dean of the Faculty of Electrical Engineering has awarded students in the role of parents a Christmas scholarship in the amount of CZK 10,000 for one child.

CTU is the founder of the University Primary and Nursery School Lvíčata, where places in the nursery school are primarily intended for children of students and employees. Education in these institutions is aimed at promoting and developing technical and scientific talent. See Chapter 11 – Third role of the university for details.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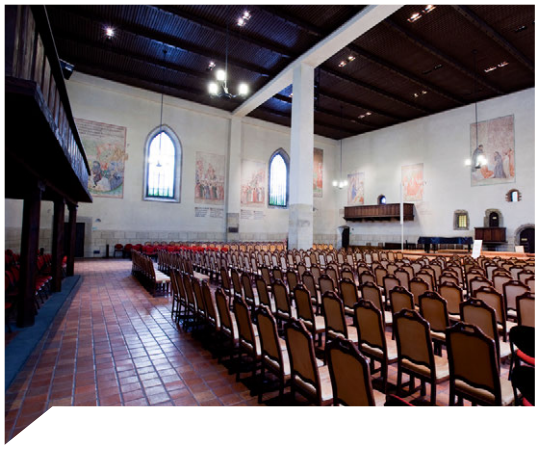


4 Graduates

COOPERATION WITH GRADUATES

The issue of registration and cooperation with graduates is one of the priorities of CTU. In addition to the university-wide association, faculties and institutes register alumni individually, usually inform about them on their websites and maintain contacts with them by organising social events and meetings (see below).
Within the framework of the CTU 2021+ strategic plan, a measure was defined to exploit the potential of alumni supporting the university as their Alma Mater. CTU wants to achieve this by creating a functional university-wide platform bringing together alumni and conditions for their engagement and cooperation in both study and practice. Therefore, in 2023, the Association of Alumni and Friends of CTU was transferred to the organisational structure of the Rector's Office. The alumni agenda was taken over by the Chancellor's Section and the newly established Alumni Department. The aim is to be in contact with all alumni after graduation.
The development of a central network of foreign graduates of English study programmes across the faculties and the Masaryk Institute of Advanced Studies has been dealt with for the second year by the International Department of the Rectorate of CTU. In 2023, the CTU Alumni website was created with detailed information about joining the school-wide network of foreign alumni, benefits or services offered. However, the aim of this network is also to involve foreign alumni in promoting CTU and recruiting new international students. Details of this project are given in Chapter 7 Internationalisation.
Graduates of CTU faculties become thesis opponents, evaluators and leaders of student projects or lecturers of professional courses and practical exercises.
At the Faculty of Information Technology, alumni are also frequent guests on the educational technology podcast "Ones and Zeros" or participate in the COFIT Career Fair as potential employers. The Faculty of Architecture sends out an e-newsletter to alumni and systematically focuses on their media presence. The Faculty of Civil Engineering communicates with its graduates via social networks, and other units use similar tools. The monthly newsletter of the Faculty of Electrical Engineering is subscribed to by many of its alumni, and Elektra, the Association of Alumni and Friends has been operating there since 1991.
On the occasion of the celebration of 30 years since its foundation, the Faculty of Transportation Sciences honoured distinguished graduates. The faculty considers systematic work with graduates as a key element for project- and practice-oriented teaching.
Thanks to communication with its graduates, the Faculty of Biomedical Engineering receives valuable comments on the content of the study, thanks to which it adjusts the curricula and course outlines in the framework of the newly prepared accreditations. Many graduates of specific disciplines participate as experts in professional conferences. Also in 2023, the faculty presented Alumni Awards to outstanding alumni. Alumni from the Faculty of Mechanical Engineering, the Faculty of Nuclear Sciences and Physical Engineering and the Masaryk Institute of Advanced Studies received this award.
The CTU Career Centre also helps to maintain contacts with graduates at the school level. This cooperation is important for obtaining feedback on the success of studies, mapping employment and feedback from employers.
In 2023, a total of 3,838 students will graduate from CTU (almost the same number as in 2022), including 2,046 students in the bachelor's degree programme, 1,632 in the master's degree programme and 160 in the doctoral programme. Almost half (48.6%) of the total number of graduates came from the Faculties of Civil Engineering (723), Electrical Engineering (650) and Biomedical Engineering (491). The largest number of female graduates (309) graduated from the Faculty of Biomedical Engineering, where almost 63% of the total number of graduates were women. The Faculty of Electrical Engineering had the highest number of foreign graduates in 2023 (118). Compared to 2022, 84 more female students and 12 more foreign students graduated from CTU. A detailed overview of the number of graduates is included in the **Table Annex, Section 4**.

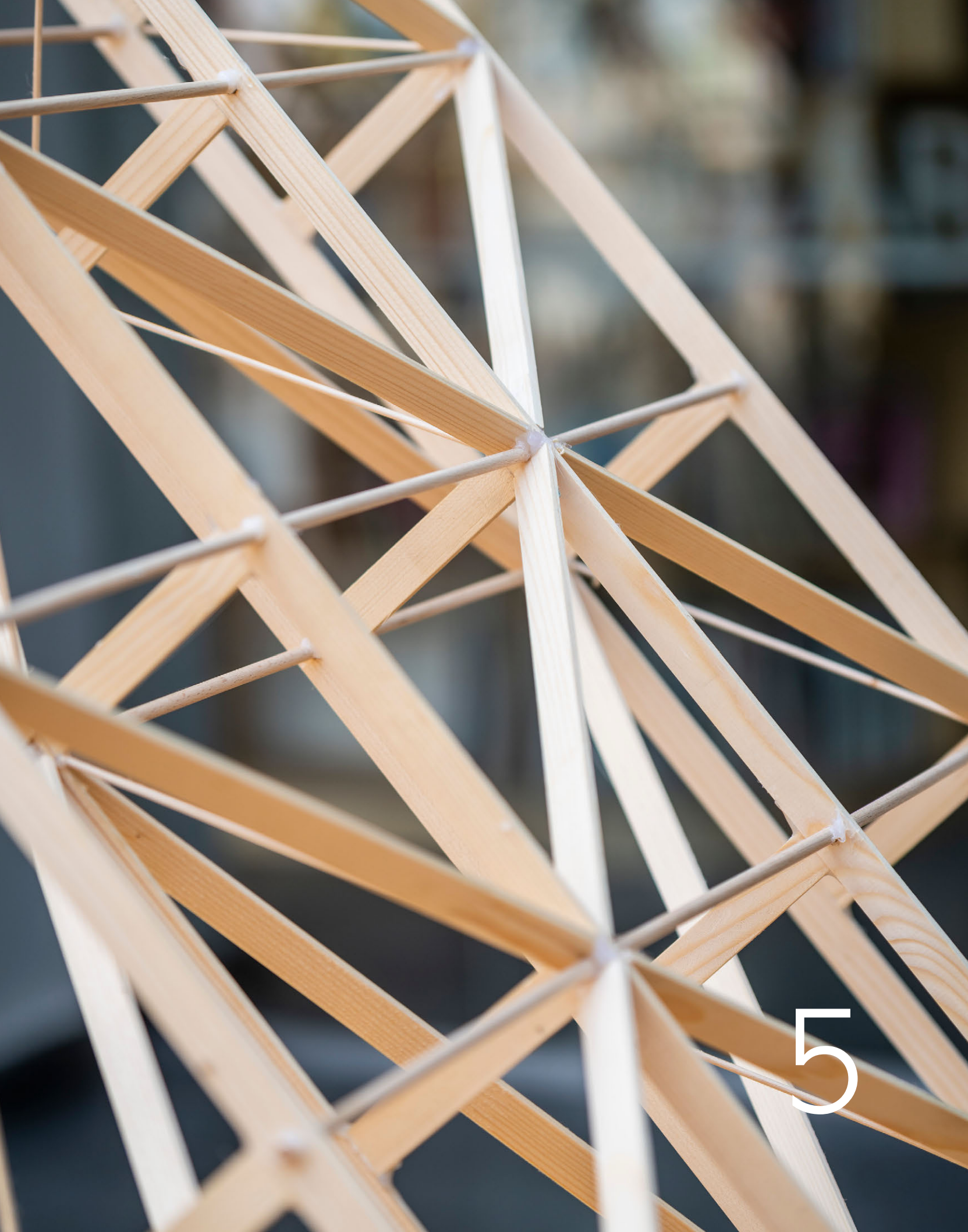
MONITORING THE EMPLOYMENT AND EMPLOYABILITY OF GRADUATES

The degree of employability of CTU students testifies to the quality of the study and its interconnection with practice. It is also an important indicator from the point of view of potential applicants for study who are interested in subsequent employment on the market.
In general, the employability of CTU students is supported by the Career Centre (CC), which, among other things, maintains and updates a database of advertised positions, temporary jobs and internships for students and recent graduates on its website.

Another way of supporting students' employability, thanks to which they gain practical experience in the field and establish cooperation, is the Mentoring programme, which involves CTU graduates as mentors for selected students. The CC also records the topics of final theses commissioned by companies. The employability of CTU students is also supported by recruiters from technical companies within the framework of the so-called personnel counselling centres.
Employment of graduates - including foreign graduates - is high in the long term. This is evidenced not only by surveys of individual faculties with employers, but also by statistics from the Ministry of Social Affairs of the Czech Republic.
A weakness of CTU is the systematic acquisition of feedback from employers. An established measure is the Study Programme Councils, one member of which is always a representative of the employers of the students of a given study programme.

COOPERATION WITH EMPLOYERS

Most CTU graduates manage to find a job in the field they studied. Already during their studies, students are given the opportunity to meet potential employers in professional seminars or specific projects. As already mentioned, external experts from employers are also involved in the creation and defence of qualification theses at CTU. Employers and professional organisations are actively involved in the process of improving the content of the accreditation of study programmes. Some study programmes are accredited with a requirement for a compulsory internship/practice with an employer. Last but not least, representatives of partners from practice are members of study programme boards, doctoral study programme boards and faculty scientific councils. For example, Linet, s.r.o. and BTL Medical technologies s.r.o., with which an article on attractive professions was prepared for the July issue of FORBES magazine, have a significant interest in graduates of CTU, specifically from the Faculty of Biomedical Engineering. Topics of bachelor's, master's, as well as dissertation theses prepared on the basis of demand from the application sphere (e.g. with ČEZ, a. s., and ŘSD ČR). Dean of the Faculty of Architecture in May 2023 signed a Memorandum of Cooperation with Škoda Auto Vysoká škola, o.p.s.
The Faculty of Civil Engineering offers employers a contractual form of cooperation. The so-called Technical Thursdays, where current topics in the field of construction are addressed in a mutual dialogue between academia and business, are successfully functioning. The faculty still participates in the Koordinuj.cz project, where experts from selected companies meet with interested students.
An Industry Council was established at the Faculty of Transportation Sciences in 2023, whose members include faculty representatives, key commercial partners and government representatives. Thanks to this new platform, it is possible to deepen cooperation with practice in a more concrete way, including in the creation of new study specialisations. Students had the opportunity to speak directly with more than thirty potential employers during the Career Day, which took place on 28 March 2023. Companies approached students with specific offers of cooperation or permanent employment after successful completion of their studies.
The Faculty of Information Technology offers employers an established FIT Partner and Sponsor Programme (FIT Partner/FIT Sponsor), which has attracted 60 companies in 2023. Twice a year, the faculty organises a meeting of these companies with students, the so-called COFIT Career Fair.
In September 2023, the Faculties of Mechanical and Electrical Engineering co-hosted the traditional Career Days, which were attended by 79 companies across all industries. Top Czech companies and promising start-ups were represented. Students were offered a wide range of opportunities for professional and career growth. Year-on-year, interest in participation from the business community and students increased again.
The Faculty of Mechanical Engineering develops cooperation between employers and students by systematically supporting the ESC student club, which organises various career events. In 2023, the lecture by Dr. Hrdlička from Škoda Auto on mobility challenges was the most popular. It was watched by over 61,000 people on the faculty›s YouTube channel.
The Masaryk Institute of Advanced Studies opened a pilot compulsory elective internship course, which was used by dozens of students. At the same time, it invited all companies and institutions that offer professional practice to the Partner Companies Fair, which is of enormous interest to students. The results of the analysis of the feedback from students and companies have been reflected in the content and didactic adjustment of specific courses.
Students of the Faculty of Nuclear Sciences and Physical Engineering have once again enrolled in the ESCO trainee program, offered thanks to a long-term partnership with ČEZ Group. In the summer, students participated in the Summer University held at the Temelín and Dukovany nuclear power plants. In 2023, the faculty›s Student Union organized a well-attended career fair Catch me on Jaderka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FAKULTA INFORMAČNÍCH TECHNOLOGIÍ ČVUT V PRAZE

5 Interest in studies

ENTRANCE EXAMS

In 2023, 17,441 applicants applied to study at CTU, 206 more than the previous year. The largest interest (56% of applications) was in the Faculties of Information Technology, Electrical Engineering and Civil Engineering, where half of the applicants were accepted.
In 2023, 13,447 applicants applied for bachelor's programmes and 6,344 were admitted. 3,541 applicants were interested in studying in follow-up master's programmes, 2,309 were admitted. Interest in doctoral studies has shown a stable development in the long term.
The top three study programmes in the Czech language, which were of the greatest interest to applicants in 2023, were Informatics (Faculty of Information Technology), Civil Engineering (Faculty of Civil Engineering) and Architecture and Urbanism (Faculty of Architecture). Of the study programmes in English, applicants were most interested in the following: Informatics (Faculty of Information Technology), Bachelor of Mechanical Engineering (Faculty of Mechanical Engineering) and Electrical Engineering and Computer Science (Faculty of Electrical Engineering).
Overall, interest in studying at CTU has been growing continuously over the last five years.

Further analytical data are included in the **Table Annex, Section 5**.

Entrance examinations at CTU are usually organised by individual faculties as single-round examinations. For bachelor's degree programmes, knowledge of mathematics is tested primarily; the applicant demonstrates it in writing by solving problems in the secondary school range. Admission tests are prepared by faculty experts. In the case of master's programmes, admission examinations are conducted in different forms, according to the priorities of individual faculties.
At the Faculty of Architecture, the admission procedure is two-round. The first round consists of an in-person art exam, an online test of the General Study Prerequisites (GSP), a test to verify spatial imagination and a general overview (PPVP). In the second round, there is an oral interview during which applicants present a portfolio of their work to the admissions committee and answer questions from the committee. Admission by talent test significantly reduces the failure rate in the first year of study.
The Faculty of Mechanical Engineering passes the entrance examination in the case of successful completion of the state matriculation examination in mathematics or physics. In the more demanding version of the entrance exam at the level of Mathematics+, the faculty has recorded a low success rate, therefore it has withdrawn from its implementation in 2023. A new feature is the introduction of 16 new study profiles within the bachelor's degree programme Mechanical Engineering (e.g. Building Environment Technology, 21st century Vehicles and Drives, Manufacturing Technology and Industry 4.0, Processing Equipment and Low-carbon Technologies, Robotics and Mechatronics). In this way, the faculty reflects the demand of today's modern engineering. The profile is selected by the candidate from the offer in the electronic application for studies. In case of indecision, there is the option of "I will decide later".
At the Faculty of Biomedical Engineering, the entrance examinations were conducted in the form of written tests in mathematics, biology, physics, chemistry and informatics, respectively in the subject of the study programme.
The Masaryk Institute of Advanced Studies provides entrance examinations with its own resources and evaluates them thanks to a licence purchased from Acrea - Remark Office OMR.
The Faculty of Nuclear Sciences and Physical Engineering has waived the 2023 entrance exams for all those interested in bachelor's studies in Děčín. An entrance exam was announced for studies in Prague, but most applicants were exempted on the basis of a matriculation in a profile subject for each programme or a good grade from secondary school. In the follow-up master›s studies, the faculty tests knowledge of mathematics and professional subjects according to the chosen study programme.
At the Faculty of Transportation Sciences in bachelor›s degree programmes, applicants also demonstrate their knowledge of the English language. Entrance examinations are in the form of a multiple-choice test. The entrance examination is waived on the basis of an assessment of the applicant›s results in the state matriculation examination. The written entrance examinations in the follow-up master›s degree programmes are taken in two subject areas according to the professional field of study. Also in 2023, the entrance examinations were prepared exclusively by experts of the Faculty of Transportation Sciences.

COOPERATION WITH SECONDARY SCHOOLS

One of CTU's strategic goals is to increase the interest in study among quality domestic and foreign secondary school students.

Therefore, the development of cooperation with secondary schools is emphasized and supported financially both at the school level and within individual faculties.

In 2023, the Faculty of Civil Engineering further developed contractual cooperation with the Secondary Technical School of Civil Engineering in Dušní, Josef Gočár Secondary Technical School of Civil Engineering, Duchcov Secondary Technical School, Secondary Technical School of Surveying and Geographical College Prague. It presents itself to potential applicants on social media (FB, Instagram, YouTube, LinkedIn). It also contributes to the popularisation of scientific research by presenting interesting projects, studies or experiments in the form of videos and podcasts on https://srdcemstavari.cz/. On the portal stavarna.online, there was a live broadcast of the open day. Interested students can find virtual tours of the undergraduate degree programmes.

The Faculty of Electrical Engineering participated as an organizer in the second edition of the Technology Olympiad in 2023. The winner was the Goobers team from Prague's Gymnasium New PORG. Seventh grade student Aneta Dvořáková and her classmate Šimon Chlouba presented a proposal for a textbook that could make the study of a number of topics easier and clearer based on professionally proven sources. The Technology Olympiad aims to contribute to a better understanding of the trends driving the world today and to inspire their study. At the same time, it is a source of potential quality candidates for the study of electrical engineering.

The Faculty of Mechanical Engineering has prepared a preparatory course in mathematics for future graduates and applicants for university studies in 2023. Thanks to high-quality materials and video recordings of individual lessons, the participants of the course could return to the material discussed at any time and repeat it. In cooperation with Škoda Auto and the Technological Literacy platform, a presentation of modern technologies with a guided tour of the Robotics and Manufacturing Technology Laboratory was held in March 2023. More than 280 primary and secondary school students attended the presentation. This month also saw a one-week internship for Evolution Sázavská Gymnasium students, who experienced university studies firsthand. During the year 2023, the faculty joined the EDU.Lab roadshow, which aims to present technological innovations in Czech secondary and primary schools and to arouse students' interest in technical fields, for example by presenting two exhibits - Robobar and Robomalíř.

The Faculty of Transportation Sciences has launched a new interactive portal www.rozhybejbudoucnost.cz for secondary school students. Not only thanks to this tool, but also by promoting it on social networks, it is succeeding in increasing the interest of applicants for study. Emphasis is also placed on sharing information about practical employment in the fields of transport, logistics and telecommunications. In combination with the Open Days, ScienceFest, Scientists' Night, Children's Transport Academy and the University Student on Trial, the Faculty of Transportation Sciences is becoming known not only to secondary school students but also to the general public. Thanks to the nationally significant project Transport Vision 2050+, in cooperation with selected regions and companies, it was possible to involve secondary schools, which were able to express their views on topics related to sustainable mobility and quality of life in the region. The results of this activity were also presented in the Senate of the Czech Republic.

The Faculty of Architecture held two Open Days in 2023 for those interested in bachelor's studies. In addition to basic information about studies and admission requirements, guided tours of the building, expert lectures and preparatory courses for the entrance exams were prepared. Three-day internships are also a traditional event, which were attended by over 200 secondary school students in 2023, who had the opportunity to participate in regular classes, attend selected lectures, visit studios and try out practical exercises. The Faculty of Biomedical Engineering also organised Open Days for secondary school students. Students toured the laboratories and unique workplaces. Students of the third year of Kladno Gymnasium tried out experiments in specialised laboratories (e.g. ICU, artificial lung ventilation, contact lenses) under the guidance of experienced teachers. An excursion to specialised laboratories (e.g. Bio-electromagnetism) was organised for 30 students of the E. Beneš Gymnasium, where they tried out simple tasks.

In 2023, the Faculty of Information Technology has established partnership cooperation with four Prague schools - the Arabská Gymnasium, the Přípotoční Gymnasium, the Panská Secondary Technical School of Communication Technology and the Secondary School of Electrical Engineering in Ječná. The faculty communicates with secondary schools on a regular basis, offering students interesting activities and incentives for IT education. In 2023, internships led by faculty experts were organized for students of selected industrial schools, an IT Summer School was held in cooperation with Czechitas to introduce girls to the basics of IT, and a Design Sprint Summer School was held where students learned how to convert an idea into a real prototype using modern technologies. For secondary school students, there was also the FIT Informatics Correspondence Seminar (FICS), whose successful solvers can be admitted to the faculty without an entrance exam. The faculty invites secondary school students to field trips, open days or fairs for applicants, but also sends its representatives to secondary school events. Close cooperation with secondary schools has resulted in the preparation of a master's programme in Informatics Teaching for Secondary Schools, which has been prepared jointly with the Masaryk Institute of Advanced Studies and will be submitted for accreditation in 2024.

The Masaryk Institute of Advanced Studies continued its cooperation with secondary schools, especially in connection with the preparation of future teachers. In 2023, it also implemented LLL courses for secondary school teachers, in addition to language courses and courses focused on educational counselling. It organised professional lectures in secondary schools, and teachers from the Masaryk Institute of Advanced Studies helped in the framework of the Secondary School Professional Activity.

Secondary school students are also attracted to CTU by the presentation of the varied range of university sports activities.


Prague 1


FAKULTA JADERNÁ
A FYZIKÁLNĚ
INŽENÝRSKÁ
ČESKÉ VYSOKÉ
UČENÍ TECHNICKÉ
V PRAZE

6 Employees

In 2023, 6,021 employees worked at CTU, which is a decrease of 25 people year-on-year. The number of academic (+1%) and scientific employees (+5%) increased, while the number of employees in the other category decreased (-7%). The number of employed women increased slightly in 2023 (+8 more women in the total number of employees).
Compared to 2022, the number of researchers in the under-50 category has increased (+73). In contrast, the number of academic staff increased in the over 50 age categories. In 2023, the number of professors increased, with the largest number in the 70+ age category. Associate professors were the most numerous at CTU in the 40-49 age category (almost 35% of their total number). However, the number of associate professors decreased by 2% year-on-year.
The number of employees with foreign citizenship (or their average number) increased year-on-year in the category of associate professors, assistant professors and lecturers. In contrast, the average number of professors and assistants with foreign citizenship decreased.
The share of foreign workers increased the most at the Institute of Technical and Experimental Physics (+3.34% year-on-year), and further increased at the Faculties of Mechanical, Electrical, Nuclear Sciences and Physical Engineering and Biomedical Engineering and at the Masaryk Institute of Advanced Studies.
Detailed information and data on the staff structure is provided in Section 6 of the Table Annex.

CAREER SYSTEM AND MOTIVATIONAL TOOLS FOR ACADEMIC STAFF

The CTU Career System helps to improve the quality of teaching and creative activities, which are evaluated according to European standards with an emphasis on the requirement of excellence in order to maintain/increase international competitiveness.
The Career System defines not only the content of the job positions of academic and other creative staff of the CTU, but also the framework of the professional career of staff and job applicants at the CTU in terms of their expected career growth and motivation for it. Furthermore, this document defines the principles of equal access, transparency and reviewability of major employment decisions in relation to the career progression of employees and sets out the basic principles enabling the successful reconciliation of their professional and personal lives.

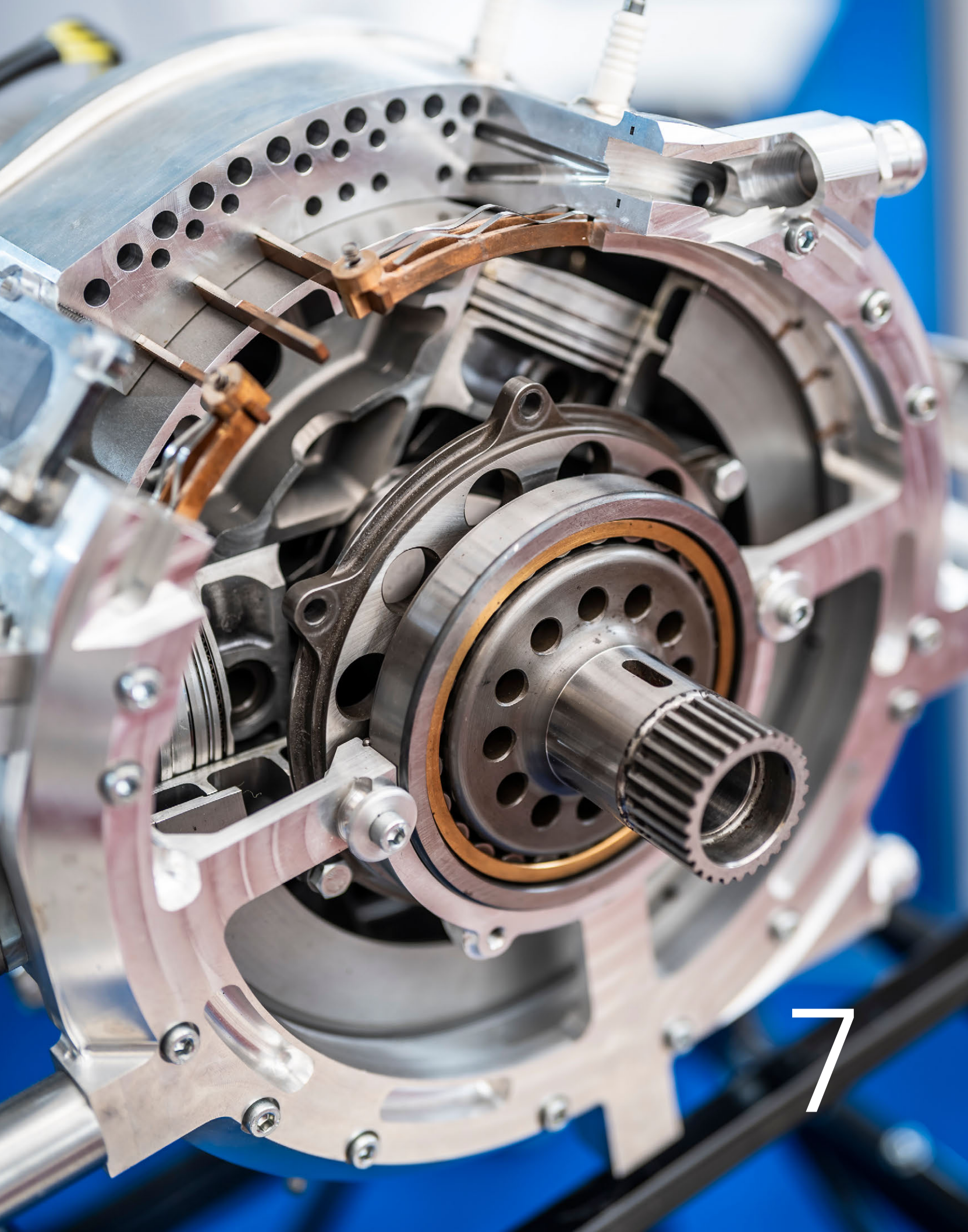
The Career System also established a process for regular staff appraisals linked to financial remuneration. Specific rules are determined by orders of the deans or unit directors. Periodic staff appraisals (and possible attestations) have been carried out at all CTU units since 2022. In 2023, this process was monitored by the Internal Evaluation Council, and in the following period the quality of this process will be monitored at the school-wide level. In addition, a system of incentive rewards for publications and Rector's Awards is in place at CTU. Similar systems are in place at individual units, including the rewarding of the best teachers.
Of course, the evaluation criteria take into account documented personal circumstances worthy of special consideration (long-term incapacity for work, health handicap, care of a loved one, foreign military missions, etc.).

Detailed data on the structure of academic, scientific and other staff of individual CTU units are presented in the **Table Annex, Section 6**.

DEVELOPMENT OF PEDAGOGICAL SKILLS OF ACADEMIC STAFF

The successful development of the university is based on the teaching skills and abilities of academic staff, but also on supporting young, aspiring teachers in gaining experience. The main provider of pedagogical courses across CTU is the Masaryk Institute of Advanced Studies.
In 2023, a course for the development of pedagogical, didactic and social psychological skills was implemented for young academic staff of the CTU. The content of the course was to introduce selected aspects of pedagogical and psychological topics, disciplinary didactics and communication skills. Emphasis was placed on modern teaching methods including presentation in a virtual reality environment.
As part of the HR Award project, the Central Library of CTU organized semester e-courses on Information for Science and Research, a series of thematically focused lectures Doctoral Days (not only for PhD students), seminars on industrial law, standards, etc.
In cooperation with the National Technical Library, courses on scientific article writing and publishing were again organized.
The development of pedagogical competences of CTU academic staff is also supported within the framework of the school-wide

Internal Competition, where innovations in teaching are financially supported.
Also in 2023, the selected teachers participated in Staff Training Weeks, individual training and professional shadowing at EuroTeQ partner universities. Young teachers had the opportunity to travel to partner universities abroad within the framework of the Staff Mobility project (see details in the chapter Internationalisation).
Feedback on teaching skills is regularly obtained by CTU academic staff directly from students in student survey.



Prof. Ing. Oldřich Starý, CSc.
Vice-Rector for International Relations

"The internationalisation of the university is a key element in shaping a modern learning environment that not only enriches academic culture, but also fosters innovation, global collaboration and prepares students for the challenges and opportunities in an international context."

7 Internationalisation

SUPPORT FOR STUDENT MOBILITY

The support for students in this area is based on the CTU Strategic Plan 2021+, specifically on the priority "Increasing the quality and success rate of studies", has the character of financial support and is implemented through the Erasmus+ and ATHENS programmes and within the Student Mobility project funded by the Programme for the Support of Strategic Management of Public Universities in 2022-2025.

CTU students can participate in international mobility in all study programmes. Since 2023, CTU offers a new web application Mobility, which has digitized the entire agenda of mobility, from the selection of potential partner universities, application submission to the formalities related to the conclusion of mobility and recognition of study results.

In particular, the application allows for a single and clear application process, both for Erasmus+ mobility and for mobility under the bilateral agreements offered outside Europe. All the process is carried out electronically, including approval by the vice-deans for studies. All students must demonstrate a sufficient level of language proficiency. The selection procedure consists of an assessment of language and academic performance. Motivational interviews are also conducted at some faculties. After successfully completing the selection procedure, the student completes a Learning Agreement (study plan) and submits a comparison sheet. Both forms are filled in with the same subjects; in the comparison sheet, the subjects selected from the offer of the foreign university are paired with the subjects of the study plan at CTU on the basis of their similarity in content (this should be as similar as possible; however, a complete match is not necessary). This process is closely monitored by faculty coordinators and also by the relevant study department officers. The total sum of ECTS credits for enrolled subjects in one semester must be at least 20. In addition to the compulsory courses, elective and vocational courses taken abroad, languages as well as economic and humanities courses, e.g. in the case of Blended Intensive Programmes, are also recognised.

CTU also allows students to work on their bachelor's and master's thesis or their own study project at one of the top partner institutions as part of international mobility programmes. Students can apply for places with which there are bilateral agreements at the level of their faculty or department.

Another popular study opportunity for CTU students is the "double degree" program. Under this program, students spend a certain amount of time at each of the partner universities, where they take prescribed courses and fulfil the requirements of both institutions. Upon successful completion of the programme, they will receive two degrees, which is a significant advantage when seeking employment or continuing their education. The programme is recognised not only among the partner universities but also internationally, providing students with an excellent opportunity for personal and professional development.

RECOGNITION OF FOREIGN HIGHER EDUCATION (NOSTRIFICATION WITH NATIONAL VALIDITY)

This type of recognition of foreign education has unlimited validity throughout the Czech Republic. It can be used for the purposes of study at all universities in the Czech Republic and for employment. We can recognise higher education at bachelor's, master's or doctoral level. It is governed by Sections 89, 90, 90a), 90b) and 106 of Act No. 111/1998 Coll. on Higher Education and amendments to other acts, in particular Act No. 137/2016 Coll. and Methodological Instruction No. 2/2016 on the recognition of foreign higher education and qualifications.

Refugees from Ukraine are exempt from the fee for applying for recognition of foreign higher education and qualifications under the provisions of Section 9 of Act No. 67/2022 Coll., on measures in the field of education in connection with the armed conflict on the territory of Ukraine caused by the invasion of the Russian Federation troops. In 2023, the CTU processed 808 applications for recognition of foreign higher education and qualifications, of which 417 were applicants from Ukraine with temporary protection visas.

This type of foreign education assessment is valid only for applicants to study at the CTU in Prague in a given academic year (for all study programmes at all CTU faculties). We can accept secondary school, bachelor's and master's degrees. It is governed by Section 48 of Act No. 111/1998 Coll. on Higher Education and on Amendments and Supplements to Other Acts and Methodological Instruction No. 4/2023 on the Recognition of Foreign Education in the Admission Procedure for Study at the CTU. Refugees from Ukraine with a valid temporary protection visa may apply for a waiver of the application fee for the assessment of foreign education for the purposes of admission to the CTU in Prague.

In 2023, we processed 720 applications for assessment of foreign education for admission to CTU.

Erasmus+ International Student Mobility Support Programme

Erasmus+ is the European Union's most important programme supporting international cooperation. At the same time, it is a significant tool for supporting the mobility of CTU students and employees. On the basis of concluded mutual agreements, it is possible to arrange the exchange of students at all levels of study with the aim of a study stay or work placement as well as foreign stays of employees for the purpose of teaching, training, participation in workshops, seminars and professional shadowing. Within the Erasmus+ framework, CTU has 589 valid inter-institutional agreements with 336 European universities with a total capacity of 1,666 places for outgoing students and 1,660 places for incoming students.

In 2023, CTU used all allocated funds from EU sources, including EUR 661 680 for student mobility, EUR 23 648 for staff mobility and EUR 101 180 for mobility organisation.

Students and staff were sent abroad under all types of Erasmus+ mobility, with 911 applications submitted. 494 students at all levels of study of individual faculties, including the Masaryk Institute of Advanced Studies, gained experience of studying abroad, which is 169 students more than in the previous year and 53 more than before the outbreak of the pandemic covid-19 (note: 441 students went abroad in 2019). There were 127 departures in bachelor's studies, 349 in continuing master's studies and 18 in doctoral studies. Most trips were to Germany (67), Spain (59), Sweden (35), Denmark (33) and Portugal (32). The highest number of students sent od study visits was at the Faculty of Architecture (93), the Faculty of Electrical Engineering (93), the Faculty of Civil Engineering (87) and the Faculty of Mechanical Engineering (76). In 2023, the number of outgoing student mobilities increased by 10% compared to 2022.

In 2023, 706 students were admitted to CTU under the Erasmus+ programme, mostly from France (175), Spain (137) and Germany (87). Most students were registered at the Faculty of Civil Engineering (130), Faculty of Electrical Engineering (122), Faculty of Mechanical Engineering (115), Faculty of Architecture (103) and Faculty of Information Technology (80).

The digitisation of Erasmus+ IIAs continued during 2023. 248 agreements were renewed through the Erasmus Without Paper electronic platform.

Erasmus+ work placements

Thanks to the allocated funding, 72 work placements were carried out in 2023. CTU arranged and financed the departure of 42 students/doctoral candidates and 32 graduates. The preferred countries were the Netherlands, Germany, Italy, Portugal, Denmark and Spain. The largest number of participants was from the Faculty of Architecture (39). Future architects have long been highly interested in foreign internships, while it is easier for them to find a potential host organisation on the foreign labour market. The next largest group of participants in the Erasmus+ work placement programme were students from the Faculty of Civil Engineering (13), Faculty of Mechanical Engineering (8) and Faculty of Nuclear Sciences and Physical Engineering (6), while trainees from other faculties participated only sporadically.

The common practice of Czech universities is not to provide funding for Erasmus+ graduate trips, but to use the services of consortia. However, the CTU tries to keep in touch with its graduates and therefore offers them this opportunity to travel, which is a welcome gradual transition between student and working life. In 2023, 32 graduate trips abroad took place. CTU is interested in strengthening this number in the coming years as well.

Based on the evaluation of the interim and final reports and direct feedback from the participants of these trips, it is clear that the foreign internships were conducted in a friendly spirit, the interns had no problems with integration into the work team and the employers were willing to accommodate them as much as possible. There were no organisational problems, and the professional focus of the internships was in all cases maintained as planned. All trainees evaluate their participation as a positive step towards acquiring language and professional knowledge as well as practical experience that they can apply on the Czech and international labour market.

Student Mobility Project

Within the framework of this project, students are sent annually to foreign, mostly non-European, partner universities on the basis of bilateral agreements. The aim is to select students across CTU for one- and two-semester study stays at foreign universities, including the organization of language tests, organization of the stay, allocation of scholarships and submission of final evaluations of study results. The project applies to students from all faculties, including those going on the "double degree" programme and summer schools.

In 2023, 195 students departed and 161 students arrived. The most interesting countries for outgoing students are Taiwan (39 students), USA (30 students), South Korea (25 students) and Japan (21 students). The other countries were Australia (12 students), Hong Kong (12 students), Canada (10 students) and Singapore (10 students). A total of 10 students went to partner universities in Germany, Sweden, the USA and Taiwan to obtain a double degree. 10 students attended summer schools. Most students from Taiwan (49), South Korea (38), Mexico (16), the USA (14), Argentina (11), Canada (11), Singapore (9), but also from Chile (4), Hong Kong (3), Japan (3), Thailand (3), Brazil (2) and Australia (1) came on exchange programmes.

The allocated funds, which totalled the amount of CZK 11.6 million in 2023, was used for residence grants for outgoing students and extra costs related to compulsory insurance and visa requirements.

ATHENS programme

In March and November 2023, two runs of the weekly exchange programme at partner universities abroad were implemented; in spring, 112 students (83 CTU + 29 UCT) went to 35 different courses, while in November, only 68 students (40 CTU + 28 UCT) attended 20 international courses. Compared to previous years, the number of outgoing CTU students decreased due to limited financial resources to cover scholarships.

CTU organised seven intensive week-long courses in the spring within the ATHENS programme, which were attended by 160 foreign students; eleven courses were held in November with the participation of 204 foreign students. Courses were held at the Faculties of Mechanical Engineering, Electrical Engineering, Nuclear Sciences and Physical Engineering, Architecture, Transportation Sciences and Information Technology and at the Masaryk Institute of Advanced Studies. Students came from leading European technical universities (Aristotle University of Thessaloniki, Budapest University of Technology and Economics, Instituto Superior Técnico Lisboa, Istanbul Technical University, KU Leuven, Politecnico di Milano, Delft University of Technology, Technical University of Munich, Universidad Politécnica de Madrid, Warsaw University of Technology, Chimie ParisTech, Ecole des Ponts ParisTech, MINES ParisTech and Télécom Paris).
Within the ATHENS partnership network, approximately 3,600-4,000 students are exchanged each year.

Other opportunities

CTU supports short-term foreign trips of students, PhD students and postdocs, especially to selected international scientific conferences. The prerequisite is active participation in the event, preparation of new projects or future contractual bilateral cooperation, presentation of the university and other similar activities. This category also includes trips of successful scientific and sports teams.
In 2023, a total of 60 student mobilities, including participants in a number of international professional conferences, were supported with funding of CZK 572,000. The supported mobility also includes study stays within joint study programmes at partner universities in Germany, Sweden, USA and Taiwan.

SUPPORT FOR THE MOBILITY OF ACADEMIC AND NON-ACADEMIC STAFF

Foreign trips of academic and administrative staff are supported for a long time. These usually include participation in scientific conferences, internships, research stays or work in international project teams, associations and societies. The vast majority of these international mobilities are covered by decentralised project or regular operating funds of individual CTU constituent parts.
At central level, mobility of academic and administrative staff for lecturing activities is mainly offered under the Erasmus+ programme. In 2023, 31 mobilities were supported. Within the EuroTeQ Staff Mobility for Training programme, 18 employees from different parts of CTU had the unique opportunity to participate in the so-called Staff Training Weeks, individual training and professional shadowing at EuroTeQ partner universities.
Teacher trips are also financially supported within the framework of the above-mentioned Staff Mobility project, which aims to send selected young teachers and researchers, especially from the Ph.D. and postdoc categories, to partner universities, mainly outside Europe. In 2023, eight successful academic and research stays of CTU staff at prestigious foreign universities, including Stanford University, were supported. At the same time, eight visiting guest teachers were supported to come to CTU to lecture. For example, Robert H. Frank from Cornell University, with his lecture Economic Ideas: More Useful than You Think?, which took place in October 2023 at the Faculty of Electrical Engineering. Professor Frank is co-author, with Dr. B. S. Bernanke, winner of the 2022 Nobel Prize in Economics, of book Principles of Economics. Several prominent European architects/educators spoke at the School of Architecture as part of the four-part lecture series November talks held in the fall of 2023.

VIRTUAL MOBILITY AND COMBINED INTENSIVE PROGRAMMES

A key initiative for organizing and supporting virtual student mobility is CTU's involvement in the virtual EuroTeQ Campus, which offers, among other things, distance learning of top courses from all partner universities of the European University Alliance EuroTeQ Engineering University. In 2023, 268 students from CTU in Prague took advantage of this opportunity (specifically applying to Eindhoven University of Technology (17), Technical University of Munich (62), Technical University of Denmark (15), Tallinn University of Technology (60), École Polytechnique (98) and Technion - Israel Institute of Technology (16). 231 students from partner universities enrolled in courses offered by CTU in Prague.
In terms of virtual mobility of employees, the EuroTeQ Engineering University alliance organised a number of virtual income generating activities in 2023, such as a virtual lecture series at Tallinn Technical University TalTech, focusing on innovative education. For example, the online lecture How lectures can support and motivate students to learn, led by Prof. Martjin Meeter, was attended by 77 academic and other staff from CTU.
As part of the extended Erasmus+ activities, three Combined Intensive Programmes (CIP) were again organised - two courses on Publicly Owned Private Spaces in Prague at the Faculty of Architecture and an International Project Workshop at the Masaryk Institute of Advanced Studies. The maximum number of eligible participants (60 in total) was met in all three courses.

INTERNATIONAL COOPERATION AND OTHER ACTIVITIES TO STRENGTHEN INTERNATIONALISATION

All activities in the area of internationalisation are based on the priorities of the Strategic Plan 2021+. Efforts are being made to expand the network of international partners with whom CTU has concluded bilateral cooperation agreements. Emphasis is placed especially on quality institutions. As of 31 December, there was active cooperation in the field of student exchanges with 130 universities from the top five hundred best-ranked universities in the world according to the current QS World University Rankings. For cooperation in science and research, agreements are concluded with 59 universities of this recognized quality ranking of higher education institutions. In 2023, CTU has concluded 14 new contracts with foreign universities, four of which are among the top five and two among the top 100 universi-

ties in the world according to the QS World University Rankings. CTU faculties have concluded a total of 25 valid contracts for double degree programmes. The top ten students from these programmes were supported with scholarships totalling CZK 210,000 in 2023.

INTERNATIONAL STUDENT COMMUNITY AND THEIR SUPPORT

During the year 2023, the number of foreign students at individual faculties of CTU increased from 3 802 to 4 381, which represents an increase of 15.2% compared to 2022. The share of foreign students in the total number of CTU students in 2023 was 23.7 percent. Foreign students came from 103 countries. In 2023, 446 self-pay students studied at CTU, which is 81 more than in 2022. Regular participation of CTU representatives in major international education-oriented fairs contributes to deepening existing inter-university cooperation and establishing new contacts. Therefore, the staff of the Department of International Relations of the CTU Rector's Office participated in the most important conferences, both in person and online.

The Department of International Relations of CTU continued its active cooperation with the MEYS within the Student Mode Programme of facilitating the visa procedure for applicants from selected countries. Thanks to this opportunity, CTU was able to provide special visa support for 90 students admitted to study from the academic year 2023/2024. The most frequent beneficiaries of the Student Mode are students belonging to the relevant embassies of the Czech Republic: India (New Delhi), Kazakhstan (Astana), Peru (Lima), Turkey (Ankara), Nigeria (Abuja), Uzbekistan (Tashkent), Azerbaijan (Baku).

Also in 2023, the CTU International Student Club, with the organizational and financial assistance of the Department of International Relations of the CTU Rector's Office, organized two Orientation Weeks. This event is intended for incoming foreign exchange students as well as for new international students - self-payers, significantly increases the total number of international students at CTU and enables their easier integration into the academic environment, campus and Czech culture. International students were offered two dozen language courses and several dozen extracurricular cultural, social and educational events.

An important support for foreign students at CTU is the CTU Ambassadors student volunteer group, which participates in activities aimed at integrating incoming students, voluntarily consults with foreign applicants about education opportunities and assists the Department of International Relations of the CTU Rector's Office in organizing recruitment activities.

In 2023, the Buddy Program was expanded to include self-pay students. Interest exceeded expectations, with 99 new self-pay students joining Buddy.

In cooperation with the Department of Foreign Relations of the Rector's Office of the CTU and the Prague Integration Centre, the SURVIVAL course was created in 2023, which is guaranteed by the Vice-Rector for Bachelor's and Master's Studies. The new school-wide adaptation course consists of 13 teaching topics such as health care in the Czech Republic, study and examination regulations of the CTU, accommodation, Czech politics, culture, history, etc. This need arose as a response to the findings of a questionnaire survey among self-payers. The course was enrolled by 80 first year students of bachelor's and master's studies in English at all faculties and Masaryk Institute of Advanced Studies.

In 2023, CTU participated as a partner in the implementation of the project Prevention of Unethical Behaviour on Campus and Support of Competences in Victim Care, funded by the Centralized Development Programme of the MEYS. The Department of International Relations of the Rector's Office of CTU led a working group that conducted a needs analysis and information campaign focusing on the target group of international students. In cooperation with a sociologist and three partner universities, an extensive questionnaire survey was developed and conducted at all 26 universities involved in the project. On the basis of the results, all project partners modified their websites, creating dedicated subpages to serve as navigation for international students who have experienced unethical behaviour at their home university. The data obtained from the questionnaire is the first step towards improving support and service for international students.

Study in Prague

CTU in Prague continues to be an active member of the Study in Prague consortium, founded by Vice-Rector Emeritus for International Relations, Prof. Miroslav Vlček. The universities in the consortium (CTU, ČZU, VŠE, UK, VŠCHT, AMU and UMPRUM) jointly promote foreign language study programmes and Prague as an ideal place to study, through participation at international fairs, at Czech and foreign high schools and on social media by their student and alumni ambassadors. In June 2023, a Memorandum of Understanding was signed with Prague City Tourism to strengthen mutual networking in selected joint activities. For the third time, the Prof. Miroslav Vlček Scholarship was awarded, which is intended for self-paying foreign students for active promotion and spreading the good name of Czech higher education. The scholarship was also awarded to a student of the Faculty of Information Technology Daria Objeleanscaia, originally from Moldova, for her school-wide internationalisation activities.

CTU Alumni

For the second year already, CTU is creating a central network of foreign graduates of English programmes within the CTU Alumni project, implemented thanks to a contribution from the Programme for the Support of Strategic Management of Public Universities in 2022-2025. Thanks to this card, our graduates, both domestic and international, can benefit from a number of discount opportunities.

Within the project activities, several meetings of foreign CTU graduates were held in Thailand, the USA, Uzbekistan and Tajikistan. These were organised in cooperation with the national platform of foreign alumni named Czechia Alumni and with active alumni ambassadors who promote CTU in their home country or in the country of their career. Six interviews with CTU foreign alumni were created for the CTU Alumni YouTube channel in

2023, which also serves to recruit for English study programmes. Gaining and maintaining contacts with graduates working in middle or senior management is crucial for CTU with regard to establishing partnerships and CTU's role in industry.

Representation and participation of CTU at major conferences

In September 2023, CTU, represented by the staff of the Department of International Relations of the Rectorate and the Faculty of Electrical Engineering, participated in the 33rd edition of the largest European conference for international higher education EAIE, held in Rotterdam, the Netherlands. Approximately 8,000 universities from all over the world presented themselves through national agencies. In the case of the Czech Republic, it was the House of Foreign Cooperation and its Study in Czechia initiative. Thanks to its direct participation, CTU was able to strengthen existing and new strategic partnerships. CTU representatives held discussions with more than fifty universities, public institutions or providers of marketing services for universities that are used to recruit international students.

The International Association for College Admissions Counselling Annual Conference was held in Miami, USA in July 2023. The event was attended by 1,400 people, including 566 counsellors from 444 secondary schools in 77 countries and 673 university representatives (from 438 universities in 28 countries). The Study in Prague team consisted of seven members from four Prague universities and over the course of three days presented information about the Study in Prague consortium offering 50 undergraduate degree programmes in English in addition to the opportunity to study at the CTU in Prague.

