ANNUAL REPORT

ON THE ACTIVITIES OF BRNO UNIVERSITY OF TECHNOLOGY IN 2020

BRNO UNIVERSITY OF TECHNOLOGY

Annual report on the activities of the Brno University of Technology in 2020

The annual report on the activities of the Brno University of Technology in 2020 is submitted in accordance with Act No. 111/1998 Coll., On Higher Education Institutions. It was prepared according to the framework curriculum on the activities of the university for the year 2020, issued by the Ministry of Education, Youth and Sports. The document is divided into textual and tabular parts, which has a fixed structure according to the framework outline. On the contrary, according to the instructions of the Ministry of Education, Youth and Sports, it is entirely the responsibility of the university and presents information beyond the required curriculum.

The annual activity report provides data and significant results of all activities related to the operation of the Brno University of Technology in the framework of Czech and international higher education and offers the general public an overview of its important scientific research activities.

The annual report was approved by the BUT Academic Senate on May 18, 2021.

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BRNO UNIVERSITY OF TECHNOLOGY

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VYSOKÉ UČENÍ
TECHNICKÉ
V BRNĚ

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1.1 Rector's introductory word

Dear readers,

when I wrote the opening word of the annual report a year ago, I obviously suspected that the events of March 2020 and the first wave of the coronavirus pandemic would be reflected throughout the calendar year. Earlier celebrations of the 120th anniversary of our Brno technology, where thousands of visitors met at the festival, appear prehistoric in the light of the global epidemic. The year 2020 presented us all with new and completely unexpected tasks and challenges that we had to deal with at universities.

Above all, I would like to thank everyone who has been involved in the fight against the coronavirus pandemic. Scientific teams and individuals did not hesitate to join hands and help beyond their work or study obligations within the BUT project, whether through the production of disinfectant, face shields, protective half masks, the design of a robotic workplace, the loan of thermal cameras, or through many other activities. My sincere thanks to all these active scientists, doctoral students and students, they are a model for me of how a university should help society in difficult times in its third role.

Also in the field of pedagogy and research, we had to completely innovate our approach; fundamental changes have taken place in pedagogy, examinations, and even in laboratory teaching. So I thank everyone for their commitment to scientific work and distance learning. Although we all tried, it was undoubtedly more difficult for both students and teachers.

Although now, when writing this editorial, I know that the covid-19 pandemic will last through 2021, I believe that in the end we will come out of this test as individuals and the whole university stronger. This period helps us realize how valuable our health and that of our loved ones is, how important social ties and interpersonal relationships are, just everything we used to take for granted. I wish you and your loved ones good health and thank you for taking the time to read this annual report.

prof. RNDr. Ing. Petr Štěpánek, CSc., dr. h. c.
Rector of BUT

1.2 Significant events at BUT in 2020

Events and social occasions

▲ With the arrival of the coronavirus pandemic, many people have become involved in helping to fight the disease. Therefore, the BUT Helps initiative was created at Brno University of Technology, which involved, for example, FME employees and students who produced components for medical shields for medical staff and tested mouthpiece assembly. Researchers also came up with their own mouthpiece assembly, a compression frame, and collaborated with the Faculty of Chemistry on the development of a new type of respirator produced by vacuum thermoforming. Faculty thermal imaging cameras, for some time, were used at the Brno University Hospital to measure the temperature of patients and employees. Powerful custom-made germicidal emitters, assembled at FME, were also built for the hospital. The **OpenTube** robotic workplace was technically unique for handling samples taken from patients with suspected covid-19.

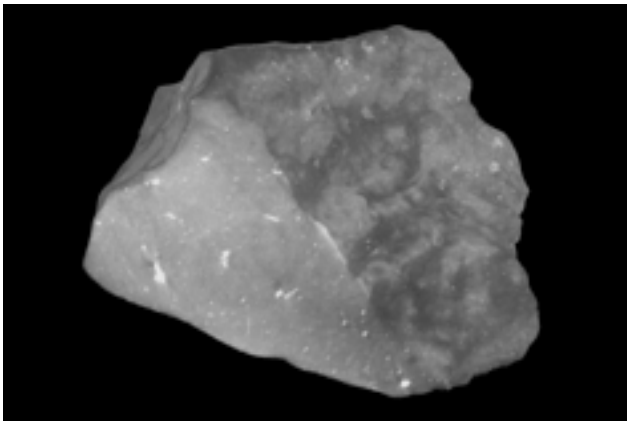
▲ Employees from CEITEC BUT and the Faculty of Chemistry jointly produced **over 36,000 protective shields**, which were distributed with the help of a network of partners throughout the country. They delivered a total of 36,127 shields in 691 orders to surgeries, hospitals, schools and individuals. Of these, 6,127 were produced by 3D printing and 30,000 pieces on an injection moulding machine, which was successfully put into operation at the FCH premises. Interestingly, these volunteers processed 2,276 m^2 of plexiglass, 11 km of rubber bands and 3 tons of plastic. The injection moulding machine was used in two shifts, each with 7 people sterilizing the shields and assembling packages for distribution. Chemists from FCH BUT then obtained a permit for **mixing disinfectant**, which they initially distributed free of charge, for example, to Brno hospitals, the Brno Municipal Police, and to individual city districts to help cover the shortage of this medical material.

▲ Within a few days, a team of employees and students from FEEC developed an **improvised protective half mask** BUT–H1, which is to help protect people, not only against covid-19. This can be printed on a standard home 3D printer with FDM (thermoplastic modelling) technology and without the use of special materials. The mask adapts well to the shape of the face, in other words it seals well on the face. Only the material of the disposable glove comes into contact with the facial skin, which is easily disinfectable and, if necessary, quickly and cheaply replaced. People from all over the world could print a protective half mask for free, and it also helped nurses in California. FEEC staff also participated, similarly to their colleagues from FME, in the production of germicidal radiators for the disinfection of surfaces and areas. They are also behind the development of a safety frame that automatically recognizes whether a worker has the right protective equipment.

The Faculty of Civil Engineering joined the **Folding@home** initiative. By installing the programme, the user will allow scientists to use the computing power of a processor or graphics card. As a result, thousands of people around the world are connecting their IT equipment to a supercomputer that helps scientists with computational tasks so that they can study simulations of the behaviour of covid-19 viral particle proteins. The current pandemic has also brought together 3D printing fans from around the world, who have responded immediately to demand for equipment, especially for healthcare professionals. It was also printed at FCE.

However, the most commonly available 3D printing with FDM technology has its limitations, for example in terms of the possibility of disinfection. The solution could be a unique metal coating in this area, which Jan Podroužek from the Faculty of Civil Engineering at BUT is working on in cooperation with St. Anne's University Hospital.

▲ BUT students have joined the nationwide initiative www.chcipomoct.cz . It was launched in March and is backed by the Academic Centre for Student Activities, which is run by the BUT graduate Jaroslav Švec. The website is used to register and sort the help of volunteers in the current crisis situation. BUT students can offer help here, for example, in the field of IT, sewing masks or tutoring at a distance. Volunteers from the BUT students and employees also organized **a workshop for sewing masks** in the premises of the Goose on a String Theatre. People from the Intermedia Studio of the Faculty of Fine Arts came up with the idea. You can find more about the event at www.sijemerousky.cz .



▲ Researchers from the CT laboratory CEITEC BUT helped to create a **holographic model of a meteorite**. In 2016, an unusually large piece of meteorite was found near the German village of Stubenberg in Lower Bavaria. In connection with the creation of its virtual 3D model, the Ries-Kratermuseum in Nördlingen contacted scientists from the CT laboratory of the CEITEC BUT institute, who determined what constitutes the meteorite surface and segmented the metal particles and sulphides of which it is composed by CT measurements. Using this data, they created a holographic model of both the entire meteorite and its internal structure. Visitors to the local museum can therefore switch between the display of individual structures and thus perceive the complex composition of the meteorite.

On November 27, BUT joined the traditional **Night of Scientists** event, which was held extraordinarily online throughout the country. Due to the 100th anniversary of the publication of the novel R.U.R. by Karel Čapek, the theme was Man and Robot. BUT presented scientific projects with topics such as smart homes, internet of things, programming of collaborative robots, 3D printing and scanning, and communication using light at two online video presentations. The university also introduced science to visitors through online lectures, discussions, competitions and virtual workshops. In the form of online promotion, BUT also participated in the virtual **Science Festival**, which took place on September 8 this year. Originally, the Prague event moved to the on-line environment and the Brno University of Technology could thus present a robotic bartender from FEEC, at which it presented the principles of the operation of Industry 4.0 to the public.

▲ Architecture students from BUT designed a new **gazebo for cancer patients**. Promising Prospects, was the title of the creative task, in which eight students from the Faculty of Architecture at BUT designed an outdoor gazebo for the Masaryk Institute of Oncology in Brno. The winner was Magdalena Buzová's project. The management of the Masaryk Institute of Oncology would like to implement the student proposal next year; they are also planning cooperation on the design of a prevention centre.

At the end of June, representatives of BUT spoke in an **online debate on social responsibility**, which the university organized as part of the project along with other Brno universities. Anna Putnová from the Faculty of Entrepreneurship joined the debate on behalf of BUT, and Vojtěch Kundrát, who has been involved in volunteer activities for a long time and initiated, for example, the installation of water filters in Tanzania, and the creation of a cheap sunscreen for African albinos, represented the students. Together with his classmates from FFA, in the spring, he created a workshop for sewing masks at the Goose on a String Theatre. This year, BUT also promoted interesting topics and discoveries on the Universitas.cz website, where readers, especially from the

academic community, could read about the purification of water flue gases by algae or the measurement of the penetration of dangerous fibres into the lungs.

The Faculty of Information Technology at BUT decided to help the Dagmar Brno Children's Home. **The collection of computer technology**, which took place at FIT from April 29 to May 7, helped children, especially with online teaching. The collection of computers and tablets helped children from the children's home with the initial lack of technical equipment in connection with distance learning. FIT also participated in Folding@home activities, offering the computing capacity of its facilities for a better understanding of the behaviour of cells responsible for covid-19.

This year, scientists from the Brno University of Technology also took part in the two-day **Science Festival with the South Moravian Region** event, which took place on September 4 and 5, 2020 in the area of the Riviera transport playground in Brno. At the BUT Faculty of Chemistry, visitors could look into the world of food under a microscope to find out that camembert and beer are also very lively foods. Macromolecular cuisine, the opportunity to try a burning gel or make your own slime is a popular activity at the BUT stand. On Saturday, experts from CEITEC BUT also took part in the programme, offering spectators the opportunity to try on a special suit designed only for ultra-clean laboratory spaces.

On January 23, 2020, the 22nd International Professional Scientific Conference of the Doctoral Study **JUNIORSTAV** took place at the Faculty of Civil Engineering. The conference was attended by about a hundred participants, mostly from Czech and Slovak universities, who listened to a total of 92 papers throughout the day. Approximately 150 articles were submitted and published in the proceedings, and a total of 27 papers were awarded. The faculty also presented itself at the construction fair in February, with the main theme of this year's event being the indoor environment of buildings and thermal comfort. FAST also actively presented itself and contributed to the URBIS SMART CITY FAIR 2020 programme with a focus on the topic of smart cities.

Professor Ivana Márová from FCH BUT participated in the organization of the **European Biotechnology Congress 2020**, which took place from April 16 to 18, 2020 in Prague. The congress is an international gathering of leading researchers, clinicians, industry professionals and other related experts who strive to improve current research strategies in the rapidly evolving field of biotechnology. Abstracts and full texts of papers were published in the scientific journal The EuroBiotech Journal, published by EBTNA.

In the autumn, the Faculty of Architecture of BUT, in cooperation with the Czech Architecture Foundation, opened the renewed **Gallery of Architecture Brno** on Starobrněnská Street. The FA has long been striving to create platforms that enable more comprehensive and intensive communication of topics related to architecture towards the professional and general public. Public lectures, courses and accompanying programmes are not only an enrichment of teaching, but also an important role of the public university in the life of the city and its citizens. The first exhibition, which also indicated the dramaturgy of the newly conceived gallery, was the presentation of the project of Adam Hudec, a graduate of the Faculty of Architecture at BUT, entitled Prachovnice.

▲ You will now find the show **Technically Taken** in podcast search engines. From the signature tune through the graphics to the recording itself, it was created entirely under the direction of BUT. For the first part of the podcast on science and technology, the guests met in the recording studio of audio engineers from the Faculty of Electrical Engineering and Communication, BUT. Researchers, students and graduates from BUT talk simply and engagingly about topics that are increasingly becoming part of human lives, yet remain shrouded in ambiguity due to their expertise. All information about new episodes and photos from the shooting can be found at www.vut.cz/podcast .

▲ A traditional event is the **Meeting of Secondary School Principals**, which took place this year on February 11 at the Faculty of Business at BUT. At that time, it was still possible to personally invite 37 principals of grammar schools and secondary schools, from where most applicants go to BUT according to the TOP500 ranking. These completed excursions to the FBM, and finally about 25 representatives of secondary schools arrived at the meeting.

▲ FFA co-organized the **virtual exhibition Art Calls**. It introduced art schools located outside the centre of cultural, social and economic events in the Czech Republic. Nevertheless, or precisely because of this, these schools significantly influence the atmosphere and operation of the cities in which they operate, and at the same time the character of the cities is reflected in the atmosphere of these schools. The exhibition sought to emphasize that these schools outside the centre can boast excellent results in the form of promising talented graduates, and also points to the fact that these institutions offer a fully-fledged form of higher education.

On January 23–24, 2020, the 29th International Scientific Conference of Forensic Engineering **ExFoS** took place in the premises of the Institute of Forensic Engineering at BUT, this time on the occasion of the 50th anniversary of IFE. The two-day conference was attended by more than 200 domestic and foreign experts from state administrations, universities and research institutes of the Czech Republic and other countries. The participants could choose from a total of 54 professional lectures.

▲ In January, students of the Faculty of Architecture at BUT worked on the **installation of the Oasis building** in the centre of Brno. It grew on Joštova Street near Brno universities and the Česká transport hub. The wooden cube hid a foil surrounding a flowerpot. The plants grown in this oasis are maintained by the residual heat of the steam pipeline, despite the freezing winter weather. The work was the result of the work of students of the Institute of Experimental Creation of the FA, who work in the studio of Martin Kaftan. Their task was to find a suitable source of energy that would allow the creation of an oasis, similar to the case of isolated vegetation in the desert.

The Faculty of Chemistry organized a student conference called **Chemistry is Life**, which was attended by more than 80 students from BUT and other universities. The conference was held online on November 26 and 27, 2020. The Chemistry is Life conference is intended for students of chemical and related fields of bachelor's, master's and doctoral study programmes, as well as for secondary school students. The conference also includes a competition for student creative activities; the best student contributions in each section received valuable rewards.

▲ BUT students now have a mobile application available. The **My BUT mobile application** offers BUT students the main study agenda clearly and in one place. They will find here, for example, the timetable, the possibility to connect from the application to online teaching via MS Teams or notifications when the teacher enters a grade or evaluation for them in the system. The application was prepared by the BUT Computer and Information Services Centre.

▲ After two years of intensive preparations, the **KUMST creative club** gradually opened in Údolní Street in Brno. It offers facilities for creative people, which has been lacking in Brno so far. Its goal is to connect professionals across the creative industries, develop their ability to make a living

from creation and thus support other industries. KUMST is based in Údolní Street 19, in the premises that served the FFA in the past and still belongs to the Brno University of Technology.

Three leading Czech universities – Masaryk University, the Czech Technical University in Prague and the Brno University of Technology – have agreed to deepen existing cooperation in the field of cybersecurity and have established a registered **CyberSecurity Hub**. In addition to strengthening joint professional activities, it will also focus on supporting industry and companies, and European certification of top technologies in the field of cybersecurity. The founding statute of the institute was signed by representatives of the universities on November 18.

▲ In the Technical Museum in Brno, robots from BUT are talking about Čapek. On the occasion of the 100th anniversary of R. U. R., the Technical Museum in Brno prepared an interactive exhibition on the topic of robotics and its importance in industry, science and technology, with an overlap into literature, film, fine arts and culture in general. It is from BUT that one of the main exhibits of the **ROBOT2020 exhibition** comes – among others, robots of the humanoid type, which will lead a so-called century-old dialogue together. Experts from FEEC, FME and FIT took part in the exhibition. The exhibition was launched at the end of 2020, but due to the coronavirus pandemic, its duration was extended so that visitors could become acquainted with it the following year.

For the ninth time, Brno hosted the European Games of Handicapped Youth, the **Emil Open**. More than 600 participants from 13 countries arrived in the Moravian metropolis. They measured their strength in five sports. The four-day summer games started on Wednesday, September 16. All athletic matches took place at the Pod Palackého vrchem stadium this year as well, and the BUT sports ground also hosted bocce matches. Emil Open 2020 was significantly supported by the city of Brno and a total of eight regions of the Czech Republic. Although the games are also about a rich accompanying programme, this year, due to the current situation with coronavirus, it was unfortunately largely limited to the participants of the sports events.

▲ Four Brno universities and two research institutes, which ten years ago stood at the birth of the **Central European Institute of Technology (CEITEC)** Centre of Scientific Excellence, agreed this year to continue from January 1, 2021, even after the expiry of the current cooperation agreement of 2011 and its amendment from 2015. The CEITEC Research Centre repeatedly receives top research grants from the European Union and educates a new generation of researchers at its international PhD School.

FEEC organized the 41st annual **Unconventional Sources of Electricity** conference. Due to the epidemiological situation, the date of the conference was postponed to August 4 to 6, 2020. The event focuses primarily on the most common renewable sources, such as photovoltaics, wind and hydropower, geothermal energy, biomass energy, etc. The popular faculty competition Microcontrollers 2020 had to take place online this year, on October 15.

On October 19–22, the Faculty of Business Administration organized the **Brno International Week 2020** in an online format. A total of 18 lectures by foreign lecturers from partner universities in Austria, Germany, Great Britain, Morocco, Russia, Poland, Ukraine, Slovenia, Hungary, France and Mexico were given. The lectures were attended by 1,158 students from the Brno University of Technology. This year, for the first time, the event was connected with the activities of the BUT Department of Foreign Relations and the International Staff Week event for foreign employees from European universities.

The Faculty of Chemistry hosted the **Young Water Grinds** conference, focused on current topics related to water. The second year of this event took place on September 8 and 9, 2020 and was organized by FCH in cooperation with the Young Water Professionals Czech Republic association and CzWA (Association for Water of the Czech Republic). Representatives of Czech and Slovak universities and other workplaces dealt with topics such as micropollutants, water treatment, water supply and wastewater or sewage sludge.

▲ The Faculty of Information Technology has opened a new **FIT Open Space**, a creative space for creative students, and a new programme to help them with their own ideas. With the help of two new FIT consultants for innovation and entrepreneurship, the Idea Market took place at the FIT Open Space with the opportunity to share interesting ideas, experiences and knowledge. A number of consultations, lectures and workshops then moved to the online environment. Those interested could meet each other, as well as successful entrepreneurs, start-ups, investors, and consultants and thus move their ideas further in business and technology.

The Faculty of Architecture organized an international online **lecture series called No More Architecture**. The series of lectures and discussions brought a critical look at architecture from an ecological, social and ethical point of view. Architecture often becomes an investment rather than a home, and the construction industry accounts for up to 40% of global carbon dioxide emissions. The aim of the cycle was to inspire students, architects and the public to a responsible relationship with architecture and to bring new knowledge for subsequent application in practice.

▲ The traditional presentation of diploma theses of students of the Faculty of Fine Arts at BUT took place this year in a non-traditional form. In the spring, the curators of the **Diplomantky.cz** exhibition prudently prepared for an extraordinary pandemic situation and divided the show, which normally presents 22 young artists, into several smaller events. The main motivation of the curators was to offer graduates and the public spaces other than the classic exhibition hall. By dividing visitors and exhibitors into smaller groups, the curators were also able to meet the safety limits and measures that prevailed at the time in relation to coronavirus.

This year, a **number of events** took place exceptionally **online**, such as the Gaudeamus education fair, the JobChallenge job fair, open days at individual faculties, the Brno Seventeenth, Excel@FIT and many other events. Other events, such as BUT Sports Day, Chemistry Day, Summer Computer School (F) IT for girls or Záškolovák, were held in person, however, with various restrictions according to current epidemiological rules. Unfortunately, the remaining events, such as the BUT Ball, the Golden Graduation for graduates from 50 years ago, the BUT Academic Assembly and the International Engineering Fair, had to be completely cancelled this year and postponed to the following year.

Achievements and awards

▲ At the end of 2019, Brno councillors approved the proposal of 15 personalities to receive the **Brno City Award** on Tuesday, February 11, 2020. The candidates associated with the Brno University of Technology won in two categories. Firstly, in the category of technical sciences, there was Professor Petr Stehlík from the Faculty of Mechanical Engineering at BUT, who acts as the director of the Institute of Process Engineering of the FME, specifically leading the Department of Process Engineering. He is an expert in the field of energy recovery of waste, heat transfer and its other applications. The department also explores the possibilities of energy savings and reduction of harmful emissions, focuses on thermal treatment of waste, process furnaces and heat exchangers. The second winner is Radko Květ, a graduate of the Faculty of Architecture at BUT, who won an award in the field of architecture and urbanism. He is the author of the award-winning Archeopark in Pavlov (Construction of the Year 2016 and the Czech Architecture Award 2017), the alterations to the monastery gardens in Litomyšl and the Memorial of Literature in Rajhrad in Moravia.

▲ On October 5, the Confederation of Industry and Transport of the Czech Republic awarded the **Prize for Industry 4.0** to the joint project Blumenbecker Prag, s.r.o., CIIRC CTU and the Faculty of Mechanical Engineering BUT. The project, which was awarded for its innovative approach and solutions in the field of technologies for the integration of industrial robots, implemented a functional test robotic platform, for which there is also a digital twin. The concept of virtual commissioning of the robotic line was tested at the workplace, which proved its usefulness with regard to saving time and eliminating technical risks during commissioning.

▲ The children's book **To je metro, čéče!** (It's the underground, dude!) was a great success, thanks to illustrations by artists Jan Šrámek and Veronika Vlková from FFA. The pair competed with more than two and a half thousand illustrators from 66 countries and, as one of 76 teams, secured participation in the prestigious children's book exhibition in Bologna. Experts appreciated the book, which not only introduces young readers to the technical information of the Prague underground, but also shows the underground as a place where magical stories take place beyond the eyes of ordinary passengers. In addition, the book achieved 1st place in the category Literature for children and youth in the traditional competition The **Most Beautiful Czech Books** of 2019. In this prestigious competition, but this time in the category Professional literature, the publication Jdi na venkov! (Go to the countryside!) was also awarded 1st place, with graphic design by Tereza Hejmová (assistant of the Graphic Design Studio 2) and Adéla Svobodová.

Nine doctoral students from the Brno University of Technology made their mark in the Brno Ph.D. Talent competition that rewards young scientists. Most of the representatives, five, to be exact, were from the CEITEC BUT scientific centre. The competition **Brno Ph.D. Talent** is regularly organized by JCMM, i.e. the Statutory City of Brno, which gives the awarded scientists the opportunity to receive a financial bonus for their studies for a period of three years, so that young professionals can fully devote themselves to their research. Young talents include: Jana Musilová (FEEC), Martina Kratochvílová (FCE), Miroslav Rebej (FME), Zuzana Šedrlová (FCH), Kristýna Bukvišová, Katarína Kacvinská, Jan Zítka, Alžběta Ressnerová and Jorge Andreas Navarro-Giraldo (all from CEITEC BUT).

▲ Zdeněk Machů from the Institute of Mechanics of Bodies, Mechatronics and Biomechanics came **3rd in the Werner von Siemens Prize in 2020 for the best diploma thesis**. His diploma thesis was devoted to computational modelling of piezoelectric layered composites, and also to the analysis of their electro-mechanical response to harmonic oscillations. In the past, Machů also won the Dean's Award of the FME.

The Institute of Theoretical and Experimental Electrical Engineering FEEC was a co-investigator of the project Spatial analysis of force **loading of a deformed growing spine** and the use of modelling of correction forces to minimize the extent of scoliosis surgery. This is a unique interdisciplinary project focused on CAD modelling, based on tomographic images and subsequent 3D printing of models of children's spines to improve the treatment of their deformities and minimize the necessary surgical procedures. The project will end in December 2021.

▲ **The Muriel 2019 Awards** were dominated by the comic book Article II. by Jiří Šimáček and Ján Lastomírský. The comic tells the story of Chaplain Vladimir Petrek, who risked his life during the Protectorate while hiding the attackers of Heydrich. In addition to the main prize, the authors also received awards for the best screenplay and an award from the Czech Academy of Comics. At present, Ján Lastomírský not only draws comics for BUT, for example in the magazine Události, but also teaches evening drawing. The cabinet also offers regular drawing courses for the public each semester.

▲ The invention of a device for purification of liquids using low-temperature plasma from the Department of Fluid Engineering of Viktor Kaplan at FME, in cooperation with Masaryk University and the Institute of Botany of the ASCR, was declared the best **Transfer Technology Day 2020** project. Equipment from the laboratories of Pavel Rudolf and his team can remove chemical residues from water, such as oestrogens from contraception, and also kill pathogenic microorganisms such as cyanobacteria and bacteria. Until now, similar devices have existed only on a laboratory scale; on the contrary, the new invention has the potential to handle large volumes of water and thus to find use in practice.

▲ Filip Páral, a student at the Faculty of Mechanical Engineering, took his bachelor's thesis so responsibly that after submitting it, he decided to start a business. When he wanted to evaluate in his final thesis which of **the jets for fire sports** is the best, he found out that none is ideal. He was not satisfied with the result and, in addition to his work, he designed his own jet, which combines the best of the existing solutions. He called it BE[A]ST, licensed the utility model from the university, which protects the jet, and began to manufacture and sell it. His story also fascinated journalists.

▲ The Plastic Crystal team from the Faculty of Civil Engineering at BUT, which has designed plastic waste shelters in the past, made it to the finals of **The Trail by VINCI Construction**. It thus succeeded in an international creative student competition, in the second year of which more than two thousand students from 78 countries and 533 colleges and universities took part. The Czech Republic was represented by four BUT students: Marco Aulisa, Vlada Kozhevnikova, Štěpán Macek and Ondřej Venclík. The global finals of the competition were to take place on May 28 and 29 in Paris, but due to the current pandemic, it eventually took the form of a television broadcast.

▲ At the beginning of 2020, we could be proud of the great results of **the TU Brno Racing** student team, which was the 9th best Formula Student team in the world and the bronze-winning team in Europe from last season. In the 2018/2019 season, a total of 614 teams from all over the world started. With their Dragon 9 monopost, the Brno designers, who have a background at the Faculty of Mechanical Engineering, have once again proved that they belong in the top category of internal combustion engines. And as their next goal, in addition to the jubilee 10th monopost of the formula with an internal combustion engine, they also aim to build the first electric formula monopost.

▲ The winner of the **BUT Student Entrepreneurship Award**, which was first awarded by Brno University of Technology in 2020, was the Discyo application, which is backed by four students from the Faculty of Information Technology. Their solution will advise the user on which movie to watch, what podcast to listen to, or which computer game to play. Across the media, the algorithm recognizes the user's preferences and what they might like. The competition of student ideas is organized by the Brno University of Technology along with the South Moravian Innovation Centre.

▲ FFA students designed a new **visual style for the Supreme Public Prosecutor's Office**. The winning design in the student competition led to the creation of a new unified visual style for the entire system of the public prosecutor's office, which culminated in a web presentation. The co-authors were a trio of students, Šimon Bařák, Jakub Polách and Magdalena Prudíková; in addition to changing the visual style of the Public Prosecutor's Office, they also participated directly in the design of the website.

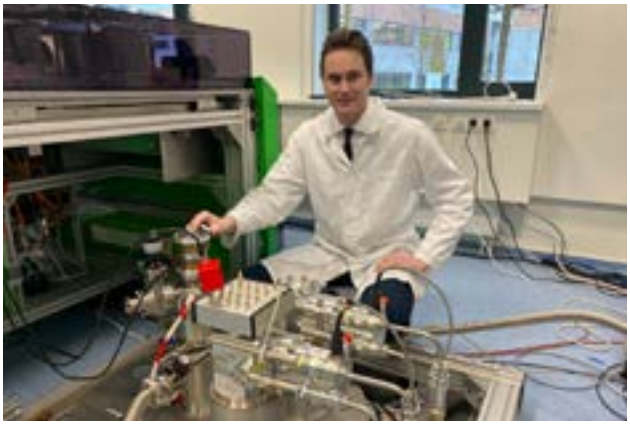
▲ A team of Brno students from Masaryk University (MU) and the Brno University of Technology, known as Generation Mendel, won a gold medal and a nomination for Best Environment Project at the **International Genetically Engineered Machine (iGEM)** competition. With the design of a solution for the purification of water from cyanobacteria using the tools of synthetic biology, almost 250 teams and almost five thousand competitors from 36 countries participated in the international competition. The results of the competition, decided by 304 jurors from around the world, were announced by the organizers on Sunday, November 22, 2020.

Four students or graduates of Brno technology received awards from the Josef, Marie and Zdeňka Hlávková Endowment Foundation. In 2020, **the Josef Hlávka Award** was won by: Vojtěch Domanský from FAST, Martin Kadlec from FCH, Simeon Borko from FIT and the graduate Lukáš Flajšman from CEITEC BUT, who went abroad after the successful completion of his doctoral studies. The award is regularly presented on the eve of the anniversary of the Velvet Revolution; however, this year the ceremony did not take place at the castle in Lužany near Přeštice. The Josef Hlávka Award is awarded annually to talented students in bachelor's, master's and doctoral studies up to 33 years of age.

FIT researchers are working on a new platform to help **analyse space data**. The technology developed in Brno assists the European Space Agency (ESA) in processing images of the planet Earth within the BLENDED project. It connects scientists across Europe in an effort to create a revolutionary platform for distributed, and above all secure, data processing using artificial intelligence that analyses space data.