Part of the activities that strengthened the internationalisation of CTU in 2023 was the participation in the CZEDUCON conference for higher education in Central Europe, organised by the House of International Cooperation in Brno. In cooperation with the Czech University of Agriculture in Prague and the University of Economics in Prague, CTU prepared a panel discussion on the Digital Age. The specific topic was how to engage Generation Z in promoting study mobility or internships abroad. CTU had the opportunity to present the successful Study in the World campaign launched in 2020, whose brand is still trending and has a high following on social media @studujvesvete.

Prof. Ing. Zbyněk Škvor, CSc.
Vice-Rector for Science, Creative Activities and PhD Studies

"CTU has prepared several new research projects in 2023, which we will implement with our partners from research organisations and industry from 2024 onwards. Despite the fact that the past year was not easy for academia, we are expanding the number of fields in which we are perceived as excellent by partners from the Czech Republic and overseas."

8 Research, development, artistic and other creative activities

MEASURES TO STRENGTHEN THE INTEGRATION OF CREATIVE AND EDUCATIONAL ACTIVITIES

From the first year of their bachelor's studies, CTU students are encouraged to engage in scientific research and creative activities in order to continuously develop new talents and personalities in this field. Most study programmes include courses focusing on scientific and creative activity. The professional development of the scientific and teaching staff and trainers is also supported. Students of doctoral programmes are involved in successful Czech and international prestigious project teams. Part-time employment in scientific projects or the acquisition of a special-purpose scholarship provide financial motivation.
Practitioners are involved in teaching and the development of new study programmes or the reaccreditation of existing ones. In 2023, the number of fields of study/programmes with compulsory work experience in their content has increased (cooperation with industrial partners from the application sphere is described in detail in Chapter 2, and support for gifted and talented students in Chapter 3).
Analytical data on research, development, artistic and other creative activities are presented in the **Table Annex, Section 8**.

INVOLVEMENT OF STUDENTS OF BACHELOR'S, MASTER'S AND FURTHER STUDY PROGRAMMES IN CREATIVE ACTIVITIES

The faculties and university institutes of CTU involve students in creative and research activities in all study programmes according to current needs, feedback from external partners or students themselves. The results of creative and research activities are used in the preparation of seminar and qualification papers. The chosen topics reflect current social and professional issues. Students participate in faculty research teams under the guidance of experienced academics to solve partial tasks in projects supported by internal, national and international programmes, as well as industrial partners. The creative and scientific research activities of students are also enabled by state-of-the-art laboratories and technologies. Ultimately, it contributes to the scientific and research development of the entire university.

In 2023, two research teams from the Faculties of Mechanical and Electrical Engineering joined together to build the fully electric and unmanned eForce Prague Formula from the ground up. The CTU AeroLab creative team lost virtually all of their equipment in a workshop fire during the year, but through their full commitment and effort, they eventually succeeded in the SAE Aero Design East international competition in the USA.
As part of the European Rocketry Challenge 2023, held in Portugal, the CTU Space Research team built the largest student rocket in the Czech Rep., called Illustria. The all-carbon construction ensures low weight and strength, and the hybrid engine is powered by 3D printed ABS fuel. Although the team was unsuccessful in the competition, the students continue to refine and innovate, with their plan to complete the mission with a range of 3km.
In November 2023, students of the Faculty of Electrical Engineering opened a new laboratory - BTL bastliner, where they can practically solve semester or diploma projects focused on microelectronics. The laboratory was created in cooperation with BTL Medical Technologies, s.r.o., which donated more than one million Czech crowns worth of equipment to the faculty.
To strengthen and link creative and educational activities, the Faculty of Architecture uses the successful teaching method "learning by doing". In 2023, the faculty continued its successful cooperation with the Administration of Krkonoše National Park (KRNAP). Six student teams worked on building new footbridges in the mountain terrain. The finished structures were presented in June in the open space in front of the faculty building.
The themes of some qualification works are commissioned at the faculty as variant solutions of real public buildings to the original designs created by teachers. Students welcome this opportunity; they are motivated by the real results and benefits. Thanks to the cooperation between the academic and private spheres (e.g. RWE, Sapeli, Technistone, Galavito, Tesla, Meva, Meopta, Viadrus or Lasvit) in the implementation of specific designs, students of the Design education programme not only gain new knowledge, but also get acquainted with the latest methods and technologies and gain practical experience.
The Faculty of Biomedical Engineering involves students in hundreds of projects from various sponsors every year. Within the In-

ternational Fair of Ophthalmology, Optometry and Ophthalmology OPTA 2023, students presented research and educational activities carried out within the faculty study programmes. In the spring of 2023, the faculty, in cooperation with the European Federation of Senior Citizens, participated in the organization of the EURAG international conference on healthy and unhealthy aging of the human brain.

Semester projects and final theses are usually part of a specific research or development project on which students and academic staff collaborate. The thesis topics, not only at these faculties, are formulated with regard to current problems in the field and thus reflect issues addressed in the research and development activities of academic staff. Students are also involved in custom research projects, measurements, testing and expert consultations, especially for medical institutions and companies producing and distributing medical technology.

The Faculty of Nuclear Sciences and Physical Engineering has been involved since 2022 in the DigiQ project, which aims to create professionally and technically sound educational programmes in the field of quantum technologies at all 24 participating universities. The project is supported by 215 million Czech crowns and will offer students their own DigiQ diploma.

Project-oriented teaching has long been applied at the Faculty of Transportation Sciences. In solving practical and research tasks, individual departments cooperate with partners from the application sphere and involve gifted students. In cooperation with the University of Texas at El Paso (UTEP), an international student workshop was organized in 2023. Five teams composed of American and Czech students tackled current transportation topics and presented the results of their work to experts at the SCSP 2023 International Symposium. The CTU Lions student motorcycle team again reached the finals of the international competition in Aragon, Spain, in 2023, placing 11th with their EVO-2 electric motorcycle prototype.

Students of bachelor's and master's programs of CTU faculties can participate in research within the projects implemented by CIIRC, specifically in the Industrial Informatics, Robotics and Machine Perception department or in the Testbed for Industry 4.0 - RICAIP. Prestigious projects and the chance to work with cutting-edge technologies of the future are attractive opportunities to carry out qualifying work.

SPECIAL PURPOSE FUNDING OF RESEARCH, DEVELOPMENT AND INNOVATION

In 2023, CTU had a total amount of special-purpose funds obtained from the state budget for research, development and innovation of CZK 1 774 202 thousand. CZK. Of this amount, CZK 1 354 543 thousand was fully used to deal with grants and projects directly. The remaining part was transferred to co-researchers or contractors in accordance with the conditions of the projects and the relevant contracts. The share of projects implemented directly at CTU exceeded 76 percent, which confirms that CTU is able to implement many projects both in cooperation with other expert teams and independently.

SUPPORT FOR DOCTORAL STUDENTS AND STAFF ON POST-DOCTORAL POSITIONS

CTU offers doctoral students high-quality dissertation topics and top-quality supervisors. Practical seminars and workshops were also held in 2023, focusing on the development of competences in the field of management of scientific research projects, communication in science and presentation of grant calls for budding scientists. These activities were provided by the Department of Science and Research of the CTU Rectorate.

CTU is a recipient of the European Commission's HR Excellence in Research Award (HR Award), which entails a commitment to the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. The best practices of the world's leading universities, tested in the Recommended Procedures for the Recruitment of Academic and Scientific Staff and in the organisation of selection procedures for senior staff at CTU (Rector's Order No. 2/2021), were incorporated into the CTU Selection Procedure Code, prepared in 2023. In 2023, preparatory work was also carried out in connection with the establishment of the Welcome Centre to facilitate the arrival and adaptation of persons coming to CTU from abroad.

A number of webinars, training sessions and seminars were organised for PhD students and research and administrative staff on the above processes and documents. Interim assessment was successfully conducted, CTU defended HR Award till 2024. CTU Central Library prepared and organized Doctoral Days for PhD students, postdocs and other early career researchers.

Promoting internationalisation in the field of science is one of CTU's strategic goals. The selection of foreign partners and the way of cooperation with them usually grows directly from the activities, professional needs and interests of specific departments and staff. Taking into account the size and heterogeneity of CTU, support and strengthening of strategic areas corresponding to upcoming large projects from structural funds is planned for the future, both at central and faculty level. These include, for example, the strategic projects Industrial Technology Centre, Innovative Centre for Transport Technologies, Aerospace Technologies in the Czech Republic, Light Technologies for 21st Century Energetics - LIGHTEN, Research Centre for Artificial Intelligence and Machine Learning - AIML or AI European Centre of Excellence. CTU's participation in the European Universities Initiative network is also key. To ensure foreign stays of PhD students, primarily special-purpose support programmes from external sources such as Erasmus+ are used. Funds are also obtained from EU operational programmes, programmes to support international cooperation and the Czech Republic's participation in international organisations.

Theoretical and experimental research of doctoral students is supported by the annually announced Student Grant Competition (SGC). Projects in 13 disciplines across CTU are supported. In 2023, 369 projects were supported in the amount of 105 137 thousand EUR. In 2022, 361 projects were supported in the amount of CZK 109 252 thousand. The SGS also financially supports the organisation of student scientific conferences, of which 63 were held in 2023. Participation in conferences is one of the motivational elements of the faculty for students of doctoral

programs. At the same time, the establishment and development of joint doctoral programmes in the form of joint/double/multiple degrees with professionally close international institutions is also supported.
The individual faculties and institutes of CTU strive to create suitable conditions for promising young pedagogical and scientific workers in postdoc positions. One of the most common forms is their direct involvement in scientific research projects in a number of national and international programmes.
Doctoral students are supported financially and from direct faculty resources. The Dean of the Faculty of Information Technology awards one-off special-purpose scholarships for exceptional results of creative or pedagogical activities.
The Faculty of Electrical Engineering offers doctoral students of selected departments the opportunity to obtain a CTU FEE Grant, under which they will receive a foreign co-supervisor, a distinguished scientist, and a scholarship of CZK 30,000 per month for the standard period of full-time study. The grant also includes financial support for the PhD student's stay at the supervisor's workplace. The faculty financially rewards significant scientific outputs in top journals on a one-off basis.
The Faculty of Biomedical Engineering also financially motivates PhD students to achieve exceptional results. It ensures that all dissertations have a real-world application. In 2023, a sponsorship donation was also used for a three-month research stay of a faculty postdoc at Lund University.
At the Czech Institute of Informatics, Robotics and Cybernetics, students are supported by scholarships from the CTU Media Lab Foundation, which involves partner industrial companies such as Certicon, Seznam.cz, Cybex, etc., which sponsor this scientific incubator. The CIIRC also educates PhD students and postdocs by organizing lectures by top experts in various fields.
The individual faculties and institutes of CTU strive to create suitable conditions for promising young pedagogical and scientific workers in postdoc positions. One of the most common forms is their direct involvement in scientific research projects in a number of national and international programmes.

COOPERATION WITH THE APPLICATION SPHERE IN THE CREATION AND TRANSFER OF INNOVATIONS, TECHNOLOGIES AND THEIR COMMERCIALIZATION

It is common across CTU to develop and deepen cooperation with industrial partners within the framework of contractual activities, testing and expert opinions. All faculties, the Masaryk Institute of Advanced Studies and the Klokner Institute invite external experts from the application sphere to their accredited study programmes.
In order to cooperate with the application sphere, the faculties use their own transfer departments, which can be used by both students and employees to deal with potential commercialisation. In most cases, commercialisation is about the use of innovation potential for industry. Industrial partners are involved in innovation brainstorming sessions, ideas for new products or applications are jointly sought and defined, and ultimately subsequent collaborations are established. The Faculties of Civil Engineering, Mechanical Engineering, Transportation Sciences, Information Technology and Biomedical Engineering most often cooperate with industrial partners. The Faculty of Electrical Engineering has carried out dozens of collaborations with industry, e.g. with ÚJV Řež, a. s., on the RaDron project, where faculty researchers developed an autonomous drone that can find sources of radioactivity. The Dean of FEE also signed a memorandum of cooperation with the Office of the Government of the Czech Republic in the field of cyber security. As part of the cooperation with the Czech Telecommunications Office, FEE researchers delivered F-testers for testing mobile networks worth almost CZK 10,000 thousand.
However, from a general point of view, commercialisation is still an insignificant financial resource for CTU. Of the total budget, it accounts for about 5.4% of annual revenues, most of which comes from contract research (82%), where it is more about the use of university resources (equipment, "brains") by external entities and "wage labour" than about the creation and subsequent monetisation of valuable outputs, e.g. in the form of licences to specific customers or university spin-offs. However, the aim of CTU is to substantially increase the aforementioned recurrent income from R&D&I results, namely from royalties, from ownership of shares in commercial companies - university spin-offs and start-ups or joint ventures with application partners - and from handling them ("exits") in order to reduce its existential dependence on public resources. The year 2023, under the completely renewed staff of the Rectorate›s Department of Technology Transfer and Fundraising, was marked by a mapping of the causes of the current situation as a starting point for a new strategy and system of commercialisation.

COMMERCIALIZATION

At the end of 2023, CTU adopted a comprehensive CTU Commercialisation and Fundraising Strategy 2023-2030. It wants to put more emphasis on commercialisation at the point of "entry", i.e. (co-)creation of commercial assignments with "technological delivery" and high economic added value, to move towards higher value from the perspective of application partners (market) in terms of the way of delivery of the output and last but not least fundraising of substantial university private capital funds, which will enable CTU (or its best researchers) to conduct more ambitious research with higher commercial potential.
In connection with the implementation of the strategy, new internal regulations were adopted and organisational measures were taken to simplify the technology transfer process and increase its transparency. In particular, the Rules for the valuation of intellectual property for the purpose of technology transfer to the acquirer, on the basis of which valuation will only take place in specific cases. The conditions (including pricing) for the technology transfer of intellectual property to its originator in the form of a university spin-off have been standardised. The aim is to motivate the originator to commercialise the intellectual property in cooperation with CTU; spin-offs can be established or entered into very flexibly by the university, which has its own "technology transfer company" in the form of a 100% subsidiary

CTU Tech, s.r.o., which is firmly embedded in the commercialisation system by the new internal regulations. The Rules for the distribution of net cumulative income from the commercialisation of intellectual property between the originators and the CTU units were also adopted, which remove the need to conclude (and negotiate) in each specific case so-called internal agreements (now they only represent the possibility of a possible deviation from the standard rules).
In cooperation with the components, model documentation was created for the organisation of student competitions, regardless of whether the competition assignment is created internally or externally, e.g. by application partners (competition sponsors). The documentation can also be used to form consortia with application partners.
In connection with the submission of the project under the 4th public competition of the SIGMA - DC1 programme (support of "Proof of Concept" activities in research organisations), the composition of the CTU Commercialisation Council was renewed; three members of the original composition remained, nine are new.

FUNDRAISING

Through CTU Tech, s.r.o., the university has tentatively agreed to form a joint venture with selected venture capital companies. In addition, an agreement has been reached with accelerators to work more closely together to identify, incubate and accelerate CTU projects with the aim of increasing the number of university spin-offs and start-ups, in which the partners are prepared to invest up to EUR 400,000 per year. The assumption of investment in the actual operation of the joint venture is up to EUR 200,000 per year. Since mid-2023, testing of the most appropriate procedures for identifying projects or "co-creating" them has been underway, but the success rate of this process is so far low.
In parallel with this initiative, CTU, in cooperation with UK, MUNI, MIT and EIF, has developed the conditions for the establishment of a university transfer fund aimed at the creation of spin-offs from the environment of Czech universities involved in "new technologies" (especially AI). The fund should have total resources of CZK 1 billion.
With the help of external specialists, CTU has proposed the legal structure of its own university funds (which should not be "funds" in the regulatory sense) and is consulting with the Czech National Bank in this regard.

EXAMPLES OF GOOD COMMERCIALISATION PRACTICE

Valuable (in some cases even "difference") research is already underway in a number of units for very interesting application partners. In certain cases, contract research / work contracts have already succeeded in securing outputs 100% owned by CTU for their further commercialisation (e.g. in cooperation with their originators, possibly in the form of a spin-off); the price paid by the application partner is then seen as a "prepaid" licence fee, which the partner would otherwise have to pay if it were to purchase an already finished product.
A newly founded company on the borderline of a university start-up / spin-off with high ambition skips the "development stage" in the Czech Republic and incorporates directly in the United States with the aim of obtaining an order of magnitude higher investment than it could think of in the Czech Republic. The university's investment (from the transfer of intellectual property and the provision of services) is conceived as a convertible debt.
An emerging university start-up confidently approaches a strategic partner with consolidated turnover in the billions of Czech crowns and acquires it for cooperation as a minority partner in exchange for access to its customers.
The licensing agreement with the university spin-off contains commercialisation objectives, upon achievement of which the spin-off obtains a higher quality licence (territorial scope, exclusivity); the licensing agreement contains a time-limited option for the spin-off to acquire the outputs of the parallel research of the originator group and addresses the rules for ongoing research between the university and the spin-off.
CTU itself identifies a business opportunity and, as the founder of a university start-up, is looking for co-founders among its researchers. Roles that it is unable to fill from its own resources will be filled from other domestic or foreign universities.
CTU is also taking over an existing start-up for incubation, in exchange for a business share.

EXAMPLES FROM PRACTICE, PROMOTING HORIZONTAL MOBILITY

Contractual arrangements for the transfer of copyright and other professional services focused on the administration of the commercialisation of R&D&I results are handled by the Vice-Rector for Development and Strategy of CTU (see above). The Patent Centre of the CTU Rectorate plays an important role in securing patent protection in successful projects not only in Europe but also in America, Asia and Africa. CTU, through representatives of the CIIRC, participated in the mission of the Government Commissioner Tomas Kopečný with an accompanying business delegation to Ukraine in July 2023, discussing support for Ukraine›s post-war reconstruction. At CIIRC, courses dealing with the promotion of innovative entrepreneurship are taught in both undergraduate and graduate degree programmes. For example, at the Faculty of Information Technology, the Centre for Business Informatics research group educates students in the creation of business models and business cases. The Faculty of Mechanical Engineering uses the Business Navigation Game programme in its teaching, which significantly engages and motivates students who compete in teams in a fictional marketplace. The program then provides them with feedback on the effectiveness of their decisions and provides a safe environment to practice critical management decisions.
Horizontal intersectoral mobility of students of the Faculty of Architecture occurs both within the teaching and through the participation of students and academic staff in research, both basic and applied, in the field of national and cultural identity.

Since 2023, two major NAKI III projects have been carried out at the faculty, the "Building Project 1948-1953. The collectivization of design activity and its imprint in the memory of the Czech landscape and cities" and the project "Industrial Architecture of the Second Half of the 20th Century. Extension, Transformation and Identity". Within the framework of the intersectoral call in the OP JAK programme, the employees of the Faculties of Architecture and Transportation Sciences are working on a joint project "Sustainable Mobility 2030+. The Klokner Institute is also involved in the cross-sectoral mobility in the fields of civil engineering, materials engineering, chemistry, transport, energy or the aforementioned monument care. The University Centre for Energy Efficient Buildings is actively creating a background for joint projects and student work, for which it has greater opportunities and prerequisites as part of CTU without its own accredited study programmes. Since 2011, CTU together with the Technical and Testing Institute for Construction Prague and the Research Institute of Civil Engineering - a certification company have been operating, managing and developing the SBToolCZ building sustainability assessment tool. Its users have an updated version available from 2023, corresponding to the current legislative, environmental and social situation..


dCore

Ing. Radek Holý, Ph.D.
Vice-Rector for Quality Management

"Monitoring and managing quality is an important part of the university's activities so that it is able to successfully aim for the goals set out in the Strategic Plan and its annual implementation plans.
In 2023, we have succeeded in moving the prepared procedures into practical implementation in the area of quality management and evaluation, especially of study programmes, and creating space for further improvement of the entire quality management system."

9 Quality assurance and evaluation of implemented activities

QUALITY ASSURANCE SYSTEM

Analytical activities and providing methodological support to the Internal Evaluation Board (IEB) in the field of quality assurance are provided by the Quality Department of the CTU Rector's Office.
The quality assurance process, including the definition of powers and responsibilities for the quality of educational and creative activities, is described in the internal regulations of CTU Rules of the Quality Assurance System for Educational, Creative and Related Activities and Internal Quality Assessment of Educational, Creative and Related Activities of CTU. This regulation also covers other internal standards, which together form the basis for the integration of these principles and procedures into a coherent and internally consistent system, which is based on the development concept formulated in the CTU Strategic Plan 2021+ and the annually updated plans for the implementation of the CTU Strategic Plan.
The evaluation at CTU is based on data based on qualitative and quantitative information stored in the information system and validated by individual CTU units. The source of data for the area of creative activity is the V3S application, where, for example, the results of publishing activities, applied research and other activities of creative workers in the field of science are recorded. The V3S application is used to submit CTU results to the Register of Information on Results (RIR), to experts for statistical analyses and for internal evaluations. Further information on the evaluation of the quality of creative activities is provided in the Report on the Internal Evaluation of the Quality of the CTU's Educational, Creative and Related Activities (Quality Report).
The system of quality assurance and evaluation at CTU is motivated by the desire to maintain and improve its position among the top technical universities in the Czech Republic. CTU is constantly working on improving its staff capacities, taking inspiration from the practice of foreign universities, cooperating with other domestic higher education institutions and sharing experience with them, whether in the form of project platforms or partnerships.

QUALITY OF EDUCATIONAL ACTIVITIES

The quality of educational activities is ascertained in the context of accreditation preparation, implementation of study programmes and decision-making, as well as through feedback from members of the academic community and alumni, including on the organisation of the study, its facilities and infrastructure. The quality of education is assessed through the evaluation of qualification papers, and the conditions, conduct and results of admissions and studies are monitored and evaluated, including ensuring equal access and employment of graduates.
Quality management in the field of educational activities is the responsibility of the deans primarily towards the faculty scientific councils and academic senates, and secondarily towards the CTU authorities. The implementation of study programmes is managed by the guarantors in cooperation with the heads of the relevant departments/institutes. The interaction of individual study programmes and doctoral study programmes is coordinated by the vice-deans for bachelor's and master's studies, respectively for creative activities and doctoral studies.
Evaluation of the quality of educational activities at CTU is also carried out in the form of a university-wide electronic student survey. Faculties can define their own specific requirements for data collection and evaluation. Students have the possibility to supplement the anonymous grade evaluation with a verbal comment.

QUALITY OF CREATIVE ACTIVITY

The quality of creative activity is assessed as part of the evaluation of the research activities of CTU and the academic and scientific staff directly involved in it, in accordance with the National Research Assessment. The results of the internal evaluation are used for strategic development and support for further development of the capacity of CTU research activities. Furthermore, quality is assessed according to the evaluation of CTU artistic outputs registered in the Register of Artistic Outputs (RAO).
The results of creative activity at CTU must stand up to international scrutiny, bring new cutting-edge knowledge and discoveries in basic and applied research and promote excellence. The quality of the accreditation of habilitation procedures and procedures for the appointment of professor, including their

implementation, is controlled by the faculty Scientific/Artistic Councils and the Scientific Council. The process of quality assessment of creative activity at CTU is coordinated by the Vice-Rector for Science, Creative Activity and Doctoral Studies. The IEB regularly evaluates the achieved quality outputs of CTU in the field of creative activities and proposes measures for improvement in accordance with international standards.
The quality of creative activity is evaluated on the basis of publication activity (publications in impacted journals, among the top 25 percent of the most cited in their field) and the results of applied research (i.e. through granted utility models and inventions in V3S).

QUALITY OF RELATED ACTIVITIES

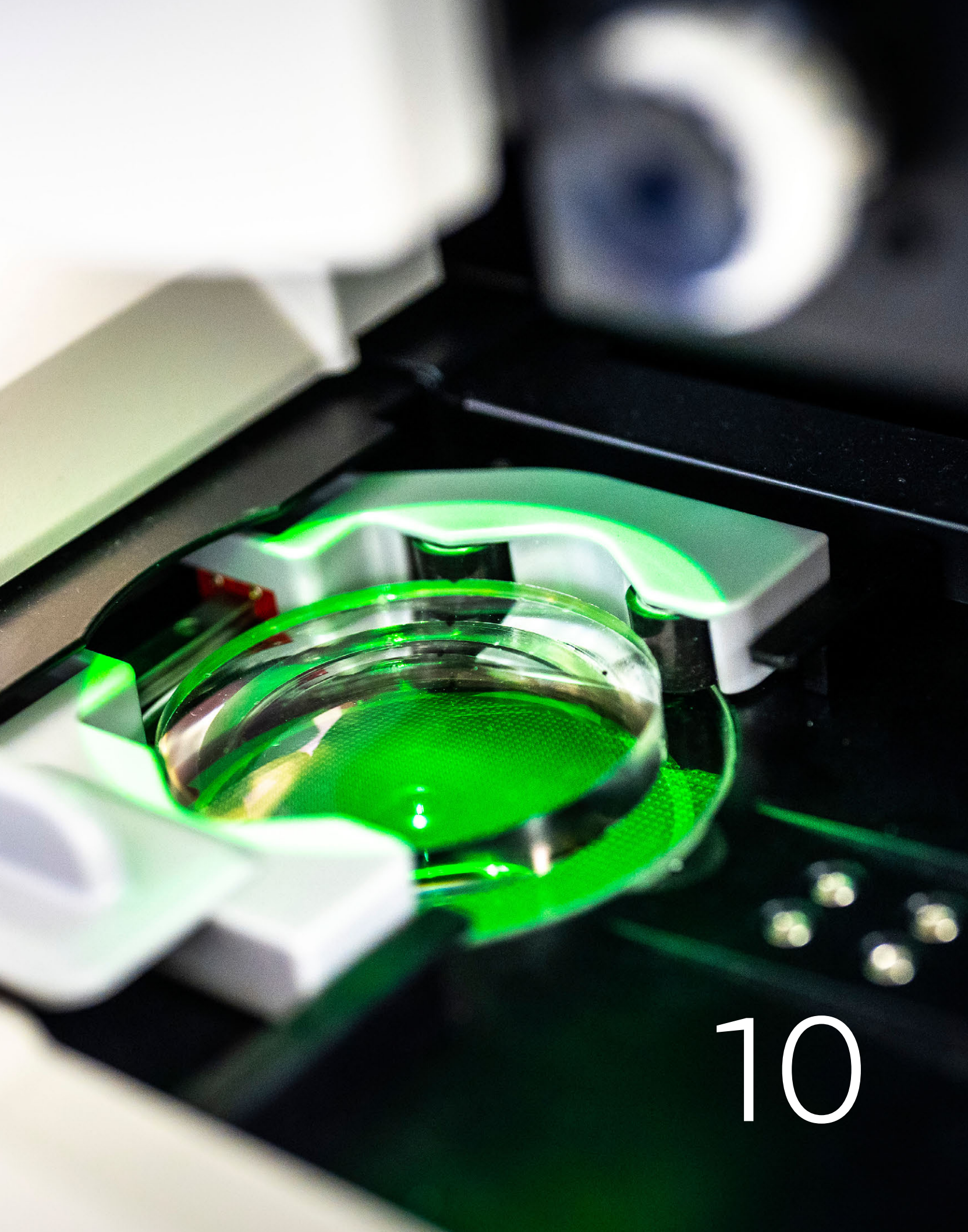
The quality of related activities is monitored within the framework of the implementation plans for the strategic development of CTU and its individual units. The quality of information systems, instrumentation, technological and infrastructural support, library services, publishing activities, accommodation, catering and medical care, as well as support for the inclusion of staff and students with specific needs are evaluated.
CTU has defined procedures for internal evaluation of activities ensuring the operation of CTU (i.e. space, operational, instrument, material, information security), which monitor the fulfilment of the set objectives in these areas. The IEC manages the process, regularly evaluates the outputs and proposes measures for improvement and development. The results of the continuous and periodic evaluation of the quality of CTU related activities are reflected in the update of the CTU strategy and in the system of evaluation of the quality of educational and creative activities.

INTERNAL EVALUATION OF STUDY PROGRAMMES

An integral part of the quality assurance processes for study programmes is to verify and ensure that newly prepared and already implemented study programmes meet the requirements set out in the Act, the CTU Study Programme Standards (PR No.11/2021 CTU Study Programme Standards of 1 July 2021) and other internal CTU standards. Study programmes are evaluated both on an ongoing basis and five years after their approval, in accordance with the internal regulation Quality Evaluation of CTU Study Programmes.

QUALITY ASSURANCE IN 2023

Rector's Order No. 8/2023 Internal Processes for Study Programmes Originally Accredited by the National Accreditation Office for Higher Education came into force in 2023.
With effect from 24 April 2023, the standard-setting process is modified by Rector's Order No. 11/2023 The system of standards and the standard-setting process of the CTU in Prague. It regulates the conditions for the issuance of internal regulations and standards throughout the CTU, sets out the procedures for their creation, structure and other requirements (see the Directive of the Vice-Rector for Quality Documentation Management effective from 10 May 2023, also available in English).
On 5 July 2023, the revised internal regulation Statute of the CTU Internal Evaluation Board came into force. The IEB now has 18 members, its chairman is the Rector, who appoints five members at his discretion and ten members on the proposal of the CTU AS and CTU SC. The other two members are appointed from among the students.
As of 1 October 2023, a modified Rector's Order on the Procedure for Internal Accreditation of Study Programmes is effective, which supplements and correlates the information related to the process associated with the granting of authorization to implement a study programme within an institutionally accredited field of education, which is primarily contained in the internal regulations and standards of CTU.
In 2023, the IEB initiated the internal assessment process for 22 study programmes, four of which were terminated. It also assessed twelve audit reports and approved the curriculum assessment plan for the next period. The draft five-year internal evaluation plan for study programmes was conceived in cooperation with the deans of the faculties. It will eventually be the basis for the annual faculty internal evaluation plans submitted to the IEB.
The IEB met for a total of twelve meetings in 2023, going through 169 items, of which 74 statements were agreed upon. It dealt with 14 study programmes, granted permission to conduct the program, approved substantive changes, program expansions, or noted fewer substantive changes. An overview of the approved study programmes of the IEB is presented on the CTU Portal.
In 2023, the Council of the National Accreditation Office granted accreditation to six doctoral study programmes of the Faculty of Nuclear Sciences and Physical Engineering and two bachelor's study programmes of the Masaryk Institute of Advanced Studies, which also extended the accreditation of two bachelor's and two master's degree programmes.
The draft five-year plan for the internal evaluation of study programmes was conceived in cooperation with the deans of the faculties. The annual internal evaluation plans submitted to the IEB will be based on this proposal.




Study in Prague


Marketing

10 National and international excellence

NATIONAL AND INTERNATIONAL RESEARCH, DEVELOPMENT AND CREATIVE ACTIVITIES

CTU continuously demonstrates its national and international competitiveness not only in education, but also in science, technology development and creative activities. It focuses on and promotes interdisciplinary internationalisation, openness and diversity of opinion. In 2023, CTU authors collaborated most frequently with colleagues from the United States, Germany, Great Britain, Poland, France and Italy, as well as China, in the fields of particle physics, astronomy and astrophysics, and nuclear physics, where almost ¾ of the total number of publications were published. In total, 7,863 publications in 148 fields were published by authors from these countries. Compared to 2022, this is an increase in collaboration both in the total volume of publications (+293) and in the number of fields (+38). Detailed data are given in the **Table Annex, Section 8**.

CTU invests annually in the development and equipment of prestigious research centres of excellence, laboratories and testing rooms. In 2023, however, the volume of total investment funds fell by 77% year-on-year.

According to the ranking of the best institutions in the field of informatics (Computer Science), computer scientists from the Faculty of Electrical Engineering and the Czech Institute of Informatics, Robotics and Cybernetics are among the European leaders in selected fields. In the field of Computer Vision, researchers from these institutions rank among the top five European institutions in the evaluation of scientific results over the last five years. The European Mathematical Society (EMS) has newly established the EMS Young Academy (EMYA) to support young researchers in mathematics. It will be composed of PhD students and recent PhD graduates. It will have a total of 120 members who will be elected successively for four-year terms. A quarter of the organisation will be renewed each year. Among the first ever thirty mathematicians to receive a mandate this year is RNDr. Zdeněk Mihula, Ph.D., from the Department of Mathematics, Faculty of Electrical Engineering, CTU

One of CTU's strategic priorities is direct participation in international projects and cooperation with top foreign experts and specialists. CTU is particularly strong in the research areas of artificial intelligence, informatics, cybernetics, quantum and civil, mechanical, electrical and nuclear engineering. This research portfolio is complemented by the fields of architecture and biomedical engineering, which provide a solid base for interdisciplinary problem solving. In 2023 CTU has been awarded funding for 20 research projects in the European Commission's Horizon Europe programme, including 1 EDF, 2 ERC and 5 MSCA. The total number of projects in the Horizon Europe programme rose to 45. For the third year already, CTU is a member of the EuroTeQ Engineering University, which brings extraordinary opportunities for students, researchers and staff to participate in a project whose ambition is to develop the quality and excellence of technical higher education. Students can apply for the EuroTeQ Collider - an educational competition based on real challenges from industrial partners. Also in 2023, the theme of this collaboration was Leave no waste behind. At CTU, a total of ten new themes were selected for solution (six more than in the previous year), namely:

- Analysis of the product range (or selected parts thereof) of our business divisions Plumbing-Heating-Sanitary and Tools,
- "Forgotten" structural and material systems from natural materials and their potential for a sustainable future,
- Verifying the feasibility of mass replacement of traditional building materials with "growing" resources,
- Potential for the use of green hydrogen technology to optimize the production of concrete elements,
- Alternative smart concepts to replace gas pressure stations and to reduce emissions,
- Methane emissions - monitoring, quantification, and evaluation of the emission footprint of fugitive emissions of natural gas in the distribution network,
- Smart City 2050 - Future energy design for a selected Czech village/city in the year 2050,
- What to do with waste? - Utilizing waste from beer labels after bottle cleaning in Velké Popovice,
- Development or application of innovative regenerative technologies in residential housing,
- Sustainable Mobility for Inhabitants: Understanding Residents' Needs.

Further possibilities are offered by the virtual EuroTeQ Course Catalogue, which contains 118 foreign courses implemented by partner universities, to which CTU students can apply. For detailed information, see Chapter 7. Internationalization.

In 2023, the European Union decided to extend the funding of the EuroTeQ Engineering University alliance until 2027. Over the next four years, €12.8 million will be invested in the EuroTeQ 2030 project and will focus on the development of the following activities:

- EuroTeQ Campus - a joint teaching space of partner universities, which will be complemented by additional study programmes and courses; the aim is to expand the pool of graduates with international study experience.
- EuroTeQ Collider - in the context of solving real-life practice challenges, it allows students to gain unique experience in interdisciplinary teamwork and entrepreneurial skills.
- EuroTeQ Academy - develops a lifelong learning offer for employees of partner universities and external experts, introduces new learning opportunities that respond to current needs and societal challenges. In 2023, three international educational events were held at CTU under the auspices of EuroTeQ, 18 CTU employees travelled to partner universities and we welcomed 28 employees from universities associated in the EuroTeQ alliance.
- EuroTeQ Education Lab - forms an interface between pedagogical research and pedagogical practice, develops, tests and implements innovative teaching formats, while deepening the internationalisation of teaching staff at partner universities.

In January 2023, a non-profit organization called CzeCCAM (Association for Autonomous and Cooperative Mobility) was established in the Czech Republic, whose main goal is to support the development of autonomous mobility technologies. CTU is represented by the Faculty of Transportation Sciences, other members of the association are VDT Technology, Yunex, SÜD, Smart Plan, Prague Advanced Technology and Research Innovation Center (PATRIC) and IDIADA.

An important role in the area of national and international excellence continues to be played by research and educational activities taking place at the Czech Institute of Informatics, Robotics and Cybernetics within the National Centre for Construction 4.0, the Centre of the City of the Future, the RICAIP Centre of Excellence or the National Centre for Industry 4.0, where experiments with the newly implemented stand-alone campus 5GSA private network are underway. The Institute is also home to joint laboratories with Škoda Auto, Eaton and Rockwell Automation.

In cooperation with the CIIRC, the Faculty of Mechanical Engineering operates a laboratory focused on research, applications and teaching in the field of manufacturing processes, machines and industrial robots. Unique manufacturing technologies in additive and subtractive manufacturing, laser technology and robotic process cells are installed here. This synergy makes it possible to carry out multidisciplinary research on the complex topics of digitisation and virtualisation of physical production. The state-of-the-art facilities of this infrastructure are also used for research in international teams and for training young mechanical engineers.

As part of the prg.ai initiative, CTU participates in the prg.ai Minor educational activity (together with UK) https://prg.ai/minor/ CTU also contributed to the implementation of the online Elements of AI course for the general public.

International excellence in research is also confirmed by other events in 2023. In June, SpaceX's Falcon 9 rocket carried into space the HardPix radiation detector developed by the Institute of Technical and Experimental Physics and manufactured by BD Sensors. HardPix will thus join the SATRAM detector, also developed at CTU, which has been operating successfully in Earth orbit for more than 10 years. This event follows the successful launch of the 2SD particle detector, developed by scientists from the Faculty of Nuclear Sciences and Physical Engineering, which has been mapping "space weather" and ionising radiation in Earth orbit since January 2022.

In 2023, the faculty has established cooperation with the House of Lobkowicz and will implement projects to digitise the Lobkowicz collections and make them accessible to the general public. This is the first cooperation between House of Lobkowicz and a public state university of purely technical focus.

A team of experts from the Faculty of Biomedical Engineering and the 1st Medical Faculty of Charles University built a new unique Telerehabilitation Laboratory equipped with the Homebalance system at the spa in Velké Losiny. This modern technology is suitable for patients with balance disorders and can be used in physiotherapy for patients after orthopaedic surgeries, with reduced mobility of the lower limbs or in chronic stages of neurological and orthopaedic diseases, when conventional treatment often does not bring significant improvement.

In 2023, faculty researchers completed a project to develop an Obstacle Detector for the Blind and Visually Impaired. It is a device that will enable assisted orientation in space, alerting to possible obstacles.

In collaboration with manufacturers, researchers from the Faculty of Engineering have developed a unique reverse jaw joint replacement and created a method for printing individual braces for children after cerebral palsy. Research is currently underway on 4D printing of memory alloys in implants for the treatment of complicated fractures in children. In cooperation with foreign partners, the faculty is also developing new designs of blood vessel replacements from materials prepared by 3D bioprinting.

The Cogni Trainee app can help detect incipient Alzheimer's and Parkinson's disease. It uses machine learning and mathematical models to test memory, speech, attention, spatial orientation and decision-making. A team of scientists and experts from the Czech Institute of Informatics, Robotics and Cybernetics, the Prague Innovation Institute, TMobile and the National Institute of Mental Health worked for three years to develop the innovative platform.

NATIONAL AND INTERNATIONAL AWARDS

The prestigious Forbes magazine 30 under 30 list, i.e. 30 talented, capable and successful people under 30 years of age, included students Tomáš Trejdl (Faculty of Electrical Engineering) and Kristina Jarůšková (Faculty of Nuclear Sciences and Physical Engineering)

The Prof. Daniel Mayer Prize for the best student of electrical engineering faculties was awarded in 2023 to Ing. Tomáš Kouba.

In the prestigious competition The Global Undergraduate Awards 2023, which is called the Nobel Prize for juniors, Dominika Burešová, a student of the Faculty of Electrical Engineering, was among the winners in the category of mathematics and physics. With her bachelor's thesis, which she prepared under the supervision of Prof. Pavel Pták from the Department of Mathematics

and whose opponent was Austrian physicist Karl Svozil, an associate of Nobel Prize winner Anton Zeilinger, Burešová succeeded in the competition of more than 2,800 other students from 409 universities worldwide.
Students of the Faculty of Information Technology took the top places in the international competition European Healthcare Hackathon with the design of unique IT applications, the first concerned the individual detection of ECG abnormalities in each patient, the second dealt with ensuring the fastest possible first aid. In cooperation with historians, faculty experts and IT specialists managed to virtually reconstruct the history of Hradec Králové and make it available to the public through a mobile application. The international and national excellence and reputation of CTU was also supported by other students of the Faculty of Informatics. Jakub Janeček created the first application in the Czech Republic, thanks to which it is possible to analyse transparent accounts in detail. Pavlína Koutecká, a graduate of the Faculty of Electrical Engineering, proposed under the guidance of Associate Professor Přemysl Šůcha, Head of the Optimization Group at the CIIRC of CTU, the possibilities of better planning of surgical interventions in hospitals so that the optimal utilization of doctors, theatres and priority resolution of the most important surgical procedures for patients. The proposal was awarded a silver medal in the IT SPY 2023 competition.
David Woller and Tomáš Hromada, students from the Intelligent and Mobile Robotics (IMR) group of the Czech Institute of Informatics, Robotics and Cybernetics, repeated their success from 2020 and again won second place in the Junior Optimization category of the ROADEF Challenge 2022, announced in 2023. The Vampire prover succeeded in the World Championship in Automatic Reasoning - The CADE ATP System Competition. Provers could make the work of mathematicians, logicians, programmers, system designers (software, hardware, communication protocols), etc., easier or less complex, which is especially important for systems on whose correct and reliable functioning human lives depend, such as in medicine or transportation.
Doc. Ing. Jan Rusz, Ph.D., Ing. Michal Novotný, Ph.D., and Ing. Tereza Tykalová, Ph.D., from the Faculty of Electrical Engineering received the 2023 Prize of the Minister of Health for the development of an automatic video analysis of facial movements that can detect Parkinson›s disease in the early stages of the disease. Dr. Radek Janča (Faculty of Electrical Engineering), who develops new methods for the diagnosis of epilepsy and its subsequent treatment within the EpiRec project, was also awarded the Prize of the Minister of Health in 2023.
Professor Vladimír Šlapeta from the Faculty of Architecture received the Jean Tschumi Award for architectural writing and criticism and outstanding contribution to architecture in the field of teaching from the International Union of Architects. The prize of the Chairman of the Senate of the Parliament of the Czech Republic, Miloš Vystrčil, was awarded to the project of transforming the birthplace of Josef Mašín into the Three Resistance Movements Memorial. The design was prepared by students of the school studio of Tomáš and Klára Hradečná under the guidance of their teachers.
The basic research project, which is expected to have a significant scientific impact on a global scale, will be implemented thanks to the JUNIOR STAR grant by Ing. Lukáš Neumann, Ph.D., from the Department of Cybernetics, Faculty of Electrical Engineering. The Grant Agency of the Czech Republic (GA CR) awards these grants to support excellence in budding outstanding scientists.
Josef Šivic from the Czech Institute of Informatics, Robotics and Cybernetics won the Research and Development category of the prestigious national AI Awards, awarded by prg.ai, Brno.AI and CzechInvest. His long-term cutting-edge scientific work was underscored in 2023 by winning a prestigious ERC Advanced grant in the field of intelligent computer systems capable of learning in a dynamically changing world.
For his merits in the field of science and research, Czech Prime Minister Petr Fiala awarded the Karel Kramář Medal to Professor Michal Pěchouček, Director and co-founder of the Centre for Artificial Intelligence at the Faculty of Electrical Engineering and a leading Czech expert in innovation and research in artificial intelligence, machine learning and cyber security.
The prestigious Neuron 2023 Award, given to the best Czech scientists and promising scientific talents, was also awarded to Dr. Zuzana Kúkelová, an expert in computer vision from the Faculty of Electrical Engineering.
Professor Vladimír Kučera was elected to become a member of the highly elite American Philosophical Society in 2023. He is the fourth citizen of the Czech Republic to receive this privilege, after Presidents Masaryk (1936), Beneš (1939) and Havel (1995). As already mentioned in Chapter 8, CTU is the holder of the European Commission›s HR Excellence in Research Award until 2024.

INTERNATIONAL EVALUATION OF THE UNIVERSITY

For the first time since 2019, CTU's position in the international university ranking "QS World University Ranking" 2023 has dropped by 76 places to 454th place. This ranking is one of the three most prestigious. 2,963 universities from 104 countries were compared (501 more institutions and four more countries than in the previous comparison). Nine criteria were evaluated: reputation among teachers and researchers from other universities, reputation among employers, citation rate of authors, internationalisation of academia, numbers of international students, average number of students per lecturer and three new criteria: international research network, employment performance and sustainability. Citation of authors is still a weakness of CTU, while sustainability and employment outcomes have been added.
In the QS Subject Rankings, published in 2023 (and based on data from 2022), CTU is ranked 190th in the world in Engineering and Technology. In the case of specific disciplines, Civil Engineering was the best ranked discipline within CTU, at 151st-200th place. Architecture ranked 201st-240th for the first time since 2018. Computer Science and Information Systems, Engineering - Electrical and Electronic, Engineering - Mechanical, Aeronautical, and Manufacturing, Materials Science, and Physics and Astronomy were ranked 201st-250th. With the exception of Physics and Astronomy, CTU is ranked first in the country for all of these disciplines. Another respected ranking of universities is The Times Higher Education World University Ranking, where

CTU is ranked between 1,000 and 1,200 in 2023 (note: rankings based on 2021 data). It is strongest in the "International Outlook" category, where it achieved a ranking of 60.2/100, among the top 30 percent of universities, and "Industry Income" (ranking 51.9/100). There was also a slight improvement in the "Teaching" category. There was also a significant improvement in the "Citations" category (now renamed "Research Quality"), from 15.5 to 32.2, mainly due to a complete overhaul of the methodology of this category.

The rankings are based on 17 indicators, seven of which focus on citations and publications, which together account for 59 per cent of the overall ranking. The biggest event in 2023 is the impact of the new methodology, which changed the measurement of citations (30 per cent of the total) and reputation surveys (33 per cent of the total). CTU rose in all major categories, even where there was no methodological change, and gained more than most Czech universities from the changes. Overall, Czech universities improved by approximately 75 places in 2023, while CTU improved by approximately 239. All Czech universities benefited from the new "Citation" methodology, but CTU was one of the biggest beneficiaries, more than doubling its previous score in this indicator. One of the biggest factors of the new "Citation" methodology is the subcategory "Research Influence", which measures how many citations papers that cite CTU publications have received. In this subcategory, CTU scored 74.4/100, its second highest score, while citation impact (direct citations to CTU publications) was 13.8. According to Billy Wong, senior data scientist at Times Higher Education, this disparity shows the influence of CTU research, but filtered through other publications. In short, it shows the potential of CTU publications but their lack of visibility and promotion. This may also have an impact on the low citation scores of CTU authors in the international QS evaluation, which is however based on a different methodology (see above). Both ranking systems evaluate publications and citations in two ways: the QS uses the metric Citations per Staff (academics and researchers), while Times Higher Education uses Citation per Publication. Both systems use a five-year weighted average of publications and citations, with more weight given to recent years. The results in the chart should be taken as an overall guide to the performance of individual faculty in the rankings, not as an accurate explanation of the results of the rankings. While the total number of publications and citations decreased in 2023 compared to 2022, lower headcount and fewer publications led to an improvement in the research effectiveness indicators from a ranking perspective. The number of citations per staff member is 9.59 in 2023 compared to 9.55 in 2022 and the number of citations per publication is 7.48 in 2023 compared to 6.4 in 2022. The largest increases in citations from 2022 to 2023 are from the Faculty of Mechanical Engineering (from 2,648 to 3,751 citations received) and the Faculty of Electrical Engineering (from 5,049 to 5,957 citations received). The Faculty of Electrical Engineering (5,957) also received the absolute most citations in 2023, followed by the Faculty of Nuclear Sciences and Physical Engineering (5,440). In the case of citations per employee (QS methodology), the Faculty of Nuclear Sciences and Physical Engineering is well above this average with 27.54 citations per employee. Among the institutes, the Institute of Experimental and Applied Physics achieved an average of 105.5 citations per employee. The Faculty of Architecture (0.31), the Faculty of Information Technology (1.57) and the Faculty of Transportation Sciences (2.01) have the lowest scores in this category. As measured by Times Higher Education, the university-wide average number of citations per publication reached 7.48 in 2023, an increase of more than one citation per publication due to fewer publications. The Institute of Technical and Experimental Physics (12.00), the Czech Institute of Informatics, Robotics and Cybernetics (10.32) and the Klokner Institute (10.29) performed well. The Faculty of Electrical Engineering (8.01) and the Faculty of Mechanical Engineering (7.99) are above the university average, but the other faculties are significantly behind it. The source for the calculation of these indicators is the database of the Central Library of CTU (for citations) and the personnel department of the Rector's Office of CTU. It should also be noted that the international rankings for a given year are based on data from previous years, and therefore the outputs in the Table section are processed in this chosen form.

Significant differences are in the category of the share of foreign employees, which increased from 13.6% to 13.8%. The Institute of Experimental and Applied Physics (51.8%), the Czech Institute of Informatics, Robotics and Cybernetics (25.3%), the Faculty of Electrical Engineering (22.5%), the Faculty of Nuclear Sciences and Physical Engineering (20.9%) and the Faculty of Information Technology (17.6%) have the highest share of foreign employees. On the other hand, the Klokner Institute, Faculty of Civil Engineering, Faculty of Architecture, Faculty of Biomedical Engineering, Faculty of Mechanical Engineering and Faculty of Transportation Sciences are significantly below the university average. The proportion of foreign students varies from faculty to faculty. Overall, 22% of foreign students studied at CTU in 2023, which is 0.36% more than in 2022. The leading faculties are the Faculty of Information Technology (35%), the Faculty of Nuclear Sciences and Physical Engineering (29.3%), the Faculty of Electrical Engineering (28%) the Faculty of Architecture (27.8%), while the Faculty of Biomedical Engineering has the lowest proportion of foreign students (8%). The Faculty of Nuclear Sciences and Physical Engineering has the highest increase compared to 2022, by 4% (and by 8.3% from 2021).

In the case of the number of students per employee (academic and research), there has been a slight improvement of 0.18 fewer students per employee compared to 2022. The Faculty of Nuclear Sciences and Physical Engineering leads with 4.7 students per employee, followed by the Faculty of Mechanical Engineering (5), the Faculty of Transportation Sciences (5.9) and the Faculty of Electrical Engineering (6.3). In contrast, the highest number of students per employee is at the Masaryk Institute of Advanced Studies (19.1), followed by the Faculty of Information Technology (16.4), the Faculty of Biomedical Engineering (13.2) and the Faculty of Architecture (11.9).

From 30 November to 1 December 2023, the CTU held the 4th meeting of the Czech University Rankings Group (CURG), hosted by the University of Hradec Králové. The meeting was attended by 30 representatives from 18 universities, including two guest representatives from Poland and one from Slovakia. This is a group of experts and politicians who are responsible for the data used in the QS or THE university rankings. Representatives from QS,

THE and Elsevier participated in presentations and individual meetings with universities. The presentations focused on information about the new ranking methodology and the strengths and weaknesses of Czech universities. An emerging theme of the event was the impact of reputation assessment in both major ranking systems and the importance of improving international visibility. As a result of these discussions, for the first time several universities nominated lists of hundreds of academic contacts to be sent a reputation survey by QS. This is advantageous for all CURG members, as these contacts are likely to know Czech higher education and can therefore vote for several Czech universities in the surveys. CURG plans to continue sharing best practices and knowledge to improve the performance of Czech universities in reputation measurement.

INTERNATIONAL ACCREDITATION

In cooperation with a foreign university, a total of 19 study programmes were implemented at CTU in 2023, 17 of which were in the follow-up master's study programme. Compared to 2022, the number of these study programmes has decreased by only 1. Most of them were implemented at the Faculties of Civil Engineering and Electrical Engineering (10 in total).

The Faculty of Transportation Sciences also offers studies in the follow-up dual-degree program "SC - Smart Cities", where teaching is carried out in cooperation with the Faculty of Architecture of CTU and abroad with The University of Texas at El Paso in the United States.

Czech and American students receive a master's degree from both universities upon graduation. Based on the interest from the American side, intensive negotiations were held in 2023 to increase the study capacity beyond the current maximum of seven students.


CEAD

Ing. Lucie Orgoníková
Chancellor

"Third role of the university is to actively respond to societal challenges, market demand, as well as cultural and political situations. CTU has been emphasizing this for a long time. By educating professionals, establishing a general discourse, and advocating the values of freedom and democracy, academia contributes to society--wide development and quality of life. In 2023, it was doubly necessary to do so; the war in Ukraine continued, the CTU persisted in its assistance. The staff of the Rector's Office of the CTU also once again contributed to the purchase of Christmas presents for the children of Ukrainian refugees staying in the Strahov dormitories.
In October, Hamas terrorists attacked Israel, and just before Christmas Czech society was shaken by a tragedy at the Faculty of Arts at Charles University. We immediately expressed our support and offered help to the victims of these attacks.
People from CTU again participated in charity events (e.g. TeriBear), future rescue workers drew attention to the need for blood donation, and I could name many other events and actions.
I am convinced that the CTU will successfully and honourably fulfil its third role in regional and international social activities in 2023. I thank all my colleagues for this."

11 Third role of the university

CTU is an important and indispensable partner for society in terms of technological focus on the application sphere. The cooperation carried out in this form is mutually beneficial - the university's scientific teams are involved in industrial projects, while experts from industry help students understand and engage in practice, as detailed in Chapter 8.

The development and deepening of cooperation with the application sphere and industrial partners is carried out within the framework of contractual activities, consultations and consultancy, testing and forensic expertise. Intellectual property protection and technology transfer are dealt with at CTU both at the faculty and school level. The InQbay incubator has been operating for a number of years. Facilitating the way for new opportunities in knowledge transfer into practice is also the role of CTU Tech, s.r.o., a subsidiary of CTU established in 2021. In comparison with the previous period, total revenues from the transfer of knowledge and research results into practice increased by more than CZK 73 528 thousand in 2023 year-on-year.

Knowledge transfer between academia and industry has long played an important role at the Czech Institute of Informatics, Robotics and Cybernetics, where successful student start-ups are also incubated through the eClub accelerator. The Faculty of Information Technology also excels in the transfer of technology into practice, for example in the licensing of intellectual property represented by software applications. Long-term cooperation in the field of applied research and development also takes place at the Faculties of Civil, Mechanical, Transportation Sciences and Biomedical Engineering. The Faculty of Electrical Engineering has carried out dozens of collaborations with industry as well as governmental institutions. In November, the Dean, Prof. Petr Páta, signed a Memorandum of Cooperation with the Office of the Government of the Czech Republic in the field of cybersecurity. In the next year, faculty experts will map the state of information security of the office and the departments that fall under it, and will provide consultations in the field of cybersecurity. As part of the cooperation with the Czech Telecommunications Office, researchers from the Faculty of Electrical Engineering supplied F-testers for testing mobile networks worth almost CZK 10,000 thousand. The Faculties of Nuclear Sciences and Physical Engineering and Architecture are also focused on cooperation with public administration and state enterprises.

In April 2023, the Rector of CTU, RNDr. Vojtěch Petráček, CSc., and the 1st Deputy Chief of the General Staff of the Czech Army, Lieutenant General Miroslav Hlaváč, signed a "Memorandum of Cooperation in the Development of Breakthrough Technologies for the Needs of the Czech Army". This document defines the involvement of CTU in projects of breakthrough technologies and designing their introduction into the Army. The connection of science and research with the military and industry is evidenced by a number of other activities, through which it will be possible to further develop the contractual framework of cooperation with the Army of the Czech Republic. In May 2023, the Rector of CTU participated in the IDET International Defence and Security Technologies Fair in Brno, where he and the Director of the state enterprise LOM Praha, Jiří Protiva, signed two important documents confirming the cooperation of both institutions in the field of transferring scientific knowledge into practice: the Cooperation Agreement and the Agreement for the Provision of Consulting Services.

During the fair, the Rector of CTU also met with representatives of the Aerospace Industry Association. The result of this meeting was the conclusion of a Partnership Cooperation Agreement between CTU and the Aerospace Industry Association, especially in the field of research and development of aerospace technologies applicable in the civil and defence sector, including prospective cooperation within the framework of rearmament projects of the Czech army.

In September 2023, a Memorandum of Understanding was signed between CTU and Honeywell in the area of cooperation on research and support for sustainable aviation and space technology development.

Excellence and uniqueness on an international and national scale has been demonstrated by CTU in 2023 in many other specific projects and activities that transfer scientific knowledge into practice (see Chapter 10 for details).

However, the transfer of scientific knowledge into practice also took place through professional conferences, forums and debates. In April 2023, the CTU hosted a Construction Forum organised by the National Centre for Construction 4.0. The event was opened by the Minister for Science, Research and Innovation Helena Langšádlová. Representatives of companies and academia participated in the panel discussion, which focused on innovations in the construction industry and the use of technologies that would ensure development in the field of digitalization and automation.

The University Centre for Energy Efficient Buildings organised a series of four moderated discussions on the decarbonisation of the building industry, recycling of building materials, renewable

energy sources or timber buildings. The CTU thus contributed to opening up the important issue of sustainability in the building sector and its future development.
In December 2023, a Structured Scientific Research Dialogue was held between CTU and the General Staff of the Army of the Czech Republic in the presence of the Chief of Staff, Lieutenant General Karel Řehka. On this basis, future cooperation between experts from both spheres - academic and defence - is planned in the field of quantum, cryptography, robotics, artificial intelligence, energy and medicine.
In November, CTU was ranked silver in the evaluation of the School Recommended by Employers, awarded by the Czech Employers› Club, whose priorities include the development of education and the transfer of requirements from employer practice to various levels of education, including university education, and the promotion of interest in technical education from primary school.
An important application of the results of the current research on high-value concretes in practice was the implementation of the Holešovice-Karlín footbridge. The footbridge built from an innovative material (with high strength and durability) developed at the Klokner Institute was awarded the prestigious title of Building of the Year.

OPERATING IN THE REGIONS

CTU has a major position and influence not only in the capital city of Prague, where a significant part of the university is located, but also in the Central Bohemia Region. It is here that the Faculty of Biomedical Engineering and the University Centre for Energy Efficient Buildings operate. It is also the location of the engine and automotive testing facilities of the Faculty of Engineering. Within the Sustainable Mobility Vehicle Centre, an official partnership has been in place since 2002 with the American company Gamma Technologies (formerly Inc., now LLC), a world leader in the field of vehicle powertrain simulations (combustion engines, electric drives and batteries as well as fuel cells, optimum in-service control, cooling system, pollutant reduction, heating and air conditioning, etc.) in relation to the design of the entire vehicle, which has resulted in numerous contracts with foreign partners, including work for the Formula 1 team. The results of this collaboration have also been presented in several papers at various international events. The study centre of the Faculty of Nuclear Sciences and Physical Engineering and the Faculty of Transportation Sciences is located in the Ústí nad Labem region. In Hradec Králové there are test facilities for turboprop engines of the Faculty of Mechanical Engineering.

YOUTH EDUCATION

CTU is the founder of the University Primary and Nursery School Lvíčata. The school and kindergarten are located on the Dejvice campus in Prague 6. The nursery school has a second branch located on the VŠE campus, which is also attended by children of VŠE employees and students.

Both the school and the kindergarten cooperate closely with the individual faculties and institutes of the CTU, for example, pupils have the opportunity to visit professional workplaces. Experts from individual faculties are involved in teaching, which is focused mainly on computer science, mathematics and science subjects. The primary school has become part of a network of schools cooperating with Mensa ČR. Pupils after completing the first stage of primary school go mainly to multi-year grammar schools.
CTU thus awakens children's interest in technology, science and scientific research. Thanks to small class teams and close cooperation with parents, pupils achieve very good results in science-oriented competitions such as the Mathematical Olympiad, the Mathematical Kangaroo, the Logical Olympiad, Pangea and others. The lion cubs from CTU participated in the Christmas Astro art competition, which was organized by the Academy of Sciences of the Czech Republic in cooperation with the Planetum organization within the framework of the Space for Humanity platform. The theme for preschool children was "A Trip to the Stars", they could express themselves through drawing, model, their own poem, let their imagination run wild. At the same time, the CTU develops cooperation with the Prague 6 district and its schools. Another important activity is the suburban camp for primary school children called Children's University, which CTU has been organising for many years at the beginning of July. It starts with the "inauguration" and ends with the graduation of "Young Bachelors" and "Young Masters" in Bethlehem Chapel. It is held under the auspices of the Rector of CTU, who is also present at both ceremonies. Throughout the week, children visit CTU faculties and other specialised departments, but there is also a rich sports programme. Every year, the Children's University has around 350 participants, thanks to the long-standing care of Michaela Kostelecká from the CTU Rector›s Office.
In mid-November, the annual awards of the Employers› Club 2023 were also presented. CTU in Prague was ranked silver in the category of School Recommended by Employers.
One of the club›s priorities is the development of education and the transfer of requirements from employer practice to the various levels of education, from apprenticeships through secondary schools to universities, and the promotion of interest in technical education from primary school onwards. The Employer Recommended School assessment contributes to this at regional and national level.

To cultural life with CTU

CTU continued to support cultural life in 2023. The university's internet television "station" TV9P continued to broadcast. The interest of those involved has enabled the programme to be extended so far. TV9P came up with new ideas for dramaturgy of filming and became a documentary part of CTU. For example, it produced a documentary about the Banat Festival in 2023.
The Jaroslav Fragner Gallery, which was purchased by the CTU in 2020, will operate from 2023 under the leadership of its new director, Karolína Plášková. The gallery premises underwent reconstruction at the beginning of the year. In addition to exhibitions, it also organises social and educational meetings. The GJF, the Bethlehem Chapel and its courtyard are part of the Bethlehem

Beseda project - a cultural centre of the CTU, where exhibitions, concerts, film screenings, etc. are held.
The CTU Academic Orchestra is a musical ensemble that brings together students from other universities and performs in the Bethlehem Chapel as well as on other Czech and foreign stages. The repertoire is wide, from classical to multi-genre. The same can be said of the CTU Choir, which is an artistic association not only of students and graduates of CTU, but especially of enthusiasts for choral singing. The third musical ensemble of the CTU is the Symphony Orchestra of the Art Association of the CTU, which often cooperates with the Choir, especially during the Christmas and Easter periods. The theatre is also represented at the CTU in the form of the theatre ensemble Comica Economica.

Popularization events

CTU is a co-organizer of events such as ScienceFest or Night of Scientists, intended for the general public. The many thousands of visitors are proof of the popularity of both events, which popularize science and strengthen the CTU brand. CTU is also connected with the so-called Vector Technická, when outdoor events, such as Hanami - the Sakura Festival, as well as formula car and motorcycle races from CTU workshops, are held in the Technical Street section of the Dejvice campus from April to October. In 2023, the CTU also participated in the Science Fair, Innovation Week and the Gaudeamus post-secondary education fair. It is also a founding member of the Maker Institute project, which runs the so-called Mobile FabLab, a shared workshop intended for individuals to produce computer-designed products, projects and works of art.
Presentation of student formulas and motorcycle took place at the traditional event Racing Day CTU in October 2023. The event attracted the interest of the general public.
For the fourth time, future paramedics from the Faculty of Biomedical Engineering drew attention to the irreplaceability of human blood and the shortage of donors at the Donate Blood! event held in December 2023 at the Kladno Regional Hospital. The aim was to reach the general public and bring new volunteers to donate.

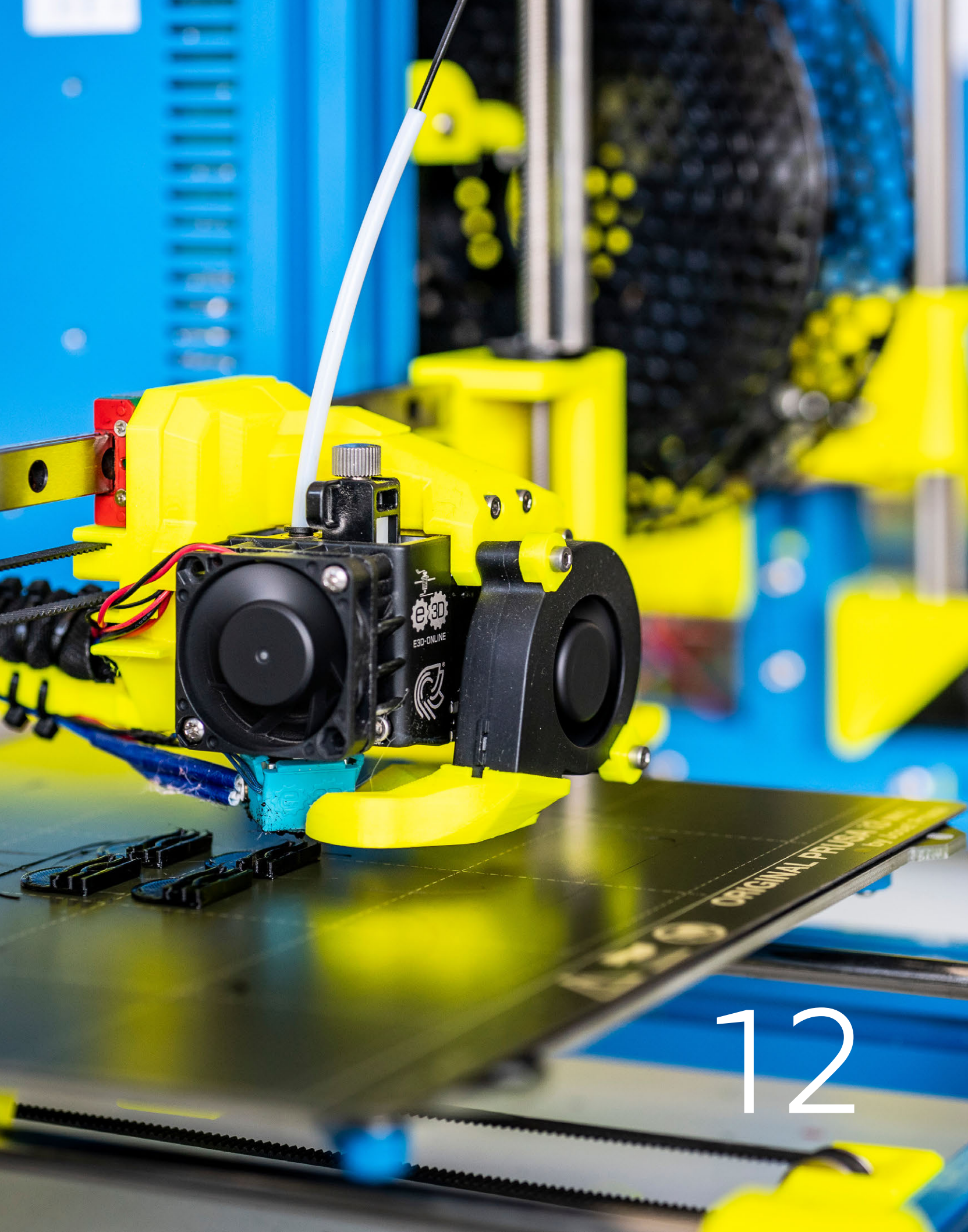
Sport at the university

CTU emphasizes the provision of sports activities for students and employees in many available forms of physical activities. This approach leads to the search for new trends and sporting activities that are offered to students and integrated into teaching.
The need for active movement and meeting across the faculties was manifested in the enrolment in physical education classes and the participation of students in sporting events organized by the Institute of Physical Education and Sport and within the Rector's Day. In 2023, the Engineers hockey team became a separate CTU Engineers hockey team. At the same time, the first monumental and spectator-successful hockey Battle of Prague was held and broadcast by Czech Television.
Representatives of CTU achieved great success at the Czech Academic Games in Olomouc, winning 7 gold, 8 silver and 16 bronze medals. Eight national teams joined the newly established University Leagues and successfully represented CTU both at home and abroad.
Antonie Galušková, a student of the Faculty of Transportation Sciences, won a silver medal at the World Water Slalom Championships in Krakow in August 2023. In September 2023, CTU students won a bronze medal in the paired fours race at the European University Rowing Championship.
On November 17, 2023, the IPES in cooperation with the physical education units of VŠTJ Technika Praha and VSK CTU Praha organized the traditional Academic Championship of the Czech Republic in cross-country running and the Run on November 17 in the Hvězda Forest. This event attracted almost 500 runners.
The MEYS VICTORIA UNIS project supports students with exceptional sporting careers. In 2023, there were 27 top athletes studying at CTU.

OPERATION OF UNIVERSITY WITH SUPRA-REGIONAL IMPORTANCE

CTU establishes a number of partnerships with research and non-profit foreign institutions and business partners. The international reach of CTU is also demonstrated by the success of its students, academics and researchers (see Chapter 10 National and International Excellence). CTU faculties and institutes are actively involved in the international education and research infrastructure, whether in the form of project partnerships, conferences, forums or competitions.
For example, the Faculty of Biomedical Engineering continues to cooperate with the Czech Development Agency (CDA) and the Cambodian University of Health Science, where a study programme in biomedical engineering will be opened from 2022. In 2023, thanks to a financial contribution from the CDA, a special laboratory was opened to teach the subjects of Fluid Mechanics in Biomedicine and Plumbing in Healthcare, as well as an application for collecting biomedical data from pregnant women and newborns, which was subsequently launched in the provincial hospitals of Kampong Chhnang, Baribo and Kampong Tralach. As part of the Professional Practice course, Biomedical Engineering students Bc. Markéta Dubská and Bc. Hana Šebestová participated in operator training. Thanks to these activities, the goals of the Czech Perinatology Hands Fly to Cambodia project, namely to reduce maternal and infant mortality under the age of five, are being met.
In 2023, the Klokner Institute also collaborated with prestigious foreign research institutions and universities such as the Joint Research Centre in Ispra, Italy, Politecnico di Torino, Torroja Institute in Madrid, TNO in Delft, TU Ghent in Belgium, EPF in Lausanne, Switzerland, and the University of Stellenbosch in South Africa, in the areas of qualitative and quantitative research on the reliability of structures, monitoring the behaviour of buildings and preparing expert reports on the safety of materials and structures.
The cooperation of the Faculty of Mechanical Engineering with GE Aviation, the largest American manufacturer of aircraft engines, has long been significant. The organisation of GE Aviation's activities in Europe, which changed in 2022, creates further new opportunities in Aerospace at European level. One of these is the implementation of the important EC project AMBER from the Clean Aviation programme, aimed at developing hybrid aircraft

propulsion for sustainable aviation and funded by the European Commission under the Horizon Europe programme.
The activities of the Czech Institute of Informatics, Robotics and Cybernetics, which is a member of global and European initiatives and platforms, such as CLAIRE (Confederation of Laboratories for Artificial Intelligence in Europe) and ELLIS (The European Laboratory for Learning and Intelligent Systems), also have a significant supra-regional reach. One of the most important ones is the participation in the Czech-German RICAIP Centre of Excellence, but also in others - (ICT48) ELISE, TAILOR, VISION and euROBIN and from 2023 also ELIAS - European Lighthouse of Artificial Intelligence for Sustainability. On behalf of the Institute, CTU has signed memoranda with Taiwan's Tunghai University on mutual mobility of researchers or with the National Institute of Medical Sciences University (NIMS University, India), aimed at creating digital partnerships. The Mařík Centre for Artificial Intelligence, named after the founder and scientific director of the institute, is already under construction in Jaipur, India. The foundation stone of the Centre was laid in March 2023. As part of this international collaboration, exchange visits of students and researchers and joint research projects in the fields of biomedicine and industrial robotics are also planned.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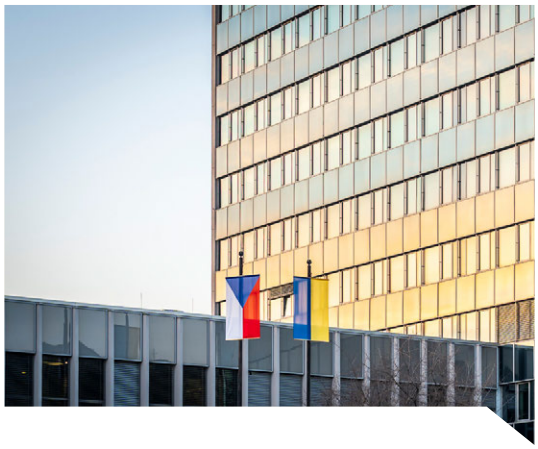


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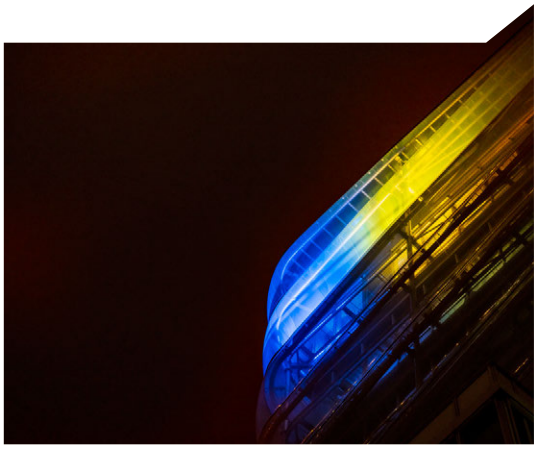


12 Activities of the university in connection with the impact of the state of war in Ukraine

Continued Russian aggression is testing Ukraine's resilience and resolve, as well as our willingness and ability to help. In relation to both the invaded country and the aggressor countries, CTU is responding to the war in accordance with the educational and foreign policy of our country, as well as in line with the current actions of the European Union authorities.

Rector's Order No. 2/2022, which prohibits, among other things, the financing of research in the territory of the Russian Federation and Belarus, the sale of licenses and patents in the territory of both countries to companies owned by Russian or Belarusian entities or the recruitment of scientists from Russia and Belarus, and the travel of CTU employees and students to the Russian Federation and Belarus for the purpose of research and study, is still in force. Exceptions are made for those fleeing Putin, Lukashenko and their regimes. All contracts and agreements on research cooperation between the university and Russian and Belarusian institutions are suspended. The CTU undertakes to prevent the provision of direct and indirect technical assistance to natural and legal persons from these countries.

The procedure for admission of students from the Russian Federation and Belarus and the rules for further studies of students from these countries are described in Rector's Order No. 12/2023 (effective from 9 May 2023, it replaced Order No. 5/2022), which implements the sanctioning measures of the European Union authorities. Of course, CTU continues to offer assistance in various areas of life to students and workers from Ukraine and their families. The Centre for Information and Counselling Services of CTU (CIPS) and the ELSA Centre for Support of Students with Specific Needs offer psychological support and assistance to all students who feel affected and threatened by the war in Ukraine.

The Career Centre provides consultancy services to Ukrainian students and their families in their job search. For help with visa applications and extensions, contact the International Student Club (isc.cvtu.cz).

The fact that this is not just formalized and administrative assistance is evidenced, among other things, by the organization of Christmas celebrations at the end of 2023 for Ukrainian mothers with children staying at the Strahov dormitories. The children were presented with gifts, purchased by CTU employees.

Individual faculties and constituent parts of CTU are also involved in helping Ukraine. The Faculty of Information Technology offers the assistance of a faculty lawyer, the Faculty of Civil Engineering helps in solving complicated study situations, and also offers assistance in material need. In February 2023, the Czech Institute of Informatics, Robotics and Cybernetics (CIIRC) discussed concrete projects of post-war reconstruction of the country with representatives of Ukrainian local governments during the international ReBuild fair held in Warsaw.

In July 2023, the CIIRC, on behalf of Kryštof Šulc, a scientist and initiator of the Institute's assistance with Ukraine's reconstruction, joined the trip of the Government Commissioner Tomáš Kopečný to Ukraine with an accompanying business delegation and personally discussed possible cooperation with the Taras Shevchenko National University of Kyiv, the Technical University of Dnipro, representatives of the city of Dnipro and other important Ukrainian institutions. At the same time, concrete cooperation was established between CIIRC and representatives of Time & Space Ukraine, Dekonta, PBS Velká Bíteš and others.


13


CIPS
ONLINE SEZNAMOVÁNÍ
HERNÍ VEČER ÚNIKOVKA I.
5/4
12/4


WOMEN IN TECH
Women in Tech
The Gender Algorithm
12 April 2023 | CIIRC CTU Prague

13 Promoting well-being in the academic environment: gender equality and safe environments

CTU actively monitors gender issues, where a key step for setting appropriate measures, whose current or future implementation is the subject of the implementation of the Gender Equality Plan, were Equal Opportunities Audits, which were conducted both at CTU level (for the group of employees) and at some constituent parts (for groups of students and employees) in previous years. As part of the preventive measures, regular training activities have been introduced and ombudsmen positions have been established at some units, whose role includes preventive advice and consultation on future measures under consideration.
The procedure is implemented at CTU within the Ethics Code and the Rules of Procedure of the Ethics Committee https://www.cvut.cz/vnitrni-predpisy#ek. At some units, the safety of the victim is further protected by the establishment of an ombudsman. The strategic and legislative framework is given by the CTU Code of Ethics. Faculty ombudsmen provide a supportive and preventive role at some CTU units, and the establishment of this position is being strongly considered at other units in the future.
CTU has approved and is implementing a Gender Equality Plan https://www.cvut.cz/plan-genderove-rovnosti as part of the Revised HR Award Action Plan https://www.cvut.cz/sites/default/files/content/bc7aa86f-5423-498a-8b1d-a576bc0be306/cs/20211207-revidovany-akcni-plan hrs4r.pdf. In 2024, an evaluation of the implementation of the Gender Equality Plan and its update for the next period will be carried out. Gender equality in the field of career advancement is treated in the CTU Career Regulations https://www.cvut.cz/sites/default/files/content/bc7aa86f-5423-498a-8b1d-a576bc0be306/cs/20201216-karierni-rad.pdf and in the forthcoming CTU Rules of Selection Procedure developed on the basis of the Rector's Order Recommended Procedures for Recruitment of Academic and Scientific Staff and in the Organisation of Selection Procedures for Senior Staff at CTU https://www.cvut.cz/sites/default/files/content/bc7aa86f-5423-498a-8b1d-a576bc0be306/cs/20201216-doporucene-postupy-pro-prijimani-akademickych-a-vedeckych-pracovniku-a-pri-organizaci.pdf.
The topic of gender at different levels of the university is regularly included in training events aimed at different target groups (staff, students, etc.).

GENDER EQUALITY PLAN, SEXUAL AND GENDER-BASED HARASSMENT

CTU is a technical university where the proportion of women is still lower than men. The number of women among employees and students is increasing, thanks to the high activity of individual faculties and the positive presentation of successful women in their respective fields. Women are represented in the leadership of departments and faculties, and are successful in habilitation and appointment procedures. Gender equality at CTU is based on the nature of ethical behaviour and adherence to the values of the university. The difference in the composition of students is not significant, the ratio of gender representation is approximately the same. The university management is also completely balanced - four of its nine members are women. According to the Rector of CTU, this parity is also favourably reflected in the management of the university.
Gender equality in research and innovation is a priority for the European Research Area. The European Commission's Strategy for Gender Equality 2020-2025 (https://ec.europa.eu/info/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en) sets out a vision, policy objectives and actions to make concrete progress on gender equality in Europe and to achieve the sustainable development goals.
The main methodologist not only for gender equality is the Rector's Office of the CTU, which has a specially trained person for this issue. Discrimination would be investigated directly by the senior managers of the unit concerned and, if necessary, dealt with by law enforcement authorities.

Ing. Veronika Kramaříková, MBA
Vice-Rector for Development and Strategy

"It is only through close and good cooperation, willingness to communicate, listen to each other and support each other that the goals can be achieved."

14 Further development and strategic direction

The development and strategic direction of CTU are anchored in the CTU Strategic Plan 2021+, approved in 2021. Its priority objectives and measures are continuously implemented, monitored and evaluated. They are also reflected in the planned strategic development of CTU faculties and institutes.

In 2023, the activities of previous years were successfully built upon. In 2023, CTU actively participated in the implementation of six projects under the Centralized Development Programme (CDP), which mainly finances partnership projects of public universities, with one project managed as a coordinator and one implemented independently. The allocated subsidy of CZK 8.5 million was used almost completely. Compared to the previous year, when 16 projects were dealt with under the CDP, the average subsidy per project almost doubled year-on-year (from CZK 788 thousand to CZK 1,416 thousand in 2023). Thanks to the financial contribution from the MEYS, the popular Night of Scientists event took place for the 18th time and CTU joined the European Week for Sustainable Development for the first time. In the area of consultancy services, a new central portal (www.portalpodpory.cvut.cz) with a complete overview of all the services offered was created. Thanks to a questionnaire survey aimed at international students, specific gaps that need to be addressed in the area of social security were defined.

Also in 2023, the CTU managed to raise almost 107,000 thousand CZK from the Strategic Management Support Programme of Universities (SMSP). Thanks to these funds, it was possible to implement a total of 52 projects (16 more than in 2022) with a university-wide scope and to support the purchase of instrumentation and machinery at 13 faculties and institutes. Almost 11,000 thousand CZK was allocated for the so-called Internal Competition, where 51 faculty/institute projects were implemented in 2023 to support innovation, digitalization and multilingualism in teaching. Thanks to these projects, CTU's strategic goals of providing quality teaching, international reputation and excellence in scientific research, as well as cooperation and partnership with the application sphere and orientation towards 21st century technologies were also fulfilled. The added value was the development of cooperation and mutual communication between the sponsors, as well as specific researchers and internal, project partners. Thanks to this, the synergy of the activities of the individual projects was maximised and the funds were used efficiently and effectively. All supported projects were developed on the basis of the established strategic objectives of CTU based on the MEYS Strategic Universities Plan for the period from 2021 (SP MEYS) as well as the Strategic Plan of CTU 2021+ (SP CTU) and the Implementation Plan of the Strategic Plan of CTU for 2023 (IPSP CTU).

DEVELOPMENT OF COMPETENCES DIRECTLY RELEVANT TO LIFE AND PRACTICE IN THE 21ST CENTURY

In 2023, as part of the fulfilment of this priority goal, twelve projects were implemented with a financial contribution of approx. CZK 21,000 thousand. 1,800 thousand CZK was used to support 140 gifted students. This is an increase in both the number of supported students and used funds compared to 2022. The amount of CZK 1,000 thousand was invested during the year on improving and expanding the counselling services of the Centre for Information and Counselling Services of CTU (CIPS) for students and employees. As part of the fulfilment of this priority objective, a project focused on software and analytical support for institutional accreditation processes was also implemented to facilitate and streamline accreditation processes and the publication of information on study programmes via the web. A technological upgrade of the Book application was carried out, which provides support to the CTN publishing house, enabling the coordination of the entire publishing process. Based on suggestions from users (students and teachers), a number of modifications were made to simplify and improve the quality of the KOS web interface.

The project on Reducing academic failure, which built on the implementation of previous years, focused on further developing approaches for the development of learning trajectories that allow for an early response to possible risks leading to early graduation.

In order to present CTU in numbers and to give a picture of the dynamics of its development over the last 3-4 years, the project Data and Facts about CTU was implemented. It was a follow-up to the previous Map of Scientific Research Results, which serves to find specific scientific research results implemented at CTU over the last five years. As a result of the project, a new section of the CTU website (https://www.cvut.cz/data-a-fakta) has been created, which informs about key indicators in the field of studies, science and research, international evaluation and human resources through selected data and statistics, and presents thematic overviews presenting CTU's activities in education, re-

search and the university's impact on society. To maximise and exploit the potential of CTU in the field of international university evaluation (ranking), but also to attract prospective students and increase the attractiveness of the university for the presence of quality Czech and foreign staff was the task of another project implemented.
One of CTU's strategic goals is to create a "living" university campus, a place where social ties are created and developed primarily between students, student associations, academic, scientific and other CTU employees. Therefore, the project Development of the Dejvice Campus in 2023 was supported in an effort to create a pleasant and welcoming place for work and education in line with the latest trends in socio-cultural and environmental issues. Efforts are devoted to making the campus an open place for cultural events, leisure and recreation, to bring university life closer to the general public and to connect the activities of all institutions located on the campus.

IMPROVING THE AVAILABILITY AND RELEVANCE OF FLEXIBLE FORMS OF EDUCATION

Almost CZK 11, 000 thousand were used to meet this priority objective in 2023, which is less than CZK 500 thousand compared to the previous year. A total of six projects aimed at the modernisation and long-term sustainability of CTU information systems were implemented. One of them is the development of a data warehouse, the aim of which is to define, test and unify relevant data for the activities and management of the university. The use of time series of aggregated data will make it easier to predict future developments and trends. Another project implemented supported the simplification of the KOS study system and the streamlining of its current management. Due to legislative changes in the area of lifelong learning implementation, modifications and updates were also made to the LLL Portal.

INCREASING THE EFFICIENCY AND QUALITY OF DOCTORAL STUDIES

To support this priority objective, CTU has allocated more than CZK 25,000 thousand of funds from the SMSP in 2023. Of this amount, 94% was used for the purchase of high-quality modern machinery and instrumentation, which faculties and institutes of CTU need for better conditions for scientific research activities with a direct impact on the development of the quality of doctoral studies. Within the framework of this objective, in 2023, the continuation of the HR Award project, which was implemented in 2018-2022 and financially supported by the OP RDE (Development of Capacities for Strategic Research Management at CTU in Prague) was supported. This project is being implemented by CTU in order to advance the level of fulfilling the requirements for a modern world university in terms of human resources management and to create conditions for the future defence of the HR Award, which CTU received in 2019. Specifically, it is a continuation of the process of implementing the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers into the internal processes of CTU.

CAPACITY BUILDING FOR STRATEGIC MANAGEMENT

Under this priority objective, a total of five projects were supported by the SMSP in 2023, for the implementation of which a total of CZK 16,000 thousand was used. By gradual steps, the CTU is moving towards systematic central digitisation of real estate information (building a so-called digital twin) and the creation of a unified system of classification of premises and their capacities. These activities are a tool for fulfilling another of the set priority objectives of digitisation of CTU activities and operations and data-driven strategic decision-making. Within the above priority objective, projects aimed at expanding electronic circulations within CTU information systems, improving support for distance administration and computerisation and automation of existing and follow-up processes in the HR system were also implemented.

REDUCING THE ADMINISTRATIVE BURDEN ON STAFF

Technical-analytical support for the digitization of study agendas in KOS in relation to e-SPS and other applications (e.g. Obelisk, Signature Book, CUL, etc.) was the subject of two projects implemented under this priority theme. The aim is to gradually reduce the high burden on administrative staff, especially in the study departments of the faculties and institutes of the CTU, and to prepare for all the necessary steps for the complete digitisation of this entire agenda. The strategic goal of CTU is to digitise as many activities and operations as possible. This is not possible regardless of the security of data transmission and the setup of its management system. In 2023, a comprehensive Information Security Management System Concept was developed and the necessary technical and organisational measures were taken to meet the requirements of the Cyber Security Act (No. 181/2014 Coll.) and the European Data Protection Regulation (GDPR). These activities were addressed within the framework of another supported project, which aimed to meet the current legislative requirements and at the same time to increase the security of information flows in key activities, especially in the area of research and development. All of these activities required a corresponding investment in time, expertise and money, increased to almost CZK 7,000 thousand compared to 2022.

INTERNATIONALISATION

In 2023, the development activities were significantly oriented towards a higher level of internationalisation by strengthening the international mobility of CTU students and employees. Two projects supported student trips to non-European partner universities for a total of 771.5 student-months (almost twice as many as in 2022) and eight young teachers and researchers. In addition, an equal number of visiting foreign teachers were sup-

ported to come to CTU to lecture in 2023. In 2023, the portfolio of services offered by the Mobility app was also expanded, supporting and improving the services offered not only to outgoing/receiving students and staff, but also to rectorate and faculty administrators. The main goal of the CTU Alumni project, which followed on from the activities of 2022 and mapped the initial situation for the establishment of a professionally functioning self-paying alumni association, was to start its activities. The society of international alumni started to function officially via the networking platform LinkedIn and was connected to the GTS Alive Card (the "ISIC student card" for alumni with the possibility of drawing discounted benefits). A number of CTU alumni meetings were also held, not only at CTU but also abroad. Other development projects carried out in 2023 aimed at simplifying the process of recognition of study abroad from the assessment of the application to the entry of data on applicants into the MEYS nostrification register, as well as optimising data for international university rankings in order to achieve the highest possible positioning of CTU in global, sectoral and regional rankings and to strengthen weaknesses.

By strengthening internationalisation, CTU aims to become more attractive to high-quality domestic and foreign workers and students and to enhance their success in their studies or employment by gaining international experience. Therefore, in 2023, almost CZK 21,000 thousand was spent within the framework of the SMSP to support this theme (CZK 2,000 thousand more than in the previous year).

OTHER MEASURES

In 2023, the SMSP supported the amount of CZK 6,700 thousand for projects that aimed to popularise science and technical education, especially in secondary/primary schools, but also in relation to the general public. A number of educational events, presentations or trips to schools were organised and studies at CTU were presented to the general public in an engaging and highly qualified manner. For example, the ScienceFest event held in June 2023 at Vítězné náměstí in Prague 6 was attended by approximately 13,000 visitors. Another annual conference and presentation of interesting works by secondary school students, StreTech 2023, was also held. This event has been organised by CTU since 2007. 182 team projects from secondary schools were presented at the conference in poster form. The promotion of studies at CTU also includes the project Development of Competences of the Maker Institute, z.ú. (MI), where the main effort is to attract potential applicants to study at CTU and prove to them how simple and fun technology can be. Ten workshops for primary, secondary and university students and three Mobile FabLab Excursions were organised under the MI banner.

OTHER SIGNIFICANT ACTIVITIES

In June 2023, CTU organized in Brussels an international workshop entitled AI Act Workshop: Understanding Practical Applications for Informed Policy Making. The partners of the event were prg.ai and the Permanent Representation of the Czech Republic to the European Union. The main objective was to present from a professional and scientific perspective the issue of AI and its regulation before the key legislation (AI Act) is discussed in the Brussels institutions, both from the perspective of specific use cases (Amazon, Eyedea) and academia (the lecturer for CTU was Dr. Josef Šivic from CIIRC, head of ELLIS Unit Prague, foreign partner universities were represented by Prof. Dr. Barbara Plank from LMU in Munich.

Furthermore, in 2023, we managed to fundamentally anchor the position of CTU as a logical partner for cooperation with the Czech Army and to establish a really close communication between the two entities. Mutual dialogue at various levels has been ongoing since 2018, and in 2023 it has been brought to a completely new qualitative level. Detailed information is provided in chapter 11 - Third role of the university.

In 2023, CTU also advanced a project to build the largest technology hub and sandbox in the world at Strahov Stadium and will support the creation of other national and European innovation projects in the academic, business and municipal spheres. The founding memorandum of the future centre for the establishment of innovative companies and testing of state-of-the-art technologies was signed by representatives of the Prague City Hall, CTU, the CTU Student Union and partners in September 2022. In November 2022, a Memorandum of Cooperation between CTU and the Czechinvest agency was also signed. Sparta Prague was also involved in the preparation of this ambitious project in 2023. Thanks to this, the original plan was extended to include the use of the technologies under study in the field of sport. Furthermore, the Strahov Project Implementation Council was established, which decided on a comprehensive approach to the project not only within the Strahov Stadium, but also in its surroundings. The plan is to reconstruct the eastern grandstand, where a technology hub and sandbox should be located. The south stand should continue to be used by Post Bellum. Plans for the use of the north stand are under development. The west stand with the Evžen Rosický Stadium will be turned into the National Stadium of Sparta Prague. Underlining all these activities is the already approved extension of the tram line from Malovanka to Strahov's CTU dormitories.

In 2023, activities were launched under the Horizon EUROPE-funded COOPERATE project. Its aim is to develop a methodology for current and future EU Member States to assess ecosystems of collaboration and transfer of knowledge, technology and information between academia, the commercial sector, municipalities and the public. The role of CTU is to provide pilot data to establish evaluation criteria for assessing the state of the ecosystem level and consequently for its improvement and to actively participate in information searches and partnership meetings. The project partners are Eindhoven University of Technology, STAM, Brainport Eindhoven, Technical University of Denmark, Science city Lyngby and IDEA Consult. As in previous years, the Jan Amos Komenský Operational Programme of the MEYS was the main source of support and development in 2023. Dozens of projects were successfully accepted at CTU from this programme. These are projects of both faculty and university-wide importance. In the field of education, we can

mention the project Development of Infrastructural Facilities for Doctoral Programmes at CTU, which resulted in the necessary reconstruction of premises for teaching, research and creative activities. The project also supported the upgrade of instrumentation and laboratory equipment, which leads to an increase in quality, competitiveness and interest of future researchers. An important moment for research and development at CTU was the launch of the Robotics and Advanced Industrial Production project. The project focuses on breakthrough research in the field of robotics and advanced industrial production. It works using flexible deployment of robots with a high degree of autonomy and safe cooperation with humans. The project has an international reach, integrates different scientific disciplines and aims to create a base for the growth of cutting-edge robotics research. The successful implementation of the previous years was followed by the CTU Mobility project MSCA-F-CZ-II, which supports working stays of Czech top scientists abroad and visits of foreign scientists to CTU. In 2023, projects of innovative character, industrial research or experimental development projects in cooperation with the application sphere were launched. All of this was funded by the Operational Programme Technology and Applications for Competitiveness.

In 2023, the implementation of a school-wide project called Transformation of the Form and Content of Higher Education at CTU continued. The project was launched in January 2022, has 38 sub-activities and thirteen CTU constituent parts participate in it. The total budget of the project and the amount of the grant is CZK 220 million CZK + VAT in the amount of CZK 28 million (in the form of a separate contribution). By Amendment No. 2 to the call, the universities were allowed to extend the project until 30 December 2024.


15

Prof. Ing. Alena Kohoutková, CSc.
Vice-Rector for Construction

"The implementation of visions and strategic goals in the field of education, research and creative activity is conditioned by quality facilities. This is especially a healthy and inspiring environment in the buildings, which must be continuously maintained and developed to stimulate students, teachers and researchers to excellence with its modern facilities, to create attractive campuses for visitors and to influence cultural and social activities with its representative spaces, while at the same time allowing for relaxation, catering and accommodation, including sports and leisure activities."

15 University facilities

ACCOMMODATION AND CATERING SERVICES

CTU offers students accommodation in eight dormitories in Prague with a capacity of more than 7,400 beds. The total occupancy rate in 2023 was 6% lower than in 2022. The reason for the decrease in the number of students was the lower number of available beds due to the modernisation of accommodation capacities, which was mainly carried out in Strahov Dormitory.
After three years of reconstruction, the Bubeneč Dormitory was reopened in September 2023 and is now the most modern accommodation facility of the CTU with a capacity of 390 beds. Among other things, it also offers two rooms for students with special needs (including accommodation for their assistants).
The war in Ukraine continued to affect the operation of the dormitories. At the end of 2023, 156 people with refugee status were accommodated in the dormitories.
CTU offered its students catering options in a total of nine establishments in 2023. A total of 1,217 thousand main meals were cooked in the university canteens, about half of this number for students. One of the themes in sustainability was the testing and gradual introduction of vegan food in the canteens of the CTU.

LIBRARY SERVICES

The Central Library of CTU is a university-wide workplace, consisting of the central library in Dejvice and three local libraries located outside the Dejvice campus at the Faculties of Biomedical Engineering, Transportation Sciences and Nuclear Sciences and Physical Engineering. In addition to library services and management of faculty/institutional library collections, it provides information support to students and academic staff. It helps to develop skills and knowledge related to the retrieval of information resources and their use in professional work in accordance with ethical principles. It prepares information materials and educational events, introduces information education into the curriculum in cooperation with teachers.
The portal of information support and services of the CL brings together not only information about scientific research projects and conditions of funding providers, but also about Open Access, research data and storage of results of publication and scientific work, including links to educational events. In 2023, the CL staff was involved in the national platform for information support for Open Access and Open Science, participated in the preparation of projects for Open Science support and joined EOSC-CZ working groups.
Also in 2023, it managed the agenda of bibliometrics, corrections of data in citation databases, including the management of the CTU institutional profile. With the producers of citation databases, it performed simple and more complex data corrections in records or assigned citations. The CL was involved in uploading full text publications to the Digital Library, and managed publication standards and platforms for the entire CTU.
During the year 2023, the CL holdings grew by 4,336 library units, which is approximately 678 fewer than in the previous year. Again, users themselves proposed the purchase of e-books (Demand Driven Acquisition) through the e-book acquisition service. The CL's e-book collection also grew by 33 e-books thanks to the ProQuest Ebook Central platform, where users were able to choose from more than 200,000 titles according to the disciplines taught at the CTU.
In collaboration with Taylor and Francis, another e-book acquisition service was launched in 2023, based on Evidence-based Acquisition - EBA, i.e. unlimited access to all titles in a selected e-book collection for twelve months. Based on the subject areas and detailed usage statistics and user feedback, the CL decided to select 36 specific titles to acquire permanently. A new full-text and reference image database for architects and civil engineers, Detail Inspiration, was also acquired in 2023.
For selected publishers of scientific journals (e.g. Springer and Wiley), existing contracts have been updated, and a new feature from 2023 is support for open publishing of CTU authors, replacing the existing Read and Publish.
In 2023, the Digital Library (DL) data base, linked to the KOS and V3S resource subsystems, continued to grow with additional theses, dissertations, new publications by CTU authors and teaching materials, a total of 4,663 records. In addition to electronic publishing of books, scripts and study materials in Open Access mode, DL allows access to other publication outputs - an article, an essay in a proceeding, a chapter in a book, a book, a proceeding, a certified methodology.
The library also publishes the university-wide peer-reviewed scientific journal Acta Polytechnica, which publishes original scientific publications by an international community of authors in engineering, mathematics and physics. Acta Polytechnica is indexed in databases Web of Science (ESCI edition), Scopus, CAS, Inspec, DOAJ, as well as in the EBSCO Discovery Service, which is used by over 15,000 institutions worldwide,

including MIT and Caltech. It is published in Open Access mode six times a year.