The results of the jubilee 10th year of the architectural competition for **Superstudio** university students were announced on Saturday, March 7, at the CAMP Center for Architecture and Urban Planning in Prague. 137 teams from throughout the Czech Republic and Slovakia took part in the competition. Second place was awarded to a three-member team of students from the Faculty of Architecture at BUT (Klarisa Kyselková, Petr Malásek and Ondřej Válek) and third place went to the mixed team of FA BUT and the Academy of Arts, Architecture and Design in Prague (Pavla Nesvadbíková, Magdalena Uhlířová and Oskar Madro).

▲ The PhD student Aneta Pospíšilová, from the Institute of Materials Chemistry, FCH was awarded 3rd place in the competition for the **Make our planet great again** award for environmental and climate research, organized by the French Embassy in the Czech Republic, along with BNP Paribas. This award aims to reward the research work of Czech students in the field of climate change, the environment, and sustainable development. The expert jury was interested in the topic of her dissertation on poly-3-hydroxybutyrate, its isolation from bacteria and its use as a substitute for common plastics. Aneta Pospíšilová is working on her dissertation in the bioplastics laboratory under the supervision of Radek Přikryl.



▲ The **Danubius Young Scientist Award** highlights the scientific work and talent of young researchers. Oleksii Laguta from CEITEC BUT was awarded it at the end of 2020 as the only representative from the Czech Republic. He particularly interested the jury with his involvement in the development of a special type of electron paramagnetic resonance. The award has been given since 2011 by the Austrian Ministry of Education, Science and Research (MBMFW) in cooperation with the Danube and Central Europe Institute (IDM).

A smart household should itself know when to turn on the heating on a snowy driveway, the experts from FEEC say. According to them, they are halfway on the path to an intelligent system that simplifies people's lives. But even this milestone is worth noting – not only did they manage to connect smart home devices from several manufacturers into one functioning unit, but they also have a partner in the form

of an Austrian mobile operator for their solution. Modems from Brno technology may soon start operating in the homes of our southern neighbours.

▲ The main prize of this year's **DESIGN.S Biennial of Student Design** was won by Tomáš Skřivánek from the Faculty of Mechanical Engineering at BUT for his design of an off-road caravan for two called Adventurer. It is a low aerodynamically shaped trailer. The engineering student won not only the main prize of the competition, but also the Prize of the Director of the Technical Museum Brno. The second successful student from the Brno University of Technology was doctoral student Martin Krčma, also from the Faculty of Mechanical Engineering at BUT. The jury was impressed by his compression frame, which increases the adhesion of classic textile drapes and can be easily modified and simply printed on a home 3D printer. For his idea, he received an extraordinary Design award in the days of coronavirus.

▲ The Nepanikař (Do not panic) application from BUT students, backed by Veronika Kamenská from FEEC and also Tomáš Chlubna from FIT, was awarded first place in the **Gratias Tibi** competition on Monday, September 21, 2020. In the under-30 category, students of the Brno University of Technology beat other nominated projects. The award is given for the civic activity of young people who have a positive effect on the life of Czech society. The Nepanikař mobile application has been helping people with mental illnesses, such as depression, anxiety, self-harm, suicidal thoughts or eating disorders, for more than a year.

BUT is the best Czech university in the **Engineering and Technology** category in the THE November ranking. In the current THE (Times Higher Education) ranking for 2021, the Brno University of Technology shared 601st–800th place in the Engineering and Technology category along with the UCT in Prague. This is the best placement of evaluated Czech universities. Most other domestic schools are from 801st–1,000th place (CTU, TBU, TUL, CAU, VSB-TUO and others).

Kateřina Žmolíková, a doctoral student at the BUT Faculty of Information Technology, received the **prestigious Joseph Fourier Award**. She was awarded third place for her work in the field of speech separation. The award, which is given to doctoral students for successful research work in the field of computer science and informatics, was received in July in the building of the French Institute in Prague from the hands of the French Ambassador Roland Galharague.

▲ The winner of the **BUT Athlete of the Year** poll was FME student Marcela Pírková, who won three titles at the Czech Athletics Championships and also four titles of academic master in athletics. Previously, at the end of a year, a meeting of the best athletes with the Rector of BUT was held, however, in 2020 athletes received only a letter of thanks from the Rector and also one-time scholarships for sports representation. This year, the jury also awarded a special award for the long-term sports representation of the school, which was won by Dominik Sádlo, a graduate of FME, who specializes in athletics and ski mountaineering.

Zita Salajková from CEITEC BUT received an award in Kyoto. Although this year's **LIBS2020 conference** moved from Kyoto, Japan to a virtual environment, the programme still recognized researchers from around the world. Among them was Zita Salajková who successfully works in the field of laser spectroscopy at CEITEC BUT and the Italian University of Bari Aldo Moro. Among other things, Zita described the details of her research and also assessed the impact of the current pandemic on her doctoral studies and science in general. During the Japanese conference, she received an award in the category of The Best Ph.D. Award.

FEEC employees are involved in the project **Starling scare system** based on a passive optical locator. The result of the research is a functional sample that allows monitoring of

moving bird pests in the vineyards, as well as a specialized 3D map of the profile of tested vineyards, compiled on the basis of drone imaging, which will allow optimized placement of the above equipment.

FAST employees obtained a patent with application in practice. It is a patented **reinforcement of a bridge structure** of the prestressed suspension belt type, which is contractually granted in the form of an exclusive license to the construction company Mitrenga-stavby. The patented solution was developed in connection with the collapse of the suspension bridge in Prague's Troja, and was also used to strengthen a bridge of the same construction across the Morava River in Kroměříž.

FIT is collaborating with Microsoft Research to protect against DoS attacks. VeriFIT members, in collaboration with Margus Veanes of Microsoft Research, have developed an innovative approach to protection against the DoS class of attacks. The principle of DoS attacks is that an attacker tries to flood the target service with such traffic that the system resources are depleted, and the service thus becomes unavailable to legitimate users. VeriFIT's research focuses specifically on so-called ReDoS attacks, which are attacks on services using regular expressions.

▲ This photo from FSI became **astronomical image of the day according to NASA**. The photograph of Comet Neowis by Miloslav Druckmüller from the Institute of Mathematics, FME BUT was chosen by NASA as an astronomical image of the day (so-called APOD). The award-winning photograph captured the brightest comet that could be observed in the Czech Republic in recent years and could also be seen by the naked eye. There have already been fourteen images taken from the Czech Republic, of which this, by Professor Druckmüller, is the tenth. He receives this selective award.

The CHCI BUT recruitment campaign, aimed at attracting future students to the Brno University of Technology, won the Fénix Content Marketing competition. In the Social media campaign category, BUT clearly gained first place, the second place remained unoccupied and the third place was shared by the brands Heineken, Ferrero and Škoda AUTO. This campaign was also awarded two 3rd places in another marketing competition – the Golden Semicolon. Here, it was successful in the categories Audio and video presentations, and also in the special Public sector category.

The GA CR evaluated research dealing with the improvement of the properties of **fine-grained advanced ceramics** using cold plasma as excellent. A group of experts from CEITEC BUT and the Faculty of Science of Masaryk University participated, under the leadership of Karel Mac. The basic three-year research has discovered completely new contexts, and researchers would therefore like to build on the success of other projects. The output, on which a number of BUT and Masaryk University students also worked, includes ten publications.

The scientific article Multimodal Features for Detection of Driver Stress and Fatigue from the Institute of Forensic Engineering was published in the prestigious journal IEEE Transactions on Intelligent Transportation Systems (Q1 quartile) and addressed the issue of **stress and fatigue detection in drivers**. The article describes different approaches to the detection and evaluation of stress and fatigue. Signals (from the vehicle, biosignals and video) were described in detail, their mutual relevance and advantages were discussed, and different sets were described, including experimental scenarios within the TA CR project. This year, IFE registered other successful scientific articles, such as Risk Identification of Implementation of ITS to Real Traffic and Contribution to the Evaluation of Thermal Insulation Properties of a Simple and a Double Window in a Log Building.

A game from the workshop of students of the FFA Game Media Studio succeeded in the **Ludom Dare competition**. Ludum Dare's autumn game-jam with serial number 47 took place even in difficult conditions. Students of the Game Media Studio, among others, took part in the worldwide event. The result of their work is the logic game Enclosed, a puzzle set in a 3D space with a traditional control scheme, which, from a total of 2,406 registered was very well-placed: taking 1st place in the Innovation category, 2nd place in the Theme category, and occupying 7th place overall.

This year, the 26th **Euroweek** international competition took an online form. Although originally scheduled to take place at the International Hellenic University in Greece, it eventually took place over the Internet. Despite the obstacles caused by coronavirus, students from the Faculty of Business Administration at BUT were successful among strong international competition. Among the 13 final projects from university students from 15 countries, students Petra Klimánková and Tereza Kelnarová shone. Under the leadership of Lenka Smolíková, they were awarded first place for their project "Circular Economy Business Models – a case of Latvia, the Czech Republic and the USA".

Michal Horák from CEITEC BUT received the award for the best dissertation from the **Czechoslovak Microscopic Society**. In his work he dealt with the use of electron microscopy and spectroscopy in plasmonics. In addition to the dissertation itself, some of Horák's articles have already been awarded in the past.

▲ A pair of biomedical students from FEEC attracted the attention of a professional jury in the EEICT competition with their work on the topic of **classification of cancer cells using machine and deep learning**. Using a neural network, students Jakub Majerčík and Michal Špaček can automatically decide whether these are aggressive cells that are characterized by a higher potential to migrate. Their work helped experts from the Medical Faculty of MU, who are behind cell research.

Charles University and BUT are part of the prestigious network of European workplaces for artificial intelligence. A significant international success was recorded by a pair of domestic workplaces dedicated to automatic speech and language processing. In March, the results of the European programme supporting the creation of artificial intelligence centres were announced, and the institutions involved in the **HumanE AI Network** project include the Faculty of Mathematics and Physics, Charles University in Prague and the Faculty of Information Technology, BUT. As part of the HumanE-AI-Net project, 53 partner organizations will receive a total of almost 12 million euros.

▲ Mikuláš Macháček from FFA participates in the **new visuals for Prague Integrated Transport**. A new graphic solution for the form of means of transport, and the complete visual identity of integrated public transport in the City of Prague and the Central Bohemian Region, arose from a design competition run by the professional organization CzechDesign. Designers Mikuláš Macháček, Petr Štěpán and Bohumil Vašák came together under the heading superlative. works, while Mikuláš Macháček is the head teacher of the Graphic Design Studio 2 at FFA.

The Faculty of Civil Engineering **successfully completed the project** of the national competence centre CAMEB – Centre for Advanced Materials and Efficient Buildings. The TA CR approved the application for the extension of the project, so CAMEB received funding until the end of 2022. In 2020, the AdMaS UP project was also successfully completed. The final review of the project was completed with the best possible result V – excellent results of a project of international significance.

Jubilee

▲ On the occasion of the celebrations of the 150th anniversary of the birth of the Brno native and world-famous **architect Adolf Loos**, a memorial was created near the BUT Rector's Office, designed by Jaroslav Sedlák of the Faculty of Architecture and FFA graduate Oldřich Morys. The ceremonial unveiling took place on Thursday, August 20, 2020 in the park on Janáček Square in Brno. The birthplace of this well-known Brno architect, which until now was only commemorated by a memorial plaque at the entrance to the hotel, stood on the site of today's Hotel Continental. On the occasion of the celebrations, the Museum of the City of Brno prepared an extensive exhibition, with Jana Kořínková from FFA, participating as curator. She also worked on the new educational trail of the Brno Architectural Manual in the Footsteps of Adolf Loos, and on the exhibition Bauer's Castle: A Place in Time and Space.

▲ **The Faculty of Mechanical Engineering celebrated its 120th anniversary this year.** A memorial lime tree was ceremoniously planted in the Pod Palackého vrchem complex on September 21. The Brno "engineering plant" also commemorated its round birthday with a series of articles on the history and attractions of the faculty called 120xFME, an exhibition of the same name and publications for FME graduates and supporters. The faculty also launched a new Machine Shop in February, where students or graduates can purchase promotional items for BUT and the FME itself.

▲ After more than 70 years, BUT returned an **honorary doctorate to Jan Antonín Baťa**. The correction of historical injustices sometimes takes decades, as evidenced by the renewal of the honorary title of Doctor of Technical Sciences for Jan Antonín Baťa, who lost his title dr. h. c. for political reasons in May 1948. On Friday, November 20, 2020, the BUT Scientific Board annulled the older decision of the Brno University of Technology, thus restoring the shoemaking magnate's original academic rank. This took place on the 55th anniversary of his death.

▲ The Institute of Forensic Engineering of BUT organized crash tests of cars within **CrashDays 2020** on September 24 and 25, 2020. This year's professional conference, where forensic experts in the field of traffic accidents share their experiences, also commemorated the **50th anniversary of BUT IFE**. The two-day meeting of experts is organized by BUT in cooperation with the European Society for Accident Research and Analysis (EVU – national group of the Czech Republic), on the premises of JEREX in Ostrovačice in the Brno region.

In 2020, two departments of the Faculty of Electrical Engineering and Communication BUT celebrated significant anniversaries. **The Institute of Automation and Measurement Technology celebrated 60 years and the Institute of Microelectronics 40 years** since they began operating at the then Faculty of Electrical Engineering. Unfortunately, due to the covid-19 pandemic, the celebrations could not take place to the extent that had been planned.

1.3 BUT Scientific Centres

Central European Institute of Technology (CEITEC) BUT

Despite the complications associated with the covid-19 pandemic, in 2020 the CEITEC BUT Research Centre recorded successes not only in the field of research, and significant grants, but also in the number of awards that its staff and students received.

CEITEC has been extremely successful in obtaining several prestigious grants. Jan Macák will participate in the research of cold fusion within the project HERMES – FET Proactive. Martin Pumera started the ERC-CZ project dealing with autonomous intelligent swarms of micro-swimmers. Petr Neugebauer received a prestigious grant from the GA CR EXPRO dealing with the implementation of electron spin resonance in the field of classical nuclear magnetic resonance. And also, for the first time in the history, CEITEC BUT managed to obtain two individual Fellowships MSCA grants.

One of the important outputs of CEITEC is its publishing activities. In 2020, researchers participated in 320 original research articles registered in WoS. In their short period of existence, they recorded 448 citations without self-citations. Researchers from CEITEC BUT have also won a number of awards and participated in several new original projects: For example, researchers will investigate the use of the LIBS method for soft tissue analysis. The team of Jan Čechal from CEITEC BUT also achieved success with a new way of preparing nanostructures with a unique geometric structure. Details of the research were also published by the prestigious journal Nature Communications. It is also worth mentioning the research in the field of properties of fine-grained advanced ceramics using cold plasma, which was evaluated by the GA CR as excellent. A group of experts from CEITEC BUT and the Faculty of Science of Masaryk University participated under the leadership of Professor Karel Mac.

Oleksii Laguta can boast of the Danubius Young Scientist Award, which highlights the scientific work and talent of young researchers. He interested the jury particularly through his involvement in the development of a special type of electron paramagnetic resonance, which the researchers at CEITEC BUT mainly focus on within the research group of Petr Neugebauer. Michal Horák received the award for the best dissertation from the Czechoslovak Microscopic Society. In his work he dealt with the use of electron microscopy and spectroscopy in plasmonics.

Ph.D. students from CEITEC BUT were also successful. A total of five of them received the Brno Ph.D. Talent award directly from the hands of the mayor of Brno, Markéta Vaňková, during a solemn ceremony. The Josef Hlávka Award was won by the recent graduate Lukáš Flajšman for his work dealing with the properties of magnetic nanostructures. Zita Salajková was also one of the awarded students with an award in the category "The Best Ph.D. Award" at a conference in Kyoto. With his Point-of-Care device, doctoral student Jan Zítka wants to simplify and make basic blood diagnostics accessible. In the field of medicine, unique patches composed of two layers could also help – the lower part accelerating healing, the upper layer made of hydrogel preventing wetting of damaged skin. Katarína Kacvinská, a CEITEC student, is involved in the development of these patches.

Our scientists, technicians and volunteers also joined the protection of front-line people in the fight against covid-19 and responded to the critical lack of protective equipment in the spring wave of the pandemic. Thanks to injection moulding technology, they managed to increase the production of protective shields to 2,000 per day. In addition to the production of shields, researchers from CEITEC BUT also lent thermal cameras for measuring elevated body temperature to the Brno Children's Hospital.

At the end of 2020, the evaluation of BUT components took place within the M17+ methodology of module 3, where CEITEC, along with two other components, was placed among the excellent BUT workplaces within M3 topics. The high standard of results achieved in the last 10 years of CEITEC's existence was stated by the International Scientific Council in its evaluation. The launch of the research group of the Polish expert Eric Glowacki is also a great success. He comes to CEITEC BUT with the prestigious ERC grant.

More information about the centre can be found at www.ceitec.cz.

IT4Innovations

The year 2020 was the last year of running the IT4I XS project. In it, the Faculty of Information Technology at BUT carried out three research activities: Processing of information from multimedia data, Reliable and secure systems, and Industrial applications of advanced information technologies. The first two activities were mainly of a research nature, the third activity was focused mainly on cooperation with industrial partners.

Implementation of the activity Information processing from multimedia data was significantly influenced by enormous progress in the use of deep neural networks (DNN) around the world, to which FIT experts were able to respond by creating new algorithms based on DNN for efficient image, video and speech processing, and verifying their implementation in a parallel environment and using the IT4I supercomputer. In the field of methods for the design of reliable and secure computer systems, a high degree of design automation and efficient implementation was emphasized, especially with regard to the low energy intensity of the resulting solutions. In many studies, the principles of approximate counting have been newly researched and used.

The financial volume of cooperation with industrial partners increased above the planned amount, as did funding from national and international projects, as evidenced by a number of projects (co)financed by the EU addressed under the NPUII IT4I XS. Compared to what was planned, there was also an increase in the number of publications at top conferences (CORE A*/A), which is a key indicator for the field of informatics, as well as in journals with a high impact factor. The planned number of funded researchers and doctoral students was slightly exceeded. Overall, the project made it possible to consolidate and better profile research groups at FIT.

Thanks to the project, cooperation with the IT4I department at VSB-TUO was deepened, both in research, the creation of joint publications, and in the organization of scientific conferences. For the science centre, FIT represents a workplace that achieves a large amount of funding from international grants and cooperation with industry. With respect to other sites, FIT also has the greatest expertise in embedded systems, image or speech recognition, and cyber security.

The IT4I Science Centre at FIT represents a benefit for the Brno region in research, innovation and education. In cooperation with FIT, a number of companies have created innovative technologies that are successful in national and international contexts. These include traffic monitoring systems (in cooperation with Camea), monitoring of high-speed computer networks (in cooperation with FlowMon Networks and Netcope Technologies), speech recognition (Phonexia), processor design (Codasip) and other collaborations, e.g. with 3DimLaboratory, RehiveTech, ReplayWell and AngelCam.

Through IT4I, FIT provides IT students with instruction in state-of-the-art IT methods and access to unique computing resources, such as the IT4I supercomputer. Each graduate of a master's degree at FIT completes a course with compulsory teaching of programming on a supercomputer. The IT4I Centre thus makes a significant contribution to the education of a new generation of IT experts in the South Moravian region.

Learn more about IT4Innovations: www.it4i.cz.

Centre for New Technologies for Mechanical Engineering (NETME Centre)

Cooperation with the traditional regional industrial base and a number of international collaborations in the field of applied and contract research have long placed the NETME Centre at the forefront among engineering centres in the Czech Republic. The NETME Centre operates as a research centre at the Faculty of Mechanical Engineering.

In 2020, the cooperation of FME, including NETME, with industrial partners in the field of science and research amounted to CZK 47.9 million (from non-public sources), of which the centre's contract research amounted to CZK 46.3 million. The research teams of the centre managed to deepen cooperation with long-term partners (e.g. GE Aviation, Škoda Auto, Daido Metal, AMAG Rolling, POSCO, AERO Vodochody, Koyo Bearings, Continental Barum, etc.), but also to establish new cooperation.

In the area of basic research, 13 GA CR projects were implemented at NETME in 2020, of which 5 were newly launched. The research teams managed to succeed with another 2 standard and 1 international projects of the GA CR, which begin implementation in 2021. These projects form a stable significant share in the basic research of the FME.

In the field of applied research, 43 projects of the TA CR were also implemented at NETME in 2020. NETME teams then participated in activities in a total of five National Competence Centres, two of which they coordinated (MESTEC, NaCCaS), and three in partnership (NCK Engineering, NCK Energy and NCK JOBNAC).

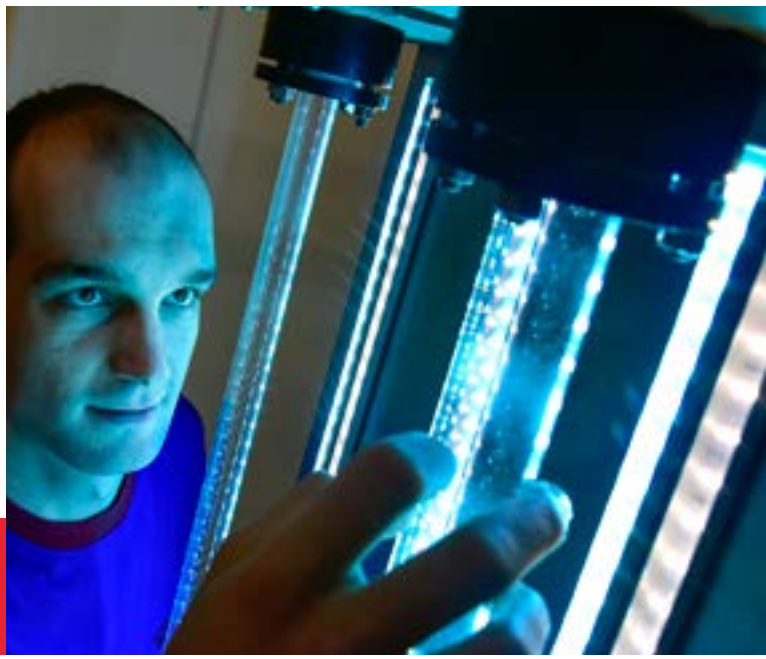
Research teams cooperated with companies on 26 projects supported by the Ministry of Industry and Trade of the Czech Republic, 8 of these projects were launched in 2020. As in previous years, there was a lot of cooperation in the field of contract and collaborative research. For example, the media and the public were interested in the presentation of robotic 3D printing from polymer concrete, the development of which took place in cooperation with an industrial partner who is interested in using the technology in practice. The development of a new generation of heat exchangers made of hollow polymer fibres, which could find application, for example, as radiators in automobiles, also received a positive response in the media. The first-generation prototype has already been tested by NETME researchers in a car, but the technology could also be used in air conditioning units or in battery cooling.

The thermomechanics section of the NETME Centre managed to obtain a grant entitled Development of an energy-saving two-media atomizer for efficient removal of CO2 and NOx from combustion products. Within the INTER-EXCELLENCE programme financed by the Ministry of Education, Youth and Sports, it has been implemented in Czech-Indian cooperation since the beginning of 2020.

A total of 20 proposals for international cooperation projects were prepared at the centre in 2020. The H2020 programme supported and successfully launched a project called RESHeat – Renewable Energy System for Residential Building Heating and Electricity Production. The Sustainability Process Integration Laboratory (SPIL) participates as a partner. The laboratory team also has a successful online conference with 309 participants from 55 countries, including very prestigious workplaces. In 2020, Professor Jiří Klemeš, the head of the laboratory, was also ranked among the most cited scientists in the world.

The NETME Centre considers the establishment of cooperation between the FSI Aviation Institute and the European Space Agency in the Moon Drone project – Feasibility and Preliminary Design of a Moon Drone Vehicle – to be a significant international success. Furthermore, within the Interreg programme, in 2020 the Section of Construction and Industrial Design launched the implementation of the project ReMaP – Research of Magnesium Alloys for Additive Manufacturing of Structural and Biomedical part.

Up-to-date information on what is happening at the research centre can be found on the website www.netme.cz.



Centre for advanced building materials, structures and technologies (AdMaS)

The Advanced Materials, Structures and Technologies (AdMaS) Research Centre, which is part of the Faculty of Civil Engineering, is a modern science centre and a comprehensive research institution in the field of construction. It focuses on research, development and application of advanced building materials, structures and technologies. However, its scope extends beyond the field of construction, for example through research focused on transport systems or the infrastructure of cities and municipalities.

The Centre has been in full operation for a sixth year at the Purkyňova 139 building in Brno. In 2020, the centre implemented a total of 67 projects (GA CR, TA CR, MIT, MEYS) and 2 international projects.

The main AdMaS project was the CAMEB project mentioned above, which was announced by the TA CR and includes several subprojects worked on at CTU in Prague, TU in Liberec, Mendel University in Brno and in more than 20 companies from the private sector. It is a project aimed at supporting long-term cooperation between the research and application spheres and strengthening the institutional base of applied research. The implementation of the project was started in 2019, and in December 2020 the TA CR supported its extension until the end of 2022.

The AdMaS Centre continued its intensive cooperation with the application sphere, firstly in the area of contract research, where it exceeded the sales limit of CZK 51.4 million within 561 completed contract research contracts, and also in the area of joint scientific research projects.

In 2020, although to a limited extent, mobility of workers abroad and foreign workers to the centre continued, which contributed to the creation of new partnerships and the opening of new areas of international cooperation (for example with Vilnius Gediminas Technical University in Lithuania, the Norwegian University of Science and Technology, etc.). However, due to the epidemiological situation in 2020, a large proportion of communication with foreign partners took place online.

This year also saw the fulfilment of the planned values of monitoring indicators for the given year for the AdMaS project – strengthening of research capacities. Despite the fact that the mandatory sustainability period for the main project of the AdMaS centre ended in 2019, all research activities continued with a similar volume of outputs as in previous years.

In 2020, the AdMaS centre was transformed and its internal structure changed, while the original research programmes and groups were replaced by interest groups from individual departments of the Faculty of Civil Engineering so that the centre was better integrated into the faculty structure.

More information and news can be found at www.admas.eu.

Materials Research Centre (MRC)

The Materials Research Centre is a specialized research centre focused mainly on applied research of inorganic materials, advanced organic materials and biomaterials – with emphasis on their chemical side and properties. The centre also develops its own basic research, which serves as a source of inspiration for potential applications.

In 2020, MRC succeeded in developing industrial partnerships in the field of applied research, both in the form of contract research and in the form of joint projects, even under the conditions that arose in connection with the covid-19 virus. MRC did not hesitate in getting involved in the assistance and, in cooperation with other partners, produced a total of more than 40,000 protective shields at the Faculty of Chemistry during the spring months of 2020. These were distributed free of charge, not only to the medical sector within the South Moravian Region but also throughout the Czech Republic.

During the year, 65 research projects were implemented within MRC, of which one project in H2020 was financed through the Marie Skłodowska-Curie programme, of which MRC is the coordinator. The European patent for the use of tannin to fix NH3 in energy by-products has been successfully validated. The number of MRC employees, expressed in FTE, was more than 80 researchers, technical-economic and administrative staff as of 31 December 2020. The volume of contract research exceeded CZK 9 million. The total volume of subsidy funds allocated to MRC projects in 2020 slightly exceeded CZK 70 million.

Details about MRC can be found on the web www.materials-research.cz.

Centre for sensory, information and communication systems (SIX)

The SIX Centre was established in 2010 as a joint initiative of the institutes of the Faculty of Electrical Engineering and Communication Technologies, which are engaged in research and development of sensor systems, information and communication technologies. The aim of this initiative was to link their common research interests and use the synergies achieved to work on large, complex research projects.

Participating institutes have added their research laboratories to the SIX Centre. The equipment of the laboratories was modernized and significantly expanded in 2011–2013 thanks to the financial support of the Operational Programme Research and Development for Innovation. 2014 was the first year of operation of the centre without direct financial support from public sources. Despite the absence of direct support, the centre was able to grow, both in terms of the number of employees involved and their converted working hours, as well as the number of professional outputs, and the volume of grants and commercial contracts. Between 2017 and 2019, the volume of implemented projects and recalculated working hours stabilized.

Since 2015, the SIX Centre has been supported by the National Sustainability Programme project called Interdisciplinary Research of Wireless Technologies (INWITE), which aims to develop the volume and quality of basic research of the centre and increase its ambition to invest its knowledge in applied and commercial research projects. The professional goals of the project are implemented by a team of five working groups led jointly by professors from the Technical University of Vienna and the SIX Centre. The cooperation has so far resulted in several successful joint project proposals as well as involvement in wider international consortia. Although the implementation of the INWITE project finished at the end of 2019, cooperation continues.

In recent years, it has been possible to observe a growing share of applied research in the professional activities of the SIX Centre, which is a clear signal that the workplace is fulfilling its role of a regional research centre connecting academic activities with industry well. In 2020, researchers at the centre had to deal with the restriction of personal meetings and presence at the workplace so as not to jeopardize the goals of ongoing projects or the preparation of new plans. Thanks to their high commitment, running projects or orders were not significantly affected, although this often meant turning their home and home office into a development workplace. Information about the centre is on the web www.six.feec.vutbr.cz.

Centre for Research and Utilization of Renewable Energy Sources (CRURES)

The CRURES Research Centre concentrates its research, development and innovation capacities on solving complex issues of renewable energy sources. The research teams of the centre deal with problems in the field of chemical and photovoltaic energy sources, electro-mechanics, electrotechnology, electric drives, electric power engineering and industrial electronics in a total of five basic research areas: optimization of electromechanical energy conversion; chemical and photovoltaic energy sources; production, transmission, distribution and use of electricity; automation and sensory technologies and, last but not least, research into the tripping process in switching devices.