INVESTMENT IN FURTHER DEVELOPMENT

CTU strives to gradually build new and modernize existing facilities and premises and to improve the quality of the environment for both students and employees. Despite the fact that the available financial resources were significantly limited, the volume of investments decreased by 77% compared to 2022, the implementation of planned investment actions continued in 2023. The reconstruction of two large lecture halls of the Faculty of Civil Engineering (B 280 and 286) and selected areas of Bethlehem Chapel for the needs of the new departments of the Institute of Experimental and Applied Physics was completed. The reconstruction of the former boiler room building in Strahov, which now houses the CTU archives, was completed.

The reconstruction of the Bubeneč Dormitory was completed in the amount of CZK 190,000 thousand (40% invested by the CTU and 60% provided by the Ministry of Education, Youth and Sports of the Czech Republic).

In February 2023, a new IT classroom for 4th and 5th grade pupils was inaugurated in the presence of a representative of the ČEZ Foundation, which financed the new equipment. The Foundation made a donation, which was used to purchase 18 new laptops and three interactive whiteboards.

CTU has equipped sports facilities, the maintenance, development and modernisation of which is provided by the Institute of Physical Education and Sport (IPES). The largest facility is the Pod Juliskou Sports Centre with a multi-purpose sports hall, two indoor gyms, a modern equipped gym, a climbing wall, a table tennis hall and a regeneration centre. The multi-purpose outdoor sports ground Kotlářka is used all year round thanks to the installation of an inflatable hall. The Loděnice Malá Chuchle sports centre has modern equipped gyms used mainly for combat sports and cardio exercises. There is also a gym and sauna. Canoeing lessons take place in the boathouse all year round. The Karlovo náměstí sports ground consists of several gyms, a gym and a hall for martial arts. There is also a newly built archery hall in the Nusle Dormitory. The weekly attendance at the CTU sports facilities exceeds 9,000 athletes, students and university employees.

Thanks to these facilities, CTU offers over 40 diverse physical activities. It also organizes downhill and cross-country skiing and snowboarding lessons, boating, windsurfing, cycling, hiking, tennis, horseback riding, as well as frisbee, archery, swimming and softball. The successes of CTU's professional sports teams and athletes in national and international sports competitions are detailed in Chapter 11 Third role of the university.

CZK 1,877 thousand was spent on maintenance and operation of sports facilities in 2023, that is CZK 298 thousand more than in the previous year.

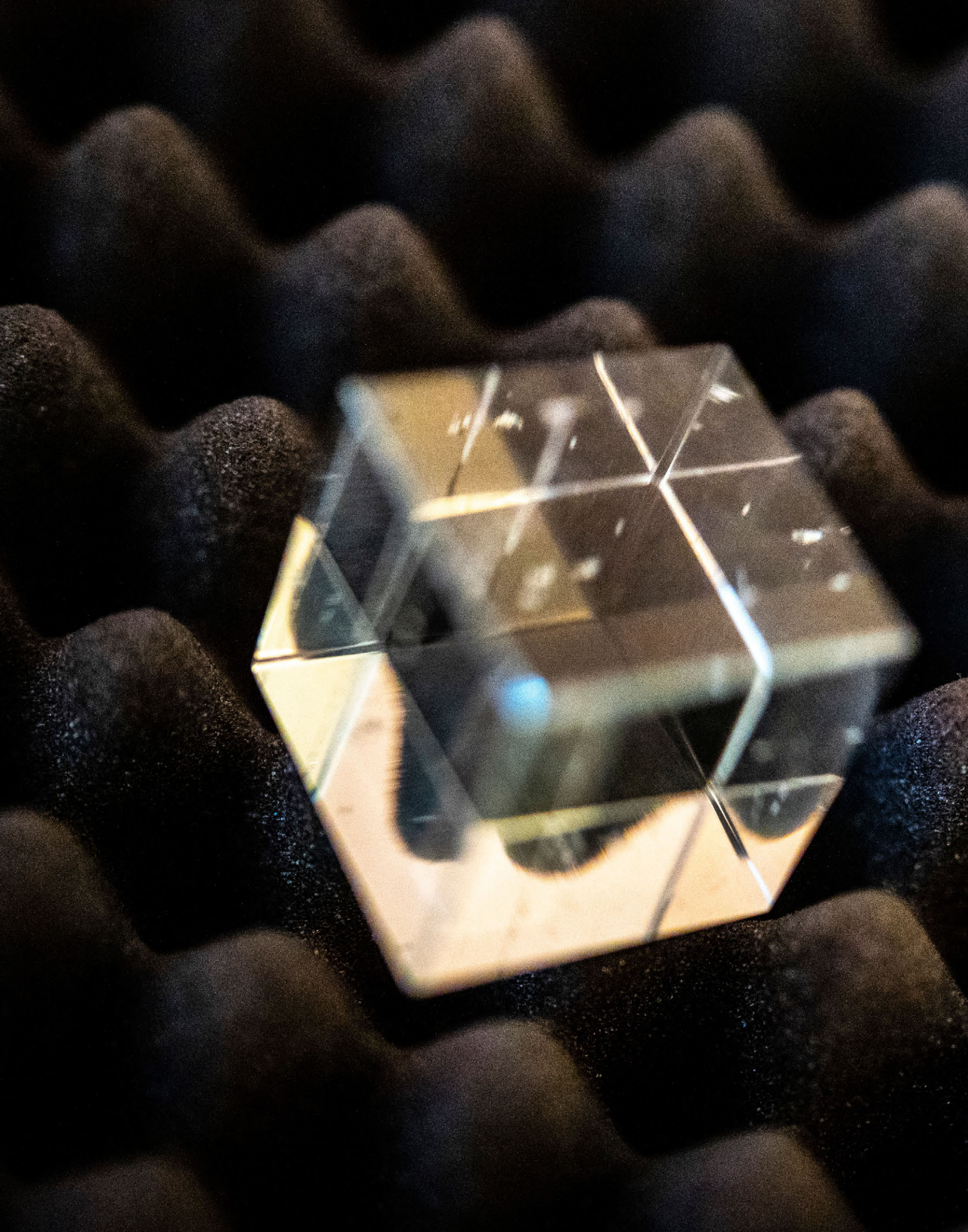
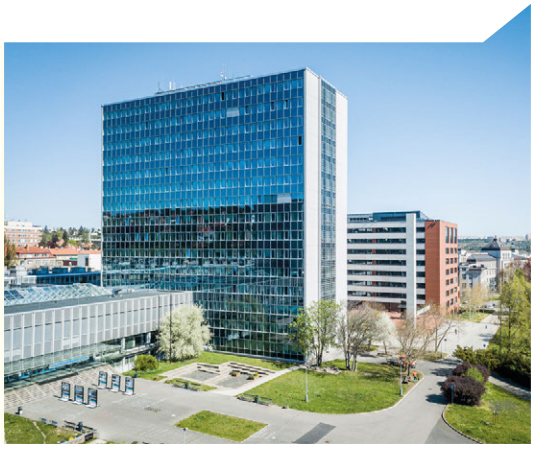


Table Annex



1.1 Basic data, seat of CTU constituent parts

FACULTIES OF CTU

Faculty of Civil Engineering (FCE) – Thákurova 7, Prague 6 – Dejvice, 166 29

Faculty of Mechanical Engineering (FME) – Technická 4, Prague 6 – Dejvice, 166 07

Faculty of Electrical Engineering (FEE) – Technická 2, Prague 6 – Dejvice, 166 27

Faculty of Nuclear Sciences and Physical Engineering (FNSPE) – Břehová 7, Prague 1 – Staré Město, 115 19

Faculty of Architecture (FA) – Thákurova 9, Prague 6 – Dejvice, 166 34

Faculty of Transportation Sciences (FTS) – Konviktská 20, Prague 1 – Old Town, 110 00

Faculty of Biomedical Engineering (FBME) – nám. Sítná 3105, Kladno, 272 01

Faculty of Information Technology (FIT) – Thákurova 9, Prague 6 – Dejvice, 160 00

UNIVERSITY INSTITUTES

Klokner Institute (KI) – Šolínova 7, Prague 6 – Dejvice, 166 08

Masaryk Institute of Advanced Studies (MIAS) – Kolejní 2637/2a, Prague 6 – Dejvice, 160 00

Institute of Physical Education and Sport (IPES) – Pod Juliskou 4, Prague 6 – Dejvice, 160 00

University Centre for Energy Efficient Buildings (UCEEB) – Třinecká 1024, Buštěhrad, 273 43

Czech Institute of Informatics, Robotics and Cybernetics (CIIRC) – Jugoslávských partyzánů 1580/3, Prague 6 – Dejvice, 160 00

Institute of Experimental and Applied Physics (IEAP) – Husova 240/5, Prague 1 – Staré Město, 110 00

OTHER CONSTITUENT PARTS OF CTU

Computer and Information Centre (CIC) – Jugoslávských partzánů 1580/3, Prague 6 – Dejvice, 160 00

CTU Central Library (CL) – Technická 6, Prague 6 – Dejvice 160 80

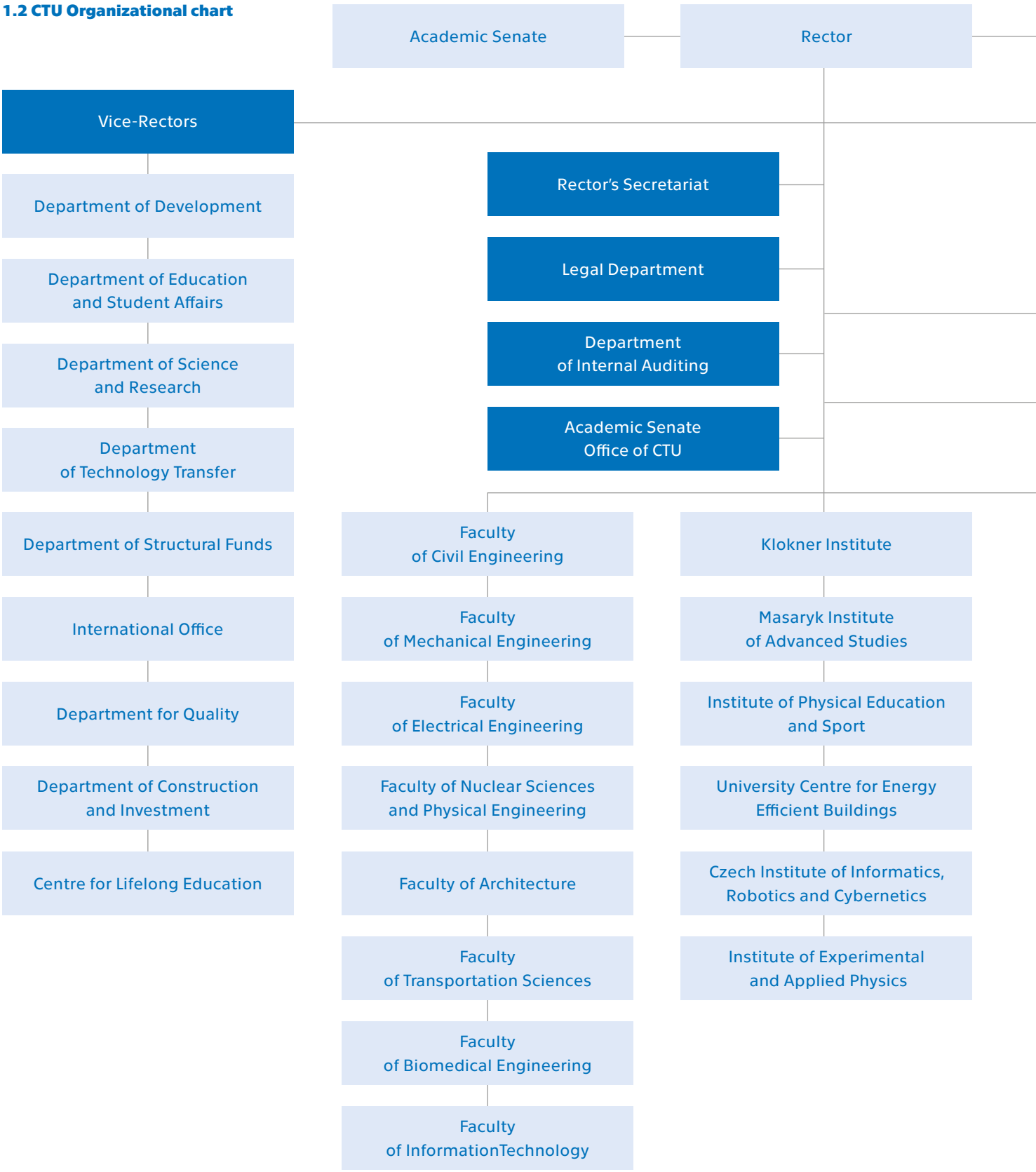
PURPOSE-BUILT FACILITIES OF CTU

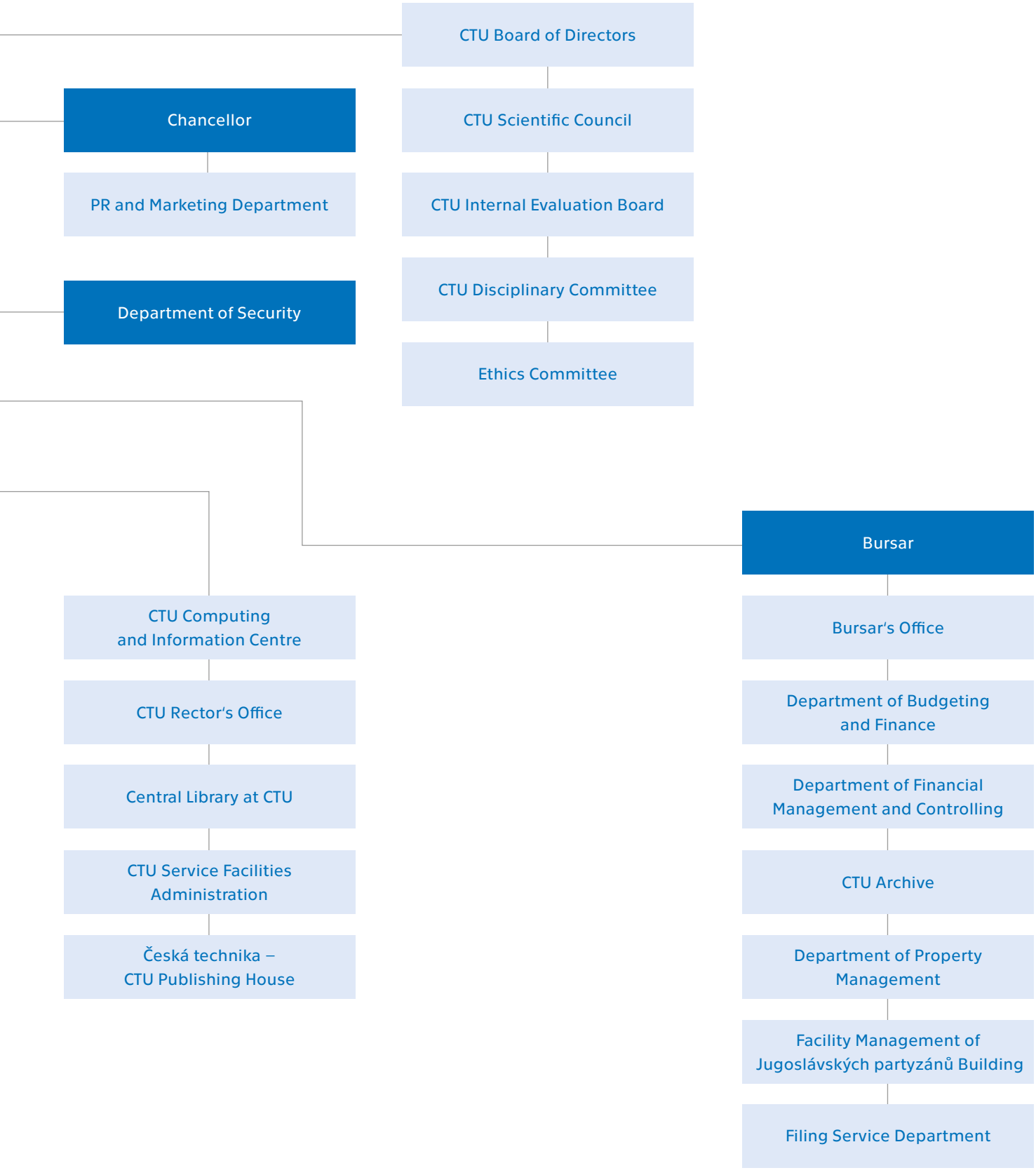
Rectorat's Office of the CTU (R CTU) – Jugoslávských partzánů 1580/3, Prague 6 – Dejvice, 160 00

Service Facilities Administration (SFA) – Vaníčkova 315/7, Prague 6 – Dejvice, 160 17

CTU Publishing House (CTN) – Thákurova 1, Prague 6 – Dejvice, 160 41

1.2 CTU Organizational chart




CTU Board of Directors
Chancellor
CTU Scientific Council
PR and Marketing Department
CTU Internal Evaluation Board
Department of Security
CTU Disciplinary Committee
Ethics Committee
Bursar
CTU Computing and Information Centre
Bursar's Office
CTU Rector's Office
Department of Budgeting and Finance
Central Library at CTU
Department of Financial Management and Controlling
CTU Service Facilities Administration
CTU Archive
Česká technika – CTU Publishing House
Department of Property Management
Facility Management of Jugoslávských partyzánů Building
Filing Service Department

1.3 Bodies of CTU

Table 1.3.1: CTU Management	
Rector	doc. RNDr. Vojtěch PETRÁČEK, CSc.
Vice-Rectors	
For Science, Creative Activity and Doctoral Studies	Prof. Ing. Zbyněk ŠKVOR, CSc.
For Bachelor's and Master's studies	doc. Dr. Ing. Gabriela ACHTENOVÁ
For Quality management	Ing. Radek HOLÝ, Ph.D.
For Development and Strategy	Ing. Veronika KRAMAŘÍKOVÁ, MBA
For Construction	Prof. Ing. Alena KOHOUTKOVÁ, CSc., FEng.
For International Relations	Prof. Ing. Oldřich STARÝ, CSc.
Bursar	Ing. Veronika KRAMAŘÍKOVÁ, MBA
Chancellor	Ing. Lucie ORGONIKOVÁ
Permanent guest of the CTU Management – Chairman of the CTU Academic Senate	doc. Ing. Jan JANOUŠEK, Ph.D.

Table 1.3.2: CTU Board of Directors

Chairman	Prof. Ing. Petr SÁHA, CSc.	Vice-Rector for Creative Activities of Tomas Bata University in Zlín
1st Vice-Chairwoman	Ing. Dana DRÁBOVÁ, Ph.D., dr. h. c. mult.	Chair of the State Office for Nuclear Safety
Vice-Chairman	Mgr. František BUREŠ, MBA, LL.M.	Independent expert advisor and consultant in the field of engineering, manufacturing and services
Members	Ing. Vladimír DLOUHÝ, CSc.	President of the Chamber of Commerce
	Ing. Petr DVOŘÁK, MBA	Director General of Czech Television – until 30 September 2023
	Ing. arch. Jan FIBIGER, CSc.	Chairman of the Board of the Architecture and Building Development Foundation (ABF) – until November 2023
	Ing. arch. Oleg HAMAN	President of the Association of Architects, z. s. – from December 2023
	Ing. Martin JAHN, MBA	Member of the Board of Management for Sales and Marketing at ŠKODA AUTO a. s.
	Ing. arch. Jan KASL	JK ARCHITEKTI s. r. o., Chairman of the Czech Chamber of Architects (ČKA)
	Mgr. Ondřej KOLÁŘ	Member of the Parliament of the Czech Republic
	Ing. Petr MOTHEJL	Dekonta, a. s., Deputy Chairman of the Supervisory Board – from April 2023
	Ing. Vlastimil PICEK	Mayor of Brandýs nad Labem-Stará Boleslav
	doc. JUDr. Jan PAULY, CSc.	Vice Dean of the Faculty of Law of the University of West Bohemia – from April 2023
	Mgr. Jozef ŠEPETKA	Member of the Supervisory Board of J&T – from December 2023
	Ing. Michaela ŠOJDROVÁ	Member of the European Parliament
	Mgr. Radek VONDRÁČEK	Chairman of the Constitutional Law Committee of the Czech Parliament
Secretary	Ing. Lucie ORGONIKOVÁ	Chancellor of the CTU in Prague

Table 1.3.3: Scientific Council of CTU		
Chairman	doc. RNDr. Vojtěch PETRÁČEK, CSc.	Rector of CTU
Vice-Rector for Scientific, Creative Activities and Doctoral Studies	Prof. Ing. Zbyněk ŠKVOR, CSc.	FEE
Regular internal members of the CTU SC	doc. Ing. Václav ČUBA, Ph.D.	Dean of FNSPE
	Prof. Dr. Ing. Zdeněk HANZÁLEK	CIIRC
	Prof. Ing. Petr HÁJEK, CSc.	FCE
	doc. Ing. arch. Dalibor HLAVÁČEK, Ph.D.	Dean of FA
	Prof. Ing. Igor JEX, DrSc.	FNSPE
	Prof. Ing. Ondřej JIROUŠEK, Ph.D.	FTS
	Prof. Ing. Tomáš JIROUT, Ph.D.	FME
	doc. RNDr. Ing. Marcel JIŘINA, Ph.D.	Dean of FIT
	Prof. Ing. Hana KUBÁTOVÁ, CSc.	FIT
	Prof. Ing. arch. Ladislav LÁBUS, Hon. FAIA	FA
	doc. Ing. Antonín LUPÍŠEK, Ph.D.	UCEEB
	Prof. Ing. Jiří MÁCA, CSc.	Dean of FCE
	Prof. Ing. Jan MACEK, DrSc.	FME
	Prof. Ing. Jiří MATAS, Ph.D.	FEE
	Prof. MUDr. Leoš NAVRÁTIL, CSc. MBA, dr. h. c.	FBME
	Prof. Mgr. Petr PÁTA, Ph.D.	Dean of FEE
	doc. RNDr. Vojtěch PETRÁČEK, CSc.	Rector of CTU
	Prof. Ing. Ondřej PŘIBYL, Ph.D.	Dean of FTS
	Prof. Ing. Pavel RIPKA, CSc.	FEE
	Prof. MUDr. Jozef ROSINA, Ph.D., MBA	Dean of FBME
	Prof. Ing. Karel ROUBÍK, Ph.D.	FBME
	Prof. Dr. Ing. Miroslav SVÍTEK, dr. h. c.	FTS
	Prof. Ing. Zbyněk ŠKVOR, CSc.	Vice-Rector for Scientific, Creative Activities and Doctoral Studies
	doc. Ing. Miroslav ŠPANIEL, CSc.	Dean of FME
	doc. Ing. Ivan ŠTEKL, CSc.	Director of IEAP
	Prof. Ing. Pavel TVRDÍK, CSc.	FIT
	Prof. Ing. František WALD, CSc.	FCE
	Prof. Ing. arch. ir. Zdeněk ZAVŘEL, dr. h. c.	FA
Regular external members of the CTU SC	Prof. RNDr. Vít DOLEJŠÍ, Ph.D., DSc.	MFF UK
	Ing. Dana DRÁBOVÁ, Ph.D., dr. h. c. mult.	SONS, Chair
	Ing. Zdeněk GÄRTNER	Českomoravský beton, a. s.
	Univ.-Prof. Dr.-Ing. habil. Ivo HERLE	Technische Universität Dresden
	doc. Ing. Ladislav JANÍČEK, Ph.D., MBA, LL.M.	BUT Brno, Rector
	Ing. arch. Jan KASL	Czech Chamber of Architects, Chairman
	Prof. RNDr. Jan KRATOCHVÍL, CSc.	IFF UK
	Dr. František J. KRAUS, Dr. Sc. Wiss Adjunct	ETH Zurich
	Prof. Ing. Petr NOSKIEVIČ, CSc.	VŠB TUO
	Prof. Ing. Marek PENHAKER, Ph.D.	VŠB TUO

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Table 1.3.3: Scientific Council of CTU		
Regular external members of the CTU SC	Prof. Ing. Stanislav POSPÍŠIL, Ph.D., FEng.	ISTAM, CAS
	Prof. Ing. Ivo PROVAZNÍK, Ph.D.	Brno University of Technology
	Ing. Jaroslav ŘASA	ABRA Software
	doc. Ing. Libor ŠVADLENKA, Ph.D.	UP, Dean of DFJP
	Prof. Ing. arch. Ľubica VITKOVÁ, PhD.	STU Bratislava
	Prof. Ing. Miroslav VOZŇÁK, Ph.D.	VSB TUO
	Prof. Dr. Ing. Pavel ZEMČÍK	BUT Brno, Dean of FIT
Extraordinary members of the CTU SC	Prof. Dr. Ing. Vladimír BLAŽEK, dr. h. c.	RWTH Aachen
	Prof. PhDr. Vladimíra DVOŘÁKOVÁ, CSc.	Director of MIAS
	Prof. Ing. Stanislava HRONOVÁ, CSc.	ALL
	Prof. Ing. Helena JELÍNKOVÁ, DrSc.	FNSPE
	Prof. Ing. Jiří KOLÍSKO, Ph.D.	KI, Director
	Prof. RNDr. Bohumil KRATOCHVÍL, DSc.	UCT Prague
	doc. Ing. Jaroslav MACHAN, CSc.	FME
	Prof. Dr. Ing. Martin POSPÍŠIL, Ph.D.	FA
	Prof. RNDr. Karel ŠAFAŘÍK, CSc.	CERN
	Prof. Ing. Michael VALÁŠEK, DrSc.	FME
Rectors Emeritus	Prof. Ing. Václav HAVLÍČEK, CSc.	Rector Emeritus of CTU
	Prof. Ing. Petr KONVALINKA, CSc., FEng.	Rector Emeritus of CTU
	doc. Ing. Antonín POKORNÝ, CSc.	Rector Emeritus of CTU
	Prof. Ing. Jiří WITZANY, DrSc, dr. h. c., FEng.	Rector Emeritus of CTU
	Prof. Ing. Petr ZUNA, CSc., D.Eng. h. c., FEng.	Rector Emeritus of CTU

Table 1.3.4: Academic Senate of CTU		
Chairman	doc. Ing. Jan JANOUŠEK, Ph.D.	FIT
Vice-Chair – female employee	doc. Ing. arch. Dana MATĚJOVSKÁ, Ph.D.	FA
Vice-Chairman – Student	Ing. Jakub SLÁMA	FEE
Chairwoman of the Legislative Commission	Mgr. Veronika VYMĚTALOVÁ, Ph.D.	FBME
Chairman of the Economic Commission	Prof. Ing. Pavel RIPKA, CSc.	FEE
Chairman of the Development and Quality Committee	Prof. Ing. Václav HLAVÁČ, CSc.	CIIRC
Chairman of the Educational Commission	Ing. Michal STEJSKAL	FCE
Chairwoman of the Commission for SFA	Kateřina PILNÁ	FNSPE
Chairman of the Student Committee	Ing. Ondřej VÁŇA	FCE
Chairman of the Information Strategy Committee	doc. Ing. Jiří VOKŘÍNEK, Ph.D.	FEE
Chairman of the Commission for Science, Creative Activity and Doctoral Studies	Prof. Dr. Ing. Ivan RICHTER	FNSPE
Chairman of the Sustainability Commission	Prof. Ing. Jan TYWONIAK, CSc.	FME – from November 2023
Members of the Academic Senate	Prof. Ing. Jan TYWONIAK, CSc.	FME, Chairman of the Sustainability Committee
	Prof. Ing. arch. Tomáš ŠENBERGER	FME
	Ing. arch. Anna Marie ČERNÁ	FME
	Prof. Ing. František WALD, CSc.	FME
	Ing. Ondřej VÁŇA	FME, chairman of the student committee
	doc. Ing. Václav BAUMA, CSc.	FCE
	doc. Ing. Lukáš HORNÝ, Ph.D.	FCE
	Prof. Ing. Jan HRDLIČKA, Ph.D.	FCE
	Ing. Michal KUCHAŘ	FCE
	Ing. Michal STEJSKAL	FCE, Chairman of the Committee on Educational Affairs
	RNDr. Ilona Ali BLÁHOVÁ, Ph.D.	FEE
	Prof. Ing. Pavel RIPKA, CSc.	FEE, Chairman of the Economic Commission
	doc. Ing. Jiří VOKŘÍNEK, Ph.D.	FEE, Chairman of the Information Strategy Committee
	Ing. Jakub SLÁMA	FEE, Vice-Chairman
	Ing. Martin ŠT'ASTNÝ	FEE – until the end of June 2023
	Prof. Ing. Igor JEX, DrSc.	FNSPE
	Ing. Petr AMBROŽ, Ph.D.	FNSPE
	Kateřina PILNÁ	FNSPE, Chairwoman of the Commission for SUS
	Prof. Dr. Ing. Ivan RICHTER	FNSPE, Chairman of the Commission for Science, Creative Activity and Doctoral Studies
	Bc. Štěpán TICHÝ	FNSPE

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Table 1.3.4: Academic Senate of CTU

Members of the Academic Senate	Ing. arch. Dana MATĚJOVSKÁ, Ph.D.	FA, Vice-Chairwoman
	Prof. Ing. arch. Ladislav LÁBUS, Hon. FAIA	FA
	Ing. arch. Mgr. Klára BRŮHOVÁ, Ph.D.	FA
	Lucie KADRMASOVÁ	FA
	Václav HOLUŠA	FA
	Lucie KADRMASOVÁ	FA
	doc. Ing. Pavel HRUBEŠ, Ph.D.	FTS
	Ing. Luboš NOUZOVSKÝ, Ph.D.	FTS
	doc. Ing. Jakub KRAUS, Ph.D.	FTS
	Jakub ŤUKAL	FTS
	Bc. Markéta JIRMANOVÁ	FTS
	Ing. Martina CAITHAMLOVÁ	FBME
	Ing. Jan KAŠPAR	FBME
	Mgr. Veronika VYMĚTALOVÁ, Ph.D.	FBME, Chairwoman of the Legislative Commission
	Bc. Olga VAFKOVÁ	FBME
	Bc. Tim PETRASEK	FBME
	Ing. Lukáš BAŘINKA	FIT
	doc. Ing. Jan JANOUŠEK, Ph.D.	FIT, Chairman
	RNDr. Petr OLŠÁK	FIT
	Ondřej ŠTORC	FIT
	Jakub MEINLSCHMIDT	FIT
	Prof. Ing. Václav HLAVÁČ, CSc.	CIIRC, Chairman of the Development and Quality Commission
	Mgr. Libor VYKYDAL	IPES
	Ing. Bc. Pavel ANDRES, Ph.D., ING. PAED. IGIP	MIAS
	Aneta ŠEVČENKOVÁ	MIAS
	Thuy DUNG HA	MIAS

Table 1.3.5: Disciplinary Commission of CTU	
Members – academics	doc. Ing. Miroslav SÝKORA, Ph.D. (KI)
	Ing. Lukáš BALÍK, Ph.D. (KI)
	doc. Ing. Petr VYMĚTAL, Ph.D. (MIAS)
	PhDr. Eva ŠÍROVÁ, Ph.D. (MIAS)
Members – students	Ing. Martin KRYŠTOV (KI)
	Ing. Adam ČÍTEK (KI)
	Aneta ŠEVČENKOVÁ (MIAS)
	Thuy DUNG HA (MFA)
Substitutes – academics	Ing. Petr TEJ, Ph.D. (KI)
	Ing. Petr FANTA, Ph.D. (MIAS)
Substitutes – students	Ing. Jiří ŽALSKÝ (KI)
	Bc. Dominik ADAM (MIAS)

Table 1.3.6: Ethics Committee	
Chairman	Prof. Ing. Petr ZUNA, CSc. (FS)
Members of the Commission	Prof. RNDr. Marie DEMLOVÁ, CSc. (FEE)
	Ing. Michal FARNÍK (FNSPE)
	Ing. Radmila FINGEROVÁ (FA)
	Prof. Ing. Jan MACEK, DrSc. (FCE)
	Prof. Ing. arch. Zdeněk ZAVŘEL, dr. h. c. (FA)

Table 1.3.7: CTU Internal Evaluation Board	
Chairman	doc. RNDr. Vojtěch PETRÁČEK, CSc. (Rector of CTU)
Vice-Chair	Prof. Ing. Petr HÁJEK, CSc. (FME)
Members	Ing. Lucie JIROTKOVÁ (FME)
	doc. Ing. Jiří HOZMAN, Ph.D. (FBME)
	Prof. Ing. Josef JÍRA, CSc. (FTS)
	Prof. Ing. Pavel TVRDÍK, CSc. (FIT)
	Prof. Ing. Milan JIRÁSEK, DrSc. (FCE)
	Prof. Ing. Jan MACEK, DrSc. (FME)
	doc. Ing. Tomáš PAJDLA, Ph.D. (CIIRC)
	Prof. Ing. Jiří JAKOVENKO, Ph.D. (FEE)
	Prof. Ing. arch. Ladislav LÁBUS, Hon. FAIA (FA)
	doc. Ing. Jan JANOUŠEK, Ph.D. (FIT)
	Prof. Ing. Milena PAVLÍKOVÁ, Ph.D. (FCE)
	Prof. Ing. Igor JEX, DrSc. (FNSPE)
Secretary	Mgr. Renáta MATOUŠKOVÁ (R CTU)

1.4 Representation of CTU in the representation of Czech universities

Czech Rectors' Conference
doc. RNDr. Vojtěch PETRÁČEK, CSc. (Rector of CTU)

CTU Delegates in the Council of Universities Board

Presidency of the Council of Universities Board
Ing. Michal FARNÍK (FNSPE)
Prof. Dr. Ing. Ivan RICHTER (FNSPE)

Members of the Assembly of the Council of Universities Board
Prof. Dr. Ing. Ivan RICHTER (FNSPE)
Mgr. Veronika VYMĚTALOVÁ, Ph.D. (FBME)
Ing. arch. Jana ZDRÁHALOVÁ, Ph.D. (FA)
Ing. Jan MUŽÍK, Ph.D. (FBME)
JUDr. Milena MACKOVÁ (FTS)
doc. Ing. Ľubomír SKLENKA, Ph.D. (FNSPE)
doc. Ing. Stanislav VÍTEK, Ph.D. (FEE)
Prof. Ing. Hana KUBÁTOVÁ, CSc. (FIT)
Prof. Ing. Michal POLÁK, CSc. (FME)
Prof. Ing. Zbyněk ŠIKA, Ph.D. (FME)

Legislative Working Committee
Mgr. Veronika VYMĚTALOVÁ, Ph.D. (FBME)

Working Committee on Economic
Prof. Dr. Ing. Ivan RICHTER (FNSPE)

Working Commission for Educational Activities
doc. Ing. Ľubomír SKLENKA, Ph.D. (FNSPE)

Working Commission for Scientific Activities
doc. Ing. Stanislav VÍTEK, Ph.D. (FEE)
Ing. arch. Jana ZDRÁHALOVÁ, Ph.D. (FA)
Prof. Dr. Ing. Ivan RICHTER (FNSPE)
Prof. Ing. Michal POLÁK, CSc. (FCE)
Prof. Ing. Zbyněk ŠIKA, Ph.D. (FME)

Working Committee on Strategy and Development in Higher Education
Ing. Michal FARNÍK (FNSPE)
Ing. Jan MUŽÍK, Ph.D. (FBME)
doc. Ing. Stanislav VÍTEK, Ph.D. (FEE)

Working Commission on Quality of Higher Education Institutions and its Evaluation
Ing. Michal FARNÍK (FNSPE)
Prof. Ing. Hana KUBÁTOVÁ, CSc. (FIT)

Working Committee on External and international Relations
Ing. Jan MUŽÍK, Ph.D. (FBME)
doc. Ing. Ľubomír SKLENKA, Ph.D. (FNSPE)

Student Chamber of the Council of Universities
Ing. Michal FARNÍK, delegate (FNSPE)
Ing. Jakub SLÁMA, alternate delegate (FEE)

Table 2.1: Accredited study programmes (numbers)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Civil Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	1	0	1
Technology, manufacturing and construction	07	9	0	0	0	17	0	20	15	61
Faculty total	X	9	0	0	0	17	0	21	15	50*
Faculty of Mechanical Engineering										
Broadly defined fields of ISCED-F	code									
Business, Administration and Law	04	0	0	0	0	1	1	0	0	2
Technology, manufacturing and construction	07	6	5	0	0	13	9	10	9	52
Faculty total	X	6	5	0	0	14	10	10	9	3*
Faculty of Electrical Engineering										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	0	0	2	1	3
Business, Administration and Law	04	0	0	0	0	0	0	2	1	3
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	4	1	5
Information and communication technologies	06	3	0	0	0	2	0	4	3	12
Technology, manufacturing and construction	07	8	1	0	0	10	1	8	5	33
Faculty total	X	11	1	0	0	12	1	20	11	44*
Faculty of Nuclear and Physical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	14	0	0	0	15	0	12	4	45
Information and communication technologies	06	1	0	0	0	2	0	1	1	5
Technology, manufacturing and construction	07	0	0	0	0	0	0	2	2	4
Health and social care, care for favourable living conditions	09	1	0	0	0	0	0	0	0	1
Faculty total	X	16	0	0	0	17	0	15	7	48*
Faculty of Architecture										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	1	0	0	0	2	0	1	1	5
Technology, manufacturing and construction	07	3	0	0	0	6	0	3	1	13
Faculty total	X	4	0	0	0	8	0	4	2	16*
Faculty of Transport										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	1	0	0	0	0	0	2	1	4
Services	10	4	2	0	0	7	3	5	6	27
Faculty total	X	5	2	0	0	7	3	7	7	21*

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Table 2.1: Accredited study programmes (numbers)

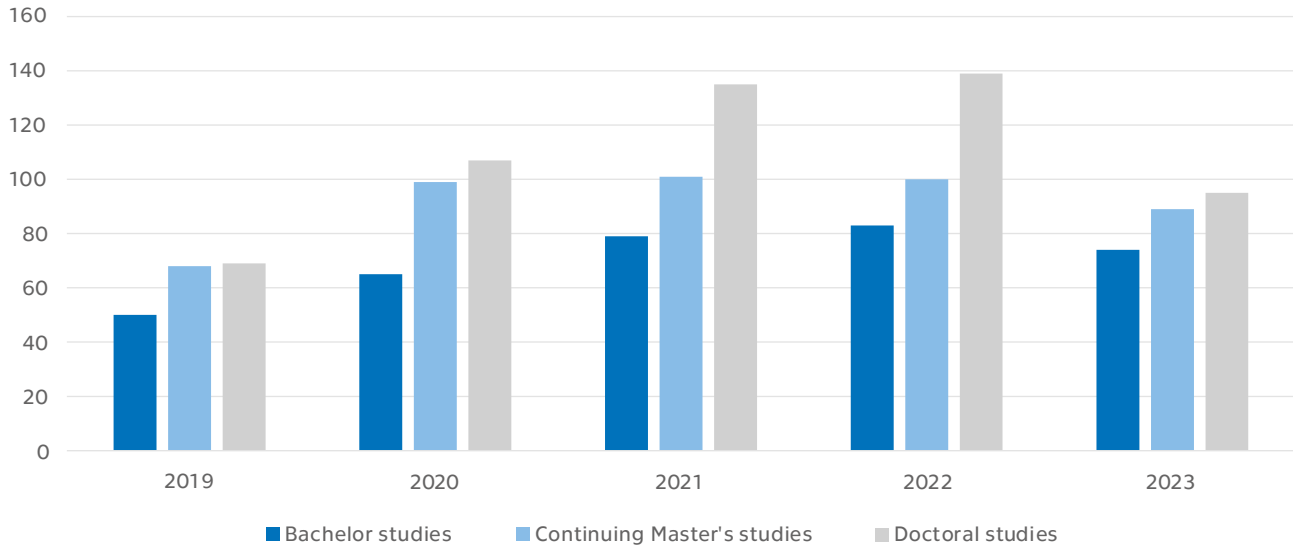
CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Biomedical Engineering										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	1	0	0	0	1	0	1	1	4
Technology, manufacturing and construction	07	1	1	0	0	0	0	0	1	3
Health and social care, care for favourable living conditions	09	8	0	0	0	4	1	2	2	17
Services	10	2	2	0	0	1	1	1	2	9
Faculty total	X	12	3	0	0	6	2	4	6	24*
Faculty of Information Technology										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	3	2	0	0	3	0	2	2	12
Faculty total	X	3	2	0	0	3	0	2	2	9*
School-wide workplaces (study outside the faculty)										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	2	0	0	0	0	0	0	2
Business, Administration and Law	04	4	0	0	0	2	1	0	0	7
Technology, manufacturing and construction	07	0	0	0	0	0	0	2	3	5
Faculty total	X	4	2	0	0	2	1	2	3	11*
CTU in Prague										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	2	0	0	0	0	0	0	2
Arts and Humanities	02	1	0	0	0	2	0	3	2	8
Business, Administration and Law	04	4	0	0	0	3	2	2	1	12
Natural Sciences, Mathematics and Statistics	05	14	0	0	0	15	0	17	5	51
Information and communication technologies	06	8	2	0	0	8	0	8	7	33
Technology, manufacturing and construction	07	28	7	0	0	46	10	47	37	175
Health and social care, care for favourable living conditions	09	9	0	0	0	4	1	2	2	18
Services	10	6	4	0	0	8	4	6	8	36
TOTAL	X	70	15	0	0	86	17	85	62	254**

Note: * Total number is not the sum of the table numbers for the faculty, but is the sum of the unique external codes of the faculty's degree programs with active studies.

Note: ** The total number is not the sum of the table numbers by individual faculties, but it is the sum of unique external codes of study programmes with active studies across CTU.

FT = full-time
PT/DL = part-time / distance

ACCREDITED STUDY PROGRAMMES (NUMBERS)



STUDY PROGRAMMES IN A FOREIGN LANGUAGE (NUMBERS)

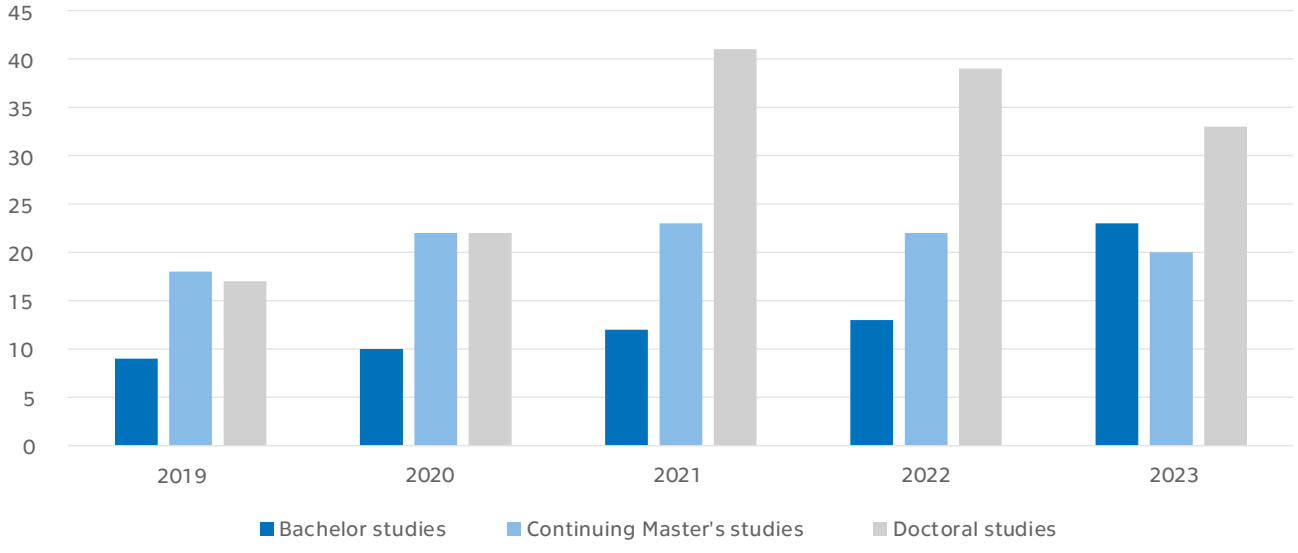


Table 2.2: Study programmes in a foreign language (numbers)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Civil Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	1	0	0	0	3	0	7	3	14
Faculty total	X	1	0	0	0	3	0	7	3	11*
Faculty of Mechanical Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	1	0	0	0	3	0	4	3	11
Faculty total	X	1	0	0	0	3	0	4	3	6*
Faculty of Electrical Engineering										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	0	0	1	0	1
Business, Administration and Law	04	0	0	0	0	0	0	1	0	1
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	2	1	3
Information and communication technologies	06	0	0	0	0	1	0	2	1	4
Technology, manufacturing and construction	07	1	0	0	0	5	0	3	1	10
Faculty total	X	1	0	0	0	6	0	9	3	16*
Faculty of Nuclear and Physical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	3	0	0	0	1	0	6	1	11
Technology, manufacturing and construction	07	0	0	0	0	0	0	1	1	2
Faculty total	X	3	0	0	0	1	0	7	2	12*
Faculty of Architecture										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	1	0	0	0	1
Technology, manufacturing and construction	07	0	0	0	0	2	0	1	0	3
Faculty total	X	0	0	0	0	3	0	1	0	4
Faculty of Transport										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	0	0	0	0	0	0	1	0	1
Services	10	1	0	0	0	2	0	1	0	4
Faculty total	X	1	0	0	0	2	0	2	0	5
Faculty of Biomedical Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	1	0	0	0	0	0	0	0	1
Health and social care, care for favourable living conditions	09	1	0	0	0	1	0	1	1	4
Faculty total	X	2	0	0	0	1	0	1	1	4*

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Table 2.2: Study programmes in a foreign language (numbers)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Information Technology										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	2	0	0	0	1	0	1	0	4
Faculty total	X	2	0	0	0	1	0	1	0	4
School-wide workplaces (study outside the faculty)										
Broadly defined fields of ISCED-F	code									
Business, Administration and Law	04	2	0	0	0	1	0	0	0	3
Technology, manufacturing and construction	07	0	0	0	0	0	0	0	1	1
Faculty total	X	2	0	0	0	1	0	0	1	4
CTU in Prague										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	1	0	1	0	2
Business, Administration and Law	04	2	0	0	0	1	0	1	0	4
Natural Sciences, Mathematics and Statistics	05	3	0	0	0	1	0	8	2	14
Information and communication technologies	06	2	0	0	0	2	0	3	1	8
Technology, manufacturing and construction	07	4	0	0	0	13	0	17	9	43
Health and social care, care for favourable living conditions	09	1	0	0	0	1	0	1	1	4
Services	10	1	0	0	0	2	0	1	0	4
TOTAL	X	13	0	0	0	21	0	32	13	66**

Note: * Total number is not the sum of the table numbers for the faculty, but is the sum of the unique external codes of the faculty's degree programs with active studies.

Note: ** The total number is not the sum of the table numbers by individual faculties, but it is the sum of unique external codes of study programmes with active studies across CTU.

FT = full-time
PT/DL = part-time / distance

Table 2.3: Joint/Double/Multiple Degree Study Programmes with Foreign HEIs	
CTU in Prague	
Faculty of Civil Engineering – Programme name 1	Civil Engineering, Advanced Masters in Structural Analysis of Monuments and Historical Constructions
Partner organisations	University of Minho, Portugal Technical University of Catalonia, Spain University of Padova, Italy
Associated organisations	Institute of Theoretical and Applied Mechanics of the CAS
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	2
Faculty of Civil Engineering – Programme name 2	Civil Engineering, Double Degree Master Programme in Civil Engineering
Partner organisations	École Nationale Des Ponts et Chaussées (ENPC), France
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0
Faculty of Civil Engineering – Programme name 3	Civil Engineering, Double Degree Master Programme in Civil Engineering
Partner organisations	Technische Universität München, Germany Fakultät für Bauingenieur- und Vermessungswesen, Germany
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0
Faculty of Civil Engineering – Programme name 4	Civil Engineering, Double Degree Master Programme in Civil Engineering
Partner organisations	KTH Royal Institute of Technology, Stockholm, Sweden
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	2
Faculty of Civil Engineering – Programme name 5	Civil Engineering, Double degree Master Programme in Civil Engineering
Partner organisations	RWTH Aachen, Aaachen, Germany, Faculty of Civil Engeneering
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	double degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0

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Table 2.3: Joint/Double/Multiple Degree Study Programmes with Foreign HEIs	
CTU in Prague	
Faculty of Mechanical Engineering – Programme name 1	Master of Automotive Engineering
Partner organisations	TU Chemnitz (D), ENSTA Bretagne (F), HAN Arnhem (NL) and ITB Bandung (RI)
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	17
Faculty of Electrical Engineering – Programme name 1	Erasmus Mundus Master Course – Joint European Master in Space Science and Technology (SpaceMaster)
Partner organisations	Luleå University of Technology (LTU), Sweden Julius-Maximilian's University of Würzburg (JMUW), Germany Cranfield University (CU), United Kingdom Aalto University (Aalto), Finland Université Paul Sabatier Toulouse III (UPS), France University of Tokyo (Todai), Japan Utah State University (USU), USA
Associated organisations	Swedish Institute of Space Physics (IRF), Sweden Swedish Space Corporation (SSC), Sweden European Incoherent Scatter Scientific Association (EISCAT), Norway Honeywell s.r.o. (Honeywell), Czech Republic European Aeronautics Defence and Space Company, Innovation Works Division (EADS), France
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Počet aktivních studií k 31. 12.	1
Faculty of Electrical Engineering – Programme name 2	Double degree Programme with National Taiwan University of Science and Technology
Partner organisations	National Taiwan University of Science and Technology), DECE (Department of Electronic and Computer Engineering)
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	1
Faculty of Electrical Engineering – Programme name 3	Double degree with RWTH Aachen
Partner organisations	RWTH Aachen
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	6

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Table 2.3: Joint/Double/Multiple Degree Study Programmes with Foreign HEIs	
CTU in Prague	
Faculty of Electrical Engineering – Programme name 4	Double degree Programme EURECOM, France
Partner organisations	Graduate School and Research Center in Digital Sciences, BIOT, Sophia Antipolis, France
Associated organisations	Mobile Computing Systems
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	1
Faculty of Electrical Engineering – Programme name 5	Joint degree Programme ERASMUS MUNDUS +, France
Partner organisations	Université Paris 1 Panthéon Sorbonne
Associated organisations	Universidade de Évora, Università degli Studi di Padova
Type of programme (Joint/Double/Multiple Degree)	Joint Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	2
Faculty of Nuclear and Physical Engineering – Programme name 1	DSP Applications of Natural Sciences, the field of Nuclear Engineering
Partner organisations	Ghent University, Belgium
Associated organisations	
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	doctoral
Number of active studies as of 31. 12.	0
Faculty of Nuclear and Physical Engineering – Programme name 2	NMSP Mathematical Engineering
Partner organisations	University of Kanazawa, Japan
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0
Faculty of Nuclear and Physical Engineering – Programme name 3	NMSP Solid State Engineering
Partner organisations	University of Kanazawa, Japan
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0
Faculty of Transport – Programme name 1	Intelligent Transport Systems
Partner organisations	Linköpings universitet, Sweden
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	10
Faculty of Transport – Programme name 2	Smart Cities
Partner organisations	The University of Texas in El Paso
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	8

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Table 2.3: Joint/Double/Multiple Degree Study Programmes with Foreign HEIs	
CTU in Prague	
Faculty of Information Technology – Programme name 1	Informatics (specializations: Digital Business Engineering)
Partner organisations	University of Antwerp
Associated organisations	
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	1
Masaryk Institute of Advanced Studies – Programme name 1	Economics and Management
Partner organisations	Wuhan University of Technology (WUT)
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Bachelor's
Number of active studies as of 31. 12.	0
Masaryk Institute of Advanced Studies – Programme name 2	Innovation Project Management
Partner organisations	Wuhan University of Technology (WUT)
Associated organisations	none
Type of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor's, postgraduate, master's, doctoral)	Master's degree
Number of active studies as of 31. 12.	0

Summary information on Table 2.3					
CTU in Prague	**Bachelor's Degree**	**Master's studies**	**Continuing Master's studies**	**Doctoral studies**	**Total**
Number of study programmes	1	0	17	1	19
Number of active studies in the following programmes	0	0	51	0	51

Table 2.4: Accredited study programmes implemented jointly with another university or public research institution* based in the Czech Republic	
CTU in Prague	
Faculty of Mechanical Engineering – Programme name 1	Mechatronika
The broadly defined field of ISCED-F	714
Partner university/institution*	University of South Bohemia in České Budějovice
Type of programme (bachelor's, postgraduate, master's, doctoral)	Bachelor's
Number of active studies as of 31. 12.	0
Faculty of Nuclear and Physical Engineering – programme name 1	Mathematical Engineering
Broadly defined fields of ISCED-F	0541
Partner university/institution*	UTIA and Institute of Informatics
Type of programme (bachelor's, postgraduate, master's, doctoral)	doctoral
Number of active studies as of 31. 12.	28
Faculty of Nuclear and Physical Engineering – programme name 2	Applications of Natural Sciences
Broadly defined fields of ISCED-F	0533
Partner university/institution*	Institute of Thermomechanics, Institute of Photonics and Electronics, Institute of Physics, Institute of Theoretical and Applied Mechanics, Jaroslav Heyrovský Institute of Physical Chemistry, Institute of Nuclear Physics
Type of programme (bachelor's, postgraduate, master's, doctoral)	doctoral
Number of active studies as of 31. 12.	176
Faculty of Architecture – programme name 1	Landscape architecture
Broadly defined fields of ISCED-F	731
Partner university/institution*	Czech University of Agriculture
Type of programme (bachelor's, postgraduate, master's, doctoral)	Bachelor's
Number of active studies as of 31. 12.	90

Note: * These are, for example, accredited study programmes carried out jointly with the CAS or other public research institutions based in the Czech Republic.

Summary information on Table 2.4					
CTU in Prague	**Bachelor's Degree**	**Master's studies**	**Continuing Master's studies**	**Doctoral studies**	**Total**
Number of study programmes	2	0	0	2	4
Number of active studies in the following programmes	90	0	0	204	294

Table 2.6: Lifelong learning (LLL) courses at the university (number of courses)

CTU in Prague		Career-oriented courses			Courses of interest			LLL	TOTAL
		up to 15 hrs	from 16 to 100 hrs	over 100 hrs	up to 15 hod	from 16 to 100 hrs	over 100 hrs		
Broadly defined fields of ISCED-F	code								
Programmes and qualifications – general education	00	6	1	0	0	0	0	18	25
Education and upbringing	01	2	12	5	0	0	0	0	19
Arts and Humanities	02	2	45	13	0	4	0	36	100
Social Sciences, Journalism and Information Sciences	03	0	7	0	0	0	0	0	7
Business, Administration and Law	04	0	0	0	0	0	0	0	0
Natural Sciences, Mathematics and Statistics	05	5	9	1	0	0	0	10	25
Information and communication technologies	06	0	204	36	0	0	0	36	276
Technology, manufacturing and construction	07	2	155	9	0	1	2	3	172
Agriculture, forestry, fishing and veterinary medicine	08	0	0	0	0	0	0	0	0
Health and social care, care for favourable living conditions	09	1	9	0	0	0	0	0	10
Services	10	0	8	5	0	0	0	6	19
TOTAL	X	18	450	69	0	5	2	109	653

Table 2.7: Lifelong learning (LLL) courses at the university (number of participants)

CTU in Prague		Career-oriented courses		
		up to 15 hrs	from 16 to 100 hrs	over 100 hrs
Broadly defined fields of ISCED-F	code			
Programmes and qualifications - general education	00	209	30	0
Education and upbringing	01	0	123	67
Arts and Humanities	02	22	309	337
Social Sciences, Journalism and Information Sciences	03	0	0	38
Business, Administration and Law	04	0	0	0
Natural Sciences, Mathematics and Statistics	05	124	79	1
Information and communication technologies	06	3	161	120
Technology, manufacturing and construction	07	0	110	142
Agriculture, forestry, fishing and veterinary medicine	08	0	0	0
Health and social care, care for favourable living conditions	09	11	0	3
Services	10	0	21	2
TOTAL*	X	370	846	723

>>>

Note: * As individuals who may attend more than one course are reported, the total is not the sum of the previous rows or columns, but reflects the actual total number of course participants.

Courses of interest			LLL	TOTAL*	Of which the number of participants who were admitted to accredited study programmes pursuant to Section 60 of the Higher Education Act
up to 15 hrs	from 16 to 100 hrs	over 100 hrs			
0	0	0	425	664	0
0	0	0	0	190	0
0	24	0	881	1,573	0
0	0	0	0	38	38
0	0	0	0	0	0
0	0	0	233	437	4
0	0	0	388	691	236
0	1	31	109	401	87
0	0	0	0	0	0
0	0	0	0	14	3
0	0	0	0	23	23
0	25	31	2,036	3,613	391

Table 2.8: Lifelong learning (LLL) courses at university (number of courses and participants) – microcredentials

CTU in Prague		Number of courses	
		Career-oriented courses	Courses of interest
Broadly defined fields of ISCED-F	code		
Programmes and qualifications – general education	00		
Education and upbringing	01		
Arts and Humanities	02		
Social Sciences, Journalism and Information Sciences	03		
Business, Administration and Law	04		
Natural Sciences, Mathematics and Statistics	05		
Information and communication technologies	06		
Technology, manufacturing and construction	07	3	
Agriculture, forestry, fishing and veterinary medicine	08		
Health and social care, care for favourable living conditions	09		
Services	10		
TOTAL*	X	3	0

>>>

Note: * Total value for individuals – individuals who may attend more than one course are reported, the total may not be the sum of the previous rows or columns but reflects the actual total number of course participants, i.e. one individual may be counted more than once.

	TOTAL	Number of course participants			TOTAL*
LLL		Career-oriented courses	Courses of interest	LLL	
	0				0
	0				0
	0				0
	0				0
	0				0
	0				0
	0				0
	3	55			55
	0				0
	0				0
	0				0
0	3	55	0	0	55

Table 3.1: Students in accredited study programmes (number of studies)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Civil Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	1	0	1
Technology, manufacturing and construction	07	2,482	0	0	0	694	0	182	166	3,524
Faculty total	**X**	**2,482**				**694**		**183**	**166**	3,525
Of which the number of women	X	985	0	0	0	286	0	63	53	1,387
Of which the number of foreigners	X	308	0	0	0	75	0	25	14	422
Faculty of Mechanical Engineering										
Broadly defined fields of ISCED-F	code									
Business, Administration and Law	04	0	0	0	0	33	10	0	0	43
Technology, manufacturing and construction	07	912	43	0	0	422	29	184	125	1,715
Faculty total	**X**	**912**	**43**			**455**	**39**	**184**	**125**	1,758
Of which the number of women	X	55	9	0	0	37	2	32	19	154
Of which the number of foreigners	X	120	3	0	0	34	2	26	16	201
Faculty of Electrical Engineering										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	0	0	5	2	7
Business, Administration and Law	04	0	0	0	0	0	0	12	4	
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	16	1	17
Information and communication technologies	06	841	0	0	0	300	0	111	9	1,261
Technology, manufacturing and construction	07	1,028	17	0	0	527	6	76	97	1,751
Faculty total	**X**	**1,869**	**17**			**827**	**6**	**220**	**113**	3,036
Of which the number of women	X	290	3	0	0	106	0	34	14	447
Of which the number of foreigners	X	486	3	0	0	152	0	77	35	753
Faculty of Nuclear and Physical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	583	0	0	0	189	0	169	80	1,021
Information and communication technologies	06	164	0	0	0	17	0	4	1	186
Technology, manufacturing and construction	07	0	0	0	0	0	0	7	3	10
Health and social care, care for favourable living conditions	09	45	0	0	0	0	0	0	0	45
Faculty total	**X**	**792**				**206**		**180**	**84**	1,262
Of which the number of women	X	226	0	0	0	62	0	55	26	369
Of which the number of foreigners	X	265	0	0	0	25	0	55	17	362

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Table 3.1: Students in accredited study programmes (number of studies)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Architecture										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	94	0	0	0	52	0	8	2	156
Technology, manufacturing and construction	07	967	0	0	0	528	0	64	42	1,601
Faculty total	X	1,061				580		72	44	1,757
Of which the number of women	X	664	0	0	0	373	0	33	20	1,090
Of which the number of foreigners	X	259	0	0	0	146	0	20	4	429
Faculty of Transport										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	31	0	0	0	0	0	6	2	39
Services	10	557	17	0	0	184	66	50	48	922
Faculty total	X	588	17			184	66	56	50	961
Of which the number of women	X	112	7	0	0	35	17	16	9	196
Of which the number of foreigners	X	142	3	0	0	19	9	11	6	190
Faculty of Biomedical Engineering										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	29	0	0	0	32	0	30	12	103
Technology, manufacturing and construction	07	3	1	0	0	0	0	0	20	24
Health and social care, care for favourable living conditions	09	954	0	0	0	131	70	33	23	1,211
Services	10	103	110	0	0	79	128	7	47	474
Faculty total	X	1,089	111			242	198	70	102	1,812
Of which the number of women	X	744	23	0	0	161	100	35	45	1,108
Of which the number of foreigners	X	85	0	0	0	18	6	9	6	124
Faculty of Information Technology										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	1,794	86	0	0	505	0	52	14	2,451
Faculty total	X	1,794	86			505		52	14	2,451
Of which the number of women	X	250	18	0	0	63	0	5	0	336
Of which the number of foreigners	X	662	15	0	0	133	0	10	1	821
School-wide workplaces (study outside the faculty)										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	184	0	0	0	0	0	0	184
Business, Administration and Law	04	462	0	0	0	218	121	0	0	801
Technology, manufacturing and construction	07	0	0	0	0	0	0	9	12	21
Faculty total	X	462	184			218	121	9	12	1,006
Of which the number of women	X	246	80	0	0	112	65	2	1	506
Of which the number of foreigners	X	62	2	0	0	33	21	0	1	119

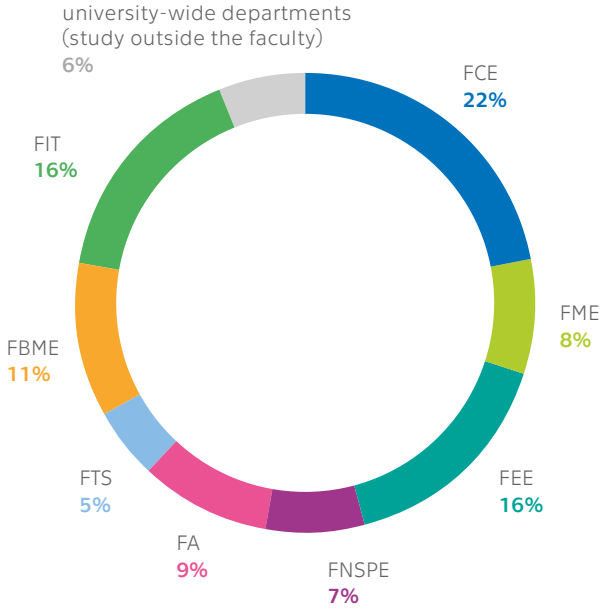
>>>

Table 3.1: Students in accredited study programmes (number of studies)

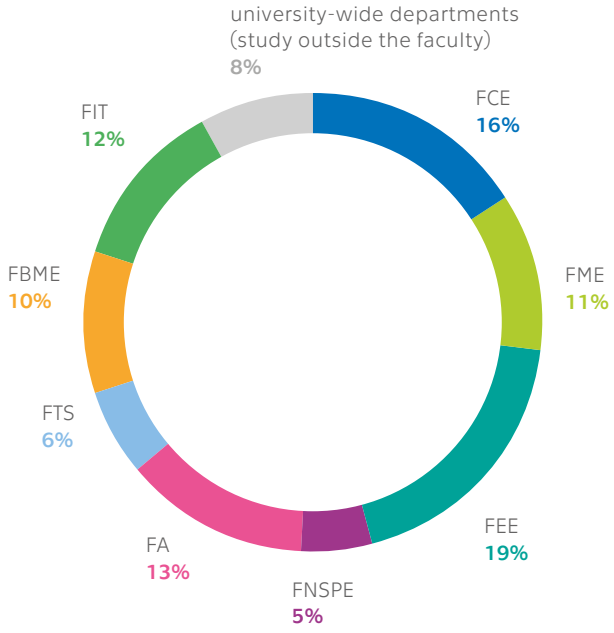
CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
CTU in Prague										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	184	0	0	0	0	0	0	184
Arts and Humanities	02	94	0	0	0	52	0	13	4	163
Business, Administration and Law	04	462	0	0	0	251	131	12	4	860
Natural Sciences, Mathematics and Statistics	05	583	0	0	0	189	0	186	81	1,039
Information and communication technologies	06	2,828	86	0	0	854	0	197	36	4,001
Technology, manufacturing and construction	07	5,423	61	0	0	2,171	35	528	467	8,685
Health and social care, care for favourable living conditions	09	999	0	0	0	131	70	33	23	1,256
Services	10	660	127	0	0	263	194	57	95	1,396
TOTAL	X	11,049	458			3,911	430	1,026	710	17,584
Of which the number of women	X	3,572	140	0	0	1,235	184	275	187	5,593
Of which the number of foreigners	X	2,389	26	0	0	635	38	233	100	3,421

FT = full-time
PT/DL = part-time / distance

STUDENTS IN BACHELOR'S DEGREE PROGRAMMES IN 2023



STUDENTS IN CONTINUING MASTER'S DEGREE PROGRAMMES IN 2023



STUDENTS IN DOCTORAL DEGREE PROGRAMMES IN 2023

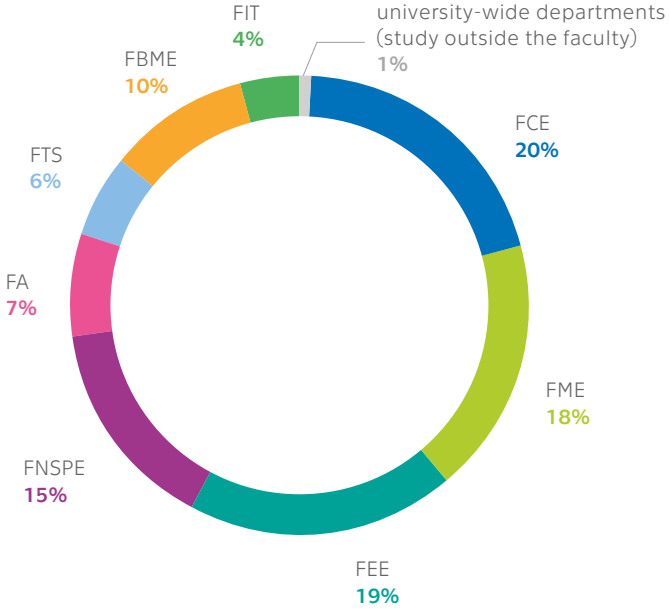


Table 3.2: Self-paying students* (number of studies)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Civil Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	17	0	0	0	4	0	0	0	21
Faculty total	X	17	0	0	0	4	0	0	0	21
Faculty of Mechanical Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	42	0	0	0	11	0	0	0	53
Faculty total	X	42	0	0	0	11	0	0	0	53
Faculty of Electrical Engineering										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	0	0	0	0	5	0	1	0	6
Technology, manufacturing and construction	07	63	0	0	0	19	0	1	0	83
Faculty total	X	63	0	0	0	24	0	2	0	89
Faculty of Nuclear and Physical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	11	0	0	0	1	0	1	0	13
Faculty total	X	11	0	0	0	1	0	1	0	13
Faculty of Architecture										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	1	0	0	0	1
Technology, manufacturing and construction	07	0	0	0	0	22	0	0	0	22
Faculty total	X	0	0	0	0	23	0	0	0	23
Faculty of Transport										
Broadly defined fields of ISCED-F	code									
Services	10	19	0	0	0	1	0	0	0	20
Faculty total	X	19	0	0	0	1	0	0	0	20
Faculty of Biomedical Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	1	0	0	0	0	0	0	0	1
Health and social care, care for favourable living conditions	09	22	0	0	0	4	0	0	0	26
Faculty total	X	23	0	0	0	4	0	0	0	27
Faculty of Information Technology										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	163	0	0	0	5	0	0	0	168
Faculty total	X	163	0	0	0	5	0	0	0	168
School-wide workplaces (study outside the faculty)										
Broadly defined fields of ISCED-F	code									
Business, Administration and Law	04	14	0	0	0	13	0	0	0	27
Faculty total	X	14	0	0	0	13	0	0	0	27

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Table 3.2: Self-paying students* (number of studies)

CTU in Prague		Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
CTU in Prague										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	0	0	0	0	1	0	0	0	1
Business, Administration and Law	04	14	0	0	0	13	0	0	0	27
Natural Sciences, Mathematics and Statistics	05	11	0	0	0	1	0	1	0	13
Information and communication technologies	06	163	0	0	0	10	0	1	0	174
Technology, manufacturing and construction	07	123	0	0	0	56	0	1	0	180
Health and social care, care for favourable living conditions	09	22	0	0	0	4	0	0	0	26
Services	10	19	0	0	0	1	0	0	0	20
TOTAL	X	352	0	0	0	86	0	3	0	441

Note: * A self-paying student is a person (student) who pays for his/her studies in a foreign language in full on his/her own and the university does not include him/her in the number of students determining the amount of the state contribution to educational activities.

FT = full-time
PT/DL = part-time / distance

Table 3.3: Academic failure* in the first year** of study (%)

CTU in Prague	Bachelor's studies			Master's studies		
	FT	PT/DL	TOTAL	FT	PT/DL	TOTAL
Faculty of Civil Engineering	36.4	0.0	36.4	0.0	0.0	0.0
Faculty of Mechanical Engineering	38.2	56.0	39.3	0.0	0.0	0.0
Faculty of Electrical Engineering	27.3	57.7	28.3	0.0	0.0	0.0
Faculty of Nuclear and Physical Engineering	62.5	0.0	62.5	0.0	0.0	0.0
Faculty of Architecture	10.6	0.0	10.6	0.0	0.0	0.0
Faculty of Transport	51.3	53.8	51.4	0.0	0.0	0.0
Faculty of Biomedical Engineering	29.6	17.8	27.8	0.0	0.0	0.0
Faculty of Information Technology	45.0	65.9	46.6	0.0	0.0	0.0
School-wide workplaces (study outside the faculty)	19.8	23.1	20.5	0.0	0.0	0.0
UNIVERSITIES TOTAL	37.6	43.1	37.8	0.0	0.0	0.0

Note: * Study failure rate is the ratio of the number of studies started in calendar year n to the sum of failed studies of this cohort in calendar years n and n+1.

Note: ** These are all students who enrolled in a given college in calendar year n, whether they are first-time enrollees or not.

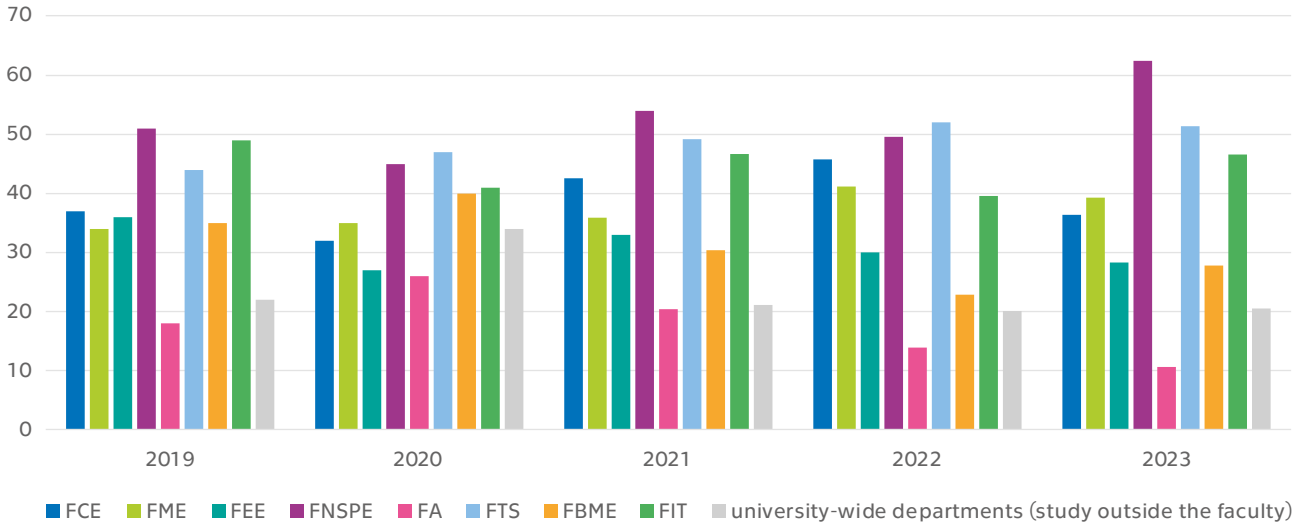
FT = full-time
PT/DL = part-time / distance

The TOTAL value is neither the sum nor the average of the previous values (e.g. for P and K/D in a certain type of study). A separate calculation must be made for each field in the table.

Example:

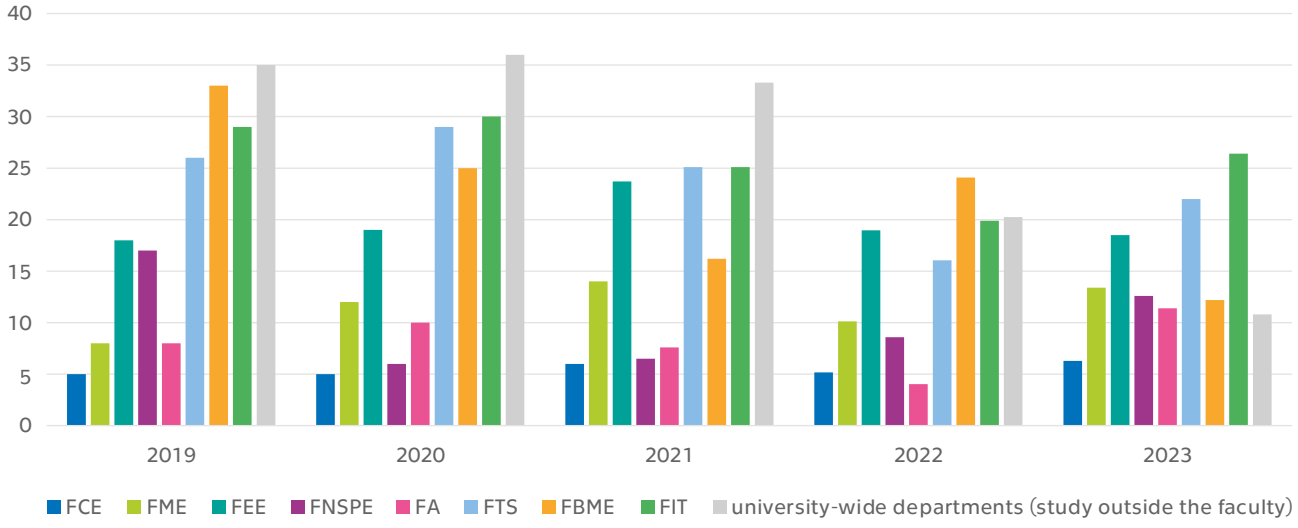
In 2023 (between 1 January and 31 December), 500 full-time undergraduate students were enrolled at the Faculty. In the same and the following year, 180 of this cohort were unsuccessfully completed. The first year failure rate for this cohort is 180/500=0.36, or 36%.

ACADEMIC FAILURE RATE IN THE 1ST YEAR OF BACHELOR STUDIES (%)



Continuing Master's studies			Doctoral studies			TOTAL
FT	PT/DL	TOTAL	FT	PT/DL	TOTAL	
6.3	0.0	6.3	10.3	36.4	14.5	27.7
11.8	35.3	13.4	14.3	13.0	13.8	26.9
18.4	20.0	18.5	13.5	16.7	14.1	24.6
12.6	0.0	12.6	20.5	0.0	20.5	54.0
11.4	0.0	11.4	12.5	11.1	12.0	10.9
15.0	48.1	22.0	5.6	33.3	9.5	41.6
8.2	16.1	12.2	7.7	37.5	24.1	23.3
26.4	0.0	26.4	10.0	33.3	15.4	42.7
6.9	18.2	10.8	0.0	0.0	0.0	17.5
13.8	24.1	14.7	13.2	19.8	14.9	30.8

ACADEMIC FAILURE RATE OF THE 1ST YEAR OF THE FOLLOW-UP MASTER'S DEGREE (%)



ACADEMIC FAILURE RATE IN THE FIRST YEAR OF DOCTORAL STUDIES (%)

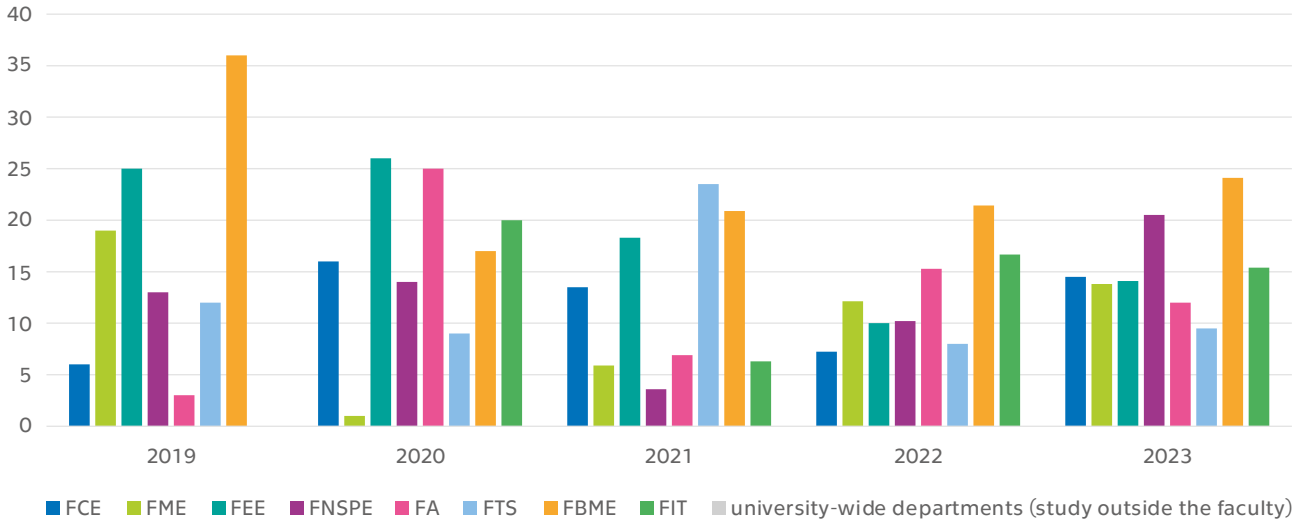


Table 3.4: Scholarships* to students by purpose of the scholarship (number of individuals)

CTU in Prague		
Purpose of the scholarship	Number of students	Average scholarship amount**
for outstanding academic performance according to § 91 (2) (a)	2,874	11,376
for outstanding scientific, research, development, artistic or other creative achievements pursuant to Section 91 (2) (b)	793	35,936
for research, development and innovation activities according to a special legal regulation, § 91 (2) (c)	672	67,993
in the case of a student in a difficult social situation according to § 91 (2) (d)	19	30,265
in the case of a student in a difficult social situation according to § 91 (3)	25	34,402
in cases of special consideration pursuant to Section 91 (2) (e)	13,557	4,088
of which accommodation scholarship	13,534	4,087
to support study abroad according to § 91 (4) (a)	412	33,485
to support studies in the Czech Republic according to § 91 (4) (b)	49	38,652
students of doctoral study programmes according to § 91 (4) (c)	1,242	119,200
other scholarships	1,752	4,856
TOTAL***	21,395	15,704

Note: * Irrespective of the source of funds, it does not refer only to funds from the Ministry of Education.

Note: ** Proportion of the total amount paid out for a given type of scholarship per year and the total number of individuals to whom the scholarship was paid at least once per year. If a scholarship has been paid to one person more than once, the person is counted only once, but the sum of the amounts paid to that person enters the calculation.

Note: *** As individuals who may be recipients of multiple scholarships are reported, the total number of students is not the sum of the previous columns, but reflects the actual number of students.

Example: the university paid a total of CZK 15,000 to students for outstanding academic performance under Section 91(2) (a) for the year. A total of 3 students received this scholarship, two of whom received it once and the third student received it three times. The average amount of this scholarship was CZK 5,000 (= CZK 15,000/3).

Table 3.5: Average monthly income of doctoral students (natural persons)

CTU in Prague	Presentation form		
	number of students	scholarship**	total income***
Faculty of Civil Engineering	209	11,563	24,593
Faculty of Mechanical Engineering	217	11,935	18,846
Faculty of Electrical Engineering	206	18,228	29,484
Faculty of Nuclear and Physical Engineering	165	12,000	16,320
Faculty of Architecture	69	12,742	17,267
Faculty of Transport	67	16,643	30,492
Faculty of Biomedical Engineering	83	9,350	22,736
Faculty of Information Technology	60	14,646	14,646
School-wide workplaces (study outside the faculty)	13	11,676	49,945
TOTAL	1,089	13,198.1*	24,925.4*

>>>

Note: * This is the overall average for scholarship and total income data for all types of study.

Note: ** Average monthly amount (see below) of the scholarship paid to students of doctoral study programmes according to § 91 (4) (c) for a given calendar year. Only the amounts paid under this scholarship are shown.

Note: *** Average monthly amount of all income paid by the faculty or university to students of doctoral study programmes. The total figure for the university may not be the sum of the figures for the faculty – taking into account possible income from the non-faculty component of the HEI. Both the amounts in the previous column and other funds paid according to the methodology are reported.

The average monthly amount is the proportion of the total amount of funds paid to a student during a given year divided by the number of months the scholarship was paid. Where funds have been paid to one person more than once, or from different funding sources, the person is counted only once, but the total of the amounts paid to that person enters the calculation.

All funds provided by the faculty, another unit of the college carrying out an accredited program of study, or the college are included.

Combined and distance form			TOTAL		
number of students	scholarship**	total income***	number of students	scholarship**	total income***
156	7,610	33,082	365		57,675
149	3,716	10,177	366	15,651	29,023
230	18,228	18,228	436	29,484	47,712
62	2,115	11,587	227	14,115	27,907
49	0	8,284	118	12,742	25,551
58	804	10,120	125	17,447	40,612
60	0	10,022	143	9,350	32,758
21	3,604	3,604	81	18,250	18,250
9	0	21,861	22	11,676	71,806
794	4,008.6*	14,107.2*	1,883	16,089.4*	39,032.7*

Table 3.6: Students – numbers per academic staff member

CTU in Prague	Bachelor's studies		Master's studies		Continuing Master's studies		Doctoral studies		TOTAL	
	woman	total	woman	total	woman	total	woman	total	woman	total
Faculty of Civil Engineering*	2.8	7.0	0	0	0.8	2.0	0.3	1.0	3.9	10.0
Faculty of Mechanical Engineering*	0.2	3.7	0	0	0.2	1.9	0.2	1.2	0.6	6.8
Faculty of Electrical Engineering*	1.1	7.1	0	0	0.4	3.1	0.2	1.2	1.7	11.4
Faculty of Nuclear and Physical Engineering*	1.5	5.2	0	0	0.4	1.4	0.5	1.7	2.4	8.3
Faculty of Architecture*	5.3	8.4	0	0	3.0	4.6	0.4	0.9	8.7	14.0
Faculty of Transport*	0.9	4.6	0	0	0.4	1.9	0.2	0.8	1.5	7.3
Faculty of Biomedical Engineering*	7.0	10.9	0	0	2.4	4.0	0.7	1.6	10.1	16.5
Faculty of Information Technology*	2.5	17.2	0	0	0.6	4.6	0.0	0.6	3.1	22.5
School-wide workplaces (study outside the faculty)*	6.9	13.6	0	0	3.7	7.1	0.1	0.4	10.7	21.2
TOTAL	2.3	7.2	0	0	0.9	2.7	0.3	1.1	3.5	11.0

Table 4.1: Graduates of accredited study programmes (number of graduates)

CTU in Prague		Bachelor studies		Master's studies		Continuing Master's studies		Doctoral studies		Total
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Civil Engineering										
Broadly defined fields of ISCED-F	code									
Technology, manufacturing and construction	07	345	0	0	0	342	0	2	34	723
Total faculty	**X**	**345**	**0**	**0**	**0**	**342**	**0**	**2**	**34**	**723**
Of which the number of women	X	132	0	0	0	143	0	0	9	284
Of which number of foreigners	X	36	0	0	0	45	0	0	3	84
Faculty of Mechanical Engineering										
Broadly defined fields of ISCED-F	code									
Business, Administration and Law	04	0	0	0	0	14	0	0	0	14
Technology, manufacturing and construction	07	195	7	0	0	241	10	2	12	467
Total faculty	**X**	**195**	**7**	**0**	**0**	**255**	**10**	**2**	**12**	**481**
Of which the number of women	X	12	0	0	0	26	1	0	2	41
Of which number of foreigners	X	25	0	0	0	17	3	0	2	47
Faculty of Electrical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	0	0	0	0	0	0	2	0	2
Information and communication technologies	06	151	0	0	0	94	0	2	0	247
Technology, manufacturing and construction	07	220	2	0	0	145	3	5	26	401
Total faculty	**X**	**371**	**2**	**0**	**0**	**239**	**3**	**9**	**26**	**650**
Of which the number of women	X	43	0	0	0	34	2	0	1	80
Of which number of foreigners	X	74	0	0	0	33	1	4	6	118
Faculty of Nuclear and Physical Engineering										
Broadly defined fields of ISCED-F	code									
Natural Sciences, Mathematics and Statistics	05	82	0	0	0	52	0	3	36	173
Information and communication technologies	06	2	0	0	0	12	0	0	0	14
Technology, manufacturing and construction	07	0	0	0	0	1	0	0	0	1
Health and social care, care for favourable living conditions	09	3	0	0	0	0	0	0	0	3
Total faculty	**X**	**87**	**0**	**0**	**0**	**65**	**0**	**3**	**36**	**191**
Of which the number of women	X	28	0	0	0	25	0	0	6	59
Of which number of foreigners	X	13	0	0	0	8	0	3	3	27

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Table 4.1: Graduates of accredited study programmes (number of graduates)

CTU in Prague		Bachelor studies		Master's studies		Continuing Master's studies		Doctoral studies		Total
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
Faculty of Architecture										
Broadly defined fields of ISCED-F	code									
Arts and Humanities	02	22	0	0	0	12	0	0	0	34
Technology, manufacturing and construction	07	235	0	0	0	157	0	1	7	400
Total faculty	**X**	**257**	**0**	**0**	**0**	**169**	**0**	**1**	**7**	434
Of which the number of women	X	170	0	0	0	112	0	1	3	286
Of which number of foreigners	X	63	0	0	0	46	0	0	1	110
Faculty of Transport										
Broadly defined fields of ISCED-F	code									
Services	10	110	6	0	0	99	12	1	7	235
Total faculty	**X**	**110**	**6**	**0**	**0**	**99**	**12**	**1**	**7**	235
Of which the number of women	X	17	1	0	0	28	6	0	4	56
Of which number of foreigners	X	20	0	0	0	13	3	0	1	37
Faculty of Biomedical Engineering										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	9	0	0	0	10	0	0	0	19
Technology, manufacturing and construction	07	40	4	0	0	0	0	0	8	52
Health and social care, welfare	09	202	0	0	0	67	9	0	0	278
Services	10	33	25	0	0	34	47	1	2	142
Total faculty	**X**	**284**	**29**	**0**	**0**	**111**	**56**	**1**	**10**	491
Of which the number of women	X	189	9	0	0	81	25	1	4	309
Of which number of foreigners	X	20	0	0	0	8	1	0	0	29
Faculty of Information Technology										
Broadly defined fields of ISCED-F	code									
Information and communication technologies	06	216	16	0	0	159	0	1	7	399
Total faculty	**X**	**216**	**16**	**0**	**0**	**159**	**0**	**1**	**7**	399
Of which the number of women	X	26	3	0	0	15	0	0	1	45
Of which number of foreigners	X	59	1	0	0	37	0	0	0	97
School-wide workplaces (study outside the faculty)										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	16	0	0	0	0	0	0	16
Business, Administration and Law	04	105	0	0	0	64	48	0	0	217
Technology, manufacturing and construction	07	0	0	0	0	0	0	0	1	1
Total faculty	**X**	**105**	**16**	**0**	**0**	**64**	**48**	**0**	**1**	234
Of which the number of women	X	60	8	0	0	53	51	0	0	172
Of which number of foreigners	X	7	0	0	0	18	15	0	0	40

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Table 4.1: Graduates of accredited study programmes (number of graduates)

CTU in Prague		Bachelor studies		Master's studies		Continuing Master's studies		Doctoral studies		Total
		FT	PT/DL	FT	PT/DL	FT	PT/DL	FT	PT/DL	
CTU in Prague										
Broadly defined fields of ISCED-F	code									
Education and upbringing	01	0	16	0	0	0	0	0	0	16
Arts and Humanities	02	22	0	0	0	12	0	0	0	34
Business, Administration and Law	04	105	0	0	0	78	48	0	0	231
Natural sciences, mathematics and statistics	05	82	0	0	0	52	0	5	36	175
Information and communication technologies	06	378	16	0	0	275	0	3	7	679
Technology, manufacturing and construction	07	1,035	13	0	0	886	13	10	88	2,045
Health and social care, welfare	09	205	0	0	0	67	9	0	0	281
Services	10	143	31	0	0	133	59	2	9	377
TOTAL	X	1,970	76	0	0	1,503	129	20	140	3,838
Of which the number of women	X	677	21	0	0	517	85	2	30	1,332
Of which number of foreigners	X	317	1	0	0	225	23	7	16	589

FT = full-time, PT/DL = part-time / distance; the number of successful graduates (not individuals) between 1 January and 31 December is reported.

GRADUATES OF ACCREDITED STUDY PROGRAMMES (NUMBER OF GRADUATES)

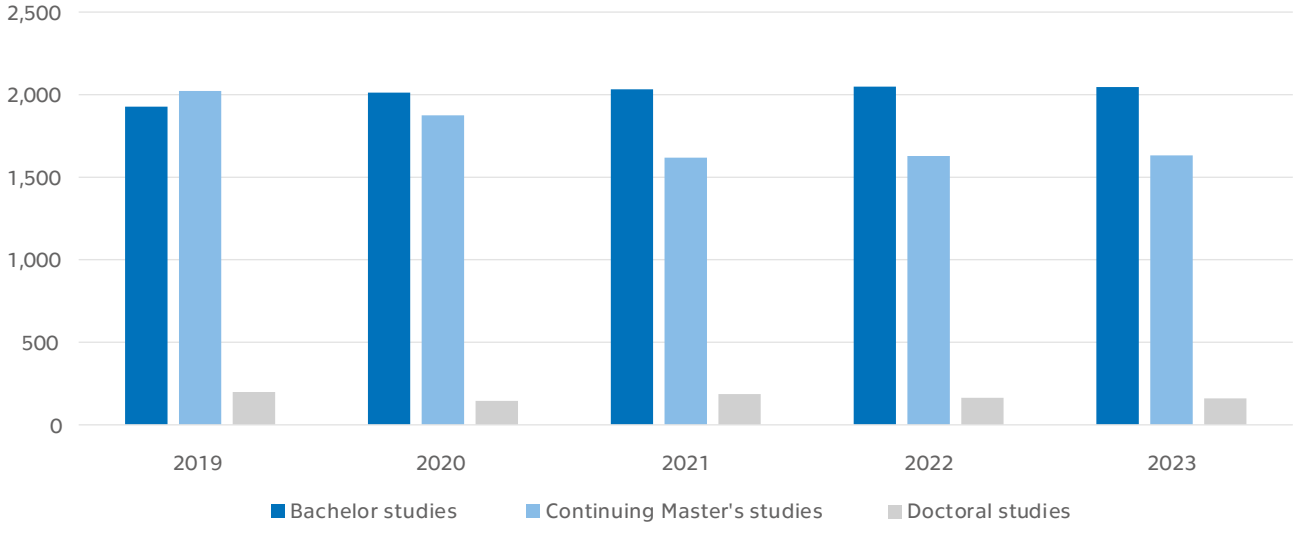

Table 5.1: Interest in studying at university

CTU in Prague		Bachelor studies				Master's s	
		Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications
Faculty of Civil Engineering							
Broadly defined ISCED-F disciplines	code						
Technology, manufacturing and construction	07	1,877	2,362	1,425	1,054		
Total faculty	X	**1,877**	**2,362**	**1,425**	**1,054**		
Faculty of Mechanical Engineering							
ISCED-F broadly defined disciplines	code						
Business, Administration and Law	04						
Technology, manufacturing and construction	07	933	972	569	446		
Total faculty	X	**933**	**972**	**569**	**446**		
Faculty of Electrical Engineering							
ISCED-F broadly defined fields	code						
Business, Administration and Law	04						
Natural sciences, mathematics and statistics	05						
Information and Communication Technologies	06	1,035	1,196	457	369		
Technology, manufacturing and construction	07	1,045	1,263	656	468		
Total faculty	X	**1,935**	**2,459**	**1,113**	**837**		
Faculty of Nuclear and Physical Engineering							
ISCED-F broadly defined disciplines	code						
Natural sciences, mathematics and statistics	05	499	500	349	270		
Information and communication technologies	06	226	226	114	93		
Technology, manufacturing and construction	07						
Health and social care, welfare	09	47	47	31	18		
Total faculty	X	**766**	**773**	**494**	**381**		
Faculty of Architecture							
ISCED-F broadly defined disciplines	code						
Arts and Humanities	02	171	171	47	42		
Technology, manufacturing and construction	07	829	901	362	329		
Total Faculty	X	**941**	**1 072**	**409**	**371**		
Faculty of Transport							
ISCED-F broadly defined disciplines	code						
Information and communication technologies	07	52	53	35	22		
Services	10	592	625	404	294		
Total faculty	X	**632**	**678**	**439**	**316**		

studies		Continuing Master's studies				Doctoral studies			
Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study
		460	514	401	350	85	85	79	79
		460	514	401	350	85	85	79	79
		30	30	24	20				
		260	284	189	170	74	74	72	68
		285	314	213	190	74	74	72	68
						3	3	3	3
						8	8	6	6
		233	271	166	139	37	37	34	34
		352	405	333	266	47	47	37	37
		571	676	499	405	93	95	80	80
		123	125	85	82	47	47	45	44
		9	9	6	6	1	1	1	1
		1	1			13	13	11	10
		133	135	91	88	60	61	57	55
		35	35	20	20	1	1	1	1
		337	350	260	253	34	35	20	20
		369	385	280	273	35	36	21	21
						1	1	1	1
		154	188	129	105	26	26	23	23
		154	188	129	105	27	27	24	24

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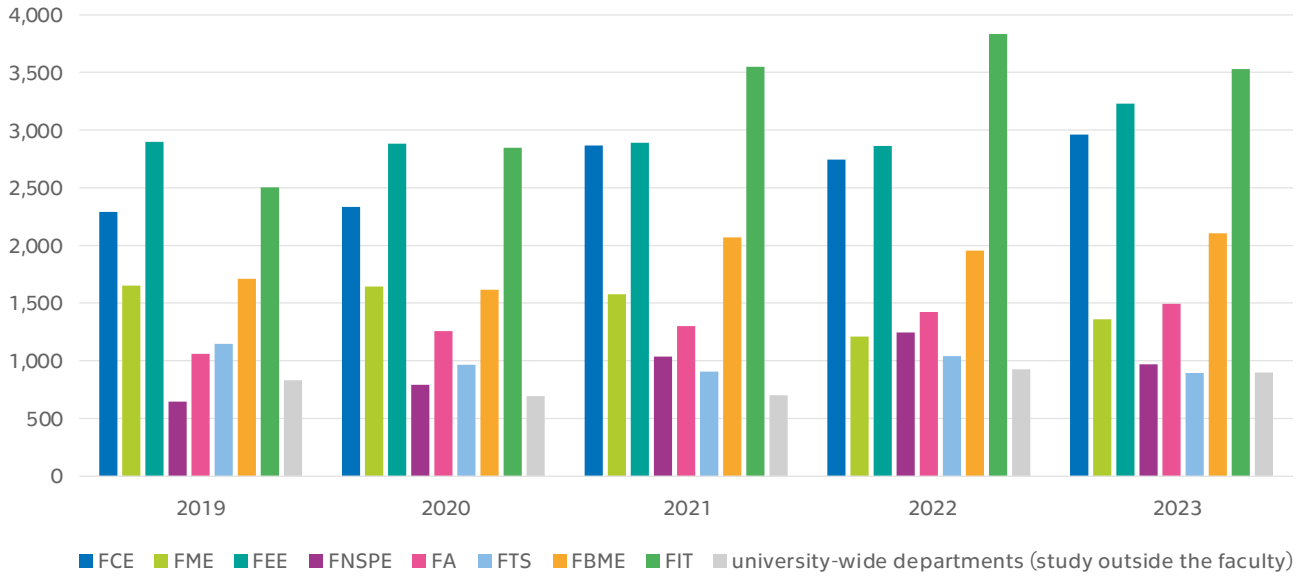
Table 5.1: Interest in studying at university