In 2020, 30 journal publications with an impact factor according to the WoS database were published within CRURES, of which more than half were included in the Q1 or Q2 category according to the order of the journal. Top publications include An Earth Fault Location Method Based on Negative Sequence Voltage Changes at the Low Voltage Side of Distribution Transformers; Metal-organic framework MIL-101 (Fe) -NH2 as an Efficient Host for Sulfur Storage in Long-cycle Li-S Batteries or Measurement of (n, xn) Reaction Cross Sections on In-113, In-115 Isotopes Using Quasi- mono-energetic Neutrons within 10–20 MeV.

The centre is focused not only on basic research, but also on deepening the cooperation of the faculty with the application sphere and on accelerating the transfer of new technologies into industrial practice. All CRURES laboratories form a unique infrastructure that addresses important industrial partners, whose production activities are closely linked to the research activities carried out.

Within CRURES, a total of 43 applied research projects were implemented in cooperation with companies in the industrial sector (TA CR and MIT projects). The obtained funds for applied research projects amounted to almost CZK 55 million. Significant applied research projects include, for example, Intelligent Energy Networks or Technology of high-speed systems for use in the field of thermonuclear fusion.

The great success of the centre is also in the acquisition of more than CZK 15 million from non-public sources within the framework of contract research contracts for industrial companies. In this area, the High Current Laboratory is traditionally the most successful with its contracts in the field of research and development of low-voltage switchgear. Last year, research contracts for the University of Liverpool and the Korea Electrotechnology Research Institute also made a significant contribution to the volume of funding obtained from non-public sources.

In 2020, CRURES became a major partner in the European LIFE GRID project called the Greenhouse Gas Reduction Process through an Innovative High Voltage Circuit Breaker Development, which is mainly carried out by General Electric, based in Lyon, France. The main goal of the project is to map the properties of "green gas" marked g3, which is to become a future alternative to environmentally harmful SF6, which is currently used as an insulating medium and extinguishing medium in medium and high voltage transmission and distribution facilities.

An important part of the CRURES centre is the large infrastructure called CRURES Power Laboratories, which consists of the High Current Laboratory and the High Voltage Laboratory, which are located in the Science and Technology Park of Professor List. The construction of this infrastructure was motivated mainly by the need to carry out experiments in the areas of advanced diagnostics of electric discharge generated in switching devices for the power industry, and precise diagnostics of insulating materials used for high-voltage equipment.

More detailed information on the activities and focus of the CRURES centre can be found on the website www.cvvoze.cz.

1.4 Achieved goals within the BUT Strategic Plan for the year 2020

The Brno University of Technology has clearly defined the main strategic goals from the previous period. In 2020, the BUT management began the conceptual preparation of the long-term BUT Strategy until 2030, with the main milestones being in 2022, 2025 and 2030. This strategy was further elaborated in the BUT Strategic Plan for 2021+, which follows primarily on the Strategic Plan of the Ministry of Education 2021+ and other national strategy papers.

The main priorities within educational, creative and related activities are listed in the BUT Strategic Plan for the period 2016–2020 and cover educational, scientific and creative activities, the third role and support activities. These priorities are linked to the area of international cooperation and are relevant in relation to the defined mission and role of the university. Every year, the individual goals are evaluated and a specific plan for the implementation of the BUT Strategic Plan for the following year is prepared. The syllabus and priority goals of the BUT Strategic Plan represent the backbone structure for compiling the strategic plans of faculties and university components.

The strategic plan of BUT 2016–2020 contains 7 priority goals:

Priority objective 1: Quality assurance and strategic management

Within the framework of this goal, in 2020 it was possible to submit an application for the extension of the existing BUT Institutional Accreditation to another area of education, namely the field of Arts. BUT has also submitted an application for the prestigious HR Award in the field of human resources to the European Commission. The HR Award certificate increases the overall prestige of BUT and can attract even more foreign scientists and researchers to the university.

A major strategic task for BUT in 2020 was the evaluation of research organizations according to the Methodology for the Evaluation of Research Organizations in the University Segment by an independent International Evaluation Panel, which included BUT quality assessment using five basic modules: quality of selected results, research performance, social relevance of research, and viability, as well as strategies and concepts. An evaluation of the level of international cooperation was also carried out.

The university also worked intensively on negotiations on the support of technical and science education at the level of national authorities and the representation of universities.

Priority objective 2: Diversity and accessibility of educational activities

Due to the pandemic, in 2020, full-time education had to move to online space in a very short time. Likewise, all activities had to take place remotely during the year. This was a great challenge, especially for academics and all BUT staff.

Due to the pandemic, the year of the BUT Junior Children's Technical University was not properly completed, and the new year 2020/2021 was not even started. However, a new website www.vutjunior.cz was created, thanks to which the registered children were able to participate in the spring and then in the online Christmas game Junioráda.

Brno Technology presented an annual recruitment campaign, namely CHCI VUT (WANT BUT) (www.chcivut.cz), which was based, among other things, on graduate surveys. BUT was awarded 1st place in the Fénix Content Marketing competition in the Social Media campaign category. BUT also focused on analysis and activities leading to an increase in the number of self-paying students studying in English.

Priority objective 3: Internationalization

The year 2020 was not very inclined towards international cooperation (due to border closures) or the organization of activities in full-time form. Therefore, it was necessary to implement many of the planned international activities online. The CZ ambassadors portal at BUT was created on the BUT website, where students share their experience of staying abroad (Erasmus+, Freemover, CEEPUS, etc.) in a live broadcast. We also managed to set up an ambassador network composed of full-time foreign students called International Student Ambassadors. Foreign students thus actively promote BUT abroad, participate in online fairs and write blogs where they try to bring people closer to BUT, Brno and the Czech Republic.

As part of the implementation of the action plan for internationalization, BUT's attention was focused to a significant degree on study portals and the implementation of the Study in Brno project, where BUT merged with other Brno universities. In the second half of 2020, BUT actively participated in the creation of a university network within the Erasmus+ KA2 European University Initiative programme and is currently working with 7 other partners on the submission of a project called the European University of Society and Technology. BUT is also involved in the CESAER contact network.

Priority goal 4: Relevance, graduates, marketing and cooperation with the application sphere

In 2020, another survey was conducted among graduates, repeated every 2 years, focusing on obtaining feedback and with the goal of deepening the relationship of graduates with the university. Cooperation with the application sphere has long focused primarily on deepening teaching and practice, supporting innovative forms of education for future students, and the relevance of cooperation in accordance with the university environment and the labour market. The BUT Career Centre mediated several professional webinars in 2020 and continues to provide advertising for interested companies and companies offering internships and internships for BUT students.

Interesting interviews with successful graduates are published regularly, not only on ZVUT.cz and in the magazine Events at BUT, but they are also available directly on the website www.vut.cz/absolventi. Stories of graduates who have established themselves, not only at home but also abroad are also covered in the VUTARIUM newsletter (3 issues were published in 2020, in the second half of the year there was a fundamental modernization of this periodical, which is currently clearer, more comprehensive and more attractive to readers).

In 2020, there was also intensive cooperation with faculties and components in order to complete the work on their English websites, thus completing the work on unifying the visual style of BUT.

Priority objective 5: Quality and relevant research, development and innovation

In the area of research, development and innovation, BUT continued to implement individual modules of the new M17+ methodology into the university environment. In 2020, the focus was mainly on excellent publications and research. BUT also focused its activities on consistent communication and coordination of the preparation of the self-evaluation report regarding modules M3 to M5 and their international evaluation with all departments of BUT.

BUT faculties and departments were provided with methodological assistance for the preparation of accreditation of habilitation procedures and procedures for appointment as a professor, in accordance with the approved Rules of the Habilitation Procedure, and procedures for appointment as a professor and the BUT Directive, BUT appointment procedure. In the Apollo IS, the conditions and responsibility for individual modules of science and research were prepared, and the parts that are the responsibility of the Research and Development Department, the Project Support Department and the Technology Transfer Department at the Rector's Office and at BUT components were defined.

In 2020, BUT actively participated in the preparation of projects that the university submits to OP RDE calls, paid attention to the gender balance of researchers, and began creating materials for methodological support of projects within the upcoming Horizon Europe 2021 calls. This is to ensure higher success and reduce the administrative burden of BUT researchers in consortium projects.

Priority objective 6: Decision-making and development based on information and data

In this area, BUT unified information technology services into one component, dealing with both technical and software equipment and its development, and began the transition to a single user interface for all BUT IS users. A big challenge for all in 2020 was the unexpectedly fast transition to the online environment and the adaptation of all BUT processes to a pandemic situation.

Priority objective 7: Efficient management

In all areas of activity, BUT sought to reduce the administrative burden on the academic community while protecting it from the effects of the findings of control activities of superior bodies. Emphasis was placed especially on deepening the methodological activities as well as management control, which is to inform the providers of the rules in time. Consulting support has also been systematically developed for a long time, especially in the economic, personnel and legal fields.

Despite the epidemiological situation, it was possible to implement a summer school of human resources focused on the evaluation of academic staff and the SHAP system.

1.5 Activities of the BUT Academic Senate in 2020

In 2020, the BUT Academic Senate (hereinafter referred to as the BUT AS) held 11 regular and 1 external meetings. The negotiations of the academic senates of universities in the Czech Republic, including the faculty AS, throughout 2020 were fundamentally affected by the covid-19 pandemic, which affected not only the Czech Republic but also most countries in the world.

At the beginning of 2020, only two standard meetings of the BUT AS, held in person, took place from January to March. From April to May, due to the situation in the Czech Republic, the declaration of a state of emergency and the closure of all schools in the Czech Republic, including universities, the BUT AS could not hold a face-to-face meeting. Based on a thorough consideration of the situation, and after consultation with the head of the Legal Department (hereinafter LD) and the Chancellor, the BUT AS agreed on distance negotiations through MS Teams. The AS's negotiations subsequently took place in accordance with the currently approved Crisis Act No. 188/2020 Coll., On special rules for education and decision-making at universities in 2020, and on the assessment of study time for the purposes of other acts. The distance meetings of the BUT AS working committees were held in a similar way, especially the BUT AS Economic Commissions, which at this time intensively discussed first the BUT Budget Rules for 2020 and then the BUT Budget for 2020. As annually, the BUT AS discussed/approved the annual report on activities and the annual report on the management of BUT, and commented on the property rights of the school.

In the area of legislation, the AS was preparing for the upcoming elections of representatives of faculties and other components to the BUT AS for the term of office November 2020 – November 2023. At the March meeting, Chairman Hanáček acquainted the members of the BUT AS with a working version of the draft election schedule. At the April distance meeting, resolutions were approved by which the AS asked the academic senates of the faculties to appoint representatives of the relevant faculty to the BUT Election Commission for elections to the BUT AS. The directors of university institutes and other departments of BUT were asked by the AS to appoint representatives to the partial Electoral Commission for the election of representatives of university institutes and other components to the BUT AS. The announcement of the elections to the AS for the new period took place at the meeting on June 25, 2020, held as part of the external meeting on June 23–25, 2020 in Valča. Due to the significant improvement of the epidemiological situation, it was possible to hold an external meeting of the AS in person. The announcement of the elections included the approval of the Schedule of Elections to the BUT AS for the term of office November 2020 to November 2023, and the appointment of the above-mentioned two election commissions. The term of office of the current AS was to end on November 21, 2020, and the inaugural meeting of the newly elected AS was to take place on November 24, 2020.

The first meeting of the BUT AS after the summer holidays in September took place in person. Subsequently, due to the worsened epidemiological situation, the meetings of the AS from October to December 2020 were again held virtually.

At the September meeting, the members of the BUT AS approved the BUT Consolidated Budget, and discussed the property rights proposals and the application for the extension of the current accreditation of the study programme in the implementation of which CEITEC participates. Following the proposal of the AS Student Chamber to hold electronic elections of representatives of university institutes and other components to the AS, the issue of amending BUT internal regulations – BUT AS Electoral Rules and BUT AS Rules of Procedure – was reopened at this meeting. There was a detailed discussion concerning the implementation of electronic elections to the BUT AS at the entire BUT and distance meetings of the AS. In conclusion, the members of the BUT AS agreed that in connection with the legislation connected with the declaration of a state of emergency in the Czech Republic and the November elections to the AS, amendments to the above-mentioned election rules (electronic elections) and rules of procedure (distance negotiations) should be approved and submitted as soon as possible to the MEYS for registration. At the same time, it was recommended to make similar changes in the internal regulations of the faculties, as most BUT faculties were preparing for elections to faculty ASs, which have the same term of office as the BUT AS, in parallel with the BUT AS elections. The Chairwoman of the Legislative Commission of the BUT AS prepared a preliminary schedule of negotiations concerning proposals for changes to the above internal regulations, according to which they would be discussed in the BUT AS, and prepared a draft letter to the AS chairmen of all BUT faculties inviting them to submit amendments to internal regulations governing according to the pattern. The Head of the Legal Department subsequently prepared proposals for changes to both internal regulations, which were sent to the chairmen of the AS faculties with a recommendation that they should consider making changes in the internal regulations of the faculties according to these models. At the same time, the BUT AS primarily dealt with the preparation of organizational instructions for the election of representatives of university institutes and other departments of BUT to the BUT AS, the approval of which had to correspond with the registration of the above changes to the electoral rules at the MEYS. In connection with the above facts, the professional assistance of the Head of the BUT Legal Department, who cooperated very intensively with the BUT AS in solving demanding legislative issues related to the impacts of covid-19, including the preparation of elections to the AS for the new term, should be highly appreciated.

The following changes were approved at the BUT AS meeting on September 29, 2020: insertion of a new Article 15a – Special provisions on elections held electronically in the BUT AS election rules. In the Rules of Procedure of the BUT AS

Part 5 – Special provisions on the distance negotiations of the BUT AS, chambers and commissions of the BUT AS and insertion of a new Article 13a. Furthermore, at this meeting the AS approved detailed organizational instructions for the election of representatives of university institutes and other parts of BUT in two versions – one for standard elections and the other for electronic elections (the validity of instructions for electronic elections was conditioned by registration of changes to the MEYS electoral rules). In accordance with its previous statement, the Ministry immediately registered the above-mentioned amendments to the BUT internal regulations, so that the elections to the BUT AS could take place electronically.

At the October meeting of the BUT AS, it approved proposals for changes to internal regulations concerning faculty ASs. These were submitted by most BUT faculties and mostly prepared according to the approved changes to the election and rules of procedure (some faculties had electronic elections enshrined in their election rules when amending BUT's internal regulations and in connection with the implementation of the 2016 University Act).

Other proposals for changes to the Rules of Procedure were submitted by the members of the BUT AS only after the approval of the above two amendments and their registration at the Ministry of Education, Youth and Sports, so that there would be no delay due to possible objections by the Ministry to any other proposed change. In November, two meetings of the BUT AS took place, at which the discussion of changes to the internal regulations concerning the introduction of distance action of other BUT bodies during the declared state of emergency continued; similar legislative proposals were also submitted by the academic senates of some BUT faculties. Furthermore, the AS discussed and approved the amendment to the Rules of Procedure concerning the possibility of a secret ballot at the BUT AS distance meeting and the establishment of a permanent guest from the BUT University Institute at the AS meeting.

At the first November meeting of the AS, the Chairman of the BUT Election Commission for the elections to the BUT AS presented the results of the elections that took place at BUT on November 3-5, 2020 at almost all faculties (except FME) as well as at university institutes and other departments. Subsequently, a detailed discussion took place on the extension of the term of office of the current BUT AS. Legal interpretation of the Ministry of Education, Youth and Sports on the provisions of § 7 of Act No. 188/2020 Coll. states: "As far as § 7, Paragraph 2 of the Act is concerned, this one conditions the rules stated here by declaring a state of emergency. Given that the government has re-declared a state of emergency on October 5, 2020, this provision also applies. Due to the legal deadlines, if the term of office of the body or members of the university or faculty body ends from the declaration of a state of emergency on October 5, to the end of 2020, this term of office is extended to the 120th day after the end of the state of emergency. The extended term of office may therefore end only in 2021." In this context, the members of the BUT AS discussed all known circumstances and considered possible risks. It was stated in the discussion that the Ministry of Education, Youth and Sports on Act No. 188/2020 Coll. states that the term of office of the BUT AS is being extended and at the end of the discussion the members agreed that the term of office of the current members of the BUT AS is being extended by 120 days after the end of the emergency situation in the Czech Republic.

The BUT AS also announced a new date for FME for the regular elections of FME representatives to the BUT AS for a new term of office, which subsequently took place in December 2020. The overall list of newly elected members of the AS for the November 2020 – November 2023 term is part of this annual report. Furthermore, the BUT AS approved the dates of further meetings of the current AS. At the same time, it was agreed that (starting in November 2020) the elected future members of the BUT AS for the new term of office will also participate in the meetings of the current BUT AS, receive the discussed materials on an ongoing basis and can express their views during the AS meetings.

From October to December, in addition to demanding legislation related to the effects of the covid-19 pandemic, the AS BUT discussed in detail and approved in particular the amendment to the BUT Budget for 2020, considered a number of proposals, which were discussed in detail in advance by the AS Economic Commission. Recommendations: Small investments and major repairs for 2021; Preparation of BUT Budget Rules for 2021; Property matters – Contracts for the establishment of easements and entry into a legal entity. In the field of pedagogy, the Pedagogical Commission of the BUT AS discussed and adopted a recommending resolution for the AS, especially on the documents for the admission procedure at BUT departments and institutes.

Last but not least, the AS (in connection with the preparation of the establishment of a new RVŠ for the term 2021–2023) delegated a BUT representative to the University Council Assembly and a BUT delegate to the University Council Board, a BUT delegate to the University Council Assembly at its meetings in November and December, and a representative of BUT students to the University Council Student Chamber and its deputy.

The Student Chamber of AS BUT (hereinafter referred to as SC AS) continued to advocate that the voice and interest of students be represented at the university level. For most of 2020, SK AS focused mainly on clear information for students with regard to all measures and regulations. The most frequent topics were the following: the current situation with accommodation in BUT Halls of Residence and Canteens, the end of full-time teaching associated with the transition to teaching with distance elements and the situation of doctoral students. Such communication took place mainly due to increased activity on SC AS's social networks, on the SC AS website, and by replying to messages and e-mails with questions. With regard to the outdated website and the need to inform students sometimes with longer texts and links, SC AS has modified its website, which will finally be completed in the first half of 2021.

In 2020, the BUT freshman handbook was updated, which provides first-year students with the necessary information for starting their studies at BUT. In addition to the study agenda, readers can find information about sports, the Alfons Counselling Centre, student associations and Halls of Residence and Canteens at BUT.

SC AS continued to reward active students through the Internal Student Support Fund. In the first round (June 2020) it praised, among other things, students at faculties who provided information about measures related to covid-19 at individual faculties, and the student organization ESN BUT Brno, which provided complete help and support in the given situation for foreign students. Furthermore, in this round it awarded the representation of the student hockey team of BUT, Cavaliers Brno in the Czech University Ice Hockey League the Bohuslav Fuchs Award, which was organized by the FA students. The author of the Nepanikař (Do not panic) application, which provides first aid to students with mental problems, received the most points in the first round. SC AS also nominated this student from FEEC to the Rector of BUT for the Ministry of Education, Youth and Sports Award for extraordinary deeds of students. This nomination was successful and the student eventually won the award. In the second round, SC AS continued to reward active students, where the most support was given to activities for the integration of first-year students, as well as activities aimed at communication and socialization of students of all years. SC AS also appreciated the creation of the Bublina magazine at FFA and the miniseries of lectures "Brno, what is not" by the FA students. The FCE student received the most points in the second round for his activities dedicated to the Brno Seventeenth event.

In September, representatives of SC AS took part in the BUT Zaškolovák event, where more than 400 first-year students had the opportunity to get to know the university. During the 4-day cognitive and educational course, students could learn from BUT students about the university, their faculties, sports, and about student associations operating at BUT. SC AS also continued to support the Survey on the Best Educator. The competition takes place at all faculties, with 2 winners selected for each faculty (1 for bachelor's and 1 for follow-up master's studies), and at IFE, where 1 winner is chosen for follow-up master's studies.

From June 12–14, 2020, the External Meeting of SC AS took place in the Golf Hotel Kaskáda. On the first day of the meeting, topics discussed related to teaching, the financing of student events and doctoral scholarships, support of study stays, issues of recognition of part of study from abroad and also BUT halls of residence and canteens with guests being the chairmen of faculty student chambers, quaestor, vice-rector for studies and the head of the BUT Halls of Residence and Canteens. On the second day of the meeting, representatives of students from cooperating universities (CTU and MUNI) joined the members of SC AS and the evaluation of the quality of teaching, doctoral studies and student projects were addressed.

Until the end of 2020, SC AS was also represented in SC University Council, where BUT representatives participated, among other things, in the organization of the Conference of Academic Senators, which took place online in early December. On the occasion of the national holiday on November 17, representatives of SC AS along with students from other Brno universities, with whom they also cooperate in the SC University Council, laid wreaths and bouquets on naměstí Svobody (Freedom Square) in honour of the monument.

After the November elections, the representatives of SC AS immediately established contact with the newly elected representatives of SC AS and started cooperation in order to make the transition between individual senators as easy as possible when the mandate is exchanged.

SC AS also participated in other activities. In November, it organized the Donate Blood event with BUT, through which it wanted to support donations for the St. Anne's University Hospital, and in three days they managed to get almost 30 litres of blood. SC AS also directed its support to the volunteer portal www.chcipomoct.cz , where it helped with the search for volunteers and information about this activity on its social networks. In March 2020, SC AS joined the Folding@ Home project, created by researchers from the Washington University School of Medicine. It was a distributed computing project where volunteers could provide the computing capacity of their computers to simulate protein assembly. After the creation of a university-wide team, coordinated by representatives of SC AS, there was a huge interest in help from members of the academic community. Dozens of students and employees decided to contribute the computing capacity of their computer to the joint effort – the fight against coronavirus – and the Brno University of Technology team has long been in the top 1% in the world.

In accordance with the completion of the BUT development project entitled Deepening academic self-government and increasing its efficiency at BUT, implemented by BUT AS in 2019–2020, a joint seminar of BUT AS members, BUT management and UC representatives took place within the AS external meeting held in on June 23–25, 2020 in the Zámek Valeč hotel, which included lectures and discussion points of the workshop. The programme of the entire BUT AS external meeting was compiled in accordance with this project – further systematic and systemic support of AS activities in the field of economics, legislation and creative activities of BUT, in order to contribute to substantive discussion of the related topics in BUT AS, stabilize existing activities and deepen partnerships between management of BUT and AS BUT based on the basic principles of feedback control in the conditions of academic self-government. The project also contributes to the analysis of the ideas of higher education reforms implemented so far in the Czech Republic, including anticipation of its further development from the perspective of autonomy and academic self-government, and to support the participation of BUT AS members in events related to the development of university autonomy and self-government.

This year, the AS's meetings with BUT management can be considered key, especially in the following areas: Strategy, legislation and economics with lectures called Strategic issues and development of BUT until 2030 (Rector of BUT) and Economic and wage issues of universities (Chairwoman of the EC UC by a distance form). A detailed discussion of the members of the BUT AS with the Rector and the Quaestor regarding the proposal for a completely new version of the BUT Wage Regulations, containing fundamental changes compared to the current version, which resulted in its subsequent approval at the AS meeting on June 25, 2020, can be considered very important. Another important area was the issue of creative activity – lectures called Current information on creative activity, Current information on staff evaluation, Information on Artistic Creative Activities of Register of artistic performances, Fund of artistic activities and Artistic Creative Activity in the context of funding FA BUT (lectures were given by the Dean of FA and member of AS for FA). The programme also included a discussion between SC AS students and the Vice-Rector for Studies on study and student matters. At the same time, guest lectures took place on selected topics listed in the programme.

It is also necessary to mention the extensive discussion, which concerned the preparation of elections to the BUT AS for the new term of office. In this context, all legislative documents needed for the elections were discussed in detail, and then approved at the meeting on June 25, 2020. In this context, detailed organizational instructions for the election of representatives of university institutes and other parts of BUT to the BUT AS, which SC AS proposed to implement in electronic form, were also discussed. Their approval took place at the AS meeting after the holidays.

In addition to the participation of the majority of BUT AS members even in complex epidemiological situations, the participation of all members of BUT management – the rector, quaestor, vice-rectors, chancellor and CVIS director, can be positively assessed. A significant benefit was also the participation of BUT representatives in the UC (who are also members of the AS) and especially the representative participation of guests from the UC – the distance participation of the UC EC chairwoman and personal participation of the LV UC chairman, who took a very active interest and informed the members of the AS about current events through their presentation despite their workload. As always, the seminar showed how beneficial it was that it included detailed discussions of the participants of the external meeting concerning all areas according to the programme. Its main outputs included a standard meeting of the AS, at which the relevant resolutions were adopted in connection with the discussed areas and the proposals submitted to the AS for discussion/approval.

All the above activities of AS members still lead to further deepening of cooperation between BUT and AS management, as a natural and traditional part of academic life and as a key element of active involvement of the BUT academic community in university development, including further optimization of communication between school levels. self-government, and the academic community – teachers, students and staff.

2 Basic information about the university

2.1 Full name of the university, commonly used abbreviation, seat of the university and all departments

Brno University of Technology
BUT
Antonínská 548/1, 601 90 Brno
www.vut.cz

Faculties (in order of creation)

Faculty of Civil Engineering BUT
FCE BUT
Veveří 331/95, 602 00 Brno
www.fce.vutbr.cz

Faculty of Mechanical Engineering BUT
FME BUT
Technická 2896/2, 616 69 Brno
www.fme.vutbr.cz

Faculty of Electrical Engineering and Communication BUT
FEEC BUT
Technická 3058/10, 616 00 Brno
www.fekt.vut.cz

Faculty of Architecture BUT
FA BUT
Poříčí 237/5, 639 00 Brno
www.fa.vutbr.cz

Faculty of Chemistry BUT
FCH BUT
Purkyňova 464/118, 612 00 Brno
www.fch.vut.cz

Faculty of Business and Management BUT
FBM BUT
Kolejní 2906/4, 612 00 Brno
www.fbm.vutbr.cz

Faculty of Fine Arts BUT
FFA BUT
Údolní 244/53, 602 00 Brno
www.favu.vut.cz

Faculty of Information Technology BUT
FIT BUT
Božetěchova 1/2, 612 66 Brno
www.fit.vut.cz

University Institutes

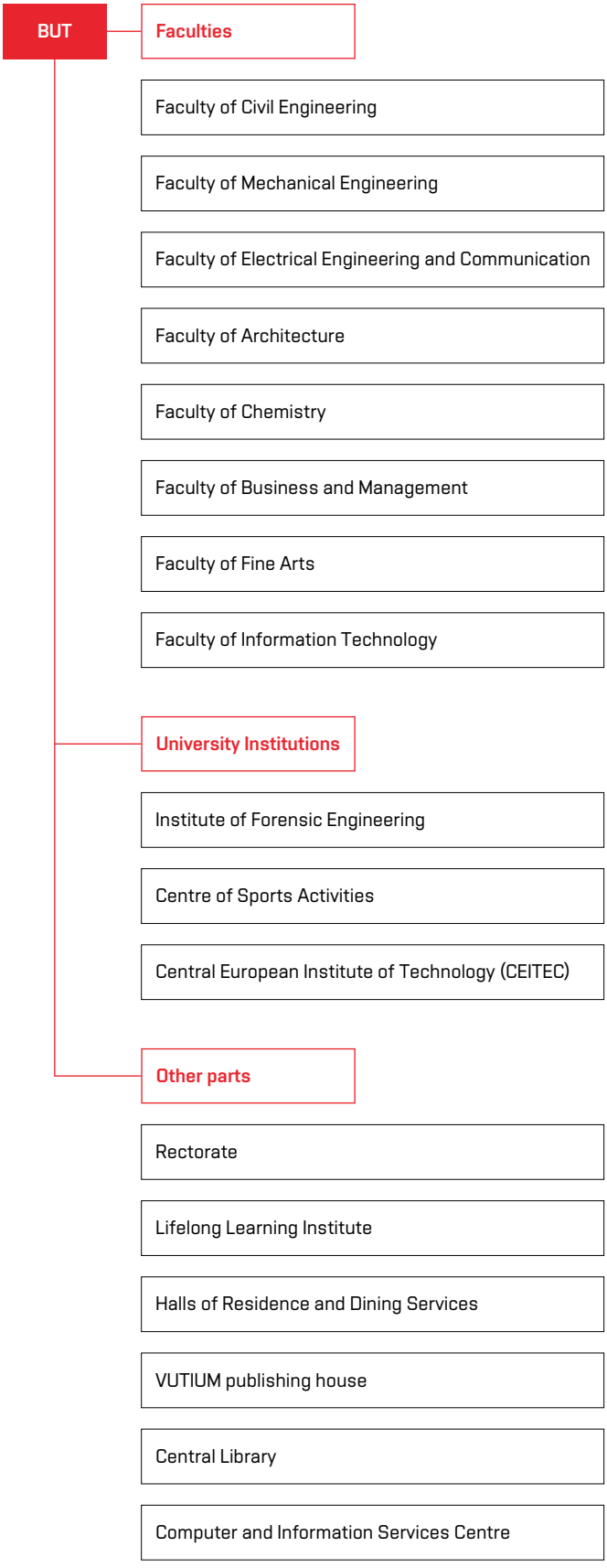
Institute of Forensic Engineering BUT
IFE BUT
Purkyňova 464/118, 612 00 Brno
www.usi.vutbr.cz

Centre of Sports Activities BUT
CESA BUT
Technická 2896/2, 616 69 Brno
www.cesa.vutbr.cz

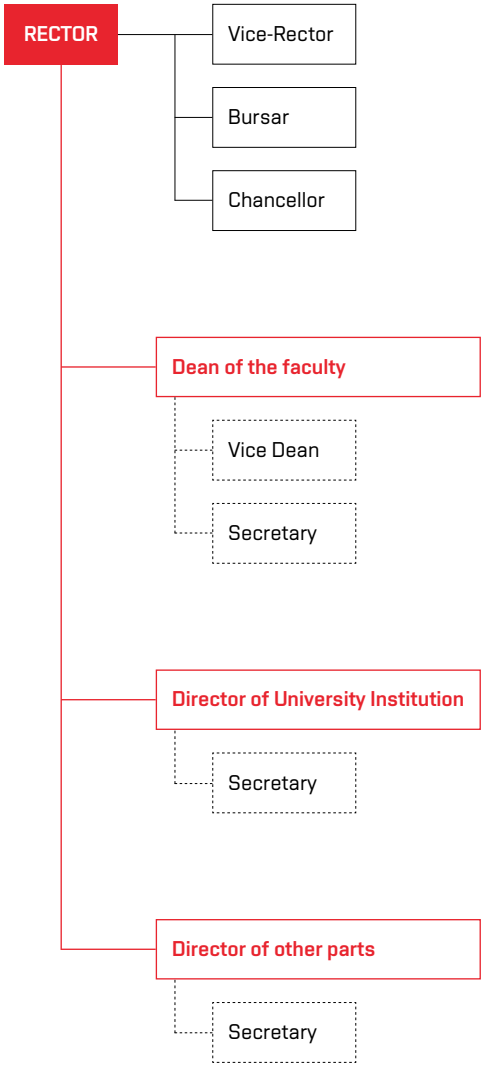
Central European Institute of Technology BUT
CEITEC BUT
Purkyňova 656/123, 612 00 Brno
www.ceitec.cz

2.2 Organizational structure of the university

Organizational chart of BUT



Management structure of BUT



2.3 Composition of the Scientific Council, the Administrative Board, the Academic Senate and the Internal Evaluation Board

Scientific Council of BUT

Chairman
- prof. RNDr. Ing. Petr Štěpánek, CSc., dr. h. c.

Members
- prof. RNDr. Vladimír Aubrecht, CSc.
- prof. Ing. Miroslav Bajer, CSc.
- Assoc. prof. Ing. Vojtěch Bartoš, Ph.D. – since November 24, 2020
- Assoc. prof. MgA. Filip Cenek
- prof. RNDr. Miroslav Doupovec, CSc.
- Ing. Karel Endlicher
- Ing. Miloš Filip
- prof. acad. Sochař Michal Gabriel
- prof. Ing. Lubomír Grmela, CSc.
- prof. Ing. Martin Hartl, Ph.D.
- Ing. Roman Havlín – since November 24, 2020
- prof. Ing. Jiří Hirš, CSc.
- prof. PeadDr. Radek Horáček, Ph.D.
- Assoc. prof. MgA. Milan Houser
- Assoc. prof. Ing. arch. Jan Hrubý, CSc.
- prof. Ing. arch. Petr Hrůša
- prof. Ing. Tomáš Hruška, CSc.
- Assoc. prof. Ing. Jaroslav Katolický, Ph.D.
- Ing. Jaroslav Klíma
- Assoc. prof. Ing. Karel Kouřil, Ph.D.
- Ing. arch. MArch. Jan Kristek
- prof. Ing. Jiří Málek, DrSc.
- prof. RNDr. Ivana Márová, CSc.
- Ing. Ilona Müllerová, DrSc.
- prof. Ing. Drahomír Novák, DrSc.
- Ing. Eduard Palíšek, Ph.D., MBA
- Assoc. prof. RNDr. Juraj Pančík, Ph.D.
- prof. Ing. Karel Rais, CSc., MBA
- prof. Ing. Robert Redhammer, Ph.D.
- prof. Ing. Mária Režňáková, CSc.
- Ing. Dětřich Robenek
- prof. Ing. Petr Sáha, CSc.
- prof. Ing. Lukáš Sekanina, Ph.D.
- Ing. Martin Slezák
- prof. RNDr. Tomáš Šikola, CSc.
- Assoc. prof. Ing. et Ing. Stanislav Škapa, Ph.D.
- prof. Ing. arch. Vladimír Šlapeta, DrSc.
- Ing. Miloš Štěpánovský – till September 30, 2020
- prof. Ing. Pavel Václavek, Ph.D.
- Assoc. prof. Ing. Aleš Vémola, Ph.D.
- prof. RNDr. Peter Vojtáš, DrSc.
- prof. MVDr. Lenka Vorlová, Ph.D.
- prof. Ing. Radimír Vrba, CSc.
- prof. Ing. Martin Weiter, Ph.D.
- prof. Dr. Ing. Pavel Zemčík

Administrative Board of BUT

Chairman
- ThDr. Ing. Lukáš Evžen Martinec

Members
- Ing. Eva Bartoňová
- Ing. Vladimír Dlouhý, CSc., MBA
- Ing. Jaroslav Klíma
- Ing. Miloslav Kopeček
- PhDr. Miroslava Kopicová
- Mgr. Stanislav Moša
- Ing. Jiří Nekovář
- Ing. Eduard Palíšek, Ph.D., MBA
- Ing. Petr Rafaj
- prof. RNDr. Eduard Schmidt, CSc.
- Ing. Jan Světlík – till August 29, 2020
- Ing. Petr Vokřál
- Assoc. prof. Ing. Jiří Volf, CSc.
- prof. MUDr. Jiří Vorlíček, CSc.

Internal Evaluation Board of BUT

Chairman
- prof. RNDr. Ing. Petr Štěpánek, CSc., dr. h. c.

Vice-chairman
- prof. Ing. Tomáš Hruška, CSc.

Members
- prof. Ing. Jiří Burša, Ph.D.
- prof. RNDr. Vladimír Čech, Ph.D.
- prof. RNDr. Miroslav Doupovec, CSc., dr. h. c.
- prof. Ing. Eva Gescheidtová, CSc.
- prof. Ing. Lubomír Grmela, CSc.
- Assoc. prof. Dr. Ing. Petr Hanáček
- Assoc. prof. Ing. Jan Jandora, Ph.D.
- prof. Ing. Pavel Jura, CSc.
- prof. Ing. Alois Materna, CSc., MBA
- Ing. Pavel Maxera
- prof. Ing. Mária Režňáková, CSc.
- prof. Ing. arch. Vladimír Šlapeta, DrSc.
- prof. Ing. Josef Štětina, Ph.D.

Disciplinary Committee of BUT

Chairman
- prof. RNDr. Miroslav Doupovec, CSc., dr. h. c.

Members
- prof. Ing. Jiří Hirš, CSc.
- Ing. Radek Hranický
- prof. Ing. Tomáš Hruška, CSc.
- Ing. Daniel Janík
- Ing. Pavel Maxera

Academic Senate of BUT

Chairman
- Assoc. prof. Dr. Ing. Petr Hanáček

Vice-Chairman
- prof. Ing. Eva Gescheidtová, CSc.
- Ing. Anna Kruljacová, MSc.

Chamber of Academic Staff of AS BUT

Chairwoman of the Chamber
- prof. Ing. Eva Gescheidtová, CSc.

Members
- Assoc. prof. Mgr. Tomáš Apeltauer, Ph.D.
- Ing. Petr Beneš, CSc.
- Assoc. prof. Ing. arch. Ivo Boháč, Ph.D. – since September 15, 2020
- Ing. Albert Bradáč, Ph.D.
- Assic. prof. Ing. Pavel Diviš, Ph.D.
- Ing. arch. Nicol Galeová
- prof. Ing. Eva Gescheidtová, CSc.
- Assic. prof. Dr. Ing. Petr Hanáček
- MgA. Ondřej Homola
- MgA. Tomáš Hrůza
- Assic. prof. Ing. Jiří Jaroš, Ph.D.
- Mgr. Bc. Helena Musilová
- Ing. Viktor Ondrák, Ph.D. – since November 24, 2020
- Assoc. prof. Ing. Tomáš Opravil, Ph.D.
- RNDr. Pavel Popela, Ph.D.
- PaedDr. Milan Slezáček
- Ing. Lenka Smolíková, Ph.D. – till November 11, 2020
- Assoc. prof. Ing. Miloslav Steinbauer, Ph.D.
- prof. Ing. Josef Štětina, Ph.D.

Student Chamber of AS BUT

Chairman of the Chamber
- Ing. Anna Kruljacová, MSc.

Members
- Bc. Diana Hodulíková
- Ing. Radek Hranický
- Ing. Daniel Janík
- Bc. Eliška Jarmerová – till October 13, 2020
- Ing. Tereza Konečná
- Ing. Pavel Maxera
- Ing. Jakub Palovčík – since October 13, 2020
- Bc. Veronika Špundová
- Kristína Šintajová – till October 13, 2020

Working committee of AS BUT

Legislative committee

Chairwoman
- Mgr. Bc. Helena Musilová

Members
- Assic. prof. Ing. arch. Ivo Boháč, Ph.D. – since September 15, 2020
- prof. Ing. Eva Gescheidtová, CSc.
- RNDr. Pavel Popela, Ph.D.
- Assoc. prof. Ing. Miloslav Steinbauer, Ph.D.

Students
- Bc. Diana Hodulíková
- Ing. Radek Hranický
- Bc. Eliška Jarmerová – till October 13, 2020
- Ing. Tereza Konečná
- Ing. Anna Kruljacová, MSc.
- Ing. Pavel Maxera

Economic Committee

Chairman
- RNDr. Pavel Popela, Ph.D.

Members
- Assoc. prof. Mgr. Tomáš Apeltauer, Ph.D. – since November 24, 2020
- Ing. Petr Beneš, CSc.
- Ing. Albert Bradáč, Ph.D.
- Assoc. prof. Ing. Pavel Diviš, Ph.D.
- Ing. arch. Nicol Galeová
- MgA. Tomáš Hrůza
- Assoc. prof. Ing. Jiří Jaroš, Ph.D.
- Ing. Viktor Ondrák, Ph.D. – since November 24, 2020
- Assoc. prof. Ing. Tomáš Opravil, Ph.D.
- PaedDr. Milan Slezáček
- Ing. Lenka Smolíková, Ph.D. – till November 11, 2020
- Assoc. prof. Ing. Miloslav Steinbauer, Ph.D.
- prof. Ing. Josef Štětina, Ph.D.

Students
- Ing. Daniel Janík
- Ing. Tereza Konečná
- Ing. Anna Kruljacová, MSc.

Teaching Committee

Chairman
- Assoc. prof. Ing. Miloslav Steinbauer, Ph.D.

Members
- Ing. Petr Beneš, CSc.
- Ing. arch. Nicol Galeová
- Assoc. prof. Ing. Jiří Jaroš, Ph.D.
- Mgr. Bc. Helena Musilová

Students
- Ing. Daniel Janík
- Bc. Eliška Jarmerová – till October 13, 2020
- Ing. Tereza Konečná
- Kristína Šintajová – till October 13, 2020

Committee for Creative Activities

Chairman
- Ing. Albert Bradáč, Ph.D.

Members
- Assoc. prof. Mgr. Tomáš Apeltauer, Ph.D.
- Assoc. prof. Ing. arch. Ivo Boháč, Ph.D. – since September 15, 2020
- prof. Ing. Eva Gescheidtová, CSc.
- Assoc. prof. Ing. Jiří Jaroš, Ph.D.
- Assoc. prof. Ing. Tomáš Opravil, Ph.D.
- Ing. Lenka Smolíková, Ph.D. – till November 11, 2020
- prof. Ing. Josef Štětina, Ph.D.

Students
- Ing. Radek Hranický
- Ing. Anna Kruljacová, MSc.
- Ing. Pavel Maxera

Elected members of the BUT AS for the term of office November 2020 to November 2023

(The newly elected BUT AS was not established in 2020 due to the legal regulation contained in Act No. 188/2020 Coll.)

FCE
- Ing. Petr Beneš, CSc.
- Assoc. prof. Mgr. Tomáš Apeltauer, Ph.D.
- Ing. Daniel Skřek – student

FME
- RNDr. Pavel Popela, Ph.D.
- prof. Ing. Josef Štětina, Ph.D.
- Ing. Petra Kosová – student

FEEC
- Assoc. prof. Ing. Miloslav Steinbauer, Ph.D.
- Assoc. prof. Ing. Vlasta Sedláková, Ph.D.
- Ing. Daniel Janík – student

FIT
- Assoc. prof. Dr. Ing. Petr Hanáček
- Assoc. prof. Ing. Jiří Jaroš, Ph.D.
- Viktor Konupčík – student

FA
- Ing. arch. Nicol Galeová
- Assoc. prof. Ing. arch. Ivo Boháč, Ph.D.
- Bc. Diana Hodulíková – student

FCH
- Assoc. prof. Ing. Tomáš Opravil, Ph.D.
- Assoc. prof. Ing. Pavel Diviš, Ph.D.
- Bc. Jan Zahrádka – student

FBM
- Mgr. Bc. Helena Musilová
- prof. Ing. Alena Kocmanová, Ph.D.
- Ing. Anna Kruljacová, MSc. – student

FFA
- MgA. Tomáš Hrůza
- MgA. Ondřej Homola
- Bc. Veronika Špundová – student

University institutes and other departments of the university
- Ing. Pavel Krečmer, Ph.D.
- prof. Ing. Martin Trunec, Dr.
- Ing. Katarína Rovenská – student

2.4 Representation of the university in the representation of universities

Czech Rectors' Conference

– prof. RNDr. Ing. Petr Štěpánek, CSc., dr. h. c.

BUT representatives in the University Council

Member of the UC Board
– RNDr. Pavel Popela, Ph.D.

Members of the UC Assembly for BUT
– Mgr. Bc. Helena Musilová

Members of the UC Assembly
– Ing. arch. Nicol Galeová (FA)
– Ing. Ivana Jakubová (FEEC)
– Mgr.A Lenka Klodová, Ph.D. (FFA)
– Ing. Radek Kočí, Ph.D. (FIT)
– Assoc. prof. Ing. Jana Korytárová, Ph.D. (FCE)
– Ing. Pavel Mráček, Ph.D. (FBM)
– Assoc. prof. Ing. Tomáš Opravil, Ph.D. (FCH)
– Assoc. prof. Ing. Jan Roupec, Ph.D. (FME)

Members of the UC Student Chamber
– Ing. Anna Kruljacová, MSc. – delegate
– Bc. Eliška Jarmerová – deputy – till January 20, 2020
– Ing. Tereza Konečná – deputy – since January 21, 2020

2.5 Mission, vision and strategic goals of BUT

Brno University of Technology has clearly defined strategic goals. The main priorities within educational, creative and related activities are listed in the BUT Strategic Plan for the period 2016–2020 and cover educational, scientific and creative activities, the third role and support activities. In all areas of its activity, BUT is working intensively to maintain the status of a major world educational and research university, which has been ranked at the forefront of world colleges and universities in the last ten years. It utilizes the university's human resources and infrastructure to support an interdisciplinary approach to education, research and collaboration with practice in order to meet the current needs of technology industries and the timeless needs of society as a whole. This is of growing importance, especially in view of the slowing growth rate of the world economy, which has a significant impact on the national environment. The advantage of BUT in this area is the possibility of synergy of the unique composition of its fields of activity.

Brno Technology has long strived to ensure that the principles of evaluation of BUT, its faculties and components and their implementation, are such that the academic community and other staff consider them meaningful and gradually adopt them as their own, and that this effort helps to create an institutional culture focused on quality. Last but not least, BUT strives to improve the quality of all its activities, especially studies, thanks to the meaningful implementation of the quality management system in all areas of school activities without any additional administrative burden.

In 2020, within the preparation of the framework of BUT research activities, great attention was paid to the vision of BUT in the field of research, experimental development and innovation, which is:

– to profile itself as an important research-oriented technical university, which is competitive not only in a national but also in an international context;

– to be characterized by the transfer of research results to the education of students in all study programmes;

– to act as a research organization with strong links to industry and international cooperation;

– to continue as a long-term stable and promising employer, motivating existing and acquiring new academic staff, and supporting their scientific and creative potential;

– to effectively use continuously modernized unique infrastructures for research and development, supporting the continuity and international operation of research teams by interconnecting experienced and young researchers and doctoral students.

2.6 Changes in internal regulations in 2020

BUT Statute – amended by Annex No. 5 effective from April 27, 2020

BUT Wage Regulations – new BUT Wage Regulations have been issued with effect from September 24, 2020

Electoral Rules of the BUT Academic Senate – amended by Annex No. 1 effective from October 21, 2020

Rules of Procedure of the BUT Academic Senate – amended by Annex No. 1 effective from October 21, 2020

2.7 Provision of information pursuant to § 18 of Act No. 106/1999 Coll., On Free Access to Information

In 2020, the Brno University of Technology received a total of five requests for information pursuant to the above-mentioned law, all five of which were granted.

3 Study programmes, study organization and educational activities

3.1 The total number of accredited study programmes described by the methodology of learning outcomes

As part of institutional accreditation, the implementation of 46 programmes was newly approved in 2020, and 13 programmes were accredited by the National Accreditation Authority. In total, BUT offers 295 study programmes (see Table 2.1 in the table section of the annual report). The significant increase in the number compared to previous years is due to the transfer of the original fields of study to the level of study programmes.

3.2 The role of the application sphere in the creation and implementation of study programmes

Many study programmes at BUT involve experts from practice: e.g. in all study programmes at the Faculty of Mechanical Engineering, in all professionally oriented programmes at the Faculty of Entrepreneurship and also in a number of programmes at the Faculty of Chemistry, Faculty of Electrical Engineering and Communication Technologies, and the Faculty of Information technologies. Experts from practice are often members of committees for state final examinations and defences of final theses.

At FCH, the so-called patrons of study programmes were appointed from among the representatives of the application sphere. Cooperation with patrons from the application sphere is used in the preparation of accreditations and re-accreditation of study programmes, evaluation of the implementation of study programmes and in one's own teaching. Selected study programmes of the Brno University of Technology have professional practice directly in the study plan, while specific companies participate in their implementation. E.g. at the Faculty of Architecture, students of newly accredited follow-up study programmes must complete an internship in an architectural office.

Students' final theses also often have topics drawing on practice, entering the topics of bachelor's or master's theses on a turnkey basis from a specific corporate partner brings practical results that can be used in practice. E.g. at the Faculty of Entrepreneurship, the result of students' work is often a real business plan, and this faculty also organizes consultation workshops where students solve the problems of real companies. The Institute of Forensic Engineering also has a wide space for connecting students with practice, organizing joint workshops and involving students in projects with companies.

Each study programme is subject to approval by the scientific council of the relevant faculty, with the representatives of the practice being external members of these scientific councils. After the approval of the programme, external evaluators prepare assessments, while for professionally oriented study programmes it is directly required that at least one assessment be prepared by a representative from practice.

Representatives of the commercial sphere also work in the Study Programme Councils. E.g. the Industrial Council of the Faculty of Civil Engineering of BUT discusses their intention to implement the study programme at the Faculty of Civil Engineering, which pays attention to the inclusion of practical subjects and the involvement of experts from practice in teaching; the same goal is cooperation with the Czech Chamber of Authorized Engineers and Technicians active in construction. The Faculty of Fine Arts, in turn, regularly cooperates with companies from creative industries (especially in the field of the game industry and design) in the form of student internships and professional internships.

Every year, the Faculty of Information Technology organizes the We Live IT conference, where industry partners present professional contributions in the field of information technology. The Faculty of Chemistry organizes a traditional event promoting cooperation with the application sphere called Chemistry Day, FME presents Company Day, etc. Each study programme at BUT is subject to internal evaluation by the BUT Internal Evaluation Council at least once during the accreditation period. The involvement of practitioners will then be described in detail in this evaluation report.

3.3 Other significant educational activities (apart from the implementation of accredited study programmes)

The Institute of Lifelong Learning offers courses for the commercial sphere, employee training and senior education. All education was marked by the spring and autumn measures by the government, which made it impossible to implement certain types of education. This affected in particular commercial education and the education of seniors at U3V. Internal training of employees also experienced an almost three-month outage in the spring, when it gradually switched to the online form. As part of commercial education, 193 graduates took 14 courses organized by the Institute of Lifelong Learning. At U3V, 47 courses with 1,474 students were completed. In 2020, ICV organized a total of 148 courses for its employees, which were attended by a total of 1,199 employees.

For example, FFA offers a series of summer schools for the public or applicants during the holidays: Nude and Figural Drawing, Game Creation, Sculpture, Art History Experience, Body Design, and 3D Technology. FME then organizes educational lectures for the public within the Science & Technology Club, where current topics from the field of technology and natural sciences are presented. Due to the pandemic, some lectures took place online.

The Faculty of Entrepreneurship organized the International Branding Project – an international semester course focused on the development of a specific company's brand in an international environment. Everything took place thanks to the cooperation of four universities: BUT, Tampere University of Applied Sciences, NHL Stenden University of Applied Sciences and the University of Applied Sciences Windesheim. Around 80 students take part in the project every year.

This year, the Faculty of Architecture organized, for example, an international lecture series on "non-growth" in architecture, an international summer school, a summer course in drawing architectural perspectives for the public, the Film and Architecture festival with public screenings of urban planning documentaries and an exhibition with guided walks. The Faculty of Architecture, in cooperation with the Czech Architecture Foundation, pilot-opened the Brno Architecture Gallery in 2020.

4 Students

4.1 Measures applied to reduce academic failure

To reduce academic failure, BUT is already taking steps in relation to potential applicants for study. All faculties try to carefully inform applicants about the offer of their fields of study and to acquaint them with what awaits during their studies, not only with detailed information on websites, but also at higher education fairs, campaigns directly at secondary schools, and also at open door days. This year, ODD, high school roadshows and Gaudeamus educational fairs moved to the virtual world. Information, often provided by BUT students themselves, will enable applicants to choose the right study programme with regard to individual abilities and interest, which is the first prerequisite for future successful study. That is why students of individual faculties and components continue to participate in the above-mentioned online activities.

BUT faculties offer preparatory courses for entrance exams and also for first-year students before the start of teaching in the first semester. Preparatory courses are offered by practically all faculties of the Brno University of Technology. For example, at the Faculty of Architecture, they organize the so-called Talentovky nanečisto preparatory courses for talent tests, which are of great interest. The preparatory course for talent exams is also organized by the Faculty of Civil Engineering. The Faculty of Fine Arts allows those interested in studying to meet with the heads of individual studios several times a year where it is possible to consult their own work and choose a suitable focus of study, provide targeted visits to selected secondary schools and organize summer courses for those interested in studying.

Sometimes it is also necessary to balance the initial knowledge of newcomers: high school students, whose enrollment at some faculties is growing, usually have only marginal technical knowledge. On the contrary, they have a solid knowledge of mathematics and physics, which gives them an advantage in theoretical subjects. The situation is the opposite for graduates of technical engineering. At the Faculty of Electrical Engineering and Communication Technologies, first-year students have the opportunity to supplement any missing knowledge in optional seminars in mathematics, physics and electrical engineering. At the Faculty of Mechanical Engineering, first-year students can also enrol in optional subjects, such as Selected Chapters in Fundamentals of Design, Selected Chapters in Mathematics, Selected Chapters in Descriptive Geometry, and Selected Chapters in Elasticity and Strength. The Faculty of Business and Management, the Faculty of Information Technology and the Faculty of Architecture also organize a seminar on balancing knowledge of mathematics for new students. At the Faculty of Chemistry, they organize preparatory and balancing courses for students entering secondary schools. Specifically, it is a Preparatory Course for the Study of Chemistry, Repetition of the Basics of Secondary School Chemistry and Repetition of the Basics of Secondary School Mathematics.

Teachers in master's follow-up study programmes also struggle with the uneven initial knowledge of students, for example at the Institute of Forensic Engineering, which attracts graduates of bachelor's study programmes from various universities. Therefore, during the accreditation of new study programmes, which often have an interdisciplinary character, they compiled the subjects of the first year so as to balance the competencies of students, especially in the field of technical, economic and legal knowledge.

In 2020, due to the prevailing distance learning, the Faculty of Mechanical Engineering, for example, set up so-called ambassadors, which are senior students who help first-year students solve their study problems in the online space. At the Faculty of Information Technology, they have study advisors, i.e. employees of the Faculty of Information Technology, who advise students on how to comply with all the rules for smooth study and thus prevent some students from dropping out early due to ignorance of the regulations. The institute of study advisors was also established at the Faculty of Chemistry, where each institute has its own advisor. At the Faculty of Architecture, they organize an introductory lecture for first-year students, where they acquaint them with the most important rules of study.

The causes of study failure are identified, for example, in the Alfons Counselling Centre, where students can benefit from individual consultations. In addition, Alfons offers the possibility of further development in the case of specific student needs, for example, the EEG Biofeedback device helps students increase their ability to concentrate, which can have a positive effect on their studies. Special care is then given to students with special needs, who are provided with various services so that they too can successfully complete their studies.

The Student Chamber of the BUT Academic Senate has prepared an electronic First-Year Handbook for new students, which is available at www.prirucka.vut.cz , and first-year students will find a lot of information here that can make it easier for them to start and study at BUT.

4.2 Legal decisions on the declaration of invalidity of the performance of the state examination or its part or the defence of the dissertation

No such proceedings took place at BUT in 2020.

4.3 Measures applied to limit the extension of studies

One of the significant negative motivations remains the fees associated with exceeding the standard period of study by one year, or their threat. The study department of all departments of BUT tries to inform as much as possible about the conditions of the fee obligation from the very beginning of the study, so that students can adapt their study strategy in time and avoid the potential threat of fees. While the first year after exceeding the standard period of study this fee is relatively low, if someone is studying even longer, it is a significant financial amount. At the faculties, they also provide students with advice on the organization of studies in specific study programmes so that there is no extension of studies. At present, when the course of study of many students, especially in recent years, is negatively affected by the coronavirus pandemic, the faculties are trying to create conditions for students to be able to finish their studies in time, despite these difficulties. Thus, it was common to shift the deadlines for submitting final theses and the deadlines for state final exams so that students could complete their final theses and did not have to extend their studies by a whole year. The state exams took place during the summer holidays and the autumn months of 2020.

In this case, too, it is worth recalling the preparatory courses that help students to bridge the transition from high school to university, so that they have a higher chance of successfully completing their studies within the set time.

At present, when most teaching in 2020 took place in the form of distance learning, it was the effort of all parts of BUT to assist first-year students, who do not yet have experience with university studies, to fulfil all their study obligations even under these extraordinary conditions. E.g. at the FEEC, in justified cases, on the basis of an application, they allowed examinations to be held outside the examination period, so that students would have more time to manage everything without prolonging their studies.

At some faculties, they also allow students to register for subjects more flexibly so that they can plan their studies better and, for example, when repeating a subject, study higher-grade subjects at the same time, so that there is no unnecessary prolongation of studies.

At the Faculty of Information Technology, the most common reason for extending studies is the simultaneous employment of students. Because students most often work in the field they are currently studying, the faculty tries to work directly with IT companies on a system of student internships, which, compared to traditional employment, will allow students to better fulfil their study obligations. They also face the same problem in their master's degree studies at the Faculty of Business. Here, too, they try to work with companies to organize the studies of these students so that they are motivated to successfully complete them.

4.4 Own and specific scholarship programmes

Merit scholarships are paid at most faculties. At some faculties, they support gifted students in the first year with an extraordinary scholarship, where they take into account the study results in the first semester of study (e.g. at the Faculty of Business). At all BUT faculties, students can receive a scholarship if they engage in scientific or creative activities beyond the standard study obligations. Students are rewarded with the Dean's Award or the Rector's Award for extraordinary study or creative performances. The BUT scholarship also supports the important representation of the school in sports.

Faculties also support their active students in the form of one-off special scholarships for representing the school in the field of science or other creative activities. E.g. at the Faculty of Architecture, they regularly award scholarships for the excellent work of their students, who have also established themselves outside BUT.

At the Faculty of Information Technology, they decided to motivate outstanding doctoral students to devote themselves fully to their studies without having to work outside the university simultaneously in the form of special scholarships that match the doctoral student's income to the average salary. At the Faculty of Chemistry, they also try to support doctoral students with motivational scholarships for research and publication results.

The Faculty of Fine Arts also has several support scholarship programmes in the form of announced scholarship programmes: support for the implementation of diploma theses, support for students' artistic and creative activities, support for doctoral students' artistic activities, Dean's Award for diploma and bachelor thesis or scholarship for loaning works of art (the so-called Artotheque).

The Rector of the University may award an extraordinary social scholarship to a student in the event of a sudden deterioration in their social situation. The purpose of this one-time scholarship is to help bridge the unfavourable period and thus increase the chances of a successful continuation of the study. Students of the Faculty of Fine Arts can also receive an extraordinary social scholarship from their faculty. In connection with the coronavirus epidemic, the Faculty of Architecture has also decided to provide an extraordinary social scholarship to its students who have found themselves in a difficult social situation.

4.5 Counselling services provided to students and their scope

The counselling section is a part of the BUT Institute of Lifelong Learning. This section provides psychological, study and career counselling. It also includes services related to social and legal counselling and counselling for students with special needs. In addition to the above services, the section offers students development courses, focused mainly on the development of soft skills. The section also cooperates with the BUT Career Centre and companies and organizations whose activities concern BUT students. Another important activity is participation in the organization of the job fair – JobChallenge. In 2020, the fair was held online on the website www.jobch.cz and was for two days. More than 2,500 students and recent university graduates registered for the online variant of the fair. A total of 6,300 people visited the fair's website (NPS index – visitor loyalty index: in 2020 it was 59%, a year earlier 48%; according to data 83.7% plan to participate in the next JobChallenge 2021).

Psychological counselling helps students in solving problems that can include difficult life situations, problems in relationships, study problems, etc. Students are offered the option of a group form or individual, where up to 7 hours of consultations can be used. In 2020, due to the unfavourable epidemiological situation and tough government measures, 300 consultations were carried out, including through a newly established online counselling centre.