CTU in Prague		Bachelor studies				Master's s	
		Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications
Faculty of Biomedical Engineering							
ISCED-F broadly defined disciplines	code						
Information and Communication Technologies	06	35	36	17	11		
Health and social care, welfare	09	999	1,161	522	417		
Services	10	169	193	77	68		
Total faculty	X	1,179	1,390	616	496		
Faculty of Information Technology							
ISCED-F broadly defined disciplines	code						
Information and Communication Technology	06	2,944	3,106	1,005	889		
Total Faculty	X	2,944	3,106	1,005	889		
Masaryk Institute of Advanced Studies							
ISCED-F broadly defined fields of study	code						
Education and upbringing	01	97	97	86	82		
Business, Administration and Law	04	528	538	188	114		
Total Faculty	X	623	635	274	196		
CTU in Prague	– the total figure for HEIs is not the sum of the figures for individual faculties!						
ISCED-F broadly defined disciplines	code						
Education and upbringing	01	97	97	86	82	0	0
Arts and Humanities	02	171	171	47	42	0	0
Business, Administration and Law	04	528	538	188	114	0	0
Natural sciences, mathematics and statistics	05	499	500	349	270	0	0
Information and communication technologies	06	4,240	4,564	1,593	1,362	0	0
Technology, manufacturing and construction	07	4,736	5,551	3,047	2,319	0	0
Health and social care, welfare	09	1,046	1,208	553	435	0	0
Services	10	761	818	481	362	0	0
TOTAL	X	10,104	13,447	6,344	4,986		

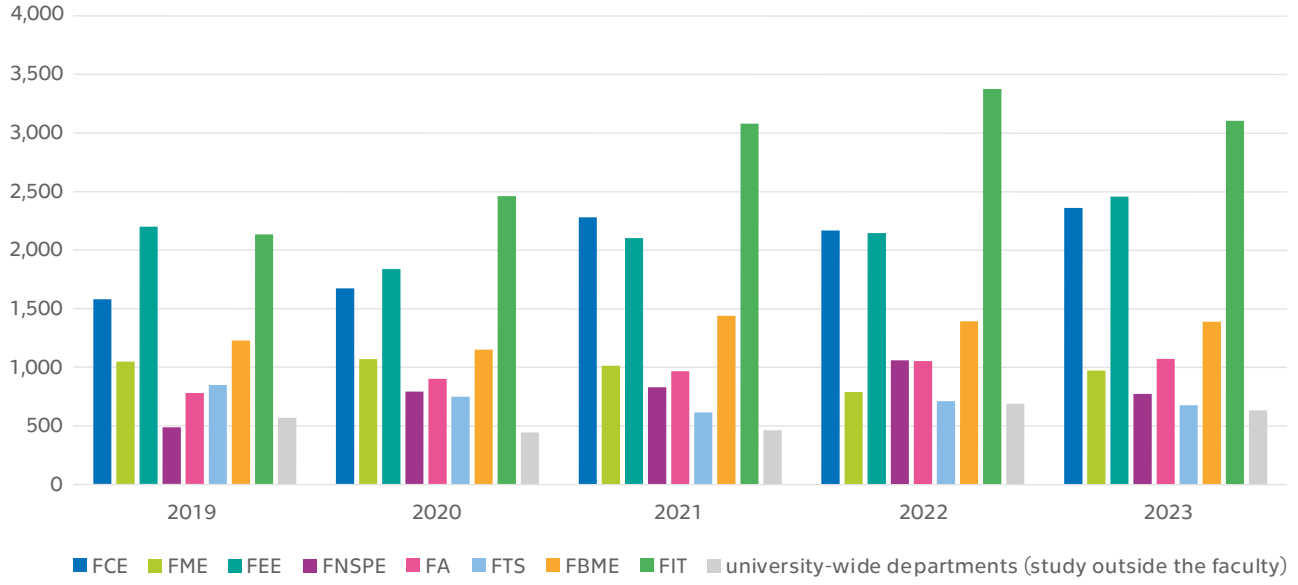
The totals for the faculty are not the sum of the data in the individual rows, but the number of individuals.

studies		Continuing Master's studies				Doctoral studies			
Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments to study
		34	39	29	24	18	18	18	18
		287	329	141	118	21	21	19	18
		285	296	105	99	11	11	8	8
		584	664	275	241	50	50	45	44
		401	402	249	232	21	21	21	21
		401	402	249	232	21	21	21	21
		250	263	172	156				
		250	263	172	156				
0	0	0	0	0	0	0	0	0	0
0	0	35	35	20	20	1	1	1	1
0	0	280	293	196	176	3	3	3	3
0	0	123	125	85	82	55	55	51	50
0	0	677	721	450	401	77	77	74	74
0	0	1,410	1,554	1,183	1,039	254	255	220	215
0	0	287	329	141	118	21	21	19	18
0	0	439	484	234	204	37	37	31	31
		3,099	3,541	2,309	2,040	448	453	403	396

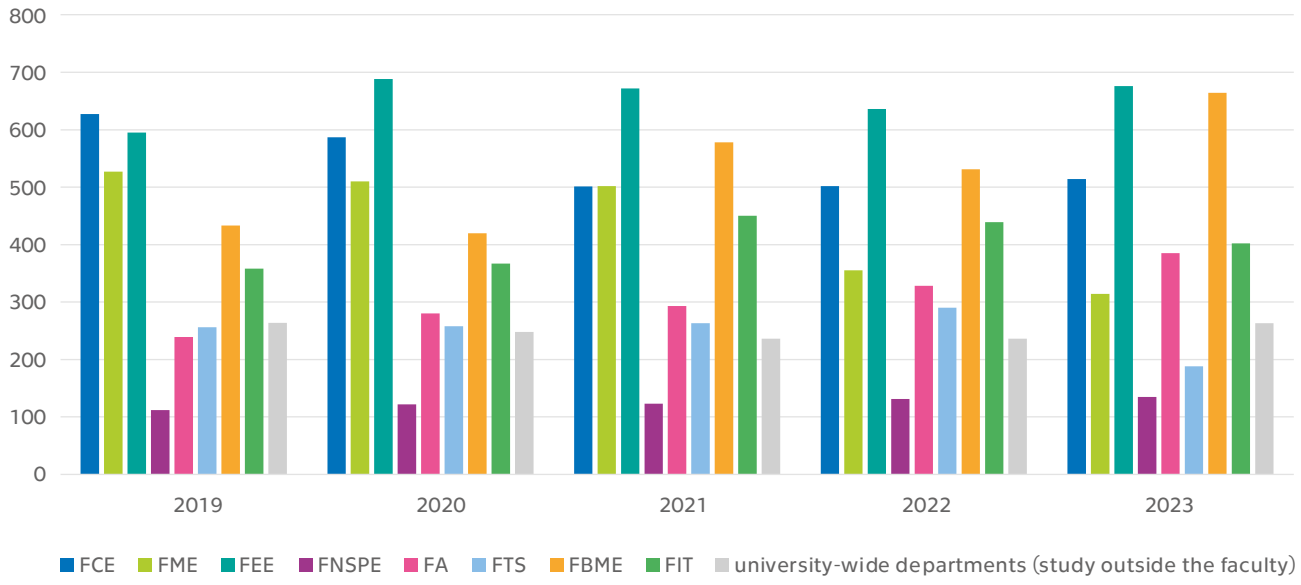
NUMBER OF APPLICATIONS (Bc., CM., Ph.D. studies total)



NUMBER OF APPLICATIONS (Bc. studies)



NUMBER OF APPLICATIONS (CM. studies)



NUMBER OF APPLICATIONS (Ph.D. studies)

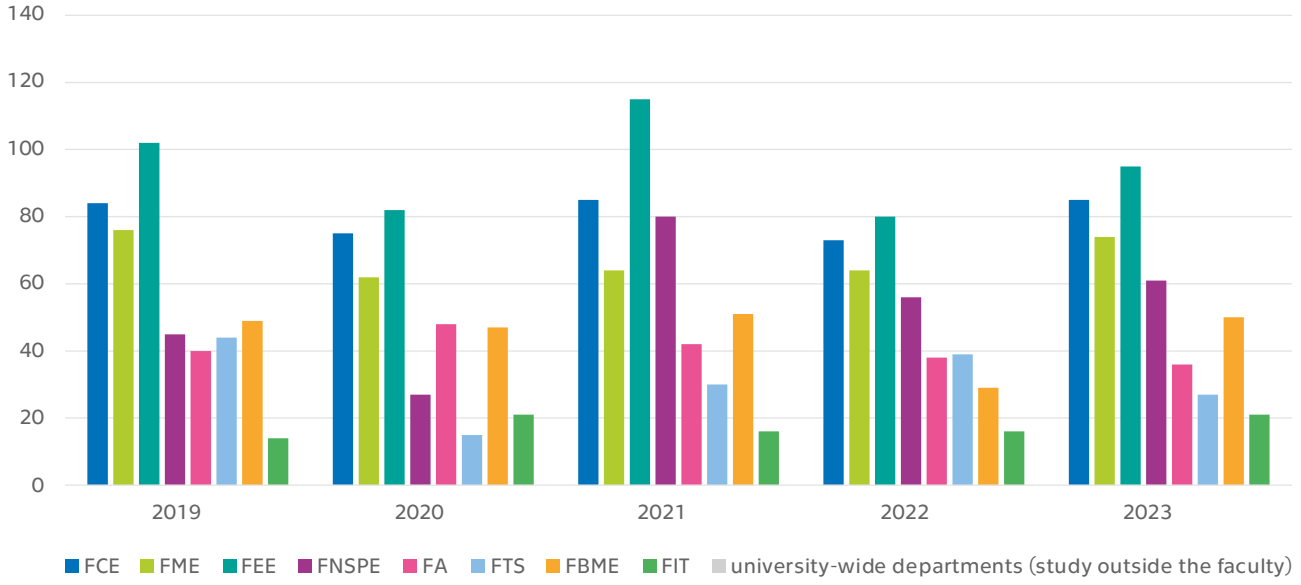


Table 6.1: Total academic and scientific staff and other employees (average headcount*)

CTU in Prague	Academic staff						
	TOTAL academic staff	Professors	Associate Professors	Assistant Professors	Assistant	Lecturers	Scientific, research and development staff involved in teaching activities
Faculty of Civil Engineering	353.3	53.9	96.2	189.1	3.8	10.3	0.0
Number of women	96.0	8.0	16.1	68.6	0.0	3.4	0.0
Faculty of Mechanical Engineering	257.5	26.3	34.0	150.3	40.6	5.3	1.0
Number of women	28.3	0.3	3.0	20.5	2.4	2.1	0.1
Faculty of Electrical Engineering	267.2	50.1	71.9	110.7	1.4	33.0	0.0
Number of women	23.4	2.0	2.9	12.9	0.0	5.5	0.0
Faculty of Nuclear and Physical Engineering	151.3	28.7	40.3	80.0	0.0	2.3	0.0
Number of women	24.9	3.0	1.1	20.6	0.0	0.3	0.0
Faculty of Architecture	126.8	15.8	29.7	78.4	0.0	0.0	1.9
Number of women	43.8	1.6	9.9	31.5	0.0	0.0	0.9
Faculty of Transport	131.4	6.9	31.6	64.9	15.0	12.9	0.0
Number of women	44.0	1.3	6.3	23.0	4.2	9.1	0.0
Faculty of Biomedical Engineering	110.1	9.3	21.3	42.3	32.6	4.5	0.0
Number of women	42.1	0.7	4.1	19.3	14.5	3.5	0.0
Faculty of Information Technology	109.1	7.0	16.0	54.7	15.3	16.1	0.0
Number of women	18.9	1.0	2.0	10.4	3.2	2.3	0.0
Masaryk Institute of Higher Studies	47.5	1.3	8.7	37.4	0.0	0.0	0.0
Number of women	22.4	0.4	2.8	19.2	0.0	0.0	0.0
Total other departments	39.9	2.1	4.8	24.4	1.1	1.6	5.9
Number of women	6.4	0.0	1.0	5.3	0.0	0.0	0.0
TOTAL	1,593.1	201.5	354.5	832.4	109.9	86.1	8.8
Total number of women	350.1	18.3	49.2	231.4	24.2	26.1	1.0

Note: * Average converted number is the ratio of the total number of hours actually worked in the reference period from 1 January to 31 December (by all employees in the reference category; incl. FTE, non-FTE) to the total annual working time pool per full-time employee.

Note: ** A researcher in this case means a researcher who is not an academic according to Section 70 of Act No. 111/1998 Coll., on Higher Education.

Note: *** Employee of the research institution or university within five years after receiving the Ph.D. degree or its equivalent. Works as part of a research team at the institution, usually under the supervision of experienced researchers on a specific task, and publishes his/her results independently and as part of a creative team. He/she has a fixed-term employment contract (of 1–3 years) with the research institution for one, maximum three consecutive periods. His/her salary is subject to the rules of the institution's payroll system, in addition to which he/she may receive rewards under research grant projects. Only an indicative number of postdoctoral students is given, due to the fact that they are registered in the CTU IS under other categories (separate functionality of postdoctoral students is not implemented in the EGJE IS).

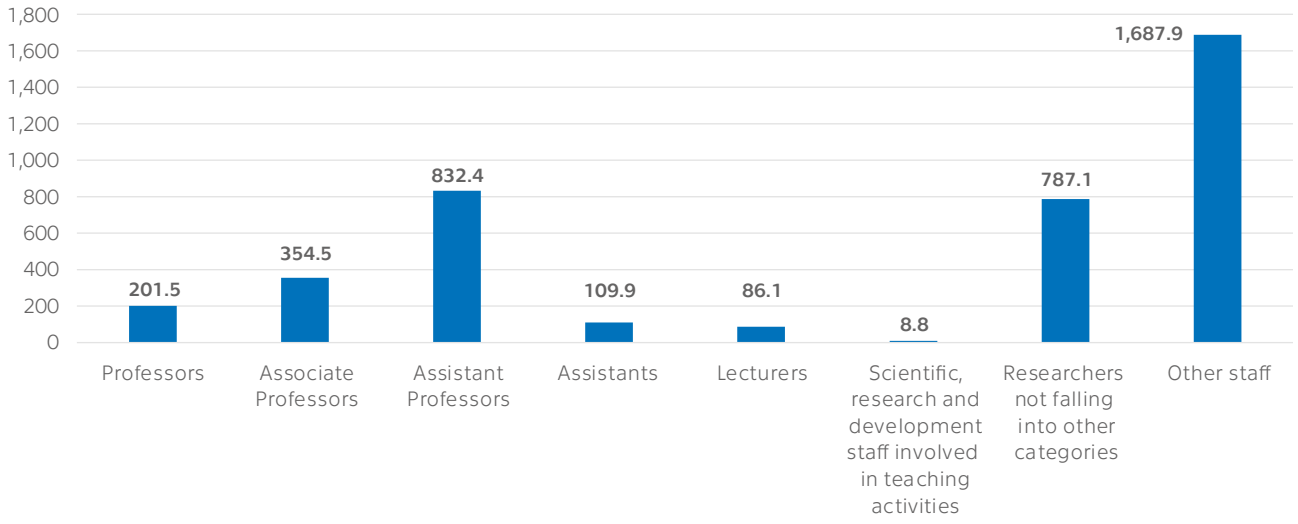
Note: **** The category "Other scientific, research and development personnel" includes technical and professional staff who are not directly involved in the research but are indispensable to the research activity (e.g. operators of research facilities).

Note: ***** Other staff means all other staff not directly involved in education and research. This includes administrative, technical and other staff.

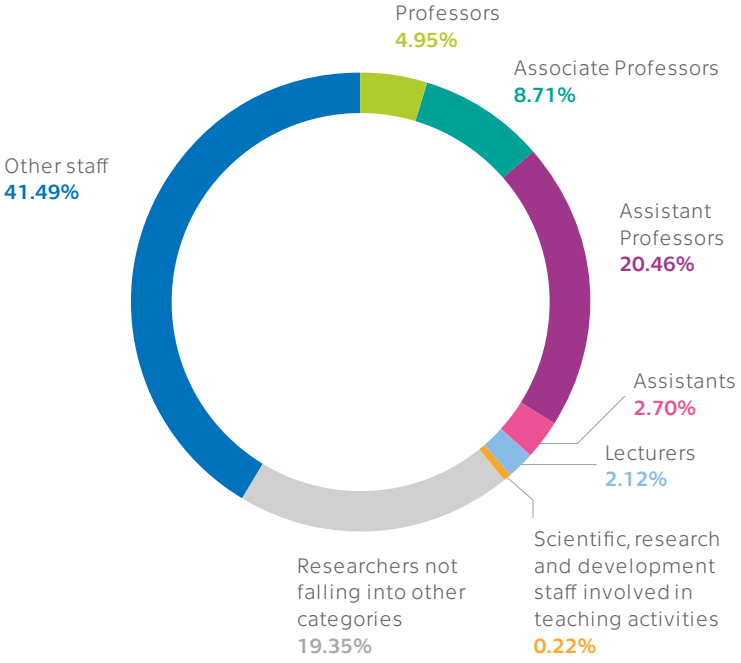
Note: ****** The number of associate professors is given as the number of visiting professors, it is the number of individuals.

	Scientific and professional staff**				
Extraordinary professors ******	Postdoctoral fellows („postdocs")*** Indicative number	Researchers not falling into other categories	Other scientific, research and development personnel****	Other staff *****	TOTAL employees
0	5	70.2	0.0	215.0	638.5
0	1	16.2	0.0	125.4	237.6
0	12	65.5	0.0	185.2	508.1
0	1	6.0	0.0	76.1	110.4
0	9	197.0	0.0	185.9	650.1
0	1	19.5	0.0	102.5	145.4
0	9	101.3	0.0	99.2	351.8
0	1	24.4	0.0	72.0	121.4
1	2	6.6	0.0	57.6	191.0
0	0	1.5	0.0	42.7	88.0
0	3	28.2	0.0	119.4	278.9
0	1	6.5	0.0	65.0	115.5
0	1	13.7	0.0	38.9	162.6
0	1	4.3	0.0	25.1	71.5
0	3	16.8	0.0	81.2	207.2
0	1	0.2	0.0	43.8	62.9
0	1	0.7	0.0	25.7	73.9
0	0	0.0	0.0	19.7	42.1
	11	287.0	0.0	679.9	1,006.8
0	1	44.2	0.0	402.4	453.0
1	56	787.1	0.0	1,687.9	4,068.0
0	8	122.8	0.0	974.7	1,447.7

STRUCTURE OF STAFF IN 2023 (AVERAGE RECALCULATED NUMBERS)



STRUCTURE OF STAFF IN 2023
(AVERAGE RECALCULATED NUMBERS)



STRUCTURE OF EMPLOYEES BY INDIVIDUAL FACULTIES IN 2023 (AVARAGE RECALCULATED NUMBERS)

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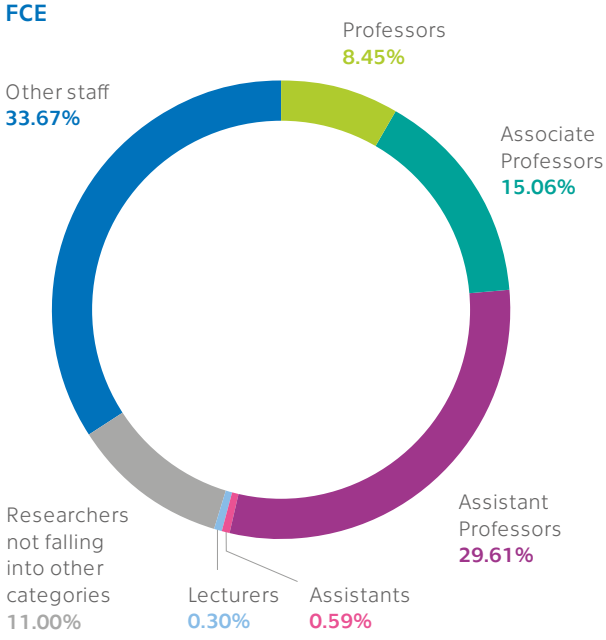

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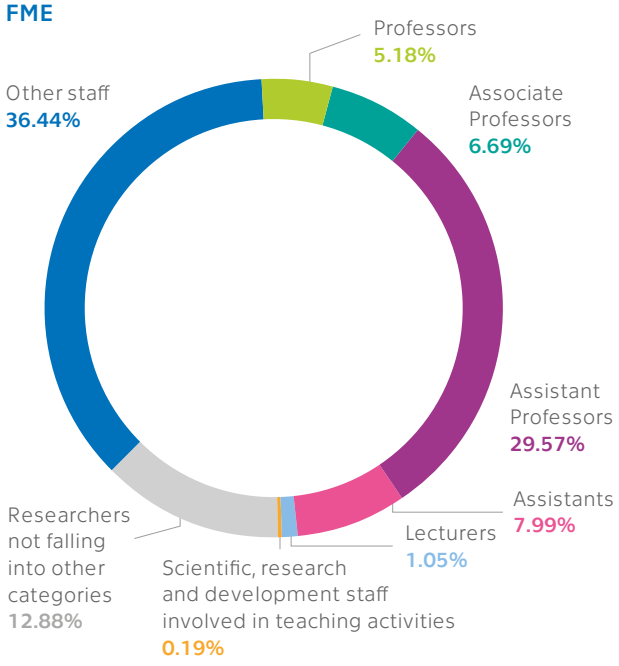

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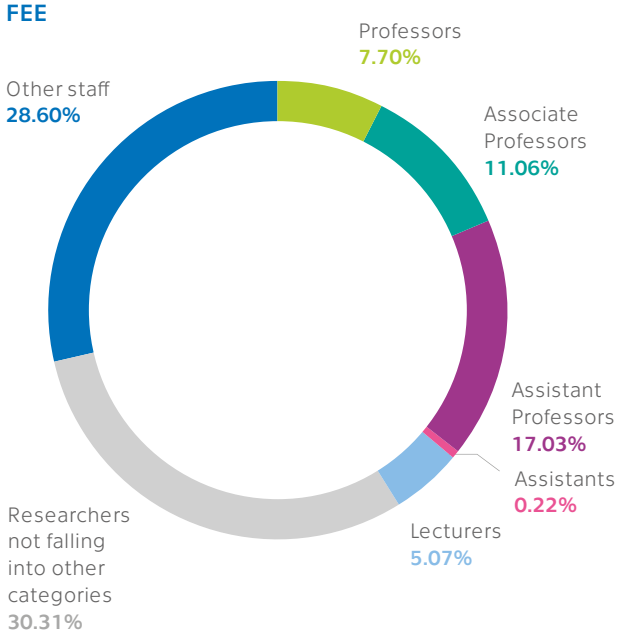

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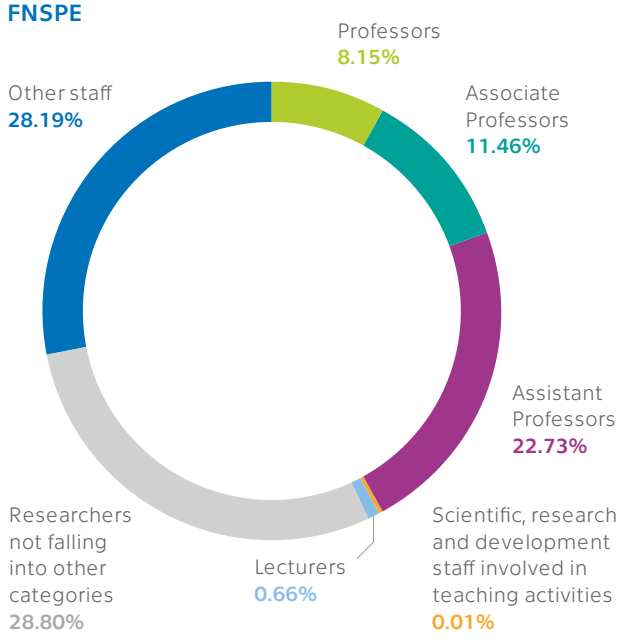
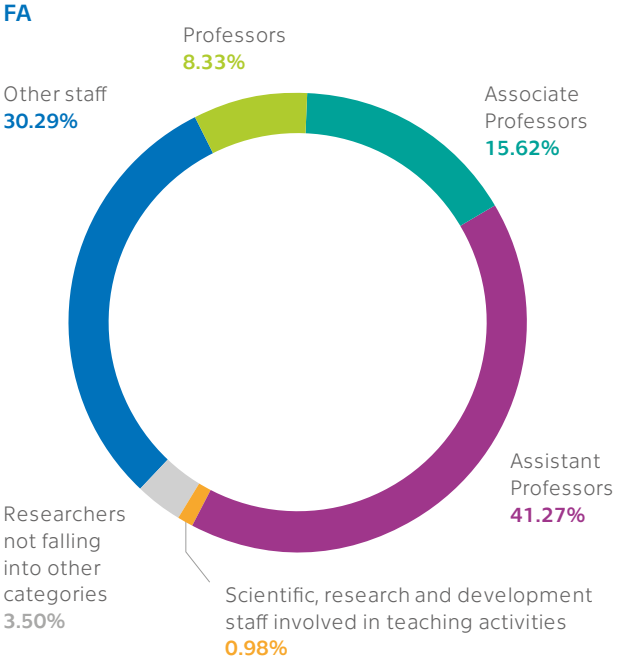


STRUCTURE OF EMPLOYEES BY INDIVIDUAL FACULTIES IN 2023
(AVARAGE RECALCULATED NUMBERS)

FA



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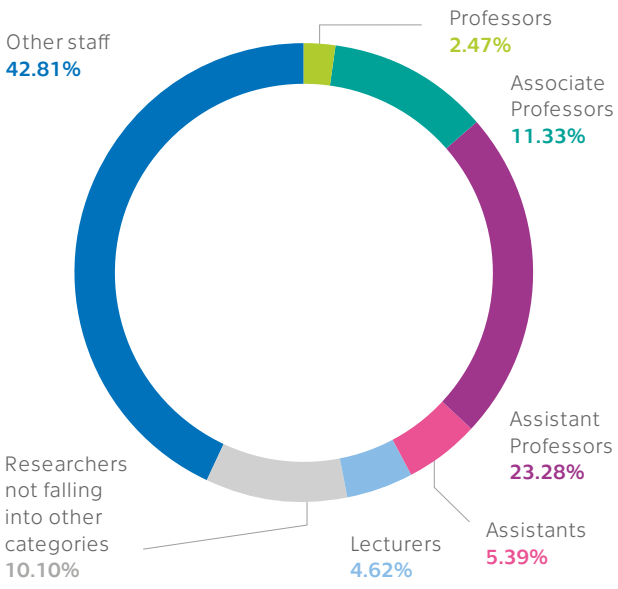

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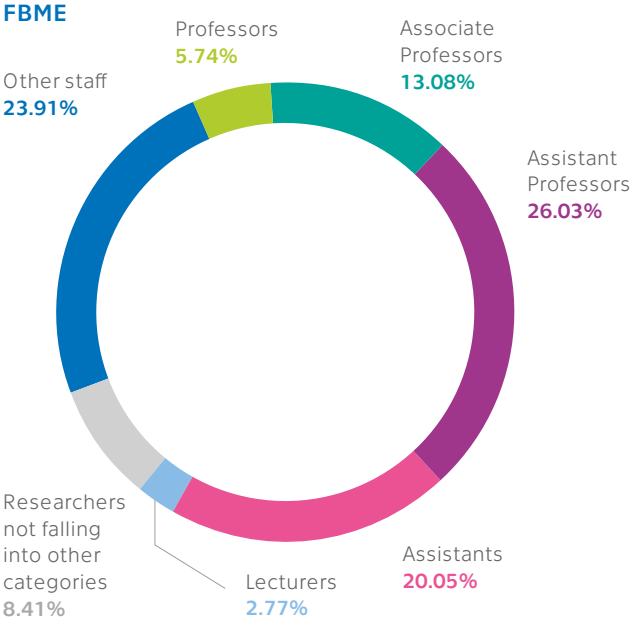

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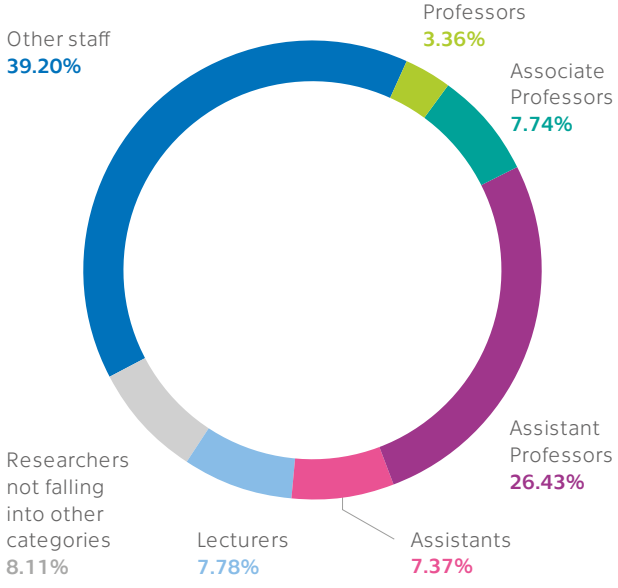

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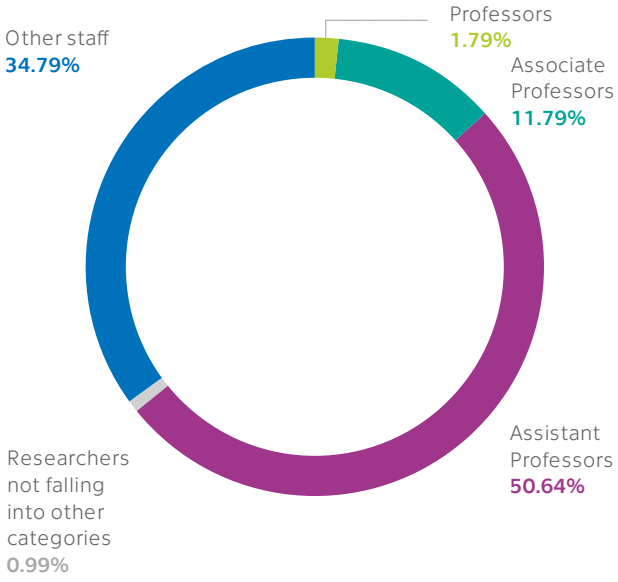

UNIVERSITY-WIDE DEPARTMENTS
(STUDY OUTSIDE THE FACULTY)

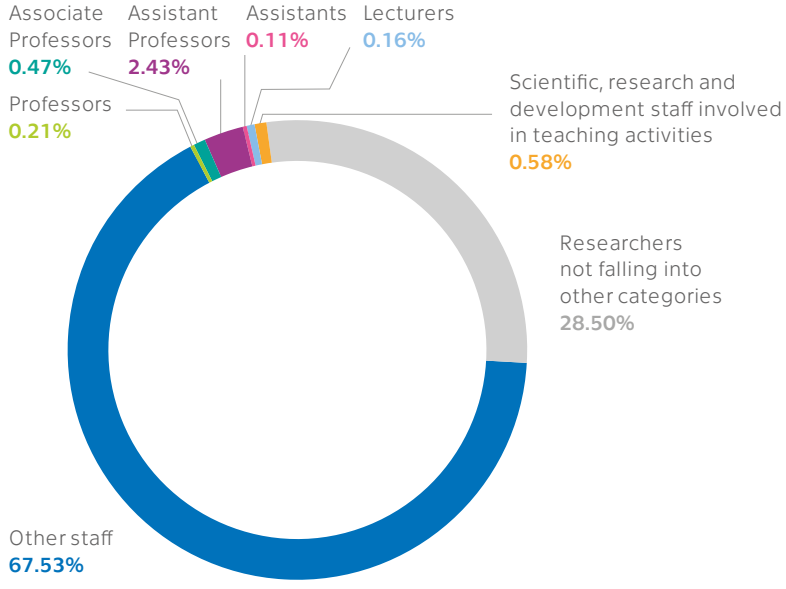

Table 6.2: Age structure of academic, scientific and other staff (number of natural persons*)

CTU in Prague	Academic staff											
	Professors		Associate Professors		Professional assistants		Assistants		Lecturers		Scientific, research and development staff involved in teaching activities	
	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 29 years	0	0	0	0	10	2	27	11	1	1	0	0
30–39 years	1	0	26	4	302	75	98	26	20	5	2	0
40–49 years	41	4	160	17	467	115	38	10	48	13	7	1
50–59 years	56	2	92	12	188	67	12	4	31	15	2	0
60–69 years	71	10	92	24	136	55	5	2	25	8	3	0
over 70 years	111	8	90	10	51	12	5	0	7	1	1	0
TOTAL	280	24	460	67	1,154	326	185	53	132	43	15	1

Note: * The total number of employees/workers is given regardless of the amount of time worked, but only in an employment relationship, not including persons working on FTE and SNE. Excludes other types of contractual relationships under the Civil Code which are in the nature of purchase of services.

Note: * The total number of employees/workers is given regardless of the amount of time worked, but only in an employment relationship, excluding persons working on FTE and FTE. Excludes other types of contractual relations under the Civil Code which are in the nature of purchase of services.

Note: *** Employee of the research institution or university within five years after receiving the Ph.D. degree or its equivalent. Works as part of a research team at the institution, usually under the supervision of experienced researchers on a specific task, and publishes his/her results independently and as part of a creative team. He or she has a fixed-term employment contract (of 1–3 years) with the research institution for one, maximum three consecutive periods. His/her salary is subject to the rules of the institution's payroll system, in addition to which he/she may receive rewards under research grant projects. Only an indicative number of postdoctoral fellows is given, given that they are registered in the CTU IS under other categories (separate functionality of postdoctoral fellows within the EGJE IS is not implemented).

Note: **** The category "Other scientific, research and development personnel" includes technical and professional staff who are not directly involved in the research but are indispensable to the research activity (e.g. operators of research facilities).

Note: ***** Other staff means all other staff not directly involved in education and research. This includes administrative, technical and other staff.

Extraordinary professors		Scientific and professional staff**						Other staff *****		TOTAL	of which women
		Postdoctoral fellows ("postdocs")*** Indicative number		Researchers not falling into other categories		Other scientific, research and development personnel****					
TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women	TOTAL	Women		
0	0	0	0	473	96	0	0	223	102	734	212
0	0	0	0	611	121	0	0	379	199	1,439	430
0	0	0	0	280	43	0	0	592	345	1,633	548
0	0	0	0	77	6	0	0	532	340	990	446
0	0	0	0	41	3	0	0	376	214	749	316
0	0	0	0	43	4	0	0	168	68	476	103
0	0	56	8	1,525	273	0	0	2,270	1,268	6,021	2,055

Table 6.3: Numbers of academic and scientific staff by range of working hours and highest qualification attained (numbers of individuals by full-time equivalent)

CTU in Prague	Academic staff					
Faculty of Civil Engineering						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	3	0	9	0	28	9
0.31–0.5	7	1	11	2	26	6
0.51–0.7	1	1	2	2	9	4
0.71–1	54	7	93	16	150	54
TOTAL	65	9	115	20	213	73
Faculty of Mechanical Engineering						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	13	1	13	1	19	2
0.31–0.5	7	0	14	2	16	4
0.51–0.7	6	0	1	0	8	3
0.71–1	18	0	27	2	127	11
TOTAL	44	1	55	5	170	20
Faculty of Electrical Engineering						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
do 0.3	7	0	5	0	21	0
0.31–0.5	8	0	5	0	13	4
0.51–0.7	5	0	2	0	4	1
0.71–1	44	2	68	3	110	8
TOTAL	64	2	80	3	148	13
Faculty of Nuclear and Physical Engineering						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	8	0	4	0	10	3
0.31–0.5	3	0	3	1	4	0
0.51–0.7	1	0	1	0	6	1
0.71–1	26	3	39	1	69	15
TOTAL	38	3	47	2	89	19

		Scientific staff*		TOTAL	of which women
Other		TOTAL	Women		
TOTAL	Women				
8	1	35	8	83	18
19	4	31	7	94	20
1	1	11	2	24	10
34	18	53	14	384	109
62	24	130	31	585	157
Other		TOTAL	Women		
TOTAL	Women				
17	1	60	9	122	14
17	5	26	5	80	16
7	0	34	5	56	8
55	10	66	4	293	27
96	16	186	23	551	65
Other		TOTAL	Women		
TOTAL	Women				
7	2	103	9	143	11
3	1	95	14	124	19
2	0	25	2	38	3
23	8	151	19	396	40
35	11	374	44	701	73
Other		TOTAL	Women		
TOTAL	Women				
4	4	78	19	104	26
1	0	32	10	43	11
0	0	19	5	27	6
10	5	80	20	224	44
15	9	209	54	398	87

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Table 6.3: Numbers of academic and scientific staff by range of working hours and highest qualification attained (numbers of individuals by full-time equivalent)

CTU in Prague	Academic staff					
Faculty of Architecture						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	2	0	1	1	12	5
0.31–0.5	5	0	12	1	14	5
0.51–0.7	5	1	3	0	6	3
0.71–1	11	1	23	10	17	8
TOTAL	23	2	39	12	49	21
Faculty of Transport						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Rozsahy úvazků	TOTAL	Women	TOTAL	Women	TOTAL	Women
do 0.3	5	1	11	1	22	1
0.31–0.5	1	0	7	1	11	5
0.51–0.7	2	0	0	0	5	1
0.71–1	4	1	28	6	51	17
TOTAL	12	2	46	8	89	24
Faculty of Biomedical Engineering						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	7	1	12	4	16	4
0.31–0.5	2	1	5	1	12	5
0.51–0.7	1	0	0	0	8	5
0.71–1	8	0	19	3	39	20
TOTAL	18	2	36	8	75	34
Faculty of Information Technology						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	3	0	4	1	11	0
0.31–0.5	1	0	2	0	16	7
0.51–0.7	0	0	2	0	9	3
0.71–1	6	1	15	2	55	9
TOTAL	10	1	23	3	91	19
Masaryk Institute of Advanced Studies						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	1	0	0	0	1	1
0.31–0.5	1	0	6	2	13	6
0.51–0.7	1	1	0	0	0	0
0.71–1	1	1	7	3	24	10
TOTAL	4	2	13	5	38	17

		Scientific staff*		TOTAL	of which women
Other		TOTAL	Women		
TOTAL	Women				
7	1	4	2	26	9
68	23	8	3	107	32
11	4	0	0	25	8
21	11	4	0	76	30
107	39	16	5	234	79
Other		TOTAL	Women		
TOTAL	Women				
21	7	21	3	80	13
11	7	11	2	41	15
3	2	14	7	24	10
25	14	17	4	125	42
60	30	63	16	270	80
Other		TOTAL	Women		
TOTAL	Women				
19	5	26	5	80	19
15	8	14	4	48	19
5	2	1	1	15	8
26	17	7	1	99	41
65	32	48	11	242	87
Other		TOTAL	Women		
TOTAL	Women				
7	1	16	2	41	4
7	3	14	0	40	10
4	1	2	1	17	5
16	1	29	3	121	16
34	6	61	6	219	35
Other		TOTAL	Women		
TOTAL	Women				
0	0	0	0	2	1
2	1	1	0	23	9
0	0	0	0	1	1
8	6	2	0	42	20
10	7	3	0	68	31

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Table 6.3: Numbers of academic and scientific staff by range of working hours and highest qualification attained (numbers of individuals by full-time equivalent)

CTU in Prague	Academic staff					
Total other departments						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3			1	0	2	0
0.31–0.5						
0.51–0.7						
0.71–1	2	0	5	1	13	3
TOTAL	2	0	6	1	15	3
CTU in Prague						
	Prof.		doc.		DrSc., CSc., Dr., Ph.D., Th.D.	
Time ranges	TOTAL	Women	TOTAL	Women	TOTAL	Women
up to 0.3	49	3	60	8	142	25
0.31–0.5	35	2	65	10	125	42
0.51–0.7	22	3	11	2	55	21
0.71–1	174	16	324	47	655	155
TOTAL	280	24	460	67	977	243

Note: Only the highest academic degree obtained is given.

Note: * A researcher in this case means a person who is not an academic according to Section 70 of Act No. 111/1998 Coll., on Higher Education.

		Scientific staff*		TOTAL	of which women
Other		TOTAL	Women		
TOTAL	Women				
		67	16	70	16
3	2	58	11	61	13
		35	11	35	11
22	4	275	45	317	53
25	6	435	83	483	93
Other		TOTAL	Women		
TOTAL	Women				
90	22	410	73	751	131
146	54	290	56	661	164
33	10	141	34	262	70
240	94	684	110	2,077	422
509	180	1 525	273	3,751	787

Table 6.4: Managers (natural persons)

CTU in Prague	Rector/ Dean	Vice-Rector/ Provost	Academic Senate	Scientific/Artistic/ Academic Council	Bursar/ Secretary**
Rectorate of CTU	1	6	44	34	1
of which women	0	3	14	3	1
Faculty of Civil Engineering*	1	5	30	52	1
of which women	0	1	8	7	0
Faculty of Mechanical Engineering*	1	3	30	36	1
of which women	0	0	4	1	0
Faculty of Electrical Engineering*	1	6	23	30	1
of which women	0	1	3	1	0
Faculty of Nuclear and Physical Engineering*	1	4	18	24	1
of which women	0	0	4	4	1
Faculty of Architecture*	1	5	15	21	1
of which women	0	3	7	2	0
Faculty of Transport*	1	5	19	42	1
of which women	0	0	4	1	1
Faculty of Biomedical Engineering*	1	4	9	31	1
of which women	0	0	3	4	0
Faculty of Information Technology*	1	5	3	3	1
of which women	0	2	0	0	1
Higher education institutes and agricultural or forestry estates		0			
of which women		0			
Total other departments***					
of which women					
Faculties*, higher education institutes and other workplaces total	8	37	147	239	8
of which women	0	7	33	20	3
COLLEGE TOTAL*****	9	43	191	273	9
of which women	0	10	47	23	4

Only units of the university and workplaces for educational and research, development and innovation, artistic or other creative activities or for the provision of information services or technology transfer are recorded in the table.Data for administrative, purpose-built facilities for cultural and sporting activities, for accommodation and catering or for the operation of the school are not included.

Note: * Only faculties and units under them (according to the above characteristics).

Note: ** According to the Higher Education Act, Section 25, Article 2.

Note: *** Workplace for educational and research, development and innovation, artistic or other creative activities or for the provision of information services or technology transfer pursuant to Section 22 (c) of Act No.111/1998 Coll.

Note: **** Listed and similar workplaces for educational and research, development and innovation, artistic or other creative activities or for the provision of information services or technology transfer pursuant to Section 22 (c) of Act No.111/1998 Coll., falling under the scope of a higher education institution.

Note: ***** The total may not reflect the actual status of individuals (one person may hold multiple positions within a university or faculty), it is a simple sum of cells.

Board of Directors	Director of an institute, university agricultural or forestry farm	Head of department/institute/ research institute****	Senior management TOTAL *****
1			87
1			22
		27	116
		2	18
		19	90
		1	6
		19	80
		0	5
		10	58
		2	11
		17	60
		3	15
		14	82
		2	8
		5	51
		0	7
		7	20
		1	4
	5	49	54
	1	7	8
	3	15	18
	2	6	8
	8	182	629
	3	24	90
1	8	182	716
1	3	24	112

Table 6.5: Academic and scientific staff with foreign citizenship (average recalculated numbers******)

CTU in Prague	Academic staff				
	Professors	Associate Professors	Professional assistants	Assistants	Lecturers
Faculty of Civil Engineering	0.25	0.02	4.8	0	0
in that: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	0.25	0.02	2.3	0	0
other EU countries	0	0	0.5	0	0
other non-EU countries	0	0	2	0	0
women out of total (regardless of nationality)	0	0	3.3	0	0
Faculty of Mechanical Engineering	1.25	0	3.66	1	0.86
of which: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	1	0	1.58	1	0
other EU countries	0.25	0	0	0	0
other non-EU countries	0	0	2.08	0	0.86
women out of total (regardless of nationality)	0	0	1	0	0.86
Faculty of Electrical Engineering	1	5.48	7.67	0	4.03
of which: Germany	0	1	0	0	0
Poland	0	0	1	0	0
Austria	0	0	0	0	0
Slovakia	1	2.65	2.83	0	0
other EU countries	0	1.83	0.17	0	1
other non-EU countries	0	0	3.67	0	3.03
women out of total (regardless of nationality)	0	0	1	0	2
Faculty of Nuclear and Physical Engineering	2	2.73	9.74	0	0.01
including: Germany	0	0	0	0	0
Poland	0	0	1	0	0
Austria	0	0	0	0	0
Slovakia	1	2.73	2.57	0	0.01
other EU countries	0	0	2	0	0
other non-EU countries	1	0	4.17	0	0
women out of total (regardless of nationality)	0	0	3.25	0	0

	Scientific and professional staff**			
Scientific, research and development staff involved in teaching activities	Postdoctoral fellows ("postdocs")*** Indicative number	Researchers not falling into other categories	Other scientific, research and development personnel****	Other staff *****
0	5	4.43	0	6.86
0	1	1.25	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0.31	0	3.63
0	2	1.72	0	0
0	2	1.15	0	3.23
0	1	0.33	0	3.36
0	12	14.46	0	8.91
0	0	0.06	0	0.04
0	0	0	0	0
0	0	1.05	0	0
0	1	1.97	0	3.31
0	3	0.58	0	1.45
0	8	10.8	0	4.11
0	1	2.96	0	2.26
0	9	70.13	0	5.71
0	0	1.4	0	0
0	0	0.67	0	0
0	0	0	0	0
0	0	9.49	0	3.77
0	0	13.41	0	0
0	9	45.16	0	1.94
0	1	11.89	0	2.68
0	9	32.7	0	2.65
0	0	0.02	0	0
0	0	0.68	0	0
0	0	0	0	0
0	0	10.62	0	1.35
0	1	3.46	0	0
0	8	17.92	0	1.3
0	1	10.81	0	1.55

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Table 6.5: Academic and scientific staff with foreign citizenship (average recalculated numbers******)

CTU in Prague	Academic staff				
	Professors	Associate Professors	Professional assistants	Assistants	Lecturers
Faculty of Architecture	1.29	2.32	1.6	0	0
including: Germany	0	0	0.9	0	0
Poland	0	0.92	0.08	0	0
Austria	0	0	0	0	0
Slovakia	0.29	0	0.62	0	0
other EU countries	1	0.5	0	0	0
other non-EU countries	0	0.9	0	0	0
women out of total (regardless of nationality)	0	0	0.4	0	0
Faculty of Transport	0	3.65	2.52	0.6	0
of which: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	0	3.65	2.52	0.6	0
other EU countries	0	0	0	0	0
other non-EU countries	0	0	0	0	0
women out of total (regardless of nationality)	0	1	1	0	0
Faculty of Biomedical Engineering	1	1	2.71	1.87	0
of which: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	1	1	1.33	0	0
other EU countries	0	0	1	0	0
other non-EU countries	0	0	0.38	1.87	0
women out of total (regardless of nationality)	0	0	2.7	1.75	0
Faculty of Information Technology	1	2.5	6.58	3.13	0.7
of which: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0.5	0	0	0
Slovakia	1	2	0	1.5	0
other EU countries	0	0	3.75	0	0
other non-EU countries	0	0	2.83	1.63	0.7
women out of total (regardless of nationality)	0	0	3.75	2.13	0

	Scientific and professional staff**			
Scientific, research and development staff involved in teaching activities	Postdoctoral fellows ("postdocs")*** Indicative number	Researchers not falling into other categories	Other scientific, research and development personnel****	Other staff *****
0	2	2.38	0	1.18
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
	0	0.38	0	1.18
0	1	1	0	0
0	1	1	0	0
0	0	0.25	0	1.18
0	3	7.1	0	4.63
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2.57	0	1.42
0	0	0.75	0	0
0	3	3.78	0	3.21
0	1	1.78	0	2.21
0	1	1.94	0	0.4
0	0	0.75	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0.89	0	0
0	1	0.1	0	0
0	0	0.2	0	0.4
0	1	0.29	0	0
0	3	7.83	0	9.92
0	0	1	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1.08		5.86
0	1	3.03	0	0.83
0	2	2.72	0	3.23
0	1	0	0	1

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Table 6.5: Academic and scientific staff with foreign citizenship (average recalculated numbers******)

CTU in Prague	Academic staff				
	Professors	Associate Professors	Professional assistants	Assistants	Lecturers
Masaryk Institute of Higher Studies	0	0.37	3.03	0	0
including: Germany	0	0	0	0	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	0	0	0.03	0	0
other EU countries	0	0	1	0	0
other non-EU countries	0	0.37	2	0	0
women out of total (regardless of nationality)	0	0.37	2.53	0	0
Total other workplaces	0	0	3.5	0.75	0
of which: Germany	0	0	0	0.75	0
Poland	0	0	0	0	0
Austria	0	0	0	0	0
Slovakia	0	0	3.5	0	0
other EU countries					
other non-EU countries	0	0	0	0	0
women out of total (regardless of nationality)	0	1	1.01	0	0
TOTAL UNIVERSITY	7.79	18.07	45.81	7.35	5.6
of which: Germany	0	1	0.9	0.75	0
Poland	0	0.92	2.08	0	0
Austria	0	0.5	0	0	0
Slovakia	5.54	12.05	17.28	3.1	0.01
other EU countries	1.25	2.33	8.42	0	1
other non-EU countries	1	1.27	17.13	3.5	4.59
women out of total (regardless of nationality)	0	1.37	18.94	3.88	2.86

Note: ** A researcher in this case means a researcher who is not an academic according to Section 70 of Act No. 111/1998 Coll., on Higher Education.

Note: *** Employee of a given research institution or university within five years of receiving a Ph.D. or equivalent. Works as part of a research team at the institution, usually under the supervision of experienced researchers on a specific task, and publishes his/her results independently and as part of a creative team. He or she has a fixed-term employment contract (of 1–3 years) with the research institution for one, maximum three consecutive periods. His/her salary is subject to the rules of the institution's payroll system, in addition to which he/she may receive rewards under research grant projects. Only an indicative number of postdoctoral fellows is given, given that they are registered in the CTU IS under other categories (separate functionality of postdoctoral fellows within the EGJE IS is not implemented).

Note: **** The category „Other scientific, research and development personnel" includes technical and professional staff who are not directly involved in the research but are indispensable to the research activity (e.g. operators of research facilities).

Note: ***** Other staff means all other staff not directly involved in education and research. This includes administrative, technical and other staff.

Note: ****** Average converted number means the ratio of the total number of hours actually worked in the reference period from 1 January to 31 December by all employees (in the category under review; including FTEs, excluding FTEs) to the total annual working time pool per full-time employee.

	Scientific and professional staff**			
Scientific, research and development staff involved in teaching activities	Postdoctoral fellows ("postdocs")*** Indicative number	Researchers not falling into other categories	Other scientific, research and development personnel****	Other staff *****
0	1	0.31	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0.31	0	0
0	0	0	0	0
0	11	74.75	0	34.53
0	0	5.16	0	0.1
0	0	1.61	0	0
0	0	0	0	0
0	0	15.89	0	11.19
	3	11.51		2.95
0	8	40.58	0	20.29
0	1	19.39	0	27.02
0	56	215.28	0	74.79
0	1	9.64	0	0.14
0	0	2.96	0	0
0	0	1.05	0	0
0	1	43.2	0	31.71
0	12	34.81	0	5.23
0	42	123.62	0	37.71
0	8	45.92	0	39.05

Table 6.6: Newly appointed associate professors and professors (numbers)

CTU in Prague	number			Average age of new appointees ***
	At the university*		Academic staff appointed at another university**	
	Total	Of these, core staff of the HEI in question		
Faculty of Civil Engineering**				
Professors appointed in 2023	2	2	1	43
of which women	0	0	0	
Associate professors appointed in 2023	6	6		42
of which women	2	2		39
Faculty of Mechanical Engineering**				
Professors appointed in 2023	2	0	0	47
of which women	0	0		
Associate Professors appointed in 2023	7	7	0	46
of which women	0	0		
Faculty of Electrical Engineering**				
Professors appointed in 2023	3	3	0	42
of which women	0	0		
Associate professors appointed in 2023	5	4	0	45
of which women	1	1		59
Faculty of Nuclear and Physical Engineering**				
Professors appointed in 2023	3	2	0	44
of which women	0	0		
Associate Professors appointed in 2023	6	3	0	40
of which women	0	0		
Faculty of Architecture**				
Professors appointed in 2023	1	1	0	59
of which women	1	1		59
Associate Professors appointed in 2023	5	5	0	46
of which women	2	2		43
Faculty of Transport****				
Professors appointed in 2023	0	0	0	
of which women	0	0		
Associate professors appointed in 2023	0	0	0	
of which women	0	0		

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Table 6.6: Newly appointed associate professors and professors (numbers)

CTU in Prague	number			Average age of new appointees ***
	At the university*		Academic staff appointed at another university**	
	Total	Of these, core staff of the HEI in question		
Faculty of Biomedical Engineering****				
Professors appointed in 2023	1	1	0	41
of which women	0	0		
Associate Professors appointed in 2023	4	4	0	41
of which women	0	0		
Faculty of Information Technology****				
Professors appointed in 2023	0	0	0	
of which women	0	0		
Associate professors appointed in 2023	2	2	0	40
of which women	0	0		
MIAS****				
Professors appointed in 2023	0	0	0	
of which women	0	0		
Associate professors appointed in 2023	0	0	1	
of which women	0	0	1	
TOTAL professors	12	9	1	45
of which women	1	1	0	59
TOTAL associate professors	35	31	1	42
of which women	5	5	1	44

Note: * Included are all habilitations and appointments that took place in a given calendar year at a given HEI, regardless of whether the newly appointed associate professors and professors were tribally affiliated with that HEI.

Note: ** The number of associate professors and professors who are tribally affiliated to the given HEI but have been appointed at another HEI is given.

Note: *** The average age is calculated from the total number of new appointments at a given HEI (faculty or total number).

Note: **** Faculty or other part of a university implementing an accredited study programme.

Table 7.1: University involvement in international cooperation programmes (regardless of funding source)

CTU in Prague	Horizont Evropa / Horizont 2020		Other	TOTAL
	TOTAL	Of which Marie-Curie Actions		
Number of projects*	77	7	64	141
Number of students sent**	2	0	160	162
Number of accepted students***	5	0	563	568
Number of academic and scientific staff seconded****	218	8	102	320
Number of academic and scientific staff recruited*****	4	0	66	70
Grants in thous. CZK******	601,377	20,274	111,801	713,178

Note: * These are ongoing projects in a given year.

Note: ** Outgoing students (i.e. number of departures) – who have completed a stay abroad in 2023; students whose stay started in 2022 are also counted. Only students whose stay lasted more than 4 weeks (28 days) are counted. If the HEI reports other lengthy trips, please indicate this in a note to the table.

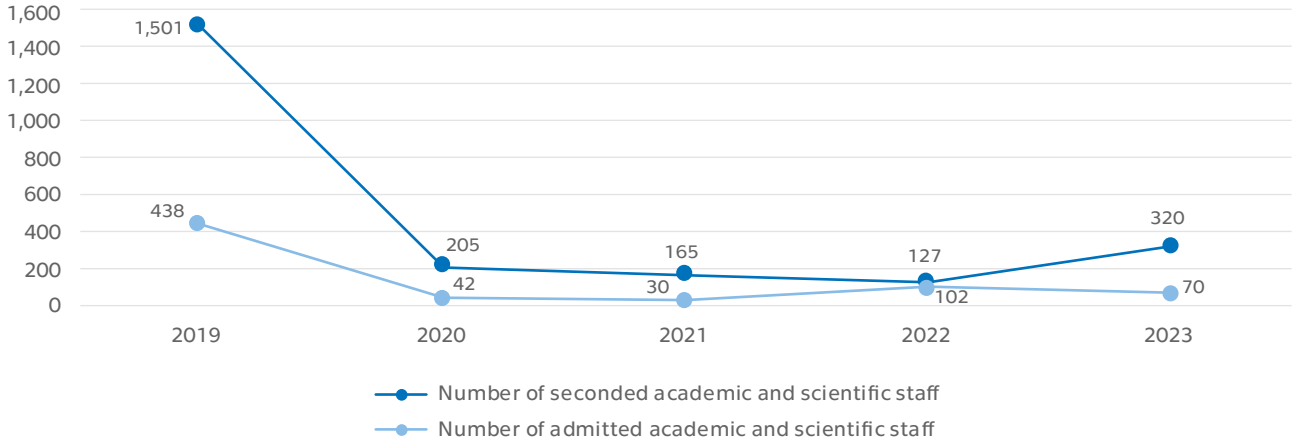
Note: *** Arriving students (i.e. number of arrivals) – who arrived in 2023; students whose stay started in 2022 are also counted. Only students whose stay lasted more than 4 weeks (28 days) are counted. If the HEI reports other lengthy trips, please indicate this in a note to the table.

Note: **** Outgoing academic staff (i.e. numbers of trips) – who undertook an overseas placement in 2023; staff whose placement started in 2022 are also counted.

Note: ***** Incoming academics (i.e. arrival numbers) – who arrived in 2023; those whose stay started in 2022 are also counted.

Note: ****** The amounts represent the total financial resources of the projects, including co-financing by the Ministry of Education and Science.

UNIVERSITY INVOLVEMENT IN INTERNATIONAL COOPERATION PROGRAMMES – ACADEMIC AND SCIENTIFIC STAFF
(REGARDLESS OF FUNDING SOURCE)



UNIVERSITY INVOLVEMENT IN INTERNATIONAL COOPERATION PROGRAMMES – STUDENTS
(REGARDLESS OF FUNDING SOURCE)

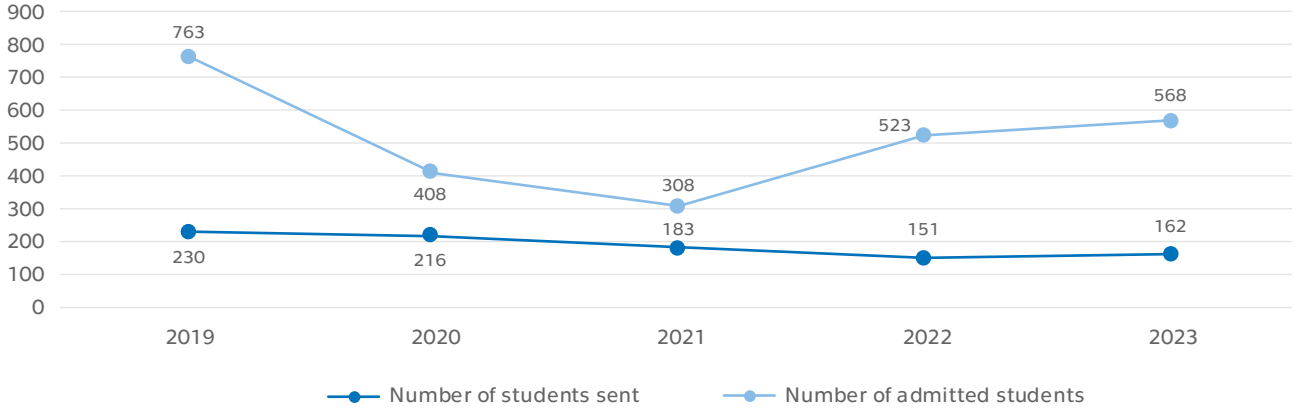


Table 7.2: Mobility of students, academic and other staff by country***** (irrespective of funding source)

CTU in Prague	Number of students sent*			Number of admitted students**	
Country	Total	Graduate internships (from total)******	Virtually[1] (of total)	Virtually[1] (of total)	Total
Democratic and People's Republic of Algeria					
Republic of Argentina	4				14
Republic of Armenia					
Commonwealth of Australia	12				4
Republic of Azerbaijan					
Barbados					
Kingdom of Belgium	27	1			28
Kingdom of Bhutan					
Bolivarian Republic of Venezuela					1
Bosnia and Herzegovina					1
Federal Republic of Brazil					3
Republic of Bulgaria					4
People's Republic of China	12				7
Republic of China (Taiwan)	57				61
Kingdom of Denmark	56	3	15	40	55
Arab Republic of Egypt					
Republic of Ecuador					
Republic of Estonia	72		60	68	74
Federal Democratic Republic of Ethiopia					
Republic of Finland	31				28
Republic of France	133		98	19	245
Georgia					
Republic of Chile					6
Republic of Croatia	2				5
Republic of India	2				13
Republic of Indonesia	3				
Islamic Republic of Iran					
Ireland	5	1			6
Republic of Iceland	2				
Republic of Italy	36	7			61
Japan	30				16
Republic of South Africa	1				
Hashemite Kingdom of Jordan					
Canada	13				15
Republic of Colombia					3
Democratic Republic of the Congo	1				
Republic of the Congo					1
Republic of Korea	24				50
Republic of Kosovo					
Republic of Costa Rica	1				2
Kingdom of Saudi Arabia					
Republic of Cyprus	3				1

Number of seconded academic staff***	Number of admitted academic staff****	Number of other staff seconded***	Number of other staff recruited****	TOTAL for the country
	1			1
1				19
	2			2
3				19
1			1	2
1				1
11	5	12	3	86
1				1
				1
				1
5	4			12
14	13			31
14	3		7	43
21			28	167
7		11	19	148
8				8
	1			1
5	5	19	21	196
	1			1
11	3		3	76
96	31	49	21	575
2	2		7	11
2				8
7		18	5	37
8	1			24
2	1			6
	2			2
10		3		24
3				5
60	14	31	2	204
37	4			87
3	1			5
3				3
19	4	7		58
4	1			8
				1
				1
20		3		97
1	2			3
				3
2				2
2				6

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Table 7.2: Mobility of students, academic and other staff by country***** (irrespective of funding source)

CTU in Prague	Number of students sent*			Number of admitted students**	
Country	Total	Graduate internships (from total)******	Virtually[1] (of total)	Virtually[1] (of total)	Total
Republic of Lebanon					2
Principality of Liechtenstein	3				
Republic of Lithuania	3				17
Republic of Latvia	1				5
The Grand Duchy of Luxembourg					
Hungary	3				9
Republic of Malta	1				1
Kingdom of Morocco					1
Republic of Moldova					
Federal Republic of Nigeria					1
The Netherlands	57	6	17	38	86
Kingdom of Norway	14	1			14
New Zealand	3				
Islamic Republic of Pakistan					1
Republic of Peru					1
Republic of Poland	8				15
Republic of Portugal	43	5			37
Republic of Austria	30	1			3
Republic of Kazakhstan					52
Republic of Côte d'Ivoire					
Republic of Tajikistan					
Republic of Uzbekistan					
Romania	3				24
Russian Federation					2
Republic of Greece	4				8
Republic of Singapore	10				18
Slovak Republic	1				28
Republic of Slovenia	22	1			20
United Kingdom of Great Britain and Northern Ireland	25				16
United States of America	37				19
United Mexican States	4				20
Collectivity of Saint Martin					
Federal Republic of Germany	152	3	62	52	176
Republic of Serbia					
State of Israel	17		16	14	15
State of Qatar					
State of the United Arab Emirates					
Kingdom of Spain	66	3			185
Kingdom of Sweden	39				32
Swiss Confederation	22				22
Kingdom of Thailand	4				3

Number of seconded academic staff***	Number of admitted academic staff****	Number of other staff seconded***	Number of other staff recruited****	TOTAL for the country
1				3
				3
5	2	3		30
1				7
1				1
5	1	18	2	38
5				7
				1
3				3
				1
16	9	33	21	222
10	1	8		47
				3
1	4			6
				1
36	18	23	12	112
26	2	31	14	153
43	24	47	26	173
1				53
1				1
1				1
2			1	3
12	1	3	6	49
				2
13	2	5	3	35
2				30
34	28	13	8	112
10	3			55
79	16			136
111	18	41	2	228
5				29
	7			7
86	54	67	13	548
6	3			9
7		3		42
1				1
5				5
50	7	17	5	330
11	3		3	88
63	2	22		131
1				8

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Table 7.2: Mobility of students, academic and other staff by country***** (irrespective of funding source)

CTU in Prague	Number of students sent*			Number of admitted students**	
Country	Total	Graduate internships (from total)******	Virtually[1] (of total)	Virtually[1] (of total)	Total
Republic of Tunisia					
Republic of Turkey	5				12
Ukraine					9
Eastern Republic of Uruguay					1
Socialist Republic of Vietnam	4				
Republic of Zambia					
TOTAL	1,108	32	268	231	1,559

Note: * Outgoing students (i.e. number of departures) – students who have completed their stay abroad in 2021; students whose stay started in 2020 are also counted. Only students whose stay lasted at least 2 weeks (14 days) are counted.

Note: ** Arriving students (i.e. number of arrivals) – students who arrived in 2021; students whose stay started in 2020 are also counted. Only students whose stay lasted at least 2 weeks (14 days) are counted.

Note: *** Outgoing academic/other staff (i.e. number of departures) – staff who have completed their stay abroad in 2021; staff whose stay started in 2020 are also counted. Only staff whose stay lasted at least 5 days are counted.

Note: **** Incoming academic/other staff (i.e. numbers of arrivals) – staff who arrived in 2021; staff whose stay started in 2020 are also counted. Only staff whose stay lasted at least 5 days are counted.

Note: ***** Table 7.2. Mobility of students and academic and other staff by country lists all countries; the purpose is to facilitate the processing of the data obtained by the MoEYS. At the same time, it should not represent an additional burden for universities to complete. If there is no mobility from a given country, please do not fill in the cell.

Note: ****** Graduate internship means a practical internship in a foreign company or organisation for a period of 2–12 months, started after successful graduation and completed within one year of graduation. The graduate traineeship is implemented on the basis of a tripartite agreement between the student, the sending higher education institution and the receiving organisation, institution, enterprise.

Note: [1] If virtual mobility has not been implemented at the HEI, enter zero. If it has taken place but data are not available, please provide a qualified estimate and comment on the cell(s)/column (e.g. qualified estimate). If a qualified estimate cannot be provided, leave the cell blank and comment on the cell(s)/column (e.g. n/a).

Number of seconded academic staff***	Number of admitted academic staff****	Number of other staff seconded***	Number of other staff recruited****	TOTAL for the country
	1			1
6	2	4	19	48
	9	2	21	41
				1
1				5
1			1	2
1,046	318	493	274	4,798

Table 7.3: Graduate mobility** (numbers and proportions of graduates)

CTU in Prague	Bachelor studies	
	proportion	number
Faculty of Civil Engineering*		
Percentage [%] and number of graduates who went on a foreign stay of at least 14 days during their studies	6.4%	22
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Mechanical Engineering*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	3.5%	7
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Electrical Engineering*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	5.9%	22
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Nuclear and Physical Engineering*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	2.3%	2
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Architecture*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	0.4%	1
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Transport*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	4.3%	5
Percentage [%] and number of doctoral graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Biomedical Engineering*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	1.3%	4
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
Faculty of Information Technology*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	6.9%	16
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
University-wide departments (study outside faculties)*		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	5.8%	7
Percentage [%] and number of PhD graduates whose duration of their stay abroad was at least 1 month (i.e. 30 days)		
CTU in Prague		
Percentage [%] and number of graduates who went on a stay abroad of at least 14 days during their studies	4.2%	86
Percentage [%] and number of doctoral graduates whose length of stay abroad was at least 1 month (i.e. 30 days)		

Note: * Faculty or other part of the university implementing the accredited study programme.

Note: ** The totals for both the faculty (last field in the top row for each faculty) and the college (all blank fields for the college in the LFS structure) are not the sum or average of the previous data in the rows or columns. The values in these cells need to be calculated separately.

Master's studies		Continuing Master's studies		Doctoral studies		TOTAL**	
proportion	number	proportion	number	proportion	number	proportion	number
		7.3%	25	11.1%	4	7.1%	51.0
				11.1%	4	11.1%	4.0
		8.7%	23	7.1%	1	6.4%	31.0
				0.0%	0	0.0%	0.0
		19.4%	47	42.9%	15	12.9%	84.0
				37.1%	13	37.1%	13.0
		20.0%	13	33.3%	13	14.7%	28.0
				28.2%	11	28.2%	11.0
		32.5%	55	12.5%	1	13.1%	57.0
				12.5%	1	0.0%	0.0
		15.3%	17	0.0%	0	9.4%	22.0
				0.0%	0	0.0%	0.0
		2.4%	4	0.0%	0	1.6%	8.0
				0.0%	0	0.0%	0.0
		16.4%	26	0.0%	0	10.5%	42.0
				0.0%	0	0.0%	0.0
		11.6%	13	0.0%	0	8.5%	20.0
				0.0%	0	0.0%	0.0
		13.7%	223	21.3%	34	8.9%	343.0
				18.1%	29	18.1%	29.0

Table 8.1: Conferences (co-)organised by the university (numbers)

CTU in Prague	With more than 60 participants		International Conference**	
	Physical***	Virtual***	Physical***	Virtual***
Faculty of Civil Engineering	11	0	4	0
Faculty of Mechanical Engineering	5	0	2	0
Faculty of Electrical Engineering	3	0	2	0
Faculty of Nuclear and Physical Engineering	1	0	6	0
Faculty of Architecture	4	0	3	0
Faculty of Transport	4	0	3	0
Faculty of Biomedical Engineering	4	0	3	0
Faculty of Information Technology	6	0	3	0
Masaryk Institute of Advanced Studies	0	0	1	0
Other workplaces total	11	2	8	3
TOTAL	49	2	35	3

Note: * Faculty or other part of the university implementing the accredited study programme.

Note: ** An international conference is a conference in which at least one foreign speaker participates and all papers are localized in at least one of the following languages – English, French, German, or in a language specific to the discipline of the conference, e.g. for philology.

Note: *** A conference falls into a category if more than 50% of the participants (also estimated) attended the conference in a given form. Categories are exclusive.

CONFERENCES (TOGETHER) ORGANISED BY THE UNIVERSITY

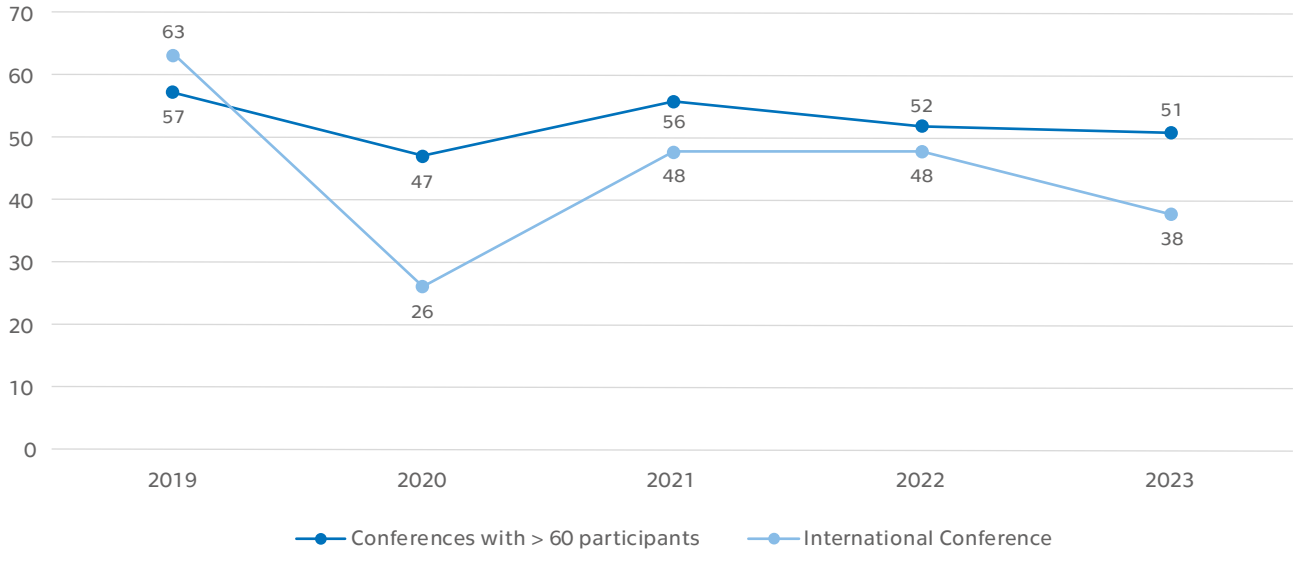


Table 8.2: Experts from the application sphere* involved in teaching and practice in accredited study programmes (numbers)

CTU in Prague	Persons having an employment relationship with the university or a part thereof			Persons who do not have an employment relationship with the university or any part thereof		
	Number of persons involved in teaching	Number of persons involved in the supervision of the thesis	Number of people involved in providing work experience**	Number of persons involved in teaching	Number of persons involved in the supervision of the thesis	Number of people involved in providing work experience***
Faculty of Civil Engineering**	146	110				
of which women	49	27				
Faculty of Mechanical Engineering**	48	18	0	35	5	0
of which women	0	1	0	2	0	0
Faculty of Electrical Engineering**	23	36		2	22	
of which women	1	1				
Faculty of Nuclear and Physical Engineering**	24	8	1	34	47	2
of which women	5	3	1	6	9	2
Faculty of Architecture**	70	42				
of which women	22	12				
Faculty of Transport**	178	178				
of which women	59	59				
Faculty of Biomedical Engineering**	101	56	21	0	0	36
of which women	44	24	14	0	0	26
Faculty of Information Technology**	41	25		12	43	
of which women	3	0		3	1	
Masaryk Institute of Advanced Studies**	24	18	2	0	0	39
of which women	10	7	2	0	0	22
TOTAL	655	491	24	83	117	77
of which women	193	134	17	11	10	50

Note: * Professionals from the application sphere participating at least one third of the time in teaching at least one course or supervising the student's thesis. If the professional is a full-time employee of the HEI/faculty, he/she should have at least the same amount of time outside the HEI/faculty.

Note: ** Faculty or other part of the university implementing the accredited study programme/discipline.

Note: *** These are the persons directly responsible for the student's professional practice.

Table 8.3: Study fields/programmes**** that have in their content the compulsory completion of professional practice*** for at least 1 month* (numbers)

CTU in Prague	Number of fields of study/ programmes ****	Number of active studies					
		Bachelor studies		Master's studies		Continuing Master's studies	
		Academic profile	Professional profile	Academic profile	Professional profile	Academic profile	Professional profile
Faculty of Civil Engineering**	3		2				1
Faculty of Transport**	2	x	x	x	x	25	0
Faculty of Biomedical Engineering**	24	213	804	x	x	0	403
Masaryk Institute of Advanced Studies**	2	0	2	0	0	0	0
TOTAL	31	213	808	0	0	25	404

Note: * The duration of the individual compulsory work experience could be shorter, but it must be at least 1 month in total.

Note: ** Faculty or other part of the university implementing the accredited study programme/discipline

Note: *** A compulsory internship is one that is part of the accreditation of a given field of study, which may be part of a course or a separate course. These are professional professional practices.

Note: **** HEI shall provide the data related to the lowest accredited unit – graduate study programme, if the study programme is not divided into study programmes, the data for the study programme.

Table 8.4: Transfer of knowledge and research results into practice

CTU in Prague	IN THE CR	Abroad	Number TOTAL	TOTAL revenue
Number of new spin-off/start-up companies*				
Patent applicatons filed	11	17	28	
Granted patents***	26	14	40	
Registered utility models	54	1	55	
Licence agreements valid as of 12/31	65	2	67	
Newly concluded licence agreements	29	0	29	2,256,063 CZK
Contract research***, consulting and advisory services***			1,226	411,604,460 CZK
Paid training courses for employees of application entities***			6	1,554,685 CZK

Note: * These are newly established spin-off/start-up companies supported by the university in 2021 (numbers)

Note: ** In the case of the European patent, the item "Abroad" is only reported once in the table, regardless of the number of countries designed.

Note: *** The definitions of the items relating to income and the values in the table for these items correspond to the Annual Financial Report 2021 for HEIs (Table 6). The SVS shall fill in these items at its discretion.

A licence agreement is defined as the grant of a right, to an agreed extent and in an agreed territory, to acquire or licence any of the intellectual and industrial property rights. Licensing agreements are concluded for patented inventions or registered utility models, industrial designs, topographies of semiconductor products, new plant varieties and animal breeds or trademarks by means of a written agreement. The provider authorises the acquirer to exercise the intellectual and industrial property rights to the agreed extent and in the agreed territory and the acquirer undertakes to provide certain remuneration (royalties) or other property value. In doing so, the acquirer is not at risk of being accused of infringing the intellectual property or copyright of the licensor.

Contract research is custom research that is based on collaboration (interaction) specifically meeting the research needs of the application entities and is carried out by the higher education institution for the application entity according to its requirements and needs. It receives funding for this research from the HEI. Typically, this includes large-scale projects, original research and written reports. Usually, the research is commissioned by one particular external organisation (for its needs). It is not decisive whether the funding spent by the application entity on such contract research comes from public or private sources. Contract research cannot be considered to be a case where the university is the recipient of earmarked suport for applied research.

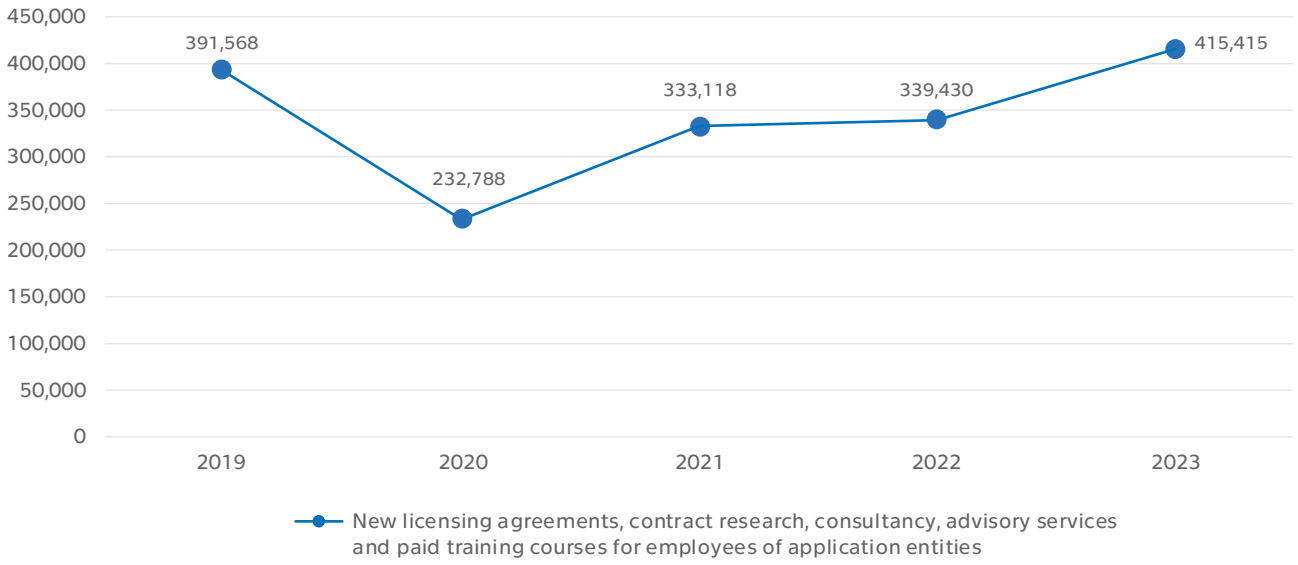
Paid training courses to improve the qualifications of employees of the application entities (e.g. corporate training courses). An application sector entity is defined here as a legal entity whose main activity is not research and development. It can be a business entity, a public administration body, a non-profit organisation, etc. – always with the condition that the main activity is not research. Revenue will be included from those training courses which are 'bespoke', i.e. agreed with the organisation concerned for its staff. This does not involve quantifying the costs of participants in training courses who are employed by a company that meets the above definition. On the contrary, these are courses that were created in agreement with the selected company because it wanted to train its employees.

Consultation and advice is based on the provision of expert advice, opinion or action, which depends on a high level of intellectual input from the higher education institution to the client. The university provides consulting and advisory services to application entities for a fee and in accordance with market conditions. The main desired outcome of the consultancy is not the creation of new knowledge, but the understanding or comprehension of a certain condition.

Summary information on Table 8.4

	Number TOTAL	Total revenue
New licensing agreements, contract research, consultancy, advisory services and paid training courses for employees of application entities	1,261	415,415,208 CZK
	Average revenue per 1 order	
	329,433 CZK	

TRANSFER OF KNOWLEDGE AND RESEARCH RESULTS INTO PRACTICE (TOTAL INCOME IN THOUSANDS CZK)



NEWLY CONCLUDED LICENCE AGREEMENTS

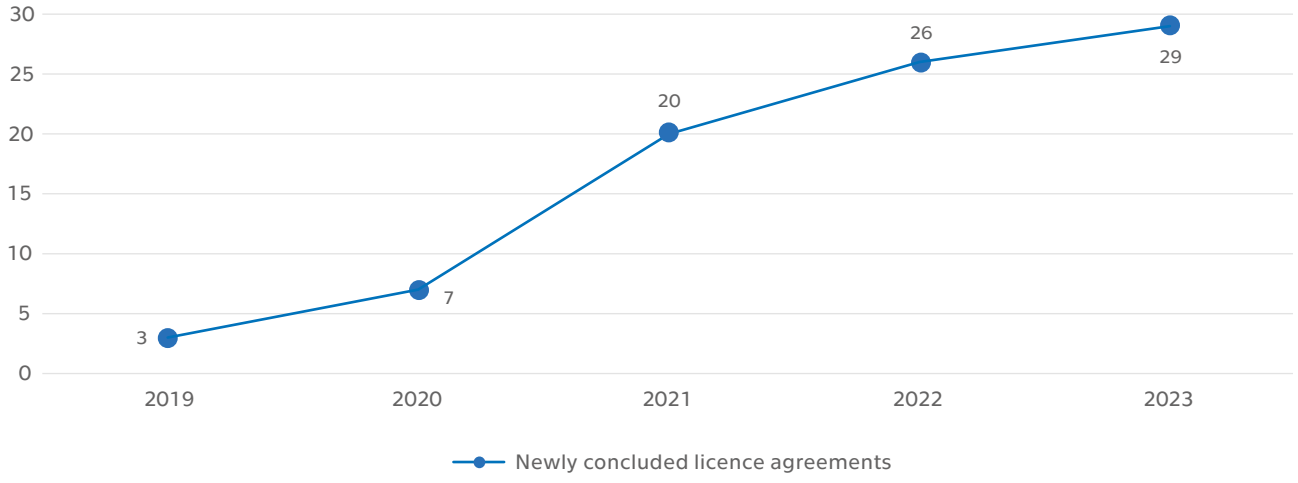
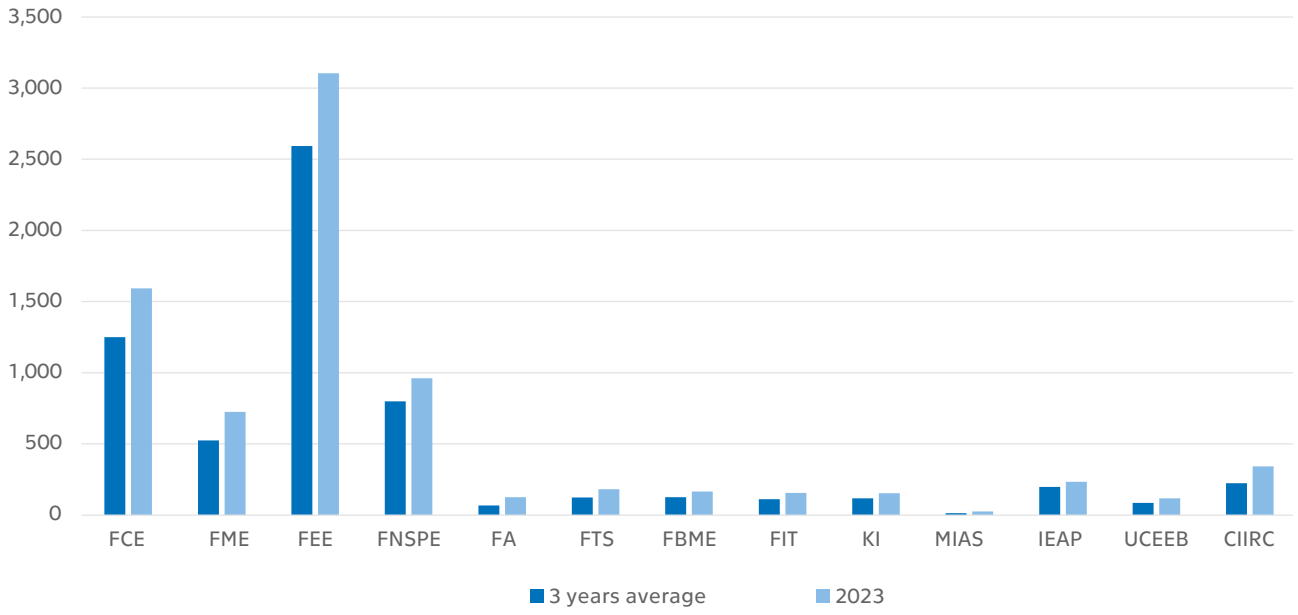


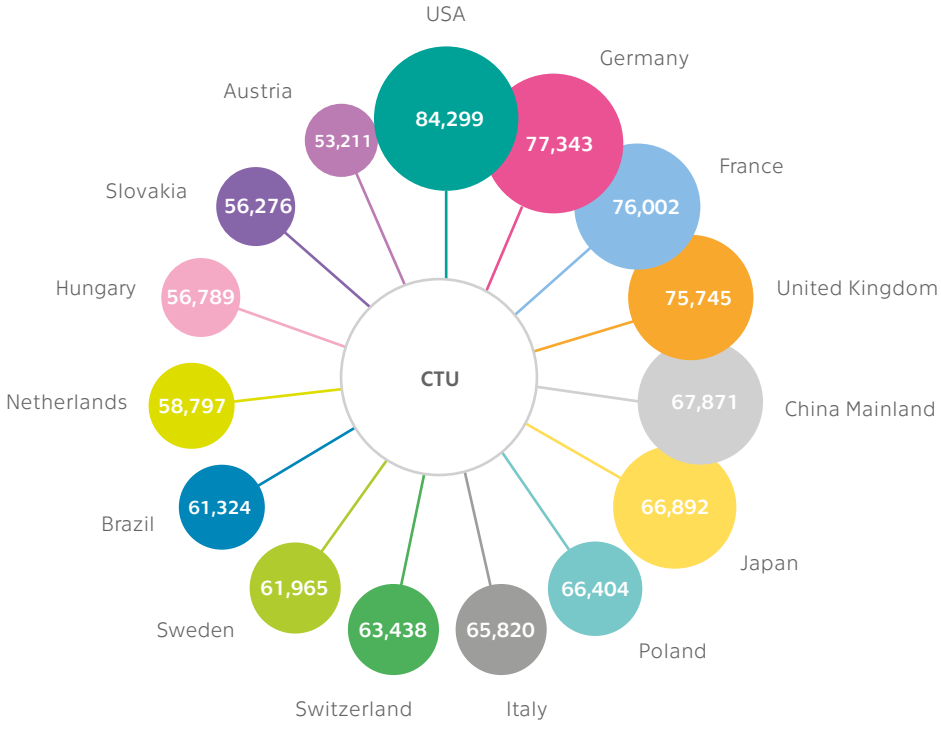
Table 8.5: Citations and publications 2023 (points for impacted publications and citations by V3S)

CTU in Prague	CITATION		PUBLICATIONS	
	3 years average	2023	3 years average	2023
Faculty of Civil Engineering***	1,249.69	1,593.00	148.18	142.11
Faculty of Engineering***	525.13	725.20	111.65	123.36
Faculty of Electrical Engineering	2,592.76	3,103.52	240.68	226.86
Faculty of Nuclear and Physical Engineering	799.33	961.30	141.79	160.42
Faculty of Architecture	67.20	124.94	2.10	3.56
Faculty of Transport	122.90	181.38	18.43	19.27
Faculty of Biomedical Engineering	126.27	165.89	33.24	31.55
Faculty of Information Technology	111.46	155.35	18.35	15.83
Klokner Institute	118.04	154.59	6.42	5.95
Masaryk Institute of Advanced Studies	13.72	25.97	0.81	0.39
Institute of Technical and Experimental Physics	198.80	233.24	26.26	30.22
University Centre for Energy Efficient Buildings	85.42	118.06	19.84	18.78
Czech Institute of Informatics, Robotics and Cybernetics	224.44	342.31	35.21	24.07
TOTAL		7,884.74		802.37

CITATION

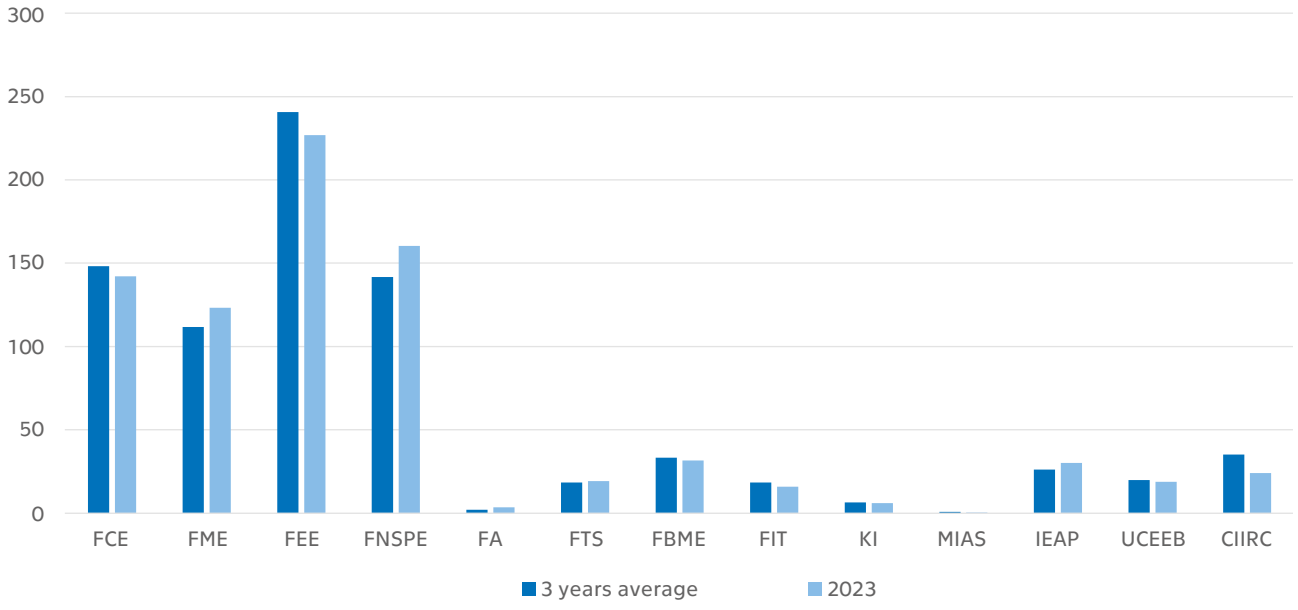


NUMBER OF CITATIONS BY CTU AUTHORS IN INDIVIDUAL COUNTRIES FOR THE PERIOD 2014–2023.
THE GRAPH SHOWS THE NUMBER OF CITATIONS RECEIVED BY PUBLICATIONS OF CTU AUTHORS IN COLLABORATION WITH AUTHORS FROM THE LISTED COUNTRIES OVER THE LAST TEN YEARS IN THOUSANDS.

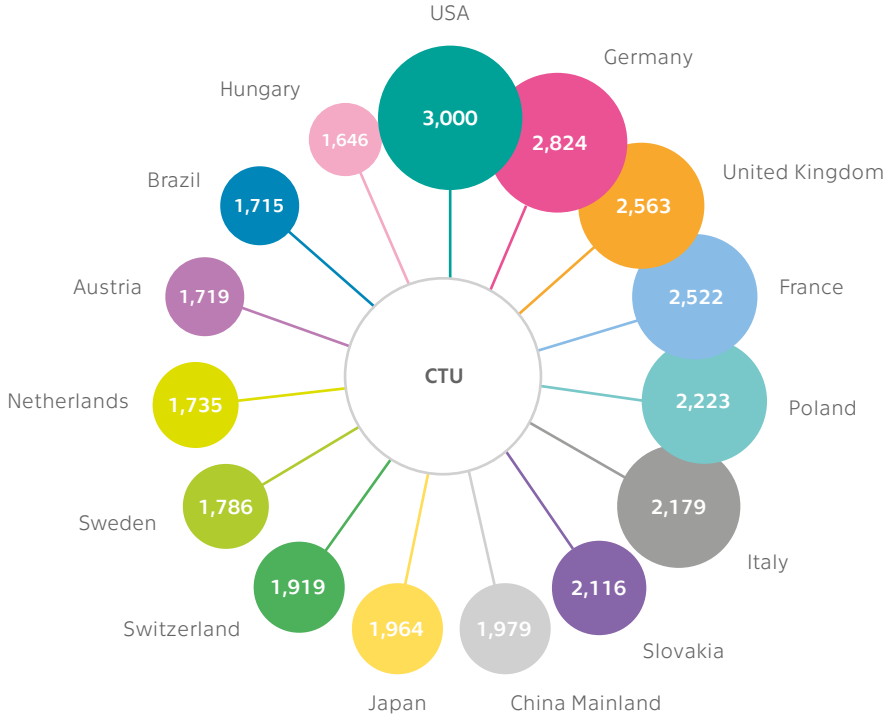


The data was exported from the InCites database on 3/11/2024.

PUBLICATIONS



NUMBER OF PUBLICATIONS BY CTU AUTHORS IN INDIVIDUAL COUNTRIES FOR THE PERIOD 2014–2023.
THE GRAPH SHOWS THE NUMBER OF PUBLICATIONS PRODUCED BY AUTHORS FROM THE CTU IN COLLABORATION WITH AUTHORS FROM THE COUNTRIES MENTIONED ABOVE OVER THE LAST TEN YEARS (IN THOUSANDS).



The data was exported from the InCites database on 3/11/2024.

Table 8.6: Faculty citation performance from the perspective of the QS and THE rankings >>>

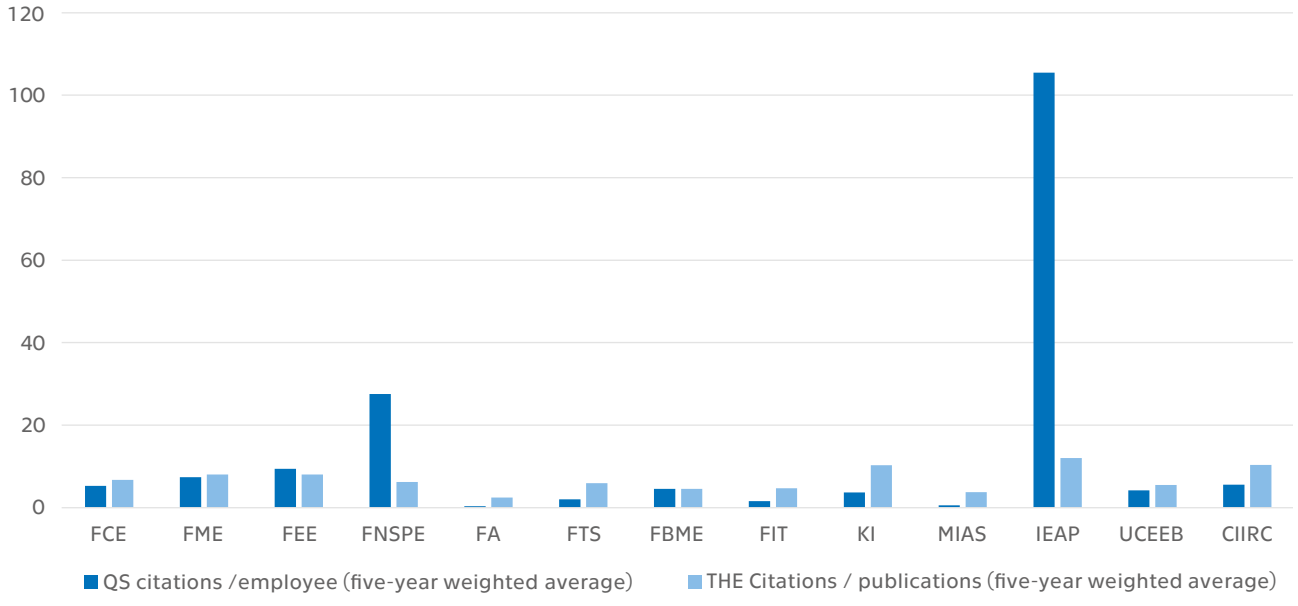
CTU in Prague	CTU Average	FCE	FME	FEE	FNSPE
QS/THE: International headcount ratio	13.83%	4.63%	7.90%	22.47%	20.86%
QS/THE: International student ratio	21.92%	13.79%	15.98%	28.05%	29.30%
QS/THE: Staff to student ratio	6.85	7.32	5.02	6.32	4.73
QS Citacitons / employees, weighted average over 5 years	9.59	5.24	7.37	9.39	27.54
THE Citations / Publications, five-year weighted average	7.48	6.72	7.99	8.01	6.21

Staff and student categories: the QS and THE use the FTE (Full Time Equivalent) model. This calculation is used in the staff and student statistics in the chart.