Career counselling helps in making career choices, planning and managing one's own career. This category of counselling also includes the solution of internal barriers to choosing a profession, and assistance in finding a job. Students often use the option of compiling a professional resume or coaching. In 2020, 68 consultations were provided, with three hours of consultation per student.

Development and preparation courses are group activities focused on the development of soft skills. The courses were expanded to include topics related to the prevention of study failure in the first years of study and the development of competencies needed to successfully complete studies in higher years. The courses take place interactively in smaller groups (8–15 participants) and have different time allocations. Some are implemented in the form of regular meetings. This year, 31 courses took place, which were attended by 621 clients.

4.6 Support for students with special needs and their identification

The Alfons Counselling Centre, part of the LLI, is available to students with special needs. Its services are used by applicants for studies at BUT, current students, recent graduates of the Brno University of Technology and academic and non-academic staff of BUT. Applicants and students with special needs (hereinafter referred to as SN), such as learning disabilities, disabilities, mental illness or chronic somatic illness, are provided with study support in accordance with the requirements of the MEYS standards. This concerns in particular the adaptation of the admission procedure and the organization of studies through support services and directing measures.

Identification takes place when filling out the e-application, where the applicant marks his/her SN. They shall then provide the evidence necessary to assess the impact of the disadvantage on the admission procedure. Students apply for adaptation either directly by contacting the counselling centre, or this is recommended to them at the study department or by the vice-deans for study matters.

Adaptation of the admission procedure is a change/modification of the admission procedure so that students with SN can prove their skills and knowledge in the same way as other students. The adaptation of the study is the change/modification of the study regime so that students with SN can acquire and prove their skills and knowledge in the same way as other students. The adaptation itself then takes the form of proposed overhead measures. These include, for example, an increase in the time allowance for exams, the provision of study materials, interpretation into the Czech language transcription service (simultaneous or content registration of curricula, increased assignments, permission for hygienic breaks, etc.).

The centre also offers personal assistance, loan of software aids, additional English language instruction, proofreading of final theses and Czech/English language counselling. In 2020, 20 students used additional English lessons, 18 students took advantage of language counselling and 3 students took advantage of Czech language tutoring. After the transition to distance learning, these services were provided online.

EEG-biofeedback therapy is a modern method that allows you to control your own brain waves. It is a self-learning brain procedure using so-called biological feedback. Thanks to this method, it is possible to alleviate a number of difficulties, such as learning and attention disorders, sleep and speech disorders, anxiety or depression. In cooperation with the BUT Central Library, the SunBall rehabilitation facility, which helps to develop cognitive functions and physical abilities, is available. It is suitable for working with students with specific learning disabilities, attention deficit disorder, autism spectrum disorder and students with post-traumatic conditions. EEG-biofeedback therapy has been extended by the PIR Heg method, which is aimed at promoting attention. The provision of this therapy continued to be based on cooperation with psychologists from the Alfons Centre, and sessions with clients from the Union of the Deaf also took place there. At the level of consultations, cooperation with the Edial Centre was initiated. This year, 36 clients underwent EEG-Biofeedback therapy.

The ALFONS Counselling Centre has long been working on the Dictionary of Selected Technical Terms of Czech Sign Language. Currently, the dictionary contains 666 terms translated into Czech sign language.

In 2020, the ALFONS counselling centre took care of 280 students with SN.

4.7 Support and work with exceptionally gifted students and those interested in studying

The faculties of the Brno University of Technology can offer talented students merit scholarships; they can also nominate them for the Dean's Award or the Rector's Award. Some financial resources are also donated by specific corporate partners to reward exceptionally gifted students. Another option is to participate in established external competitions (e.g. the Josef Hlávka Award, the Werner von Siemens Award or the Brno Ph.D. Talent competition), which reward talented students. Among the internal competitions we can mention, for example, the presentation competition 8 from BUT, which BUT organizes every year and in which compete the 8 best graduates of bachelor's degree programmes, who measure their strengths in rhetoric and popularization of their scientific topic.

As far as applicants for studies are concerned, the 500 best domestic high school graduates are rewarded with a lump sum of CZK 6,000 according to their high school diploma results. The scholarship is intended only for graduates of the Czech State Matura. The algorithm is set up so that the bonus is awarded to students who choose mathematics and English in the compulsory part of the Matura exam. Those

who choose a more demanding version of the Mathematics+ exam in the optional section also have an advantage. In 2020, this financially demanding activity of Brno technology was discussed, but in the end it was decided to maintain it for the following period. It depends on the form of the graduation exam in 2021.

Applicants are also evaluated through secondary school professional activities and competitions (e.g. STAVOKS at FAST, Business Point at FBM, Merkur PerFEKT Challenge at FEEC). Selected applicants from secondary schools can also try their hand at working at the CEITEC BUT Science Centre thanks to the CEITEC Student Talent project, where the best will start as members of renowned scientific teams.

In addition to working in student organizations (e.g. BEST Brno, IAESTE, ESN VUT Brno), active students can also find employment in specific scientific projects at their home institutes. Doctoral students are usually involved in specific research, participate in foreign conferences, etc.

Students at FFA can then get the opportunity to invite a teacher to host external exhibition projects, or get a so-called residence offered by partner institutions, such as the Stuttgart branch of the German association Gedok or the House of Arts of Brno, where the student will receive two months of accommodation, their own studio, financial support and the opportunity to organize an exhibition in the gallery so that they can fully concentrate only on their artistic work.

4.8 Support for students with socio-economic disadvantages and their identification

The university does not have its own tool for identifying students with socio-economic disadvantages. The S Kompas counselling centre is available to both BUT students and employees, where they can find help, especially in the legal and social field. Support is provided by e-mail, telephone or in-person consultation. S-Kompas services are connected with other state and non-profit entities. In 2020, 29 contacts were made.

4.9 Parental support among students

A student-parent can apply for an individual study plan at their faculty. This applies especially to mother-students in the period when they would otherwise take maternity leave. These students may request a postponement of the fulfilment of study obligations in the period around the date of childbirth. E.g. at the Faculty of Architecture, doctoral students who have small children can replace a foreign internship with another form of international activity. At the Institute of Forensic Engineering, both parents of a child under the age of three can apply for individual adjustment of the attendance obligation in subjects where participation is necessary. At the Faculty of Mechanical Engineering, they also allow student-parents to take examinations outside the examination period, and they allow various individual plans.

Students who are the parents of a child under the age of three may interrupt their studies, and such requests are always granted by the Dean, and the period of interruption due to parenthood does not count towards the maximum period of study. The time when a student studies in the legally defined "recognized period of parenthood" is also not counted in the total period of study, from which the so-called fee obligation is later calculated. At the Faculty of Chemistry, students-parents can apply for financial support in the form of a scholarship.

The Edisonka children's group has also been operating at BUT for seven years now. It is located on the premises of the Faculty of Electrical Engineering and Communication Technologies, but is intended for children of employees of all faculties of Brno University of Technology. It is not a classic kindergarten, but offers regular babysitting in the form of a children's corner, for children under 6 years of age. At the Faculty of Chemistry, a room was set aside as a rest room for student-parents who take turns in caring for the child between the individual teaching blocks. Some women's toilets at BUT are also equipped with changing tables.

5 Graduates

5.1 Cooperation and contact with the graduates

The Brno University of Technology has been communicating with its graduates for a long time through the web portal www.vut.cz/absolventi, where news, interviews with graduates, and invitations to events are published, and there is, among other things, an online option to verify a graduate diploma. A direct link to the new BUT Technically Taken podcast has been added to the web portal for graduates this year. The year 2020 was specific in that a number of events were cancelled, including graduate ones. BUT planned to organize another year of Golden Graduation for graduates from 50 years before, however, it is a risk group of seniors, so this event was cancelled and BUT plans to organize it in the following year, as soon as the epidemiological situation allows.

BUT continued to offer articles or interviews with graduates on its news portal www.ZVUT.cz and in the university magazine Events at BUT. Another regular service is that to graduates, i.e. the verification of diplomas, confirmation of study and regular transmission of contacts to the BUT Archive, to which the graduates turn with various requirements. The Brno University of Technology communicates with graduates on its strongest social network, i.e. LinkedIn, where it reaches 45,000 users, mostly graduates and representatives of cooperating companies. Here, the achievements of students, staff and graduates are communicated, along with invitations and news from events at the university.

At the end of the year, the VUTARIUM newsletter for BUT graduates was also modernized. The modified visuals and new graphic design of the newsletter are now accompanied by an emphasis on the readability of texts, their clear division and thematic diversity. The periodical was expanded from its original two-page format to the current four-page issue. From the following year, VUTARIUM will also be published 4 times a year. It was also decided that from 2021, two VUTARIA issues will be published regularly in English for foreign graduates. In the monitored period, a graphic proposal was also created to change the method of sending an electronic newsletter in html code. From 2021, it will replace the original distribution of e-mail messages with a link to VUTARIUM in a pdf file. The database of electronic contacts for graduates increased to 22,515 contacts by the end of 2020.

Individual faculties also communicate with graduates. For example, on the occasion of its 120th anniversary, the Faculty of Mechanical Engineering was preparing a large gathering of graduates, which had to be postponed. However, it at least marked the occasion with the interesting publication 120xFME, which was published in both printed and electronic form. Graduates also took part in some online events, such as the virtual discussion From Student to CEO/CTO, organized by the Faculty of Information Technology in October to present the stories of successful graduates.

In April, a lecture was given for BUT students by a successful graduate of the university, Karel Obluk, who was one of the founders of AVG Technologies, one of the most successful global companies in the field of IT security, and who now holds the position of technical director. The event was organized by the BUT Career Centre. With his output, he passed on to students his experience not only in the field of top management, but also business and investment, which he is currently fully engaged in in the markets of Europe and North America. The lecture by a successful BUT graduate supported the idea of career development for current BUT students, but also the development of their entrepreneurship.

5.2 Monitoring the employment of graduates, measures to increase it, own surveys and reflection of results in the content of study programmes

In 2020, BUT centrally conducted a survey among students of the last years. While among the bachelor's students, an absolute minority want to work instead of furthering their studies (only 7% did not plan follow-up studies, which included other life alternatives), among students of the last semester of follow-up master's programmes two thirds had clear ideas about future employment/entrepreneurship after study, and 58% at that time either already worked or did business. We also assessed the subjective readiness of future graduates in several aspects; the vast majority feel well prepared theoretically, marking themselves at least three on a scale of one to five, the majority also evaluate their readiness from a practical professional point of view. Concerns about not applying are thus also a minority issue for students who have not yet had a job.

On the contrary, the survey among employers of BUT graduates, which was planned for the autumn months of 2020, was postponed to 2021 due to the pandemic situation and related uncertainty in many companies and organizations. We believe that the following year will prove successful in getting more responses from private companies and other employers of our graduates and thus increase the return on this planned questionnaire survey.

5.3 Cooperation with future employers of students

The application sphere is sponsored at the university level by the BUT Career Centre project, the aim of which is to deepen the practical experience of BUT students and thus support their career and business development. The university focused on cooperation not only with major companies, but also with smaller firms, which are a benefit for BUT students in gradually gaining practical experience.

For this purpose, in 2019, the BUT Career Centre created partnership packages, which strengthened closer cooperation between BUT and partner companies. However, their standard fulfilment was not possible in 2020 due to the covid-19 pandemic, and therefore a new basis was created, which transferred this cooperation exclusively to the online environment. The validity of the newly established partnership between the university and companies will be affected in the future by the development of the current economic situation. The BUT Career Centre assumes there will be a return to the original partner packages after the resumption of normal operations of the companies.

In connection with the cooperation with practice and the connection of partnerships, further documents were created in 2020 for the launch of a mentoring programme. Furthermore, steps were taken toward the development of this area on the CC website and the foundations were laid for adjustments allowing the insertion of information resources. The current partners of CC have received a positive response regarding possible cooperation in this area, and gradually the list of companies interested in providing their qualified employees for the purpose of mentoring BUT students on their premises can be expanded. The full launch of the mentoring programme was tentatively scheduled for September 2021. However, the date depends primarily on the development of the epidemiological situation associated with the covid-19 pandemic.

Companies can place their offers of internships, professional practices and jobs on the CC website all year round. These are offers from various technical fields, which BUT students can filter according to their focus. In 2020, despite the pandemic, a total of 28 internships and 69 job offers were published. Companies also have the opportunity to promote their offers on social networks, thanks to which they can reach BUT students faster and more effectively. The main social networks that were used by CC in 2020 included Facebook and Instagram. A new CC profile was established on the LinkedIn network in October 2020, which focused mainly on connecting students and partner companies.

Following the requirements and feedback of partner companies and students who have already experienced an internship internship, two e-books were created, focusing mainly on the areas that students face the most. For a better overview and orientation in the given areas, an e-book was created on the topic of How to get a job and also How to start a business. Both e-books are publicly available on the CC website and can be downloaded free of charge to any electronic device.

The Career Centre is also part of events to support practice organized in cooperation with other entities. In November 2020, KC participated in the 14th JobChallenge2020 Job Fair as part of the accompanying programme of online workshops. With regard to the epidemiological situation, the fair was realized virtually. In cooperation with the BUT Strategy

Department and the South Moravian Innovation Centre, the Career Centre was part of the evaluation committee of the Come to Entrepreneurship students' programme to support entrepreneurship. A total of sixteen competition projects entered the programme, and the eight best of these were selected for the autumn finals of the competition, from which the four best business projects emerged at the end of the year.

With regard to the emphasis on career development for BUT students, regular consultations of CVs, LinkedIn profiles and career guidance of BUT students were set up. These consultations are designed as individual and are tailored to the registered applicants. BUT students can visit any of the announced consultations with the lecturer repeatedly and thus monitor their progress in the given area. Also added to the regularly provided services of CC BUT in 2020 was Diagnostics of work potential, which focuses on a comprehensive description of the student's personality, his competencies and ways of using them. Thanks to the results, registered students gain a more concrete idea of their strengths and potential for further development. The Institute of Lifelong Learning (ILL) also offers career counselling to students of the Brno University of Technology.

In 2020, a blog was developed on the CC website with articles to support the development of careers, entrepreneurship, and also the personal development of BUT students. Articles are published on the website twice a month. In the second half of 2020, the topic of a legal overview, which BUT students have repeatedly expressed an interest in, was added to the above-mentioned topics. The content of the articles acquaint students with the basics of law and provide them with a brief orientation in the most fundamental issues of legal issues. ILL also provides BUT students with the S-compass legal counselling centre, which students can also contact online.

The Career Centre also prepares one-off events for BUT students within the individual semesters, which are focused mainly on supporting entrepreneurship and career development of students. With regard to the situation associated with the covid-19 pandemic, KC transferred all planned workshops and lectures in 2020 to the online mode through MS Teams. The platform made it possible to prepare individual online webinars for up to 250 BUT students at a time.

In the second half of 2020, the possibility of an internship at the BUT Career Centre was opened for the first time. On September 7, 2020, Miloš Šiška became the first KC intern, through the official Erasmus+ programme. Within the Career Centre, he provides consultations on CV/LinkedIn profiles of BUT students and, using the WordPress system, uploads blog articles, advertisements and offers of internships/internships on the CC website. He manages the newly created profile on the LinkedIn social network and at the end of 2020 he prepared a handbook for graduates of BUT faculties with practical advice on CVs and job interviews. Miloš Šiška's internship will end on May 4, 2021 after its extension.

6 Interest in studying

6.1 The nature of entrance exams

Entrance exams are carried out by individual BUT faculties, unless they use the services of Scio, which regularly organizes National Comparative Examinations. Otherwise, the entrance exams consist mostly of high school mathematics and physics, but at some faculties also of biology or computer science, it always depends on the specific study programme. Most faculties also have an extensive system of opportunities to waive entrance exams, based on achievement, participation in various competitions (especially in high school professional activities, participation in various Olympics), etc. For example, the Faculty of Information Technology seeks to find active candidates who have already been involved in activities beyond their study obligations while at secondary school. The Faculty of Architecture, the Faculty of Fine Arts and also architectural studies within the Faculty of Civil Engineering have a talent component in the entrance exam. Also having a talent exam are the Faculty of Electrical Engineering and Communication Technologies for the study programme Audio Engineering, and the Faculty of Mechanical Engineering for the programme Industrial Design in Mechanical Engineering.

In 2020, entrance examinations were abandoned at most faculties for epidemiological reasons. Talent examinations took place mostly at the turn of 2019 and 2020, so holding them, which was essential for the selection of candidates in fields that cannot be studied without specific prerequisites, was not affected by the pandemic. At the faculties, where possible, they accepted all applicants who met the other conditions of the admission procedure.

For study programmes conducted in English, the entrance exams are most often in the form of oral interviews, and the motivation to study and the language readiness of the applicants are also ascertained. The entrance examinations for doctoral study programmes have a specific character, implemented in the form of a professional discussion on the intended topic of the dissertation, where it is necessary to verify not only the necessary knowledge, but also the readiness of the applicant for scientific activities.

6.2 Cooperation with secondary schools

BUT also participated in the Gaudeamus education fairs in 2020. In January, the university presented the possibilities of studying at the trade fair in Prague in the traditional way at the stand. As part of the traditional autumn activities for applicants, BUT has already used a new format of presentations and participated in activities called Gaudeamus on-line, through streamed lectures. During BUT's on-line lecture day of the faculty and components presented study programmes and other study options, as well as university facilities for scientific and leisure activities.

A traditional event is the Meeting of Secondary School Principals, which took place this year on February 11, at the Faculty of Business at BUT. At that time, it was still possible to personally invite 37 principals of grammar schools and secondary schools, which provide BUT with the most applicants according to the TOP500 ranking. They had the opportunity to see one of the faculties, in the end about twenty invited guests attended the meeting.

The popular FabLab Experience truck, in which BUT is one of the main partners, made only five of a planned eleven trips. As part of trips to secondary schools, the truck visited Karviná, Opava and Frenštát in 2020. The presentation inside was attended by 353 students, another 50 went through special workshops (always tailored to the focus of the school). Other planned trips were cancelled due to the coronavirus pandemic.

Unfortunately, due to the epidemiological situation, it was not possible to hold the traditional roadshow around secondary schools this year. It is held regularly in the autumn and was originally an effort by university representatives to bring presentations online, as well as, for example, at open days at individual faculties. However, the schedule at secondary schools unfortunately changed so dynamically that it was not possible to find even enough dates for online presentations. The whole roadshow moved to 2021.

The individual faculties of the Brno University of Technology try to cooperate with their secondary schools, grammar schools and industrial schools close to the field. For example, the Faculty of Mechanical Engineering organized the traditional Robots@FSI online competition at the end of the year. High school students from the Czech Republic and Slovakia had already gained experience in the qualification round with the Webots simulation environment, in which the competition took place, because programming in Webots is part of the teaching in the 1st year of selected study programmes of this faculty. The Business Point competition at the Faculty of Entrepreneurship also turned into the virtual world of ones and zeros, where high school teams worked on a specific case study in the field of economics, management or marketing.

On the other hand, the 16th year of the STAVOKS conference, at which high school students present their high school work focused on construction or architecture to a professional jury, took place on January 31, 2020 in its classic form at the Faculty of Civil Engineering. In the summer, at the time of loose restrictions, the (F)IT Summer School for Girls, which has been organized by the BUT Faculty of Information Technology for 14 years, was also held in person. Here, the tour of this event is divided into two runs according to age, so in addition to high school girls, students from primary schools can also apply for IT summer school. This year, the above-mentioned FabLab Experience truck also took part in the event with the aim of popularizing technical fields.

7 Employees

7.1 Career rules for academic staff and motivational tools for employee remuneration

BUT has a document entitled Concept of Human Resources Development (approved in 2019). This concept will be revised and brought into line with the current personnel strategy of the organization. In 2019, BUT joined the HRS4R process, and in 2020, with regard to documents submitted to the European Commission, the personnel, scientific, research and educational areas at BUT were analysed, including a questionnaire survey among employees.
This year, BUT prepared and submitted the OTM-R Policy (recruitment, selection, personnel approach), as well as the Action Plan and other documents necessary to obtain the HR Award. We can already point out that in February 2021 BUT actually received the HR Excellence in Research award, the so-called HR Award. For the next two years, therefore, attention will be focused on meeting the objectives set out in those documents. One of the goals is the creation of the BUT Career Code.

BUT employees have the opportunity to participate in the Erasmus+ and MeMoV programmes, within which they use mainly language stays and staff weeks. They can also participate in the international mobility of researchers to foreign research institutes.

CEITEC BUT scientists and researchers are regularly subjected to the international ISAB evaluation process. At the end of 2020, BUT launched its own system of evaluation of academic staff (hereinafter referred to as SHAP). In 2021, the first test evaluation of the results of their work in 2020 will be carried out.

In 2020, the revised Wage Regulations were also approved. There was a motivational increase in wages and optimization of wage classes. Some parts of BUT, especially faculties, use other motivational tools, such as rewarding the results of scientific and research activities.

7.2 Development of pedagogical skills of academic staff

Employees have the opportunity to participate in free educational events of the BUT Institute of Lifelong Learning, while career development planning is still fully within their competence. The BUT Code of Ethics contains a commitment that employees of Brno technology will constantly work on the development of their abilities and skills and that they will also be continuously educated and deepen their professional knowledge.

The new SHAP contains, among other things, the Personal Development and Representation of BUT section. In this part, employees register not only vocational education but also their language and pedagogical education. The Summary Assessment and Personal Development Plan section then allows you to plan training in these areas.

The BUT Institute of Lifelong Learning also implements courses in the field of teaching and presentation skills for its employees, and regularly offers the course Supplementary Pedagogical Minimum, not only to doctoral students. Employees can also use individual consultations with a psychologist in order to set the personal profile of the employee, not only in relation to their profession.

The MOST project (Modern and Open Technical Studies), within which, for example, courses focused on language training of employees were implemented, also contributed to the training of employees in 2020.

7.3 Gender equality

The basics of gender equality are contained in the BUT Code of Ethics (equal access to both sexes, e.g. when evaluating employees or drawing benefits).

While women predominate in non-academic positions at BUT, men are the dominant group among academics at most faculties, especially those with a technical focus. BUT's gender policy will be comprehensively addressed within the HRS4R implementation process in the next two years, as one of the objectives set out in the Action Plan. Among them are, for example, support and motivation of women to apply to BUT, and support of Ph.D. students in their study and scientific profiling and subsequent work development at BUT.

BUT supports the alignment of family and work life through flexible working hours, the possibility of part-time work and its own Edisonka mini-kindergarten. BUT also offers the possibility of a home office, and in 2020 this was used more than at any other time during the entire existence of the university. It is always necessary to distinguish for what proportion of employees this is possible.

In the future, BUT will also focus on gender equality (women's empowerment and gender equality strategies) in the area of recruitment and selection of employees, e.g. more gender-balanced selection boards where possible and with regard to the position of the tender. The filling of executive positions is regulated by the Rules of Tenders, which will also be revised with regard to HRS4R. Supporting materials will also be developed to raise awareness in this area. In 2020, gender equality became an important topic across universities and institutions focusing on science and research. With regard to the obligation to deal with this issue within two it is necessary to set defined goals, steps and specific outputs in this area in the institution.

7.4 Issues of sexual and gender-based harassment

Every employee is obliged to comply with the BUT Code of Ethics. It regulates, among other things, the issue of discrimination, observance of moral principles, collegial behaviour, etc. It defines the manifestations of abuse of position, sexual coercion and harassment, or degrading treatment. If such a case occurs, it must be discussed and resolved by the BUT Ethics Committee.

Even with regard to the objectives in the HRS4R Action Plan, this issue will be addressed during the implementation phase. The questionnaire survey, which took place in the spring of 2020, raised questions on this topic. Therefore, BUT will continue to support a positive environment and will ensure compliance with the principles of decent communication and behaviour, as well as respect for human rights.

8 Internationalization

8.1 Support for student participation in foreign mobility programmes

BUT's priorities in the field of internationalization are defined in the Long-term Plan for 2020 and the long-term strategy in the field of foreign relations. The university primarily aims to increase the mobility of students and staff to and from abroad, and active cooperation with foreign countries, even in the period affected by the crisis caused by the covid-19 disease.

BUT actively supports and tries to motivate students and employees to go abroad for a study stay, internship or summer school. It perceives that it is an indispensable experience for students when applying in the labour market. During their stay abroad, students gain not only study experience, but also valuable life experience that they would not gain from only studying in the Czech Republic. In the same way, employees gain invaluable experience, which they can apply in their agenda and activities at BUT. Due to the situation caused by covid-19, BUT promotes new types of mobility, such as virtual, online or blended (hybrid) mobility. The aim is for students and staff to gain foreign experience, albeit only indirectly. Another benefit of these types of mobility is the possibility to participate abroad for students who already work or have already established families and for whom physical participation abroad would be complicated.

To motivate BUT students to go abroad, the Department of International Relations regularly organizes events such as Mov'in Europe and International Mobility Day. In 2020, only the International Mobility Day was organized, in online form. With this event, the Department of Foreign Relations launched a series of so-called live sessions, in which BUT students who participated in a study stay/practical internship/summer school abroad shared their experiences via live broadcast on Facebook. This format proved to be very beneficial because it appealed to a large number of interested parties. The Department of Foreign Relations has built a network of Czech international mobility ambassadors. This network is intended to help create important information channels among students and motivate BUT students to go abroad.

Mobility abroad takes place primarily through the Erasmus+ programme. Other, no less important programmes that are increasingly used are foreign educational programmes such as CEEPUS and AKTION, and scholarships of the Academic Information Agency. Free Mover mobility is very popular among students. This is the mobility of students around the world, where the stay is mainly financed from institutional development projects of the Ministry of Education. Also interesting and beneficial are mobility through IAESTE (International Association of the Exchange of Students for Technical Experience) and BEST (Board of European Students of Technology), which allow students of technical schools to gain experience in internships and summer schools around the world.

In addition to the above-mentioned promotional activities, among other tools for the promotion of studies and internships abroad, classic tools such as websites, Facebook and Instagram are used. The monthly Newsletter is also published in electronic form. In the Newsletter, students will find current or upcoming dates for submitting applications for trips abroad, and the events and activities of international student associations.

BUT takes care of maintaining and improving the conditions for recognition of subjects that students have completed during their stays abroad. For this purpose, the Rector's directive, which sets the recognition of subjects completed abroad, is used. In 2020, this directive was updated to meet current needs for the recognition of courses completed abroad. In general, there is an effort to ensure that students do not extend their studies and complete them on time, even with foreign experience.

This year, BUT submitted an application for the central development project Study in Brno, which was supported by the Ministry of Education. The project is primarily focused on the promotion of the offer of study fields and the Brno region abroad and is based on cooperation with other Brno universities (Masaryk University, Mendel University). BUT has thus acquired another tool for the promotion of its activities abroad and, through this, is trying to gain foreign potential not only in the field of study, but also in the field of science.

Another form of attracting foreign students to study or do an internship at BUT is BUT's participation in foreign study portals, study and professional fairs (in 2020 only online). The Department of International Relations has also built a network of ambassadors composed of foreign students studying at BUT, the so-called International Student Ambassadors.

BUT actively participates in foreign trade fairs, where it promotes its opportunities for cooperation to foreign students, employees, and researchers. It is also looking for opportunities at which foreign universities BUT students, employees, scientists and researchers can gain foreign experience. Due to the situation caused by covid-19, trade fairs were only held online. The Department of Foreign Relations thus participated in only one EAIE (European Association for International Education) trade fair.

To obtain foreign self-payers, BUT actively participates in the Study in the Czech Republic platform, which promotes the university's study offer to potential foreign students. This

activity is managed by the House of Foreign Cooperation. BUT also cooperates with the South Moravian Centre for International Mobility (JCMM), which mediates other foreign BUT students studying in the Czech language. It also offers scholarships in certain fields for foreign students studying in English programmes. Implementation of the SoMoPro project, thanks to which BUT acquires top scientists, is also through the cooperation with JCMM.

BUT also uses the platform already mentioned in the Study in Brno project and other foreign study portals for the promotion of study offers abroad to obtain foreign self-payers.

For foreign students, every year the Department of International Relations organizes a Welcome Week before the beginning of each semester. The aim of the event is to acquaint foreign students with the environment of BUT, Brno, to inform them of cultural practices, and to prepare them for possible cultural differences. Last but not least, foreign students will be able to complete the necessary formalities for studying and staying in the Czech Republic. In the summer semester of the academic year 2019/2020, the Welcome Week was held in physical form under strictly determined hygienic conditions. In the winter semester of the academic year 2020/2021, a Welcome Week was held in online form due to the current unfavourable epidemiological situation. This form was acceptable to foreign students and, if necessary, the Department of International Relations will continue to hold a Welcome Week online. Likewise, in 2020, ESN VUT Brno, which takes care of foreign students during the semester, will continue to hold its events online.

8.2 Support for foreign mobility of academic and non-academic staff

Every year, the Department of Foreign Relations organizes the International Staff Week, which is intended for colleagues from foreign universities, where the main topic is the internationalization of university studies. Thanks to this event, experiences and practices from this area are shared. We also succeed in deepening or establishing further cooperation between BUT and foreign universities. In 2020, in close cooperation with the Faculty of Business, the International Staff Week was held online for the first time, when two formats of staff week were combined: ISW + BIW (Brno International Week). There was a unique connection between foreign academics and the academic community from abroad. This format was a success and we would like to continue it across the entire university, not only with the Faculty of Business.

BUT is involved in the call of the OP RDE International Mobility of Researchers I. and II. This format significantly helps to stimulate the mutual mobility of researchers from BUT abroad and vice versa. This activity greatly helps to gain foreign experience, which is valuable for BUT. From 2020, not only scientists but also administrative staff can participate, thus gaining experience abroad.

The Department of International Relations is also continuously implementing its goal of reducing the administrative burden by electronicising the agenda for handling mobility abroad, both for students and employees, and for faculties/components and employees of the Department of International Relations. Therefore, it continuously cooperates with the Centre of Computer and Information Services for the electronicization of the Erasmus+ agenda, the so-called Erasmus without paper, which is also one of the main goals of the European Committee.

8.3 Integration of foreign members of the academic community

The integration of foreign members of the academic community into the life of the university is one of BUT's priorities in the field of internationalization. Due to the fact that BUT has considerable scientific and research potential within research centres, there is a growing interest in recruiting foreign academic and research staff. As already mentioned, the forms of support for the mobility of researchers include, for example, the OP RDE project International Mobility of Researchers and the SoMoPro project.

One of the activities for the successful integration of foreign scientists, researchers and academic staff is the functioning Welcome Service, which has been operating centrally at BUT since 2019. Welcome Service is provided by the Department of International Relations in cooperation with colleagues from faculties and departments. It is important for BUT that foreign colleagues feel "at home" at the university. The Welcome Service provides services and information not only before the arrival of a foreign employee, but also during their stay. Services and information are also provided to family members of foreign employees, who very often accompany the foreign employee.

As part of the implementation of the central Welcome Service, BUT works closely with the South Moravian Regional Centre to support the integration of foreigners and EURAXESS. The Brno University of Technology perceives that a very important aspect of internationalization is the acquisition of visiting academics who will work at BUT. The aim of the university is the seamless integration of foreign workers into the academic community of BUT.

8.4 Activities strengthening internationalization

BUT is a member of international organizations such as the European University Association (EUA), the European Association for International Education (EAIE) and the university network of technical universities CESAER (Conference of European School of Advance Engineering, Education and Research) . Brno Technology is interested in participating in the Erasmus+ European University Initiative project. BUT is currently working on submitting a project within this initiative, where a new call will not be announced until 2022. It is one of the activities that BUT primarily targets.

Based on the monitoring of internationalization, which was carried out by the House of Foreign Cooperation in cooperation with four foreign experts, BUT created an Action Plan for Internationalization for the period 2021–2023.

9 Research, development, artistic and other creative activities

9.1 Strengthening the connection between creative activities and educational activities

The long-term goal of BUT management is to be a strong quality university, able to compete with the best universities in Europe and in the world, especially in the field of education and creative activities. One of the parts of BUT's vision is also to be an educational institution with an international team of teachers and scientists, significantly influencing technological progress. The aim of all academics and researchers is to participate in research that will lead to significant new knowledge and which will have a high application potential. One of the tools to achieve this goal is participation in prestigious international and national projects of basic research and applied research, as well as collaborative and contractual cooperation with industrial partners. The results from creative activities are soon incorporated into lectures, exercises and seminars for students of all accredited fields.

Each faculty has exclusive research directions in its creative activities linked to the projects run and directly involves students in their implementation, thus innovating individual forms of teaching. The direct connection of the results of all forms of creative activity with teaching enables future BUT graduates to obtain adequate education with a high potential for employment on the international labour market, in practically all areas of advanced technology. BUT faculties and components cooperate significantly with companies, which, among other things, enables their participation in teaching in the form of lectures, short seminars and full-day workshops. Students thus have the opportunity to obtain the most up-to-date information from practice, including information on research topics for which there is the greatest social demand.

9.2 Involvement of students of bachelor's and follow-up master's programmes in creative activities

All students of bachelor's and especially related master's and doctoral study programmes are involved in creative activities within the work on their bachelor's, diploma or dissertation work, and can also be involved in working on research, development and artistic projects of all types at individual faculties and parts of BUT.

Students of follow-up master's and doctoral programmes have the opportunity to apply for the Student Grant Competition within the specific university research at BUT. The student grant competition emphasizes the strengthening of independent creative activity of students in cooperation with academic staff in the field of research and development. The projects enable intensive involvement of students in the solved problems, especially within the framework of team research and development activities at faculties and components. The grants announced annually within the student-specific research contribute to increasing the quality and efficiency of scientific, research and artistic work, to the development of interdisciplinary fields in doctoral and follow-up master's studies, to international cooperation and to support publication of results, which is in line with BUT's Strategic Intent. Grants are financed from targeted support of the Ministry of Education, Youth and Sports. In 2020, a total amount of CZK 88 million supported 185 student junior and standard projects, which are organized on the basis of internal regulations as one-year faculty, one-year interfaculty and three-year faculty. The form of interfaculty projects focuses on multidisciplinary cooperation, optimal use of new devices, technologies and infrastructures. The results of the solution are defended at each faculty or component at a student conference organized at least once a year. Assessors of works are from the ranks of professors and associate professors of BUT, but experts from practice are also represented in the commissions. These are mainly companies with which BUT has a long-term cooperation or with whom BUT graduates have found employment. It is the student conferences that are an opportunity for students to present their level of knowledge, creative skills and research teamwork.

Furthermore, students are involved in research activities in various projects announced by the TA CR. These are, for example, projects in the Zéta, Gama or National Competence Centres programmes. The programme of the National Centre of Competence 1 focuses on supporting long-term cooperation between the research and application spheres and strengthening the institutional base of applied research for the period 2018–2022. BUT is the main beneficiary of two projects (National Competence Centre for Aerospace, National Competence Centre for Mechatronics and Smart Technologies for Mechanical Engineering) and co-investigator for another seven projects.

Like academics and researchers, students of all forms of study were involved in the Motivation System for Improving Performance and Quality in Research and Development in 2020. This guarantees motivation for creating quality outputs and publishing in quality magazines.

The great advantage of studying at BUT is the opportunity to participate in research on the most current topics through cooperation with companies. Companies that are interested in developing a new process, product or idea can design the topic of the bachelor's or master's thesis and provide a professional guarantor who will consult with the student.

Various awards are proof of the high professional quality of BUT students' creative activity. In 2020, for example, the diploma thesis of a student of the Faculty of Mechanical Engineering, Zdeněk Machů, was awarded the 3rd prize in its category in the Werner von Siemens Prize competition. The work, for which the author had already won the Dean's Award of the Faculty of Mechanical Engineering, BUT, deals with modelling the electromechanical response of an oscillating beam composed of several thin ceramic layers, between which are built-in piezoelectric layers that generate electrical energy during their deformation. An extensive list of our awarded students can be found in the introductory part of the annual report in the Achievements and Awards chapter.

9.3 Dedicated funding for research, development and innovation received in 2020

In 2020, BUT received a total of CZK 1.8 billion in current and capital funds as part of targeted support for science and research projects. Of which 1,225 million as principal investigator and 623 million as co-investigator. As part of the cooperation on the implementation of the BUT project, it transferred CZK 170 million to its partners. The largest share consists of subsidies obtained within the projects of the MEYS, TA CR, GA CR and MIT within co-research projects.

9.4 Support for doctoral students and staff in post-doctoral positions

BUT provides support to doctoral students and staff in post-doctoral positions by announcing internal grant competitions, providing project support and technology transfer support, offering further education, career counselling, and offering mobility programmes and arrangements for combining personal and professional life. Further specific support for doctoral students and post-doctoral students at BUT is implemented primarily at the level of individual faculties and components. This is mainly due to the specificity and financial demands of the training programmes for these students and young researchers.

Doctoral students are most often involved in projects organized within a student grant competition funded by the Ministry of Education, Youth and Sports allocated to BUT for specific university research. This grant competition is described above.

Another student competition with the aim of expanding the competencies of doctoral students for work in science and research was announced by BUT in 2020. It is an Internal Grant Competition within the OP RDE project called Quality Internal BUT Grants (KInG BUT) for first- to third-year accredited doctoral students' study programmes. Through the implementation of one-year or two-year grants, individually or in a team, they will develop skills in leading a research grant and possibly a team of colleagues. New experiences should eventually increase the success of submitting scientific project proposals to national and international competitions. The successful implementation of a student grant includes, among other things, research or educational activities abroad (e.g. internship, summer school, research stay, active participation in a conference), which can be implemented in or outside the EU. A mentor provides scientific support for the research grant. The competition, evaluation and implementation of grants are in English. The deadline for submitting grant applications was from November 2 to December 4, 2020. Of the 154 projects evaluated, 34 were selected for support with a total allocation of CZK 31.2 million.

A very important part of supporting doctoral students and staff in so-called post-doctoral positions is the offer of further education. The BUT Institute of Lifelong Learning offers a wide range of courses aimed at acquiring knowledge and skills important for future careers, whether in academia and research, in industry, in managerial positions or in setting up and running your own business. In addition to courses focused on soft skills (e.g. stress management, time management, teamwork, assertiveness, conflict management or self-development), there are, for example, courses to develop knowledge of working with different software, legal minimum courses and other practical skills (presentation skills, effective learning, stylistics of contemporary Czech, etc.). Doctoral students at BUT have the opportunity to expand their qualifications with additional pedagogical studies. This is a one-year course provided by ILL, the proper

completion of which is marked by the issue of a certificate. There are also language courses on offer, including Czech language courses for foreigners. ILL's offer also includes career counselling. In 2020, due to measures against the spread of covid-19, most courses had to be converted into webinars.

Based on the Agreement on Cooperation in the Education of Doctoral Students, some BUT faculties cooperate in the implementation of doctoral studies with selected institutes of the Academy of Sciences of the Czech Republic, namely the Institute of Analytical Chemistry, the Institute of Materials Physics and the Institute of Instrumentation.

BUT supports the mobility of doctoral students and staff in post-doctoral positions. Doctoral students are required to spend at least one month studying abroad in order to gain the necessary experience. During their stay abroad, they are financially supported from institutional support projects, within which the university has set aside a special project for the mobility of doctoral students. BUT also allocated a contribution to the support of international cooperation from the Ministry of Education, Youth and Sports for doctoral students and academic staff's stays abroad. BUT's key priority is to attract doctoral and post-doctoral students from abroad.

The quality of the work of doctoral and post-doctoral students is also evident from the fact that in 2020 many of them received awards for their work. For example, doctoral student Aneta Pospíšilová from the Department of Materials Chemistry, Faculty of Chemistry, BUT was awarded 3rd place in the Make Our Planet Great Again competition, organized by the French Embassy in the Czech Republic along with BNP Paribas. A team of students from the Faculty of Information Technology and the Faculty of Entrepreneurship at BUT and students from Masaryk University, known as Generation Mendel, won a gold medal and a nomination for Best Environment Project at the International Genetically Engineered Machine (iGEM) competition. With their design of a solution for the purification of water from cyanobacteria using the tools of synthetic biology, they were successful in the competition, which featured almost 250 teams from 36 countries. Other winners can be found in the introductory part of the annual report.

In the area of harmonizing work and personal life, BUT offers its employees flexible working hours, holidays exceeding the legal requirement, the offer of sports activities, discounted meals, recreational accommodation and other benefits. BUT also has the Edisonka mini-kindergarten, designed for irregular short-term babysitting from 7 am to 5 pm.

9.5 Cooperation with the application sphere on the creation and transfer of innovations and their commercialization

Technology transfer is an area at BUT that falls within the competences of the Technology Transfer Department. By 2020, we can already boast a total of 700 reported findings. In the monitored period of the calendar year, 53 new findings were reported. A total of 156 authors were rewarded for exercising the right by the Rector of BUT to the announced knowledge of industrial property rights. The number of filed applications for industrial legal protection in the Czech Republic jumped to 11 this year, a total of 10 applications for foreign protection of our findings were filed. In this period, we recorded 17 granted patents under Czech protection and one granted invention with foreign protection. There were 48 registered utility models in this period, which is twice as many as in the previous year.

Brno's technology in the field of intellectual property prefers licensing results from laboratories, which is usually already covered in the partnership agreement. BUT also supports the establishment of so-called spin-off companies without the ownership participation of the university, BUT has a total of 5 such spin-off companies without ownership participation.

Last year, with the help of the team of the Technology Transfer Department, BUT managed to license a total of 8 findings, the total number of newly concluded licensing agreements in 2020 was 25, with a volume of more than CZK 1.6 million. A significant success was the conclusion of a license agreement in the amount of CZK 900,000. A total of 15 newly concluded license agreements represented the sale of intellectual properties in the field of SW, this software is used to model hyperelastic bodies and in 2021 the sale will increase to the noteworthy number of 100 concluded license agreements.

9.6 Support for horizontal (cross-sectoral) mobility and education aimed at developing competencies for innovative entrepreneurship

International and cross-sectoral mobility is supported by the H2020 programme, specifically through the Marie Skłodowska-Curie Action (MSCA) projects. Of the 5 types of grants within MSCA projects, 2 are directly focused on international and cross-sectoral mobility – Individual Fellowships (IF) and Research and Innovation Staff Exchange (RISE). In 2020, 2 RISE projects were implemented at BUT – the RISEN project, where BUT is one of the project partners, and the GeoDust project, where BUT is the coordinator. In addition, 3 IF projects (ETE SPEAKER, LoCatSpot and MotionESt) were implemented. Within the calls announced in 2020, 1 project of the RISE type was proposed for financing, where BUT is one of the partners (ESPERANTO). However, the greatest success was achieved in the MSCA-IF-2020 call, in which BUT was awarded 5 projects, which is the most among domestic universities (these are the projects Microsupercapacitor, STIMULATOR, CellMotors4Tumor, IMAGINE and R3DINBOW). The implementation of projects from these calls announced in 2020 will start during 2021.

Support for domestic and foreign investments in innovations based on the results of Czech science and research is the subject of a memorandum of understanding concluded between the two largest partners of the Brno consortium CEITEC, CEITEC MUNI and CEITEC BUT and also with the CzechInvest Agency for Business and Investment Support . The subject of cooperation is mainly to support the arrival of foreign investors with research and development activities in the Czech Republic, and to expand the cooperation of contractual and collaborative research with foreign investors and Czech companies that cooperate with the CzechInvest agency. CzechInvest will provide researchers not only with professional cooperation in presenting research results to potential investors, but also with support in the implementation of major events, targeted visits to relevant CzechInvest clients, and lectures for doctoral students from CEITEC MUNI and CEITEC BUT to maximize the innovation potential of the excellent CEITEC research centre.

In the academic year 2019/2020, the competition of student ideas was also launched. The project consists of a series of workshops, teamwork on a business idea, and the opportunity to obtain funding in the Student Entrepreneurship Award competition. The first round of the competition in 2020 was won by the Discyo application, which is backed by four students from the Faculty of Information Technology. Their solution will advise the user on which movie to watch, what podcast to listen to, or which computer game to play. Across the media, the algorithm recognizes the user's preferences and what they might like.

10 Significant events related to the quality and evaluation of implemented activities in 2020

In 2019, BUT received institutional accreditation as the first technical university in the country. One of the conditions was the submission of the so-called control report in the following year, so this year BUT worked on the creation of this report, where, among other things, it evaluated the initiative to publish final theses, another to the Internal Evaluation Council and the maximum number of concurrent theses. This report also included a description of the adopted strategy for the sustainability of activities, which were primarily funded by the European Union and the National Sustainability Programme and other instruments to ensure this sustainability, as well as a description of the principles according to which BUT funds are distributed to individual faculties and components. The audit report was sent to the NAU on 17 July and was subsequently noted by the NAU Council. BUT used the suggestions from the inspection report to correct and improve some processes at the university.

BUT has also tried to adjust and update quality standards, while the adjustment of existing standards is always motivated by the effort to unify the rules in all matters relating to study across all parts of BUT and the effort to improve and streamline existing procedures. In 2020, it was also necessary to address the emergency situation in connection with the covid-19 pandemic. The new directives include, for example, Directive No. 1/2020 – Doctoral studies under the dual supervision of a dissertation or Directive No. 14/2020 – Stay abroad and internship abroad. When drafting the new directive, the previous experience with the implementation of short-term stays abroad was taken into account. The aim of BUT is to support these stays so that they become a regular part of the studies of a large proportion of students, while a clear setting of the rules of these stays can contribute to this goal.

In 2020, three methodological sheets were issued by the Department of Study Affairs of the BUT Rectorate. Two are focused on the implementation of study programmes such as Double Degree and Joint Degree, and one responds to the situation in 2020 where a lot of teaching wasn't possible and it was necessary to apply distance learning elements in validating students' knowledge. At the same time, BUT tried to maintain a high quality of teaching even in a non-standard situation requiring distance teaching; among other things in 2020 it collected feedback from students reflecting the first wave of contactless teaching from March with the possibility of incorporating this information in improving teaching during the next wave.

In 2020, six meetings of the BUT IEB took place, of which two meetings took place per rollam. Resolutions from the meeting are published in the public part of the BUT website. The major part of the activities of the BUT IEB was devoted to the granting of authorization to implement study programmes within the institutional accreditation of BUT and the approval of draft study programmes submitted to the National Accreditation Office for Higher Education (NAÚ) for accreditation. The BUT RVH also discussed and approved the draft study programmes for evaluation in 2021, the Supplement to the Report on Internal Quality Evaluation at BUT for 2019 and the amendment to Directive No. 69/2017 – Standards of BUT Study Programmes. There were no changes in the composition of the RVH this year, only four new external members were added to the working groups.

Last year, BUT focused on preparation of the part of the IS in which data on the activities of each academic and researcher from other parts of the central IS will be concentrated. It will be possible to supplement this data with other information that is not monitored in the IS. This part of the IS was created in order to help employees prepare materials for regular evaluation. Since this year, BUT has been introducing the obligation to carry out evaluations of academic and research staff in the prescribed structure, to prepare personal development plans and to carry out evaluation interviews. Their purpose is to create the best possible conditions for the development of BUT employees and thus contribute to the growth of their performance and the performance of the entire university. The obligation to carry out evaluations of selected groups of employees has been thoroughly discussed and is regulated by Directive No. 1/2021 Evaluation of Academic Staff and Scientific, Research and Development Staff. To support the implementation of evaluation, three courses for evaluated employees and evaluators were prepared and implemented.

As part of improving the quality of management, BUT has implemented a risk management system, the aim of which is to identify and evaluate possible risks in all areas of activity. Based on the evaluation from previous years and on the basis of suggestions obtained from risk managers, there was a significant revision of the risk management system at BUT. The change was reflected in particular in a significant clarification of the management standard, which describes the risk management system (Directive No. 5/2020 Risk Management System at BUT). The adjustment brought, among other things, an adjustment of the risk assessment

criteria, where the criterion of the financial impact of the assessed risk was added. The introduction of this criterion has made it possible to eliminate excessive schematic management of insignificant risks, i.e. risks that the university can accept and will not consciously take any steps to eliminate or mitigate.

In 2020, the BUT management continued a series of presentations concerning the evaluation of the school in science and research according to the Methodology 17+ (hereinafter M17+), especially with regard to performance in modules 1 and 2. Faculties and components prepared analyses of their results in this area and were entrusted with the processing of materials that will lead to an increase in the number of evaluated results of creative and artistic activities. Various inspections of the school's scientific research outputs were also carried out with the aim of including them in the documents evaluated by the central authorities. The efforts of representatives of Brno technology in central bodies and commissions to adapt the M17+ application to take better account of the results achieved by technical universities also continued.

This year, Brno University of Technology took significant steps to obtain the international award in the field of human resources management – the HR Award. BUT requested this international evaluation for the entire university at the end of 2019. In 2020, Brno Technology submitted an analysis of compliance between the requirements of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers to the European Commission. Strategies for achieving standards focused on the staff development of researchers and the corresponding processes at the university. The HR Award can significantly help BUT to attract a larger number of foreign experts and researchers and increase the international prestige of the school as a whole. We can already announce that in the following year 2021 BUT actually managed to get this award.

This year, BUT also underwent an international evaluation from the International Evaluation Panel. More details on this evaluation can be found in the following chapter 11.3 International evaluation of BUT, including foreign accreditations.

11 National and international excellence of the university

11.1 International and important national research, development and creative activities, integration of research infrastructure into international networks and involvement of BUT in professional and artistic networks

Brno University of Technology is a member of a number of important institutions, scientific and artistic networks, organizations and associations. Below are selected international organizations in which BUT representatives work:

Association of European Schools of Planning, The American Ceramic Society, Conference of European Schools of Advanced Engineering Education and Research (CESAEER), CISCO Networking Academy, European League of Institutes of the Arts, European Quality Association for Recycling, European Universities Public Relations and Information Officers, European Association for Accident Research and Analysis, European Structural Integrity Society, European University Association, European Association for International Education, Global Business and Technology Association, Gesellschaft für Informatik, International Council of the Aeronautical Science, International Federation for the Promotion of Mechanism and Machine Science, The International Federation for Structural Concrete, The International Union for Vacuum Science, Technique and Applications, Federation of European Heating, Ventilation and Air Conditioning Associations, Transformation in Business and Economics, Die Wissenschaftlich-Technische Arbeitsgemeinschaft für Bauwerkserhaltung und Denkmalpflege and many more.

In addition, the staff of the Brno University of Technology are active in a number of professional associations, organizations and associations. The following can be mentioned:

Association of University Libraries of the Czech Republic, Association of Mechanical Engineers, Association of Experts and Appraisers of the Czech Republic, Czech Education and Scientific NETwork (CESNET), Czech and Slovak Society for Soil Mechanics and Geotechnical Engineering, Czech Concrete Society, Czech Physical Society, Czech Chamber of Authorized Engineers and Technicians active in construction, Czech Foundry Society, Czech Chemical Society, Czech Society for Mechanics, Czech Society for Non-Destructive Testing, Czech Welding Society, Czech Vacuum Society, Czech Society for New Materials and Technologies, Czech National Hydrology Committee, Czech-Moravian Association of Women Entrepreneurs and Managers, Electrotechnical Association of the Czech Republic, European Association for Biometrics, Institute of Electrical and Electronics Engineers, International Society for Optics and Photonics, International Society of Electrochemistry, International Union of Radio Science, Union of Czech Mathematicians and Physicists, National Transfer Platform, Sdr for Railway Infrastructure, Association for Rehabilitation of Concrete Structures, Society for Radioelectronic Engineering, Society for Environmental Engineering, Association of Czech Booksellers and Publishers, Technical Standardization Commission of the Czech Agency for Standardization, Energy Safety Technology Platform, Scientific and Technical Society for Rehabilitation of Buildings and Preservation of Monuments, etc.

11.2 BUT national and international awards in 2020

As mentioned in the previous chapters, students and employees of Brno Technology received a number of awards this year: e.g. the Werner von Siemens Award, the Josef Hlávka Award, Brno Ph.D. Talent, the City of Brno Award, an award in the Fénix Content Marketing and the Golden Semicolon competition, the Muriel Award, the Industry 4.0 Award, the main Transfer Technology Day Award, the Award for the Most Beautiful Czech Books, the Joseph Fourier Award and the Czechoslovak Microscopic Society Award. An extensive list of awards is in the introductory part of the annual report under Achievements and Awards at BUT. Due to the epidemiological situation, a number of competitions took place online in 2020, incl. their solemn proclamation.

11.3 International evaluation of BUT, including foreign accreditations

In 2020, the historically first university-wide evaluation of BUT by the International Evaluation Panel (MEP) took place according to the Methodology for the Evaluation of Research Organizations and the Evaluation of Targeted Support Programmes for Research, Development and Innovation (M17+). The ten external MEP evaluators approved by the RVVI included generally recognized authorities, most of whom came from abroad. The results of the evaluation were summarized by the International Evaluation Panel in their Evaluation Report.

The evaluation was based on the documents of the Self-Evaluation Report prepared by the representatives of BUT in modules M3–M5 and numbering 327 pages. In module M3, which deals with the impacts of R&D&I results, 10 faculties and parts of BUT were evaluated individually in terms of social relevance. In modules M4 (Viability) and M5 (Strategy and concept), BUT was assessed as a whole. After inspection and approval by the provider (MEYS), the Self-Evaluation Report was sent to the evaluators for study. In mid-June, regular contact was established with international experts in the form of video conferences.

A key part of the evaluation was the on-site visit. It was originally supposed to take place at BUT during June, however, due to the pandemic, the schedule was adjusted and the date of the on-site visit was moved to October. The evaluation was thus much more thorough, as several online MEP meetings took place during this extended period and the evaluators spent more time studying the Self-Evaluation Report. Due to the unfavourable epidemiological situation, a four-day on-site visit finally took place remotely.

Within the M3 Social Relevance module, the MEP assessed very positively that BUT has clearly defined areas of excellence across all faculties. The university is particularly strong in applied research, where it has succeeded in establishing cooperation with important international partners. A large number of successful project grants financed from a wide range of sources were also positively acknowledged. The MEP found room for improvement, especially in the areas of technology transfer, participation in new spin-off and start-up companies, interfaculty cooperation, mobility of academic staff and the preparation of a gender equality plan.

In the M4 (Viability) module, the MEP primarily praised the sophisticated support system for doctoral students. They emphasized in particular that the university provided students with significant opportunities to improve their life skills, to attend international conferences and visit foreign institutions, and that it did not require doctoral fees. The support of non-Brno students by providing an accommodation allowance is especially good.

To strengthen the university, the MEP made the following recommendations: the creation of an internal career growth system based on the candidate's merits, ensuring the development of international doctoral study programmes, the establishment of an Open Access Fund (already open at BUT) and the Open Data initiative. The aim is to make highly valued scientific data available. Furthermore, the MEP recommends developing a gender equality plan, focusing on the sharing of expensive equipment throughout BUT, setting clear information for team evaluation, setting up a system for early evaluation of potential new strategically important research topics and promoting more "entrepreneurship" between staff and students.

The MEP very positively acknowledges the existence of international scientific councils at some faculties and constituencies, as they allow the obtaining of highly valuable feedback from recognized foreign experts. At the same time, it recommends the introduction of such bodies in all faculties.

Within the M5 Strategy and Concept module, the MEP recommend setting a clearer vision of the university. Each faculty should have its own strategic document, which would fit into the unified overall strategy of BUT. The implementation of processes supporting the development of these strategies should then play a key role in ensuring that BUT remains the world's leading university with a high level of quality and highly motivated staff. Another complete evaluation by the MEP is scheduled for 2025.

12 The third role of BUT

12.1 Transfer of knowledge into practice

The transfer of knowledge into practice is part of the agenda of the Brno University of Technology's Brno Technology Department. This year, BUT celebrated its 700th reported conclusion registered by this department. More about the area of technology transfer can be found above in chapter 9.5. Cooperation with the application sphere on the creation and transfer of innovations and their commercialization.

In December 2020, Brno Technology achieved significant success when the invention of a device for purification of liquids using low-temperature plasma from Viktor Kaplan's Department of Fluid Engineering at FME BUT (in cooperation with Masaryk University and the Institute of Botany AS CR) was declared the best Transfer Technology Day 2020 project. The Transfera.cz association, the CzechInvest agency, as well as the Busyman and TA ČR companies took part in the organization of this new event. 10 projects representing various scientific disciplines, as well as various types of research organizations, made it to the finals, which took place partly in the building of the Ministry of Industry and Trade and partly online.

Also this year, the Technology Transfer Department offered the organization of educational events and courses on the topics of intellectual property and its protection, the use of results arising in various subsidized research projects and beyond, and on general legal issues of subsidized projects.

Educational events and courses are intended for BUT employees and it is possible to tailor them to the specific needs of the faculty or department and present them in Czech or English. Thanks to them, it is possible to spread awareness about intellectual property issues and related processes at BUT.

In July, OTT representatives represented Brno technology in the Science and Technology Park of Palacký University in Olomouc, where the 6th year of the workshop on technology transfer took place, bringing together almost 50 participants from all over the Czech Republic. The topic of the meeting was current trends in the workplaces of technology transfer centres, transfer in emergency conditions and in the following period.

Among specific examples of technology transfer into practice, we can mention, for example, the public offer of Nanoselen technology, which serves as a fungicide for wood treatment; BUT cooperated with the Institute of Microbiology of the ASCR and Thermo Sanace on its development. The team was looking for a technology that would improve the antifungal properties of the existing BochemitTM product, which is one of the best-selling wood-treating fungal prevention paints on the Czech market. The combination of nanoSelen and BochemitTM is more effective against wood-destroying fungi, especially Serpula lacrymans.

12.2 Operating in the region, cooperation with regional governments and major institutions in the region

In 2020, BUT became involved in assistance in the region, for example by supplying disinfectant and protective equipment, and by lending thermal cameras, in connection with the covid-19 pandemic. Scientists from Brno technology thus tried to help not only in Brno and the South Moravian Region, but in general throughout the country. For example, specialists from the Faculty of Civil Engineering offered assistance with the simulation of vaccine centre capacities at the end of the year, and representatives of FSI and CEITEC lent and installed thermal cameras, germicidal emitters, etc. in hospitals.

BUT actively participates in the Regional Innovation Strategy of the South Moravian Region, cooperates with the Statutory City of Brno and the South Moravian Region and the South Moravian Innovation Centre. It is also in close contact with the Regional Chamber of Commerce and CzechInvest.

BUT experts participate, for example, in the form of expert opinions on a number of cases in the region (e.g. safety audit of the Husovice transport tunnel, proposal to extend the tram line to Brno Vinohrady, real estate valuation and urban issues for small municipalities and cities by architecture students from the Faculty of Architecture and the Faculty of Civil Engineering). Most BUT faculties, as well as the Institute of Forensic Engineering, are registered by the Ministry of Justice as expert institutes and prepare objective expert opinions in socially important cases, for example in the field of geodesy, construction and real estate valuation.

Scientists from Brno technology are actively involved in popularizing scientific and artistic events organized in the region, such as Days of Electron Microscopy, OPEN HOUSE, Brno OPEN STUDIOS, and the South Moravian Science Festival organized by the Brno Observatory and Planetarium.

Cooperation with the institutes of the Academy of Sciences of the Czech Republic is mainly at the level of basic research and in doctoral studies, where experts from the institutes of the ASCR are supervisors and enable to improve the teaching of doctoral students in areas where the institutes have the well-known experts and a qualitative technical background. And not only with institutes located directly in the Moravian metropolis.

12.3 Superregional activities and importance of BUT

CEITEC BUT can boast of international success this year, in the launch of the research group of the Polish expert Eric Glowacki, who brought another ERC grant to Brno at the end of 2020. Eric D. Glowacki's research is directly motivated by applications in medicine. His ERC grant deals with ground-breaking research and development of wireless nerve stimulation, which is used in the human body. Members of his research group will now work on the production of ultra-thin and wireless stimulators powered from the outside of the body. The Polish scientist moved to Brno from Linköping, Sweden.