Citation categories: the CTU does not submit citation data from QS and THE rankings, but obtains them directly from the Scopus database and adjusts them according to its own methodology. A precise retrospective analysis of the impact of citations on the rankings is not possible for the following reasons:

– Both QS and THE use a complex process of standardisation and weighting across topics and publication types; this process is not public and THE weights change each year according to THE averages within each category.
– QS and THE select data somewhat differently (although both collect data from the Scopus database).
– QS and THE use a different methodology for calculating the final score (citation per faculty member vs. citation per publication).

QS CITATIONS



FA	FTS	FBME	FIT	KI	MIAS	IEAP	UCEEB	CIIRC
5.56%	9.09%	7.03%	17.64%	1.88%	14.39%	51.79%	12.53%	25.29%
27.83%	21.85%	8.04%	34.96%	4.55%	15.72%	0.00%	0.00%	0.00%
11.88	5.88	13.20	16.42	0.41	19.13	0.00	0.00	0.00
0.31	2.01	4.57	1.57	3.63	0.57	105.50	4.16	5.58
2.45	5.90	4.52	4.66	10.29	3.77	12.00	5.50	10.32

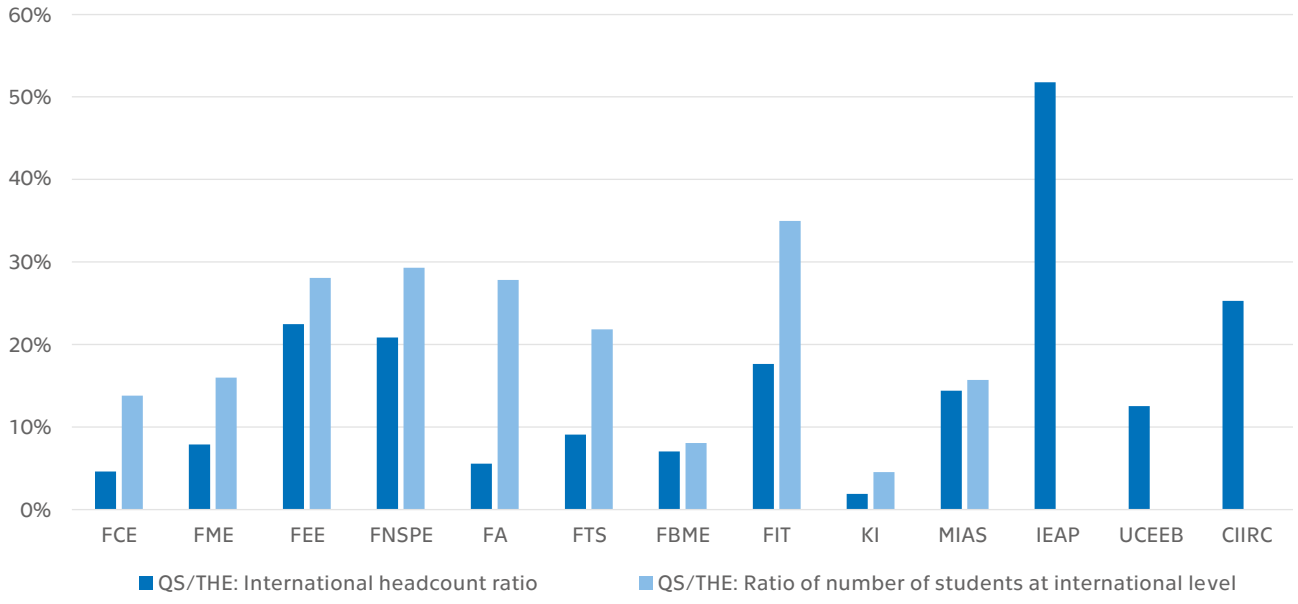
To get a clearer picture of faculty performance in terms of evaluation, available internal data was used and proprietary evaluation methodologies were developed:

Citation data provided by the Central Library of CTU, 2019–2023.

The absolute number of publications and citations was normalized annually according to the weight of the evaluation agencies: (2023 × 0.30) + (2022 × 0.25) + (2021 × 0.20) + (2020 × 0.15) + (2019 × 0.10)

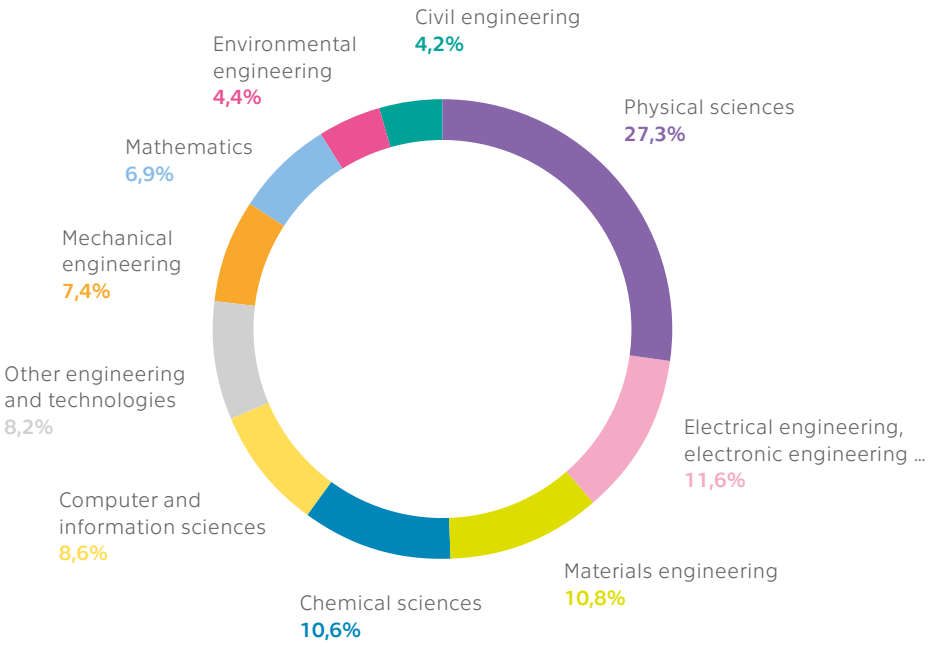
Based on the data on employees (provided by the HR department of R CTU) and citation data (normalized for the previous 5 years), the citation score per faculty (QS) and citation score per thesis (THE) can be calculated. This calculation is a rough approximation of performance in international rankings.

QS/THE



THE FIELDS IN WHICH THE AUTHORS MOST OFTEN PUBLISH

THE CHART SHOWS THE FIELDS IN WHICH CTU AUTHORS PUBLISHED THE MOST IN 2023 BY NUMBER OF DOCUMENTS. THE DISCIPLINES ARE CHOSEN ACCORDING TO THE OECD SUBJECT CLASSIFICATION.



The data was exported from the InCites database on 3/11/2024.

Table 8.7: National and international cooperation of CTU authors by fields and countries

Subject Area	TOTAL	Czech Republic	USA	Germany	France	United Kingdom	Poland	Italy	China Mainland
Physics, particles & fields	2,870	462	371	371	327	319	352	330	338
Engineering, electrical & electronic	588	381	32	22	40	55	35	15	8
Physics, applied	502	352	20	31	3	39	25	21	11
Materials science, multidisciplinary	677	466	30	44	14	39	35	24	25
Physics, nuclear	1,041	193	144	138	110	98	118	110	130
Physics, multidisciplinary	557	156	72	69	48	43	53	60	56
Astronomy & astrophysics	1,082	216	145	150	108	100	136	110	117
Optics	257	164	16	18	11	38	0	4	6
Computer science, artificial intelligence	364	217	34	30	30	32	4	8	9
Instruments & instrumentation	398	179	39	40	22	41	33	25	19
Nuclear science & technology	288	146	30	38	19	18	12	11	14
Mathematics, applied	302	180	21	22	31	9	9	25	5
Computer science, theory & methods	213	135	23	14	21	10	4	3	3
Physics, condensed matter	211	154	5	13	4	10	11	7	7
Mathematics	242	141	22	15	20	17	4	21	2
Chemistry, physical	234	174	7	15	4	13	11	4	6
Telecommunications	221	145	13	6	8	28	18	2	1
Computer science, information systems	223	152	14	3	13	21	17	3	0
Metallurgy & metallurgical engineering	186	139	6	11	2	7	12	5	4
Computer science, interdisciplinary applications	129	83	10	12	7	11	0	3	3
Engineering, mechanical	89	65	3	5	5	6	1	4	0
Mechanics	82	51	6	6	6	5	3	3	2
Engineering, biomedical	68	49	10	2	2	3	0	1	1
Automation & control systems	136	85	6	9	20	10	0	3	3
Engineering, multidisciplinary	138	95	6	7	5	9	7	8	1
Physics, mathematical	67	42	5	3	7	2	2	2	4
Nanoscience & nanotechnology	126	80	14	6	5	5	2	6	8
Chemistry, multidisciplinary	198	136	12	9	7	10	8	11	5
Engineering, civil	180	113	7	9	8	11	11	16	5
Radiology, nuclear medicine & medical imaging	79	51	10	6	4	4	2	2	0
Physics, fluids & plasmas	112	48	6	9	13	11	14	5	6
Computer science, software engineering	95	65	17	4	5	3	0	0	1
Environmental sciences	156	105	6	12	5	8	10	7	3
Construction & building technology	136	77	6	9	9	10	11	10	4
Chemistry, analytical	133	88	4	9	1	13	12	4	2
Materials science, coatings & films	84	64	1	5	1	7	1	4	1
Physics, atomic, molecular & chemical	62	38	8	5	3	4	1	3	0
Energy & fuels	135	90	9	5	3	7	7	8	6
Neurosciences	105	63	13	6	4	10	4	5	0

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Table 8.7: National and international cooperation of CTU authors by fields and countries

Subject Area	TOTAL	Czech Republic	USA	Germany	France	United Kingdom	Poland	Italy	China Mainland
Robotics	92	59	1	6	9	10	1	4	2
Clinical neurology	114	65	18	12	3	10	2	3	1
Imaging science & photographic technology	98	57	12	4	8	9	0	3	5
Thermodynamics	45	33	5	2	0	4	1	0	0
Engineering, chemical	66	48	3	0	2	2	7	1	3
Chemistry, inorganic & nuclear	29	19	1	6	0	1	0	2	0
Computer science, hardware & architecture	41	28	3	4	1	3	2	0	0
Mathematics, interdisciplinary applications	31	24	2	1	1	1	0	2	0
Operations research & management science	64	41	3	6	7	1	1	4	1
Geosciences, multidisciplinary	51	29	2	5	3	4	2	5	1
Public, environmental & occupational health	62	38	5	5	3	3	3	3	2
Water resources	52	28	1	3	2	0	8	8	2
Economics	12	9	0	1	1	0	0	1	0
Biochemistry & molecular biology	71	44	4	6	3	4	2	5	3
Green & sustainable science & technology	72	48	4	5	1	2	2	6	4
Engineering, manufacturing	37	27	2	3	3	1	0	0	1
Crystallography	54	37	1	6	4	2	2	2	0
Biophysics	29	16	3	4	2	1	1	2	0
Geochemistry & geophysics	24	16	5	1	0	1	0	0	1
Materials science, ceramics	23	21	0	0	0	0	1	0	1
Remote sensing	28	23	2	0	1	1	0	1	0
Transportation science & technology	32	21	0	1	1	8	0	1	0
Polymer science	42	32	2	3	0	1	1	2	1
Acoustics	33	21	2	2	7	0	0	1	0
Mathematical & computational biology	24	15	3	1	1	2	1	1	0
Statistics & probability	19	12	3	2	0	1	1	0	0
Engineering, environmental	32	17	1	2	2	3	3	1	3
Surgery	22	17	1	2	0	2	0	0	0
Materials science, characterization & testing	12	9	1	0	0	1	0	1	0
Medical informatics	14	12	1	0	0	0	0	1	0
Engineering, aerospace	22	16	2	0	2	1	0	1	0
Quantum science & technology	31	23	2	3	0	1	0	1	1
Biology	23	13	4	0	1	3	1	1	0
Computer science, cybernetics	7	5	0	1	0	1	0	0	0
Engineering, industrial	23	17	0	3	2	0	0	0	1
Oncology	20	16	3	0	0	0	0	1	0
Physiology	19	15	0	3	0	0	0	1	0
Materials science, biomaterials	7	6	1	0	0	0	0	0	0
Materials science, composites	13	11	0	0	0	1	0	0	1

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Table 8.7: National and international cooperation of CTU authors by fields and countries

Subject Area	TOTAL	Czech Republic	USA	Germany	France	United Kingdom	Poland	Italy	China Mainland
Medicine, research & experimental	29	21	3	1	1	1	1	1	0
Biochemical research methods	24	16	2	3	1	1	0	1	0
Biotechnology & applied microbiology	17	13	0	1	1	0	1	1	0
Meteorology & atmospheric sciences	18	11	1	1	1	1	0	2	1
Health care sciences & services	18	17	0	0	0	0	0	1	0
Environmental studies	45	32	0	5	1	1	2	4	0
Pharmacology & pharmacy	15	14	0	0	0	1	0	0	0
Electrochemistry	15	10	1	0	0	1	1	1	1
Spectroscopy	13	8	1	0	0	4	0	0	0
Logic	21	16	0	1	0	1	2	0	1
Management	13	7	1	0	1	1	1	1	1
Mining & mineral processing	15	10	2	0	0	1	1	0	1
Soil science	12	8	0	1	0	0	0	2	1
Cardiac & cardiovascular systems	38	19	7	1	5	5	0	1	0
Endocrinology & metabolism	3	3	0	0	0	0	0	0	0
Architecture	6	4	2	0	0	0	0	0	0
Cell biology	9	6	0	0	0	1	0	1	1
Urban studies	9	5	0	3	0	1	0	0	0
Psychiatry	27	13	3	5	1	4	0	1	0
Audiology & speech-language pathology	22	15	0	3	3	1	0	0	0
Education, scientific disciplines	16	13	0	1	1	1	0	0	0
Rehabilitation	17	10	2	1	0	2	0	1	1
Orthopedics	9	7	0	0	0	0	1	1	0
Business	1	1	0	0	0	0	0	0	0
Transplantation	6	6	0	0	0	0	0	0	0
Education & educational research	4	3	0	0	0	0	1	0	0
Toxicology	5	5	0	0	0	0	0	0	0
Business, finance	1	1	0	0	0	0	0	0	0
Engineering, geological	18	11	0	1	1	2	0	3	0
Chemistry, applied	10	9	0	0	0	0	1	0	0
Critical care medicine	8	7	1	0	0	0	0	0	0
Chemistry, organic	6	5	0	0	1	0	0	0	0
Ecology	10	5	1	1	0	3	0	0	0
Geography, physical	5	4	1	0	0	0	0	0	0
Pediatrics	29	13	4	1	2	7	1	1	0
Mineralogy	13	9	1	0	0	1	0	0	2
Multidisciplinary sciences	12	9	0	0	0	2	0	1	0
Transportation	5	4	0	1	0	0	0	0	0
Anatomy & morphology	6	6	0	0	0	0	0	0	0

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Table 8.7: National and international cooperation of CTU authors by fields and countries

Subject Area	TOTAL	Czech Republic	USA	Germany	France	United Kingdom	Poland	Italy	China Mainland
Microscopy	1	1	0	0	0	0	0	0	0
Peripheral vascular disease	7	7	0	0	0	0	0	0	0
Sport sciences	9	6	2	0	1	0	0	0	0
Food science & technology	8	6	0	0	1	0	1	0	0
Dentistry, oral surgery & medicine	2	2	0	0	0	0	0	0	0
Health policy & services	4	4	0	0	0	0	0	0	0
Social sciences, mathematical methods	2	2	0	0	0	0	0	0	0
Forestry	5	4	0	0	0	0	1	0	0
Genetics & heredity	6	5	1	0	0	0	0	0	0
Immunology	7	6	1	0	0	0	0	0	0
Agronomy	5	4	0	0	0	1	0	0	0
Hematology	12	8	2	0	0	2	0	0	0
Otorhinolaryngology	6	5	0	1	0	0	0	0	0
Urology & nephrology	2	2	0	0	0	0	0	0	0
Materials science, textiles	2	2	0	0	0	0	0	0	0
Ophthalmology	3	2	0	0	0	1	0	0	0
Materials science, paper & wood	2	2	0	0	0	0	0	0	0
Microbiology	9	7	2	0	0	0	0	0	0
Plant sciences	6	4	0	0	0	1	0	1	0
Social sciences, interdisciplinary	6	4	1	0	0	1	0	0	0
Chemistry, medicinal	3	3	0	0	0	0	0	0	0
Geography	2	2	0	0	0	0	0	0	0
Linguistics	8	5	0	1	1	1	0	0	0
Psychology, multidisciplinary	3	3	0	0	0	0	0	0	0
Behavioral sciences	4	3	0	0	0	1	0	0	0
Psychology	5	3	1	0	0	1	0	0	0
Archaeology	2	2	0	0	0	0	0	0	0
Medicine, legal	2	2	0	0	0	0	0	0	0
Obstetrics & gynecology	2	2	0	0	0	0	0	0	0
Zoology	2	2	0	0	0	0	0	0	0
Agricultural engineering	1	1	0	0	0	0	0	0	0
Geology	7	4	1	1	0	1	0	0	0
Limnology	3	2	1	0	0	0	0	0	0
Psychology, experimental	3	2	0	0	0	1	0	0	0
Respiratory system	4	2	1	1	0	0	0	0	0
Neuroimaging	10	5	2	0	0	2	1	0	0
Agriculture, multidisciplinary	4	3	0	0	0	1	0	0	0
Anthropology	2	2	0	0	0	0	0	0	0
Ergonomics	2	2	0	0	0	0	0	0	0

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Table 8.7: National and international cooperation of CTU authors by fields and countries

Subject Area	TOTAL	Czech Republic	USA	Germany	France	United Kingdom	Poland	Italy	China Mainland
Regional & urban planning	3	2	0	1	0	0	0	0	0
Dermatology	1	1	0	0	0	0	0	0	0
Engineering, marine	5	4	0	0	0	0	0	1	0
Evolutionary biology	4	3	0	1	0	0	0	0	0
Gastroenterology & hepatology	2	2	0	0	0	0	0	0	0
Infectious diseases	3	3	0	0	0	0	0	0	0
Pathology	1	1	0	0	0	0	0	0	0
Political science	2	1	0	0	1	0	0	0	0
Veterinary sciences	5	4	0	0	0	0	0	1	0
Medical laboratory technology	1	1	0	0	0	0	0	0	0
Medicine, general & internal	4	3	0	1	0	0	0	0	0
Oceanography	5	4	0	0	0	0	0	1	0
Anesthesiology	1	1	0	0	0	0	0	0	0
Emergency medicine	6	5	1	0	0	0	0	0	0
Sociology	1	1	0	0	0	0	0	0	0
Biodiversity conservation	3	1	1	0	0	1	0	0	0
History & philosophy of science	1	1	0	0	0	0	0	0	0
Nutrition & dietetics	1	1	0	0	0	0	0	0	0
Psychology, clinical	2	1	0	0	0	1	0	0	0
Rheumatology	3	2	0	0	0	0	0	1	0
Criminology & penology	3	3	0	0	0	0	0	0	0
Engineering, ocean	3	3	0	0	0	0	0	0	0
Engineering, petroleum	2	2	0	0	0	0	0	0	0
Hospitality, leisure, sport & tourism	1	1	0	0	0	0	0	0	0
Nursing	2	2	0	0	0	0	0	0	0
Psychology, developmental	4	1	1	0	1	1	0	0	0
Public administration	2	2	0	0	0	0	0	0	0
Humanities, multidisciplinary	2	1	1	0	0	0	0	0	0
Mycology	1	1	0	0	0	0	0	0	0
Psychology, biological	1	1	0	0	0	0	0	0	0
Psychology, social	2	1	1	0	0	0	0	0	0
Psychology, educational	4	1	1	0	1	1	0	0	0
Religion	1	1	0	0	0	0	0	0	0
Women's studies	2	1	1	0	0	0	0	0	0

Tile Name: Collaborating Countries/Regions by Subject Area: Web of Science Documents

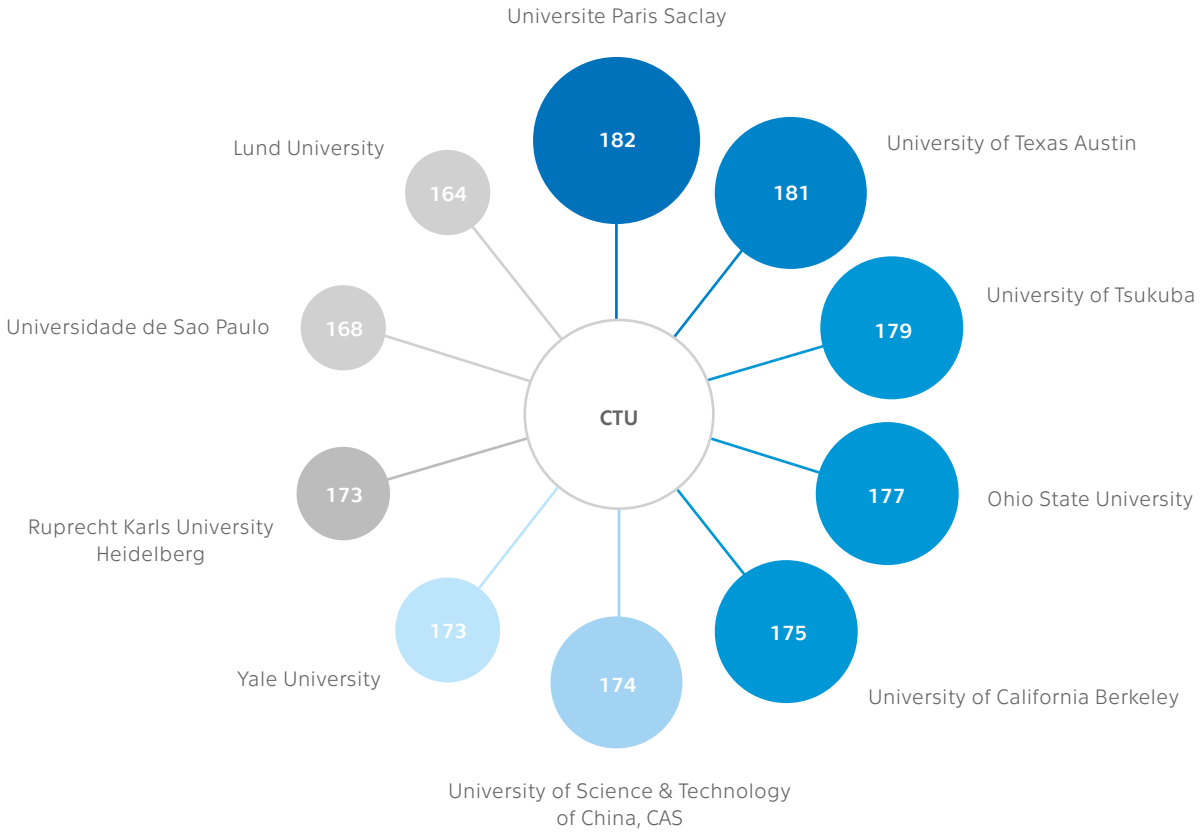
Filter Summary: Organization: Czech Technical University Prague; Time Period: [2021, 2023]; Include ESCI documents;

Exported date 3/14/2024.

InCites dataset updated 2/29/2024. Includes Web of Science content indexed through 1/31/2024.

INTERNATIONAL COOPERATION WITH ACADEMIC INSTITUTIONS

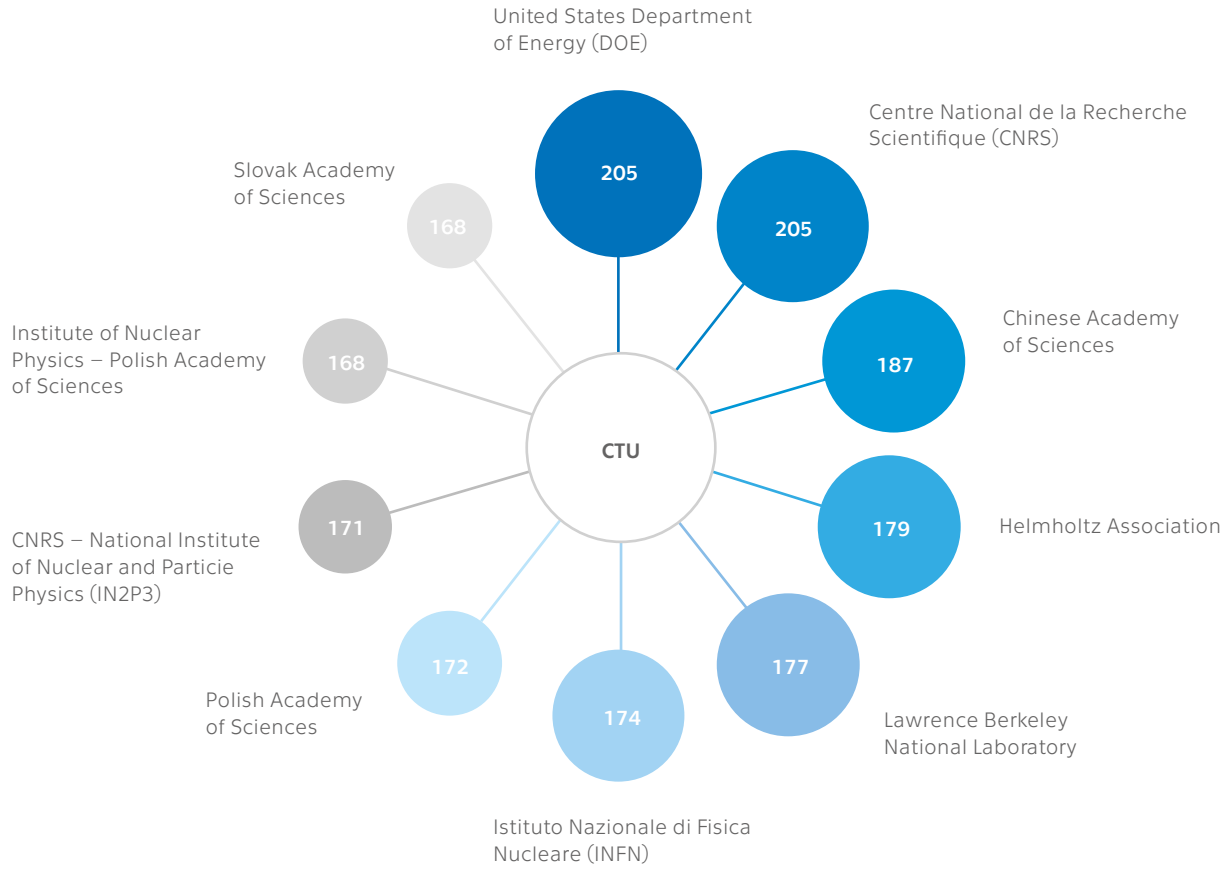
THE GRAPH SHOWS THE AUTHORS' COLLABORATION WITH FOREIGN ACADEMIC INSTITUTIONS, WHICH RESULTED IN THE NUMBER OF DOCUMENTS PRODUCED IN 2023.



The data was exported from the InCites database on 3/11/2024.

INTERNATIONAL COOPERATION OUTSIDE ACADEMIC INSTITUTIONS

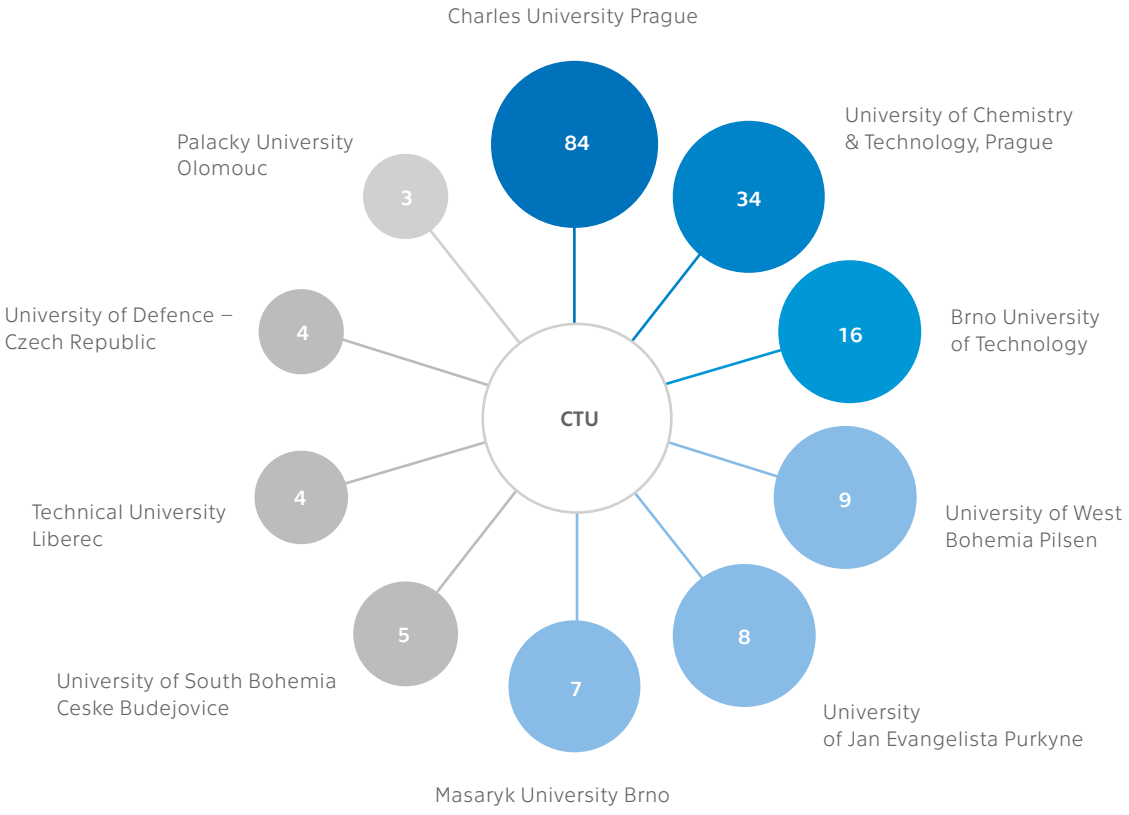
THE GRAPH SHOWS THE COOPERATION OF CTU AUTHORS WITH FOREIGN INSTITUTIONS, WHICH RESULTED IN THE NUMBER OF DOCUMENTS PRODUCED IN 2023.



The data was exported from the InCites database on 3/11/2024.

NATIONAL COOPERATION WITH ACADEMIC INSTITUTIONS

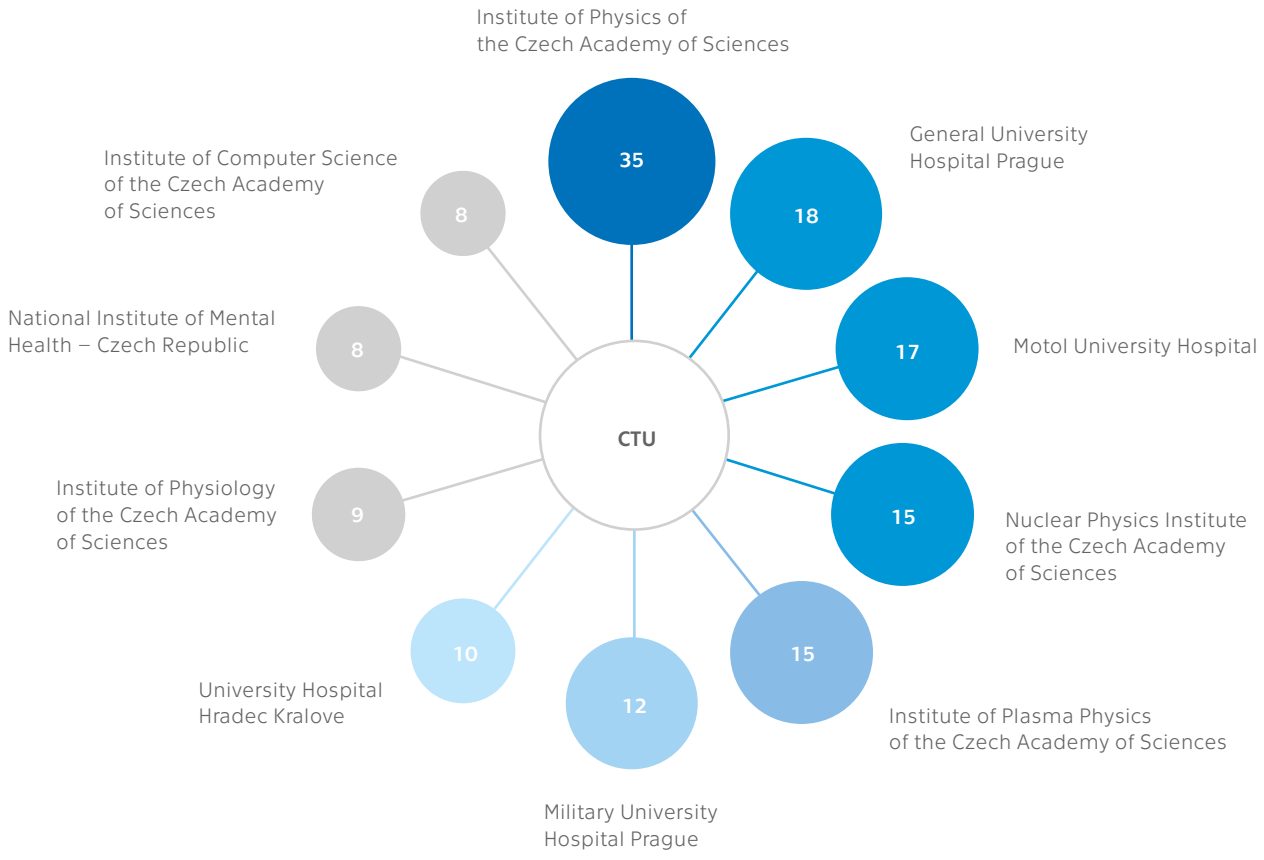
THE CHART SHOWS THE COOPERATION OF CTU AUTHORS WITH ACADEMIC INSTITUTIONS FROM THE CZECH REPUBLIC, WHICH RESULTED IN THE NUMBER OF DOCUMENTS PRODUCED IN 2023.



The data was exported from the InCites database on 3/11/2024.

NATIONAL COOPERATION OUTSIDE ACADEMIC INSTITUTIONS

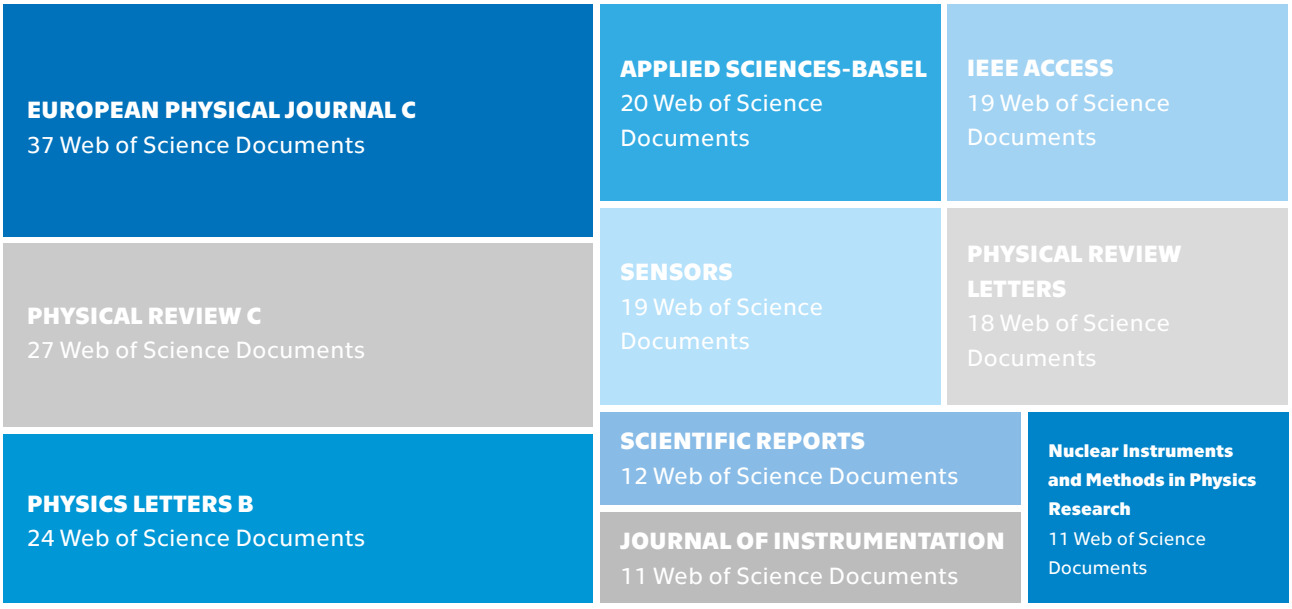
THE CHART SHOWS THE COOPERATION OF CTU AUTHORS WITH INSTITUTIONS FROM THE CZECH REPUBLIC OUTSIDE THE ACADEMIC FIELD, WHICH RESULTED IN THE NUMBER OF DOCUMENTS PRODUCED IN 2023.



The data was exported from the InCites database on 3/11/2024.

PUBLICATION OF CTU AUTHORS IN JOURNALS

THE CHART SHOWS THE JOURNALS IN WHICH CTU AUTHORS PUBLISHED MOST FREQUENTLY IN 2023 BY NUMBER OF PAPERS



Box size indicates Web of Science Documents.

The data was exported from the InCites database on 3/11/2024.

Table 8.8: Share of CTU publications in each quartile for the period 2020–2023

CiteScore quartile	2020	2021	2022	2023
Q1 (top 25%)	844	922	915	1,040
Q2 (top 26–50%)	454	481	374	397
Q3 (top 51–75%)	264	230	280	255
Q4 (top 76–100%)	361	318	321	352
Total	1,923	1,951	1,890	2,044

Quartiles	Number of publications	Percentage of publications in %
Q1 (top 25%)	3,721	47.7
Q2 (top 26–50%)	1,706	21.8
Q3 (top 51–75%)	1,029	13.2
Q4 (top 76–100%)	1,352	17.3

Data exported from Scopus database

CiteScore is a metric calculated using a similar method to the impact factor, except that citations to articles published in the previous three years are counted.

SHARE OF CTU PUBLICATIONS IN EACH QUARTILE FOR THE PERIOD 2020–2023

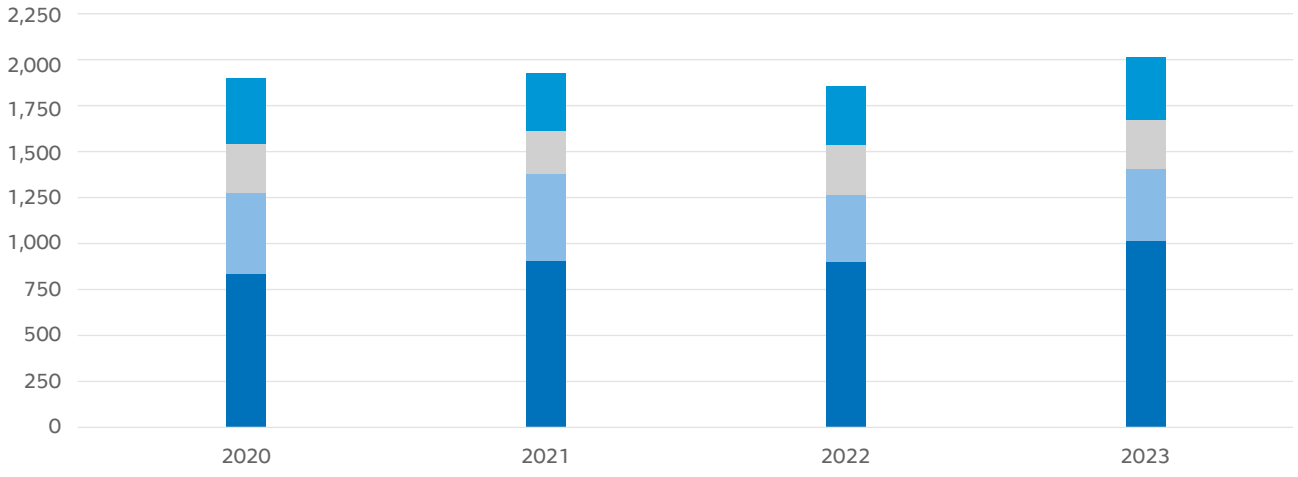


Table 8.9: Specific university research projects at CTU (2010–2023). Overview of the number of results achieved with the support of SVV.

CTU in Prague	2019	2020	2021	2022	2023
Article in a professional periodical	399	388	445	432	413
Professional book	10	8	8	7	5
Chapter(s) in a professional book	3	9	14	15	6
Article in the proceedings	849	620	606	578	622
Patent	8	7	5	5	2
Results with legal protection (utility model, industrial design)	6	5	7	5	5
Semi-production, proven technology, variety, breed	3	1	2		
Technically realised results (prototype, working sample)	17	19	24	20	14
Provider-implemented results	1	3	3	4	
Certified methodologies, therapeutic procedures, heritage procedures, specialized maps with specialized content	7		6	1	1
Software	14	9	9	4	3
Research report containing classified information or summary research report	7	6	4	2	
Audiovisual production, electronic documents		1	2	2	1
Organisation of a conference	15	9	14	12	6
Organisation of a workshop	7	6	6	6	9
Organisation (organisation) of an exhibition	5	4	1		1
Total number of results	1,351	1,095	1,156	1,093	1,088

Table 8.10: Funds earmarked for research, development and innovation received in 2019–2023 (thous. CZK)

CTU in Prague	2019*	2020*	2021*	2022*	2023
Total earmarked funds	1,990,212	1,844,234	1,755,904	1,900,685	1,774,202
Of which: earmarked funds of CTU for grants and projects	1,666,925	1,541,653	1,509,337	1,543,525	1,354,543
Of which: CTU issued to co-researchers and suppliers	323,288	302,581	246,567	357,160	419,659

* Note: Data adjusted in accordance with the CTU Annual Reports.

EARMARKED FUNDS FOR RESEARCH, DEVELOPMENT AND INNOVATION RECEIVED IN 2019–2023 (THOUS. CZK)

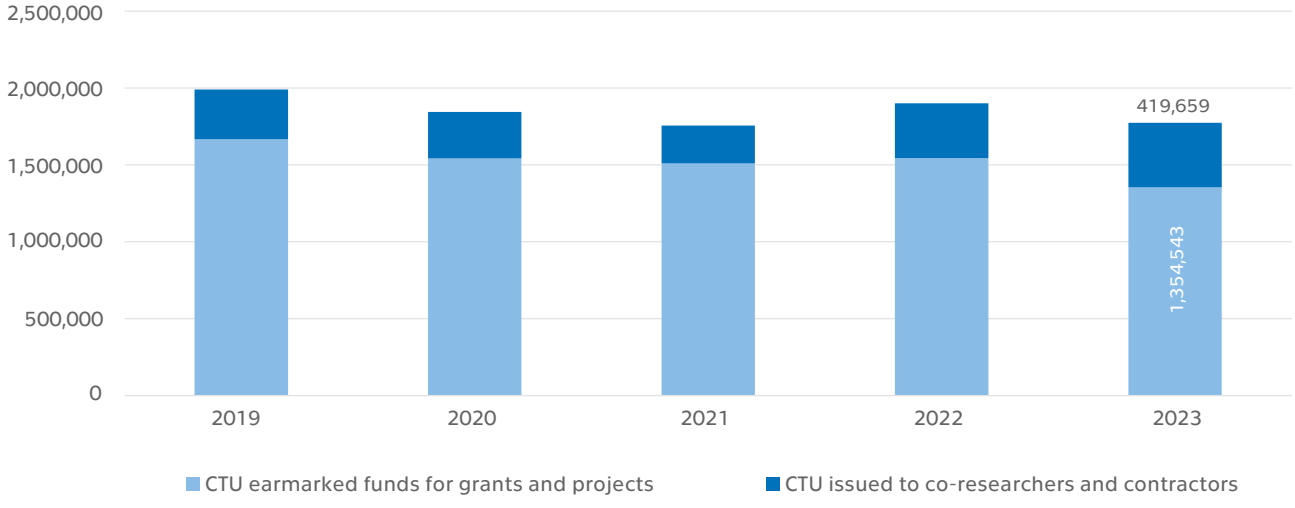


Table 12.1: Accommodation, catering

CTU in Prague	Number of
Total bed capacity of university halls of residence	7,739
Number of beds in rented facilities	0
Number of applications/reservations for accommodation submitted as of 31/12/2021	9,466
Number of successful applications/reservations for accommodation as of 31/12/2021	5,588
Number of bed days in 2021	1,871,324
Total number of terminated contracts (pandemic)*	0
Total number of modified contracts (pandemic)**	0
Total number of contracts with exceptions (pandemic)***	0
Number of main meals issued to students in 2021	630,681
Number of main meals issued in 2021 to college staff	43,135
Number of main meals issued in 2021 to other diners	509,373

Note: * Number of contracts that were terminated during the year as a result of the government's anti-pandemic accommodation measures.

Note: ** Number of contracts that were modified during the year as a result of the government's anti-pandemic accommodation measures. This does not have to be a formal modification of the contract, but a change in performance – typically a reduction in the price of accommodation where accommodation is retained by the student although not physically used.

Note: *** Number of contracts that remained in force with an exception to the accommodation ban resulting from the government's anti-pandemic accommodation measures. This includes, for example, students with work orders, volunteers, students who have declared a college residence, etc.

ACCOMMODATION SERVICES AT CTU

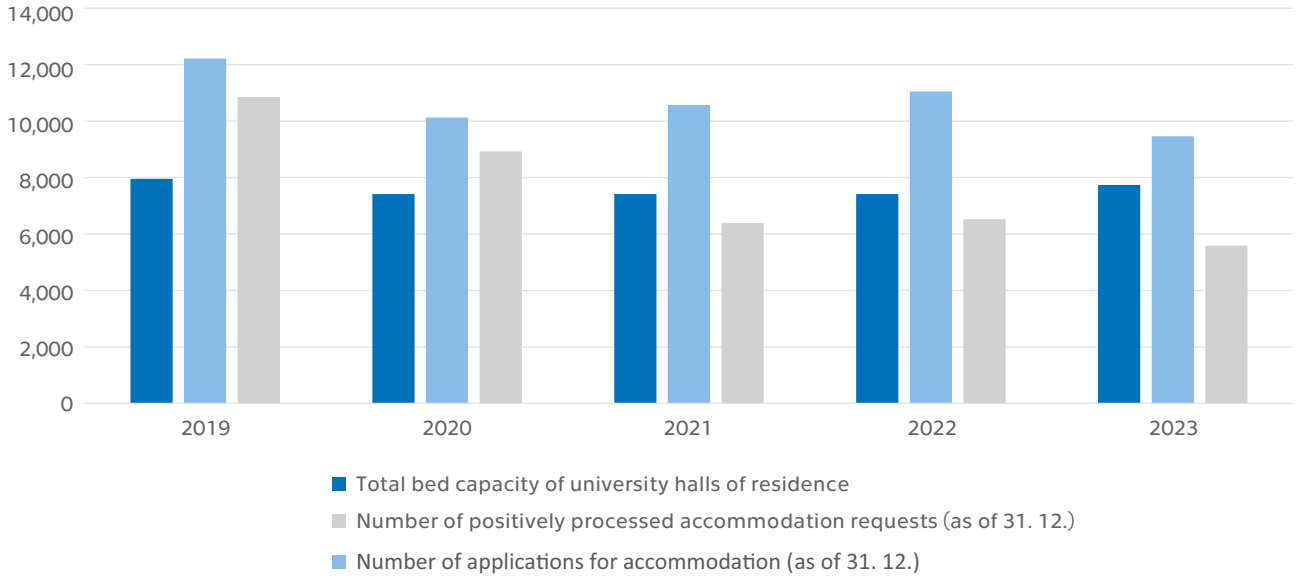


Table 12.2: University libraries	
CTU in Prague	**Number of**
Library collection growth for the year	4,336
of which increase in physical units	4,245
of which increment of e-books in permanent purchase	91
Total library collection	328,080
of which physical units	324,865
of which e-books in permanent purchase	3,215
Number of periodical titles subscribed:	
– physical	159
– electronically (estimate)*	8
– in both forms**	0

Note: * Only periodical titles that the library itself subscribes to (or receives as a gift, exchange) in paper or electronic versions are listed; other periodicals that library users have access to as part of full-text resource consortia are not included.

Note: ** Only titles where both forms are paid for separately are included in the number of titles in both forms (i.e. if the printed form is prepaid and the electronic form is free as a bonus, only the printed form is included, etc.).

Note: Electronic units include only individually purchased titles, not books and periodicals that are part of subscription "packages" from publishers of scholarly and scientific literature.

LIBRARY FUND (PHYSICAL UNITS, E-BOOKS ON PERMANENT PURCHASE)