Oleksii Laguta from CEITEC BUT won the Danubius Young Scientist Award, which highlights the scientific work and talent of young researchers. The jury was particularly interested in his involvement in the development of a special type of electron paramagnetic resonance, which is being addressed by another holder of the ERC grant from CEITEC BUT, Petr Neugebauer. His team called Magneto-optical and THz Spectroscopy manages to bring the topic of research and development of electron paramagnetic resonance back to Brno.

BUT is also involved in international scientific research through grants and projects as well as international contract research. One of the goals of BUT is to offer attractive jobs for foreign researchers, thanks to modern technological and instrumentation equipment or the expansion of doctoral Joint Degree programmes.

Thanks to the RICAIP project, this year BUT began building an Industry 4.0 testbed worth approximately 450 million crowns in one of the industrial halls close to Palacký vrch, near the Technology Park. Thanks to the project, CEITEC BUT will open a research and innovation centre in 2021, the aim of which is to develop technologies using artificial intelligence and robotics for fully automated production, which can be commissioned and used by anyone in the world. The RICAIP project is a collaboration between the Prague CIIRC CTU, the Brno CEITEC BUT, and the ZeMa and DFKI institutes in Germany.

13 Activities of the university in connection with the effects of the pandemic caused by covid-19

13.1 Evaluation in the field of educational activities

BUT's aim in 2020 was to maintain the quality of the implementation of all study programmes at a time when the personal presence of students in teaching was not possible and when a number of restrictions applied to verifying students' knowledge in person. The epidemiological situation and related measures against the spread of covid-19 did not affect all study programmes carried out at BUT in the same way. In some study programmes, it was possible to replace teaching with distance learning without major problems, on the contrary, study programmes with a large share of laboratory, studio or other practical teaching had to face a number of difficulties.

A crisis staff has been operating at BUT since March 2020. Their task is to coordinate measures to prevent the spread of covid-19 and to apply the decisions and measures of the public authorities. The chairman of the crisis staff is the rector of BUT and its members are representatives of the university management, representatives of the academic senate, dormitories and canteens, the legal department and the commissioner for GDPR. The Crisis Staff also dealt with operational issues of study, the arrival of students from abroad, the issue of students entering BUT buildings, their stay at BUT dormitories and a number of other current topics.

Nine decisions were issued by the BUT Rector in 2020 for the application of decisions of public authorities in connection with the coronavirus epidemic, e.g. decisions in connection with the development of a crisis situation in the spread of coronavirus, which always responded immediately to the current situation. Students were regularly updated on the web, in the form of addressed BUT news or on the school's social networks, with up-to-date information on teaching, stays at BUT premises, stays at dormitories belonging to BUT and other institutions. Students then solved specific problems at the study departments of their faculties, or at the study vice-deans. Methodological support for solving all problems connected with the course of study of individual students was provided by the Department of Study Affairs of the Rector's Office.

In accordance with the national rules, BUT interrupted in-person teaching of all students from 11 March 2020 and, where possible, started teaching all subjects remotely. As soon as the nationwide measures enabled the participation of some groups of students in contact classes, BUT used this in accordance with established hygiene rules so that students could properly complete the summer semester of the academic year 2019/2020 and final year students could take the state final exams in time. During the examinations period, the examination took place both in-person, in compliance with all required rules and restrictions, and in the distance form. Due to the fact that in the summer months the epidemiological situation was more favourable, e.g. at the Institute of Forensic Engineering, the Faculty of Information Technology and the Faculty of Architecture the examinations were mostly in person, at the Faculty of Electrical Engineering and Communication Technologies in half of the cases used the in-person method or a combination of in-person and distance testing. The state final examinations and the defence of the final theses took place, with a few exceptions, in the in-person form, or in the in-person form, with the simultaneous connection of some members of the commissions online. BUT thus ensured the proper conduct of examinations by which students complete their studies and their unquestionable level. At their faculties, the deans of the faculties were able to adjust the duration of the examination period of the operation of their faculty so that everything could go well during the holiday months and in September 2020.

Teaching in the academic year 2020/2021 was started according to the plan on September 21, 2020, unfortunately again in distance form. However, BUT was already well prepared for this form of teaching and teachers could use the experience gained during the previous semester. The testing again took place both in-person and online. Here, most faculties (apart from the Faculty of Information Technology) already had a larger share of distance testing, e.g. at the Faculty of Civil Engineering, the Faculty of Mechanical Engineering, the Faculty of Business and the Faculty of Architecture in about 75% of subjects.

Since the spring of 2020, the BUT Computer and Information Services Centre has been providing technical support for distance learning, and the faculties have provided sufficient material support for this type of teaching. There was training for teachers on the use of the Moodle system in teaching and the MS Teams application in teaching and in verifying students' knowledge. In the autumn months, Methodological Sheet No. 8/2020 was issued – Ensuring distance verification of study results at BUT at the time of limiting the presence of students during university studies, which set the basic framework for the use of distance methods in testing to ensure the correctness and quality of such knowledge verification. However, the deans of the faculties, or even the guarantors of the individual subjects, decided on the specific use of possible methods of examination in individual subjects. The nature of the subjects taught at BUT is so diverse that it is not possible to determine a uniform way of teaching or testing students. However, the main goal has always been to maintain the objectives of teaching subjects and regularity and a sufficient level of verification of students' knowledge.

To ensure the above measures and changes in teaching and testing, it was necessary to take a number of administrative measures, such as ensuring daily electronic signing of declarations by students who came to BUT buildings that they do not have symptoms of infectious disease. Furthermore, BUT solved the issuance of various certificates to students in electronic form, the issuance of certificates to foreign students, on the basis of which these students

could come to the Czech Republic, and the quarantine of students staying in BUT dormitories who were diagnosed with covid-19.

In the autumn, BUT conducted a questionnaire survey among students in order to adequately modify distance learning based on their feedback. On a scale of 1–5 (1 is the best), students rated distance teaching at BUT during the spring of the first wave by an average of two. In the online lessons, the students emphasized that a large part of the lectures and exercises remain available to them even after streaming and they can thus return to the curriculum. Teachers bring their lectures to life with video recordings of experiments in laboratories, some even use remote access to students' areas when they want to correct the procedure directly in their calculations, etc. Thanks to this feedback, distance learning at BUT in the last quarter of the year improved even more.

13.2 Evaluation in the field of research activities

The management of BUT and individual components supported scientists from the Brno Technical University to respond flexibly this year to the currently announced domestic and international calls for projects to reduce the impact of the covid-19 pandemic. These were mainly expert groups from CEITEC BUT, where cooperation with groups of "living sciences" at CEITEC MUNI intertwines.

An interesting case of transfer of research results took place, for example, at the Faculty of Electrical Engineering and Communication Technologies. The researchers developed an efficient and effective improvised BUTMASK-H2 protective half mask that can be printed on a 3D printer, and then made it available for free download. Subsequently, a commercial company also showed interest in production. You will find more about this half mask, which greatly helped in the first wave of the coronavirus pandemic, not only in the Czech Republic but also overseas, in the following chapter on the third role of the university in connection with the impacts of covid-19. Many BUT scientists have strained to help mitigate the negative effects of the pandemic as much as possible, which is the subject of the following chapter.

The epidemiological situation in the Czech Republic and around the world has significantly reduced the number of departures of our scientists and arrivals of collaborating scientists, especially on H2020 projects, and has significantly reduced and complicated the completion of tasks involving more international workplaces. In many cases, project managers requested an extension of the completion deadlines, and in most cases they were granted. The BUT department tried to replace in-person meetings with ones online as much as possible. In the case of experiments that are absolutely necessary and must take place in laboratories, the situation returns to normal only very slowly. The pandemic situation thus extends into the following year 2021.

In July 2020, the article Minimizing the present and future plastic waste, energy and environmental footprints related to covid-19 was published by Professor Jiří Klemeš and Dr. Yee Van Fan from the NETME Centre of the Faculty of Mechanical Engineering in collaboration with scientists from the Philippines and Singapore. The article responds to the environmental impacts of the pandemic and suggests research directions to minimize these impacts. The significant impact of this article on the scientific public is evident from the fact that in the WoS database the article is among the so-called hot papers, ie. among the articles that received a large number of citations very soon after publication (more precisely, these are 0.1% of the most cited articles in the field within two months of publication).

In 2020, a number of domestic and foreign professional conferences were cancelled, or they were transferred to the online space. It was possible to carry out events in the Czech Republic until March 2020, before the first wave of the pandemic arrived, and then in the summer months, when the epidemiological situation improved and there was a partial relaxation of measures. However, the transfer of conferences to the online environment also offered certain advantages. A specific example is CEITEC BUT PhD student Zita Salajková, who won the Best PhD Award at the LIBS2020 conference in Kyoto, Japan, and admitted that her junior-specific research would not cover the cost of attending the Japanese conference, so moving to a virtual environment allowed her to attain international success.

13.3 Evaluation in the area of the third role and other activities of the university

During the coronavirus crisis in March, BUT joined together to help Czech society with a number of activities within the BUT helps initiative. Employees of CEITEC BUT and the Faculty of Chemistry produced and distributed more than 36,000 protective plexiglass shields, along with partners. At present, the production is already finished. A purely voluntary event, operating using shift work, was able, at a time when it was most needed, to provide protective equipment not only for health professionals, but also for nursing homes and school facilities. In total, more than 2,270 m^2 of plexiglass, 11 km of rubber bands and 3 tons of plastic were used. Thanks to the fact that the volunteers were able to satisfy the demand of applicants from the South Moravian Region very quickly, they also decided to help other requesting health professionals from all over the Czech Republic. Shields from Brno were used, for example, in Prague in Bulovka, in Homolka, in the General Hospital, and in hospitals in Most and Chomutov.

Thanks to the obtained permit, the Faculty of Chemistry of BUT was able to mix Anti-COVID disinfectant according to the official WHO recipe. Four basic ingredients are needed to prepare it: denatured alcohol, 3% hydrogen peroxide, 98% glycerol and water. The faculty obtained a permit to produce disinfectant for the needs of the university, organizational units of the state, region, cities, municipalities and their contributory organizations. One of the first batches was handed over to the Brno Municipal Police and the firefighters of the Brno Žebětín district.

The team of employees and students of the Faculty of Electrical Engineering and Communication at BUT has developed a design of a protective half mask, the components of which can be manufactured on commonly used 3D printers equipped with FDM (thermoplastic modelling) technology. Only a few commonly available items are needed for production. The mask can be partially adapted to the shape of the face to maximize its effectiveness. The creators made detailed instructions, including video, as well as source files for production on a 3D printer available to the general public. The mask is available in several sizes, including a version for children. It was also used as an improvised aid by nurses at Henry Mayo Newhall Hospital in California. The global pandemic has enabled global aid.

At the Faculty of Chemistry, the concept of a simple respirator was created, the production of which, through the method of vacuum thermoforming, could be cheap, just as is the case with beverage cups. The respirator tested for protection levels FFP1 and FFP2 could thus become an available option not only for the rescue services, but also for ordinary residents. Together with colleagues from the Faculty of Mechanical Engineering, materials engineers developed a functional prototype within three weeks. Due to the fact that it is a plastic shell, the respirator weighs less than 25 grams and has an easily replaceable textile filter. It is washable and disinfectable with alcohol disinfectants. Researchers are continuing to develop this respirator from materials that may be degradable in nature.

Through the Folding@home project, BUT students and employees participated in helping with the knowledge of the virus and the development of the active substance. By installing the programme, the user will allow scientists to use the computing power of a processor or graphics card. Thousands of users thus combine their machines into a kind of supercomputer. The Brno University of Technology team has long led an imaginary table of domestic universities and was able to "fold" to collect 50% of all points that arose from all Czech schools within the project. Immediately behind him, an independent team of the Faculty of Civil Engineering was placed in the ranking.

Employees of the Department of Design of the Faculty of Mechanical Engineering were not left behind either. They used inactive machines to make simple single-layer face masks of cotton canvas. Dozens of them were distributed to colleagues and also to individuals who contacted them. The EasyOn face mask is cut by a laser plotter in 15 seconds and only a little sewing is needed to complete it. PiggyNOSE, on the other hand, can be folded without sewing with three stronger threads. The team provided the files for the laser, instructions and other necessary documents free of charge, so that their know-how could be used by anyone interested at this time. One of the first cut face masks travelled to the Department of Microbiology of Vyškov Hospital in the spring.

A frame made of flexible material to help the mask adhere better to the face and prevent air from escaping sideways. A simple solution that could help increase the effectiveness of the veil when wearing it was tested by scientists from the Faculty of Mechanical Engineering at BUT. They modified the previously known concept according to their design, then provided the final data to the public again. Anyone could make a custom compression frame on a 3D printer to increase the efficiency and fit of a standard face mask.

BUT students have joined the nationwide initiative www.chcipomoct.cz. It is used to register and arrange the help of volunteers in the current crisis situation. Among the activities offered, those interested will find, for example, help with shopping, provision of face masks and disinfectant, tutoring or babysitting, and walking pets. Some BUT students then started as volunteers, for example, in nursing homes or in social services in general.

Students from the Faculty of Fine Arts came up with the idea for coordinated sewing of face masks. Volunteers from among students and employees of BUT thus organized a

workshop for sewing face masks in the premises of the Goose on a String Theatre, which they then provided mainly to people working in social services. More information about the initiative is available at www.sijemerousky.cz.

Two thermal imaging cameras, which are used for scientific purposes at the Energy Institute of the Faculty of Mechanical Engineering at BUT, were installed and put into operation by researchers at the entrances to the University Hospital Brno (FN Brno). From the beginning of the pandemic, the largest hospital in the region lacked a similar device that would automatically catch people with fever right at the entrance to the interior. The third thermal camera was lent by CEITEC to BUT Children's Hospital, which also falls under the Brno University Hospital. The loan of top research cameras lasted until the supply of thermal cameras to hospitals was ensured by the state.

Informatics from the Faculty of Mechanical Engineering at BUT assembled a germicidal radiator for the University Hospital Brno to order. Germicidal emitters or lamps are devices used to disinfect air and surfaces. They use UVC radiation, a part of the electromagnetic spectrum that is invisible to humans. Germicidal emitters are used wherever sterilization by conventional methods is not suitable or due to the environment. The devices are used in healthcare, the food industry, and in water treatment. The current epidemic has made germicidal emitters a scarce commodity on the market. Similar equipment was assembled by employees of the Faculty of Electrical Engineering and Communication Technologies, who created it for the needs of ensuring operation in a Břeclav manufacturing company.

The OpenTube robotic workplace was very popular. The laboratory technician sets up the test tubes, activates the system and everything else happens automatically. Researchers from the Department of Automation and Informatics of the Faculty of Mechanical Engineering at BUT came up with such a solution for biohazard laboratories. The robotic workplace was established at the request of the Brno University Hospital, which is planning its pilot deployment and testing. One possible use is the preparation of samples taken from patients with suspected covid-19.

3D printing may meet the need to produce materials as quickly as possible, especially for healthcare professionals in times of pandemic. However, this technology has its limits, especially in terms of disinfection options. Experts from the Faculty of Civil Engineering are trying to find a solution; in collaboration with the University Hospital at St. Anne's, they tested the application of antimicrobial coatings. As a result, plastic parts, handles and door handles in hospitals and medical facilities in general can be easily disinfected.

Despite the unfavourable situation, BUT library staff responded to the first declaration of a state of emergency immediately – despite the closed buildings, they continued to mediate loans, order new literature, and provide an interlibrary loan service, all with increased security measures. Services gradually moved to the virtual space – electronic resources became more important, and reference services were provided to a greater extent. Some memory institutions also faced the situation where the vast majority of user-readers were prevented from visiting libraries. The National Library and the Moravian Regional Library made available the digital library called Czech Republic – Kramerius (not only) for university students, where hundreds of thousands of resources are available. Efforts were also evident in some electronic content publishers, who made a wider portfolio of their resources available or removed some restrictions (number of current users, unlimited downloads for offline use, etc.). For example, the complete Bookport database, where Grada, Portál and others publish their books, has recently been made available to BUT employees.

The Central Library was also active in the field of information education. The ban on personal presence at classes during the pandemic was reflected in the courses implemented by the Central Library. With regard to the conversion of the traditional form of education into an online form, and thus increased demands on students, it was necessary to adjust the conditions for completing e-courses so that they can be managed in combination with other online subjects. This meant adjusting both the range of individual modules and the outputs – tasks and tests. Furthermore, increased attention was paid to the area of time-management, so that students can effectively plan their time.

As part of the supportive steps taken in connection with the general attitude to the coronavirus crisis, students were waived fees for late repayment of loans during the first half of the year. The total amount of fees waived in this way was approximately 20,000 crowns.

In 2020, psychological and other assistance to BUT students, provided by the Alfons Counselling Centre and the BUT Institute of Lifelong Learning, gained great importance. In response to the current situation, Alfons also began offering psychological counselling and online or telephone consultations. At the same time, it maintains close cooperation with institutions and experts in the field of mental health. If we count only services for students in difficult personal situations (the centre also provides career counselling, compiling a professional profile, etc.), it provided 300 psychological consultations this year (in person, online or by phone). We know from previous years that the highest demand for these services occurs from January to May and then in October and November. Last year, these periods were also the most critical in terms of the epidemiological situation and the measures taken. Although we have included a form of online counselling and e-mail counselling in the offer, fewer students used the services than we expected. This may be related to the lower interest of students in online counselling compared to traditional personal psychological help, or it may have been affected by complications of students from Slovakia who were affected by measures at the state border.

At the same time, however, we must mention the work of FEEC biomedicine student Veronika Kamenská, who is behind the successful application Nepanikař, which helps people in difficult life situations. Nepanikař works in 9 language versions in more than 150 countries around the world and in the spring they recorded an increase in users of about 50%. In the second wave, the increase was 100%. And in the first two weeks of January, about 10,000 users downloaded the application. In September, Veronika Kamenská also won the Gratias Tibi award for her application. The award is given for the civic activity of young people who have a positive effect on the life of Czech society.

As the personal presence of students at school was prevented, ICV development courses were quickly converted into webinars. At the same time, their content focused on the problems that arose in connection with the pandemic. Their main goal was to develop more general, intellectual and social competencies that will teach students and future graduates to respond to new situations, both in the study and in the labour market.

Supportive telephone communication has been set up for students with special needs. The aim of this new service was to offer students the opportunity to contact a counselling centre employee by phone with the topics and problems that distance learning brings. 74 students used the service.

The transition from in-person teaching to distance learning was difficult, especially for students with hearing impairments. The situation was managed very quickly and for these students interpretation of online recordings and presentations into Czech sign language, subtitling of online recordings and presentations into Czech language, simultaneous transcription and simultaneous interpretation were provided.

At U3V, there was also a transition to the distance form of lectures. Due to the reluctance of some seniors to attend online lectures conducted through MS Teams, Zoom, Skype, etc., the lectures are uploaded to U3V and placed on the YouTube channel. Here, seniors can view them at a time that suits them best. Some courses are also conducted in the form of webinars. In general, U3V recorded a significant decrease in listeners, which was caused on the one hand by the fact that not every senior has access to the Internet and on the other by the fact that seniors use U3V courses, among other things, for personal meetings. This is understandable, because one of the goals of U3V is to create social contacts, which, however, the epidemiological situation has made practically impossible.

TABULAR PART

OF THE BUT ANNUAL REPORT FOR 2020

Tab. 2.1: Accredited study programmes (numbers)

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
		F	C/D	F	C/D	F	C/D	F	C/D	
Faculty of Civil Engineering										
Broadly defined ISCED-F fields	code									
Natural sciences, mathematics and statistics	05	1	0	0	0	1	0	2	2	6
Technology, production and construction	07	9	3	0	0	14	2	12	12	52
Faculty total	**X**	**10**	**3**	**0**	**0**	**15**	**2**	**14**	**14**	**58**
Faculty of Mechanical Engineering										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	1	0	0	0	0	0	0	0	1
Natural sciences, mathematics and statistics	05	1	0	0	0	2	0	1	1	5
Technology, production and construction	07	9	2	0	0	20	5	11	10	57
Faculty total	**X**	**11**	**2**	**0**	**0**	**22**	**5**	**12**	**11**	**63**
Faculty of Electrical Engineering and Communication Technologies										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	1	0	0	0	0	0	0	0	1
Information and communication technologies	06	2	0	0	0	2	0	4	4	12
Technology, production and construction	07	7	4	0	0	16	6	14	14	61
Faculty total	**X**	**10**	**4**	**0**	**0**	**18**	**6**	**18**	**18**	**74**
Faculty of Architecture										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	2	0	0	0	2	0	1	1	6
Faculty total	**X**	**2**	**0**	**0**	**0**	**2**	**0**	**1**	**1**	**6**
Faculty of Chemistry										
Broadly defined ISCED-F fields	code									
Natural sciences, mathematics and statistics	05	3	1	0	0	1	0	6	6	17
Technology, production and construction	07	6	6	0	0	5	4	4	4	29
Faculty total	**X**	**9**	**7**	**0**	**0**	**6**	**4**	**10**	**10**	**46**
Faculty of Business and Management										
Broadly defined ISCED-F fields	code									
Social sciences, journalism and information sciences	03	0	0	0	0	2	0	0	0	2
Business, administration and law	04	6	1	0	0	5	4	3	2	21
Information and communication technologies	06	1	1	0	0	1	0	0	0	3
Faculty total	**X**	**7**	**2**	**0**	**0**	**8**	**4**	**3**	**2**	**26**
Faculty of Fine Arts										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	1	0	0	0	1	0	1	1	4
Faculty total	**X**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**4**
Faculty of Information Technology										
Broadly defined ISCED-F fields	code									
Information and communication technologies	06	2	0	0	0	2	0	1	1	6
Faculty total	**X**	**2**	**0**	**0**	**0**	**2**	**0**	**1**	**1**	**6**

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
		F	C/D	F	C/D	F	C/D	F	C/D	
Institute of Forensic Engineering										
Broadly defined ISCED-F fields	code									
Business, administration and law	04	0	0	0	0	2	0	0	0	2
Technology, production and construction	07	0	0	0	0	2	0	2	2	6
Services	10	0	0	0	0	1	0	0	0	1
Department total	**X**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**2**	**9**
Centre of Sports Activities										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	1	0	0	0	0	0	0	0	1
Department total	**X**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
CEITEC BUT										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	0	0	0	0	0	0	1	1	2
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**2**
Brno University of Technology										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	3	0	0	0	1	0	1	1	6
Social sciences, journalism and information sciences	03	0	0	0	0	2	0	0	0	2
Business, administration and law	04	6	1	0	0	7	4	3	2	23
Natural sciences, mathematics and statistics	05	5	1	0	0	4	0	9	9	28
Information and communication technologies	06	5	1	0	0	5	0	5	5	21
Technology, production and construction	07	34	15	0	0	59	17	45	44	214
Services	10	0	0	0	0	1	0	0	0	1
University TOTAL	**X**	**53**	**18**	**0**	**0**	**79**	**21**	**63**	**61**	**295**

Tab. 2.2: Study programmes in a foreign language (numbers)

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
		F	C/D	F	C/D	F	C/D	F	C/D	
Faculty of Civil Engineering										
Broadly defined ISCED-F fields	code									
Natural sciences, mathematics and statistics	05	0	0	0	0	0	0	1	1	2
Technology, production and construction	07	2	0	0	0	2	0	6	6	16
Faculty total	**X**	**2**	**0**	**0**	**0**	**2**	**0**	**7**	**7**	**18**
Faculty of Mechanical Engineering										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	3	0	0	0	5	0	6	3	17
Faculty total	**X**	**3**	**0**	**0**	**0**	**5**	**0**	**6**	**3**	**17**

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
		F	C/D	F	C/D	F	C/D	F	C/D	
Faculty of Electrical Engineering and Communication Technologies										
Broadly defined ISCED-F fields	code									
Information and communication technologies	06	0	0	0	0	0	0	2	2	4
Technology, production and construction	07	1	0	0	0	6	0	7	7	21
Faculty total	**X**	**1**	**0**	**0**	**0**	**6**	**0**	**9**	**9**	**25**
Faculty of Architecture										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	1	0	0	0	1	0	0	0	2
Faculty total	**X**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**
Faculty of Chemistry										
Broadly defined ISCED-F fields	code									
Natural sciences, mathematics and statistics	05	0	0	0	0	0	0	3	3	6
Technology, production and construction	07	1	0	0	0	1	0	2	2	6
Faculty total	**X**	**1**	**0**	**0**	**0**	**1**	**0**	**5**	**5**	**12**
Faculty of Business and Management										
Broadly defined ISCED-F fields	code									
Social sciences, journalism and information sciences	03	0	0	0	0	1	0	0	0	1
Business, administration and law	04	2	0	0	0	2	0	2	1	7
Faculty total	**X**	**2**	**0**	**0**	**0**	**3**	**0**	**2**	**1**	**8**
Faculty of Fine Arts										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	1	0	0	0	1	0	0	0	2
Faculty total	**X**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**
Faculty of Information Technology										
Broadly defined ISCED-F fields	code									
Information and communication technologies	06	1	0	0	0	1	0	1	1	4
Faculty total	**X**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**4**
CEITEC BUT										
Broadly defined ISCED-F fields	code									
Technology, production and construction	07	0	0	0	0	0	0	1	0	1
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
Brno University of Technology										
Broadly defined ISCED-F fields	code									
Arts and humanities	02	1	0	0	0	1	0	0	0	2
Social sciences, journalism and information sciences	03	0	0	0	0	1	0	0	0	1
Business, administration and law	04	2	0	0	0	2	0	2	1	7
Natural sciences, mathematics and statistics	05	0	0	0	0	0	0	4	4	8
Information and communication technologies	06	1	0	0	0	1	0	3	3	8
Technology, production and construction	07	8	0	0	0	15	0	22	18	63
University TOTAL	**X**	**12**	**0**	**0**	**0**	**20**	**0**	**31**	**26**	**89**

Tab. 2.3: Joint/Double/Multiple Degree study programmes implemented with a university abroad

	Faculty of Mechanical Engineering
Name of the programme 1	**Production technology**
Partner organizations	Technische Universität Chemnitz (Germany)
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Bachelor
Number of active studies as of December 31	5

Name of the programme 2	**Industrial Engineering**
Partner organizations	Art et Métiers ParisTech (Cluny, Francie)
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	1

Name of the programme 3	**Production systems**
Partner organizations	Technische Universität Chemnitz (Germany)
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	6

Brno University of Technology	Faculty of Electrical Engineering and Communication Technologies
Name of the programme 1	**Telecommunications**
Partner organizations	Technische Universitat Wien, Österreich
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Joint Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	6

Name of the programme 2	**Bioengineering**
Partner organizations	The University of Applied Sciences, Technikum Wien, Austria
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	0

Brno University of Technology	Faculty of Electrical Engineering and Communication Technologies
Name of the programme 3	**Communications and Networking**
Partner organizations	Universita Tampere, Finland
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	1

Name of the programme 4	**Electronics and Information Technologies**
Partner organizations	Universita Tampere, Finland
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	11

Name of the programme 5	**Microelectronics**
Partner organizations	Northern Illiniois University, USA
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	0

	Faculty of Architecture
Name of the programme 1	**Integrative Urban Studies**
Partner organizations	European Humanities University Vilnius, University of Wroclaw
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Joint Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	0

	Faculty of Chemistry
Name of the programme 1	**Environmental Sciences and Engineering**
Partner organizations	University of Koblenz and Landau, Germany
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	1

	Faculty of Chemistry
Name of the programme 2	**Biophysical Chemistry**
Partner organizations	University of Huelva, Spain
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0

	Faculty of Business and Management
Name of the programme 1	**European Business and Finance**
Partner organizations	Nottingham Trent University (GB), Karol Adamiecký University of Economics in Katowice (PL)
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Joint Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	0

	Faculty of Information Technology
Name of the programme 1	**Information technology**
Partner organizations	Lappeenranta University of Technology, Finland
Affiliated organizations	
Kind of programme (Joint/Double/Multiple Degree)	Double Degree
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	0

Summary information on tab. 2.3

Brno University of Technology	Bachelor's studies	Master's studies	Follow-up Master's studies	Ph.D. studies	Total
Number of study programmes	1		10	2	13
Number of active studies in these programmes	5		15	11	31

Tab. 2.4: Accredited study programmes carried out jointly with another university or with a public research institution based in the Czech Republic

Brno University of Technology	Faculty of Mechanical Engineering
Name of the programme 1	**Engineering mechanics**
Broadly defined ISCED-F field	0715
Partner university/institution	Institute of Physics of Materials AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0
Name of the programme 2	**Material sciences**
Broadly defined ISCED-F field	0719
Partner university/institution	Institute of Physics of Materials AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	1
Name of the programme 3	**Physical engineering and nanotechnology**
Broadly defined ISCED-F field	0533
Partner university/institution	Institute of Instrumentation AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0
Name of the programme 4	**Materials Sciences**
Broadly defined ISCED-F field	0719
Partner university/institution	Institute of Physics of Materials AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0
Name of the programme 5	**Applied Mechanics**
Broadly defined ISCED-F field	0715
Partner university/institution	Institute of Physics of Materials AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0
Name of the programme 6	**Physical Engineering and Nanotechnology**
Broadly defined ISCED-F field	0533
Partner university/institution	Institute of Instrumentation AS CR
Type of programme (bachelor, follow-up master, master, doctoral)	Doctoral
Number of active studies as of December 31	0

	Faculty of Electrical Engineering and Communication Technologies
Name of the programme 1	**Audio engineering**
Broadly defined ISCED-F field	714
Partner university/institution	JAMU Faculty of Music
Type of programme (bachelor, follow-up master, master, doctoral)	Bachelor
Number of active studies as of December 31	198

Name of the programme 2	**Audio engineering**
Broadly defined ISCED-F field	714
Partner university/institution	JAMU Faculty of Music
Type of programme (bachelor, follow-up master, master, doctoral)	Follow-up master
Number of active studies as of December 31	44

Name of the programme 3	**Biomedical engineering and bioinformatics**
Broadly defined ISCED-F field	688
Partner university/institution	Faculty of Medicine MU
Type of programme (bachelor, follow-up master, master, doctoral)	Bachelor
Number of active studies as of December 31	199

Summary information on tab. 2.4

Brno University of Technology	Bachelor's studies	Master's studies	Follow-up Master's studies	Ph.D. studies	Total
Number of study programmes	2		1	6	9
Number of active studies in these programmes	397		44	1	442

Tab. 2.5 Accredited study programmes carried out together with a higher vocational school

BUT does not have such study programmes.

Tab. 2.6: Lifelong learning courses (LL) at the university (number of courses)

Brno University of Technology		Profession-oriented courses			Interest courses			U3V	Total
Broadly defined ISCED-F fields	code	up to 15 h	from 16 to 100 h	more than 100 h	up to 15 h	from 16 to 100 h	more than 100 h		
Programmes and qualifications – general education	00								0
Education and upbringing	01			2					2
Arts and humanities	02				1			15	16
Social sciences, journalism and information sciences	03			12				16	28
Business, administration and law	04		1					4	5
Natural sciences, mathematics and statistics	05					3			3
Information and communication technologies	06							8	8
Technology, production and construction	07	14	19	3				2	38
Agriculture, forestry, fishing and veterinary medicine	08								0
Health and social care, care for favourable living conditions	09							2	2
Services	10								0
TOTAL	**X**	**14**	**20**	**17**	**1**	**3**	**0**	**47**	**102**

Tab. 2.7: Lifelong learning courses (LL) at the university (number of participants)

Brno University of Technology		Profession-oriented courses			Interest courses			U3V	Total	Of which number of participants who were admitted to accredited study programmes according to § 60 of the Act on Universities
Broadly defined ISCED-F fields	code	up to 15 h	from 16 to 100 h	more than 100 h	up to 15 h	from 16 to 100 h	more than 100 h			
Programmes and qualifications – general education	00	69	65	18					152	
Education and upbringing	01	2	7	33			10		52	
Arts and humanities	02							957	957	
Social sciences, journalism and information sciences	03			162				190	352	
Business, administration and law	04		3	33		5		93	134	
Natural sciences, mathematics and statistics	05					386			386	
Information and communication technologies	06							97	97	
Technology, production and construction	07	731	925	64				72	1,792	
Agriculture, forestry, fishing and veterinary medicine	08								0	
Health and social care, care for favourable living conditions	09							65	65	
Services	10								0	
TOTAL	**X**	**802**	**1,000**	**310**	**0**	**391**	**10**	**1,474**	**3,987**	

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

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
Broadly defined ISCED-F fields	**code**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	
Faculty of Civil Engineering										
Natural sciences, mathematics and statistics	05	55	0	0	0	12	0	1	0	68
Technology, production and construction	07	2,223	143	0	0	897	87	147	157	3,654
Faculty total	**X**	**2,278**	**143**	**0**	**0**	**909**	**87**	**148**	**157**	**3,722**
Of which number of women at FCE	X	910	45	0	0	348	36	53	47	1,439
Of which number of foreigners at FCE	X	437	20	0	0	159	18	19	15	668
Faculty of Mechanical Engineering										
Arts and humanities	02	44	0	0	0	0	0	0	0	44
Natural sciences, mathematics and statistics	05	58	0	0	0	0	0	0	0	58
Technology, production and construction	07	2,358	108	0	0	1,103	135	234	99	4,037
Faculty total	**X**	**2,460**	**108**	**0**	**0**	**1,103**	**135**	**234**	**99**	**4,139**
Of which number of women at FME	X	248	8	0	0	177	22	39	6	500
Of which number of foreigners at FME	X	414	10	0	0	198	17	43	16	698
Faculty of Electrical Engineering and Communication Technologies										
Arts and humanities	02	134	0	0	0	1	0	0	0	135
Information and communication technologies	06	445	0	0	0	133	0	34	15	627
Technology, production and construction	07	1,344	78	0	0	594	79	157	108	2,360
Faculty total	**X**	**1,923**	**78**	**0**	**0**	**728**	**79**	**191**	**123**	**3,122**
Of which number of women at FEEC	X	247	7	0	0	111	10	27	23	425
Of which number of foreigners at Faculty of FEEC	X	522	12	0	0	183	24	46	19	806
Faculty of Architecture										
Technology, production and construction	07	292	0	0	0	150	0	39	14	495
Faculty total	**X**	**292**	**0**	**0**	**0**	**150**	**0**	**39**	**14**	**495**
Of which number of women at FA	X	193	0	0	0	88	0	20	5	306
Of which number of foreigners at FA	X	91	0	0	0	39	0	4	2	136
Faculty of Chemistry										
Natural sciences, mathematics and statistics	05	225	4	0	0	101	0	51	9	390
Technology, production and construction	07	434	44	0	0	201	37	59	20	795
Faculty total	**X**	**659**	**48**	**0**	**0**	**302**	**37**	**110**	**29**	**1,185**
Of which number of women at FCH	X	447	30	0	0	209	24	60	16	786
Of which number of foreigners at FCH	X	179	7	0	0	86	12	22	10	316
Faculty of Business and Management										
Social sciences, journalism and information sciences	03	0	0	0	0	190	0	0	0	190
Business, administration and law	04	1,751	2	0	0	436	235	40	24	2,488
Information and communication technologies	06	104	0	0	0	102	0	0	0	206
Faculty total	**X**	**1,855**	**2**	**0**	**0**	**728**	**235**	**40**	**24**	**2,884**
Of which number of women at FBM	X	876	2	0	0	353	135	22	10	1,398
Of which number of foreigners at FBM	X	415	0	0	0	166	22	11	7	621

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
Broadly defined ISCED-F fields	**code**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	
Faculty of Fine Arts										
Arts and humanities	02	201	0	0	0	88	0	28	11	328
Faculty total	**X**	**201**	**0**	**0**	**0**	**88**	**0**	**28**	**11**	**328**
Of which number of women at FFA	X	140	0	0	0	55	0	13	10	218
Of which number of foreigners at FFA	X	32	0	0	0	12	0	6	4	54
Faculty of Information Technology										
Information and communication technologies	06	1,838	0	0	0	467	0	93	72	2,470
Faculty total	**X**	**1,838**	**0**	**0**	**0**	**467**	**0**	**93**	**72**	**2,470**
Of which number of women at FIT	X	185	0	0	0	42	0	10	7	244
Of which number of foreigners at FIT	X	771	0	0	0	204	0	34	12	1,021
Institute of Forensic Engineering										
Business, administration and law	04	0	0	0	0	5	0	0	0	5
Technology, production and construction	07	0	0	0	0	137	0	18	25	180
Services	10	0	0	0	0	52	0	0	0	52
Department total	**X**	**0**	**0**	**0**	**0**	**194**	**0**	**18**	**25**	**237**
Of which number of women at IFE	X	0	0	0	0	76	0	8	7	91
Of which number of foreigners at IFE	X	0	0	0	0	19	0	0	2	21
Centre of Sports Activities										
Technology, production and construction	07	54	0	0	0	0	0	0	0	54
Department total	**X**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**54**
Of which number of women at CESA	X	13	0	0	0	0	0	0	0	13
Of which number of foreigners at CESA	X	12	0	0	0	0	0	0	0	12
CEITEC BUT										
Technology, production and construction	07	0	0	0	0	0	0	103	23	126
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**103**	**23**	**126**
Of which number of women at CEITEC BUT	X	0	0	0	0	0	0	41	9	50
Of which number of foreigners at CEITEC BUT	X	0	0	0	0	0	0	47	9	56
Brno University of Technology										
Arts and humanities	02	379	0	0	0	89	0	28	11	507
Social sciences, journalism and information sciences	03	0	0	0	0	190	0	0	0	190
Business, administration and law	04	1,751	2	0	0	441	235	40	24	2,493
Natural sciences, mathematics and statistics	05	338	4	0	0	113	0	52	9	516
Information and communication technologies	06	2,387	0	0	0	702	0	127	87	3,303
Technology, production and construction	07	6,705	373	0	0	3,082	338	757	446	11,701
Services	10	0	0	0	0	52	0	0	0	52
University TOTAL	**X**	**11,560**	**379**	**0**	**0**	**4,669**	**573**	**1,004**	**577**	**18,762**
Of which number of women total	X	3,259	92	0	0	1,459	227	293	140	5,470
Of which number of foreigners total	X	2,873	49	0	0	1,066	93	232	96	4,409

Tab. 3.2: Self-paying students (number of studies)

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
Broadly defined ISCED-F fields	**code**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	
Faculty of Civil Engineering										
Technology, production and construction	07	0	0	1	5	0	0	0	0	6
Faculty total	**X**	**0**	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**6**
Faculty of Mechanical Engineering										
Technology, production and construction	07	6	0	2	1	0	0	4	0	13
Faculty total	**X**	**6**	**0**	**2**	**1**	**0**	**0**	**4**	**0**	**13**
Faculty of Electrical Engineering and Communication Technologies										
Information and communication technologies	06	0	0	9	4	0	0	0	0	13
Technology, production and construction	07	2	0	0	2	0	0	7	0	11
Faculty total	**X**	**2**	**0**	**9**	**6**	**0**	**0**	**7**	**0**	**24**
Faculty of Architecture										
Technology, production and construction	07	0	0	0	0	0	0	2	0	2
Faculty total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
Faculty of Chemistry										
Technology, production and construction	07	0	0	0	1	0	0	0	0	1
Faculty total	**X**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**
Faculty of Business and Management										
Business, administration and law	04	69	0	0	3	0	0	0	0	72
Faculty total	**X**	**69**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**72**
Faculty of Information Technology										
Information and communication technologies	06	0	0	2	2	0	0	9	0	13
Faculty total	**X**	**0**	**0**	**2**	**2**	**0**	**0**	**9**	**0**	**13**
Brno University of Technology										
Business, administration and law	04	69	0	0	3	0	0	0	0	72
Information and communication technologies	06	0	0	11	6	0	0	9	0	26
Technology, production and construction	07	8	0	3	9	0	0	13	0	33
University TOTAL	**X**	**77**	**0**	**14**	**18**	**0**	**0**	**22**	**0**	**131**

Tab. 3.3: Study failure in the 1st year of study (in %)

Brno University of Technology	Bachelor's studies			Master's studies			Follow-up Master's studies			Ph.D. studies			Total
	F	C/D	Total	F	C/D	Total	F	C/D	Total	F	C/D	Total	
Faculty of Civil Engineering	32.7	60.6	34.8				7.2	47.1	10.0	22.0	25.0	22.4	25.8
Faculty of Mechanical Engineering	28.6	62.5	30.0				12.3	25.7	13.9	12.7	9.1	12.2	24.1
Faculty of Electrical Engineering and Communication Technologies	27.3	58.2	29.1				22.3	41.2	24.5	10.3	11.1	10.4	27.5
Faculty of Architecture	19.8		19.8				8.8		8.8	16.7	0.0	14.3	14.6
Faculty of Chemistry	54.8	62.1	55.3				9.4	35.7	11.4	11.8		11.8	40.3
Faculty of Business and Management	31.6	0.0	31.5				21.7	40.9	26.3	31.3	40.0	33.3	29.3
Faculty of Fine Arts	12.7		12.7				0.0		0.0	0.0		0.0	7.2
Faculty of Information Technology	19.4		19.4				12.2		12.2	21.1	0.0	16.7	17.9
Institute of Forensic Engineering							43.4		43.4	0.0	0.0	0.0	42.8
Centre of Sports Activities	34.4		34.4										34.4
CEITEC BUT										12.9	0.0	12.5	12.5
BUT TOTAL	**28.3**	**60.0**	**29.5**				**15.7**	**37.9**	**18.0**	**15.2**	**14.6**	**15.1**	**25.5**

Tab. 3.4: Scholarships to students according to the purpose of the scholarship (numbers of natural persons)

Brno University of Technology Purose of the scholarship	Number of students	The average amount of the scholarship (CZK)
for excellent study results according to § 91 par. 2 let. a)	1,034	10,686
for excellent scientific, research, development, artistic or other creative results according to § 91 par. 2 let. b)	729	17,690
for research, development and innovation activities pursuant to a special legal regulation, § 91 par. 2 let. c)	824	46,250
in the case of a difficult social situation of the student according to § 91 par. 2 let. d)	7	13,071
in the case of a difficult social situation of the student according to § 91 par. 3	45	25,469
in cases worthy of special consideration according to § 91 par. 2 let. e)	15,853	5,317
of which accommodation scholarship	13,484	4,646
to support study abroad according to § 91 par. 4 let. a)	562	47,391
to support study in the Czech Republic according to § 91 par. 4 let. b)	34	154,931
students of doctoral study programmes according to § 91 par. 4 let. c)	1,096	105,594
other scholarships	0	0
TOTAL	**20,184**	**14,626**

Tab. 4.1: Graduates of accredited study programmes (number of completed studies)

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
Broadly defined ISCED-F fields	**code**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	
Faculty of Civil Engineering										
Technology, production and construction	07	413	10	0	0	471	31	1	17	943
Faculty total	**X**	**413**	**10**	**0**	**0**	**471**	**31**	**1**	**17**	**943**
Of which number of women at FCE	X	167	5	0	0	181	10	1	7	371
Of which number of foreigners at FCE	X	70	0	0	0	67	4	0	1	142
Faculty of Mechanical Engineering										
Technology, production and construction	07	538	18	0	0	530	51	5	12	1,154
Faculty total	**X**	**538**	**18**	**0**	**0**	**530**	**51**	**5**	**12**	**1,154**
Of which number of women at FME	X	86	1	0	0	92	7	1	1	188
Of which number of foreigners at FME	X	78	0	0	0	116	2	4	1	201
Faculty of Electrical Engineering and Communication Technologies										
Arts and humanities	02	37	0	0	0	17	0	0	0	54
Information and communication technologies	06	41	4	0	0	49	0	0	0	94
Technology, production and construction	07	300	18	0	0	234	29	2	25	608
Faculty total	**X**	**378**	**22**	**0**	**0**	**300**	**29**	**2**	**25**	**756**
Of which number of women at FEEC	X	52	4	0	0	45	2	2	3	108
Of which number of foreigners at FEEC	X	83	4	0	0	81	5	2	1	176
Faculty of Architecture										
Technology, production and construction	07	53	0	0	0	64	0	0	0	117
Faculty total	**X**	**53**	**0**	**0**	**0**	**64**	**0**	**0**	**0**	**117**
Of which number of women at FA	X	27	0	0	0	46	0	0	0	73
Of which number of foreigners at FA	X	13	0	0	0	26	0	0	0	39
Faculty of Chemistry										
Natural sciences, mathematics and statistics	05	0	0	0	0	41	0	1	3	45
Technology, production and construction	07	135	3	0	0	89	12	6	6	251
Faculty total	**X**	**135**	**3**	**0**	**0**	**130**	**12**	**7**	**9**	**296**
Of which number of women at FCH	X	85	3	0	0	82	9	3	5	187
Of which number of foreigners at FCH	X	34	1	0	0	46	5	0	1	87
Faculty of Business and Management										
Social sciences, journalism and information sciences	03	0	0	0	0	42	0	0	0	42
Business, administration and law	04	252	9	0	0	145	86	0	1	493
Information and communication technologies	06	78	3	0	0	85	0	0	0	166
Faculty total	**X**	**330**	**12**	**0**	**0**	**272**	**86**	**0**	**1**	**701**
Of which number of women at FBM	X	141	7	0	0	148	51	0	0	347
Of which number of foreigners at FBM	X	57	3	0	0	61	8	0	1	130
Faculty of Fine Arts										
Arts and humanities	02	27	0	0	0	22	0	0	2	51
Faculty total	**X**	**27**	**0**	**0**	**0**	**22**	**0**	**0**	**2**	**51**
Of which number of women at FFA	X	14	0	0	0	14	0	0	0	28
Of which number of foreigners at FFA	X	3	0	0	0	8	0	0	0	11

Brno University of Technology		Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total
Broadly defined ISCED-F fields	**code**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	**F**	**C/D**	
Faculty of Information Technology										
Information and communication technologies	06	287	0	0	0	130	0	0	8	425
Faculty total	**X**	**287**	**0**	**0**	**0**	**130**	**0**	**0**	**8**	**425**
Of which number of women at FIT	X	20	0	0	0	12	0	0	1	33
Of which number of foreigners at FIT	X	110	0	0	0	42	0	0	3	155
Institute of Forensic Engineering										
Business, administration and law	04	0	0	0	0	10	0	0	0	10
Technology, production and construction	07	0	0	0	0	58	0	0	4	62
Services	10	0	0	0	0	6	0	0	0	6
Department total	**X**	**0**	**0**	**0**	**0**	**74**	**0**	**0**	**4**	**78**
Of which number of women at IFE	X	0	0	0	0	33	0	0	3	36
Of which number of foreigners at IFE	X	0	0	0	0	12	0	0	1	13
Centre of Sports Activities										
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Of which number of women at CESA	X	0	0	0	0	0	0	0	0	0
Of which number of foreigners at CESA	X	0	0	0	0	0	0	0	0	0
CEITEC BUT										
Technology, production and construction	07	0	0	0	0	0	0	1	11	12
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	**12**
Of which number of women at CEITEC BUT	X	0	0	0	0	0	0	0	4	4
Of which number of foreigners at CEITEC BUT	X	0	0	0	0	0	0	0	6	6
Brno University of Technology										
Arts and humanities	02	64	0	0	0	39	0	0	2	105
Social sciences, journalism and information sciences	03	0	0	0	0	42	0	0	0	42
Business, administration and law	04	252	9	0	0	155	86	0	1	503
Natural sciences, mathematics and statistics	05	0	0	0	0	41	0	1	3	45
Information and communication technologies	06	406	7	0	0	264	0	0	8	685
Technology, production and construction	07	1,439	49	0	0	1,446	123	15	75	3,147
Services	10	0	0	0	0	6	0	0	0	6
University TOTAL	**X**	**2,161**	**65**	**0**	**0**	**1,993**	**209**	**16**	**89**	**4,533**
Of which total number of women	X	592	20	0	0	653	79	7	24	1375
Of which total number of foreigners	X	448	8	0	0	459	24	6	15	960

Tab. 5.1: Interest in studying at university

Brno University of Technology		Bachelor's studies				Master's studies				Follow-up Master's studies				Ph.D. studies			
Broadly defined ISCED-F fields	code	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number or applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number or applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number or applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study
Faculty of Civil Engineering																	
Natural sciences, mathematics and statistics	05	105	105	105	57	0	0	0	0	14	14	14	13	2	2	1	1
Technology, production and construction	07	1,620	1,633	1,475	928	0	0	0	0	666	666	627	467	61	61	51	48
Faculty total	**X**	**1,725**	**1,738**	**1,580**	**985**	**0**	**0**	**0**	**0**	**680**	**680**	**641**	**480**	**63**	**63**	**52**	**49**
Faculty of Mechanical Engineering																	
Arts and humanities	02	75	75	26	23	0	0	0	0	0	0	0	0	0	0	0	0
Natural sciences, mathematics and statistics	05	68	68	42	33	0	0	0	0	0	0	0	0	0	0	0	0
Technology, production and construction	07	1,787	1,787	1,286	1,061	0	0	0	0	1,129	1,132	871	669	95	95	85	79
Faculty total	**X**	**1,916**	**1,930**	**1,354**	**1,117**	**0**	**0**	**0**	**0**	**1,129**	**1,132**	**871**	**669**	**95**	**95**	**85**	**79**
Faculty of Electrical Engineering and Communication Technologies																	
Arts and humanities	02	115	115	73	72	0	0	0	0	0	0	0	0	0	0	0	0
Information and communication technologies	06	389	389	239	220	0	0	0	0	93	93	64	64	19	19	16	15
Technology, production and construction	07	1,347	1,366	790	741	0	0	0	0	592	592	419	409	66	66	56	48
Faculty total	**X**	**1,851**	**1,870**	**1,102**	**1,033**	**0**	**0**	**0**	**0**	**685**	**685**	**483**	**473**	**85**	**85**	**72**	**63**
Faculty of Architecture																	
Technology, production and construction	07	467	467	178	116	0	0	0	0	131	131	117	97	20	20	16	16
Faculty total	**X**	**467**	**467**	**178**	**116**	**0**	**0**	**0**	**0**	**131**	**131**	**117**	**97**	**20**	**20**	**16**	**16**
Faculty of Chemistry																	
Natural sciences, mathematics and statistics	05	531	531	331	248	0	0	0	0	59	59	49	44	30	30	30	26
Technology, production and construction	07	464	464	307	195	0	0	0	0	174	174	138	127	27	27	24	20
Faculty total	**X**	**995**	**995**	**638**	**443**	**0**	**0**	**0**	**0**	**233**	**233**	**187**	**171**	**57**	**57**	**54**	**46**
Faculty of Business and Management																	
Social sciences, journalism and information sciences	03	0	0	0	0	0	0	0	0	160	160	101	97	0	0	0	0
Business, administration and law	04	1,822	1,822	1,056	938	0	0	0	0	746	746	562	453	39	39	26	24
Information and communication technologies	06	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Faculty total	**X**	**1,822**	**1,822**	**1,056**	**938**	**0**	**0**	**0**	**0**	**907**	**907**	**663**	**550**	**39**	**39**	**26**	**24**

Brno University of Technology		Bachelor's studies				Master's studies				Follow-up Master's studies				Ph.D. studies			
Broadly defined ISCED-F fields	code	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study	Number of applicants (natural persons)	Number of applications	Number of admissions	Number of enrolments for the study
Faculty of Fine Arts																	
Arts and humanities	02	482	482	74	61	0	0	0	0	62	62	39	39	15	15	10	10
Faculty total	**X**	**482**	**482**	**74**	**61**	**0**	**0**	**0**	**0**	**62**	**62**	**39**	**39**	**15**	**15**	**10**	**10**
Faculty of Information Technology																	
Information and communication technologies	06	1,782	1,782	880	867	0	0	0	0	378	378	374	239	41	41	32	26
Faculty total	**X**	**1,782**	**1,782**	**880**	**867**	**0**	**0**	**0**	**0**	**378**	**378**	**374**	**239**	**41**	**41**	**32**	**26**
Institute of Forensic Engineering																	
Technology, production and construction	07	0	0	0	0	0	0	0	0	129	129	93	77	9	9	9	9
Services	10	0	0	0	0	0	0	0	0	35	35	26	22	0	0	0	0
Department total	**X**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**164**	**164**	**119**	**99**	**9**	**9**	**9**	**9**
Centre of Sports Activities																	
Technology, production and construction	07	60	60	35	33	0	0	0	0	0	0	0	0	0	0	0	0
Department total	**X**	**60**	**60**	**35**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CEITEC BUT																	
Technology, production and construction	07	0	0	0	0	0	0	0	0	0	0	0	0	50	50	35	22
Department total	**X**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**50**	**35**	**22**
Brno University of Technology																	
Arts and humanities	02	672	672	173	156	0	0	0	0	62	62	39	39	15	15	10	10
Social sciences, journalism and information sciences	03	0	0	0	0	0	0	0	0	160	160	101	97	0	0	0	0
Business, administration and law	04	1,822	1,822	1,056	938	0	0	0	0	746	746	562	453	39	39	26	24
Natural sciences, mathematics and statistics	05	704	704	478	338	0	0	0	0	73	73	63	57	32	32	31	27
Information and communication technologies	06	2,171	2,171	1,119	1,087	0	0	0	0	472	472	438	303	60	60	48	41
Technology, production and construction	07	5,745	5,777	4,071	3,074	0	0	0	0	2,821	2,824	2,265	1,846	328	328	276	242
Services	10	0	0	0	0	0	0	0	0	35	35	26	22	0	0	0	0
University TOTAL	**X**	**11,081**	**11,146**	**6,897**	**5,593**	**0**	**0**	**0**	**0**	**4,369**	**4,372**	**3,494**	**2,817**	**474**	**474**	**391**	**344**

Tab. 6.1: Academic and research staff and other staff, total (average numbers)

Brno University of Technology		Academic staff							Scientific and professional staff				
	Total academic staff	Professors	Associate Professors	Assistant Professors	Assistants	Lecturers	Scientific, research and development workers involved in pedagogical activities	Extraordinary professors	Postdoctoral researchers ("postdoc")	Researchers not falling into other categories	Other scientific, research and development workers	Other employees	Total employees
Faculty of Civil Engineering	310.572	33.719	69.812	162.022	45.019				6.087	24.745		215.723	557.127
of which women	88.058	3.745	7.818	54.953	21.542				2.477	4.357		117.045	211.937
Faculty of Mechanical Engineering	302.357	34.278	79.947	152.209	28.378	2.000	5.545		16.692	37.955	1.000	231.477	589.481
of which women	34.032	0.250	2.666	22.068	8.048	1.000	0.000		3.000	3.128	0.000	97.633	137.793
Faculty of Electrical Engineering and Communication Technologies	189.016	27.946	61.508	89.188	10.249	0.125			16.066	21.730		183.288	410.100
of which women	36.253	1.700	9.883	18.796	5.749	0.125			2.975	3.711		64.753	107.692
Faculty of Architecture	39.230	4.857	10.116	14.836	9.421					1.022		32.393	72.645
of which women	10.933	2.433	1.000	3.967	3.533					0.323		19.954	31.210
Faculty of Chemistry	60.263	9.388	15.734	33.085			2.056		4.929	5.102	1.000	88.165	159.459
of which women	23.261	2.000	4.187	15.018			2.056		0.939	2.231	0.000	58.005	84.436
Faculty of Business and Management	64.450	8.369	17.671	32.551	2.605	3.254			0.199	1.950		40.176	106.775
of which women	21.828	3.000	3.877	11.679	2.184	1.088				1.393		27.704	50.925
Faculty of Fine Arts	38.911	4.000	10.728	8.515	15.668					4.381		23.782	67.074
of which women	10.042	0.000	1.678	3.682	4.682					1.851		16.122	28.015
Faculty of Information Technology	57.497	7.857	18.363	29.337	1.940				4.428	15.603		163.436	240.964
of which women	2.742	0.000	1.000	1.742	0.000				1.408	1.429		65.656	71.235
Institute of Forensic Engineering	14.408	1.144	4.468	8.262	0.534				0.400	2.465		16.653	33.926
of which women	2.438	0.000	0.016	2.222	0.200					0.804		10.713	13.955
Centre of Sports Activities	14.649		2.101	6.366	6.182							17.006	31.655
of which women	7.549		1.001	3.366	3.182							11.486	19.035
CEITEC BUT	36.617	0.150		5.925			30.542		31.104	74.456	3.000	152.245	297.422
of which women	5.862	0.000		1.374			4.488		5.778	11.925	1.000	60.075	84.640
Other workplaces total	1.200		0.200	1.000								501.782	502.982
Number of women in other workplaces	0.200		0.200	0.000								318.156	318.356
TOTAL	**1,129.170**	**131.708**	**290.648**	**543.296**	**119.996**	**5.379**	**38.143**	**0.000**	**79.905**	**189.409**	**5.000**	**1,666.126**	**3,069.610**
Total of women	243.198	13.128	33.326	138.867	49.120	2.213	6.544	0.000	16.577	31.152	1.000	867.302	1,159.229

Tab. 6.2: The age structure of academic, scientific and other staff (numbers of natural persons)

Brno University of Technology	Academic staff														Scientific and professional staff						Other employees		Total	Of which women
	Professors		Associate professors		Assistant professors		Assistants		Lecturers		Scientific, research and development staff involved in pedagogical activities		Extra-ordinary professors		Postdoctoral researchers ("postdoc")		Researchers not falling into other categories		Other researchers, researchers and developers					
	total	women	total	women	total	women	total	women	total	women	total	women	total	women	total	women	total	women	total	women	total	women		
Up to 29 years					10	1	52	9	1	1	1				16	4	63	17			428	129	571	161
30–39 years	1		32	2	264	47	63	24	2	2	34	7			89	21	115	23	2		439	167	1,041	293
40–49 years	16		149	11	233	57	38	21	2	1	9						80	15	3	1	441	302	971	408
50–59 years	27	3	64	14	38	18	19	9	1		2						14	1			359	249	524	294
60–69 years	64	6	53	8	59	32	4	3	1		1						9				205	104	396	153
More than 70 years	55	6	40	2	13	3			1		1	0					14		1		51	18	176	29
TOTAL	**163**	**15**	**338**	**37**	**617**	**158**	**176**	**66**	**8**	**4**	**48**	**7**	**0**	**0**	**105**	**25**	**295**	**56**	**6**	**1**	**1,923**	**969**	**3,679**	**1,338**

Tab. 6.3: Numbers of academic and scientific staff according to the range of work load and the highest achieved qualification (numbers of natural persons according to the range of work load)

Brno University of Technology	Academic staff								Scientific staff		Total	Of whom women
Faculty of Civil Engineering												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	1		5		12	3	15	5	18	6	51	14
0,31–0,5	3		8	2	18	6	7	2	8	3	44	13
0,51–0,7	5		3		8	5	6	3	9	2	31	10
0,71–1	29	4	59	7	133	44	33	17	13	2	267	74
More than 1	1		3		2						6	0
TOTAL	**39**	**4**	**78**	**9**	**173**	**58**	**61**	**27**	**48**	**13**	**399**	**111**
Faculty of Mechanical Engineering												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	4	1	11	1	13	4	19	4	9	1	56	11
0,31–0,5	8		10		21	3	22	3	9		70	6
0,51–0,7	8		13		15	4	8	1	4	1	48	6
0,71–1	23		62	2	115	16	17	5	28	4	245	27
More than 1	2		4		8	1			3		17	1
TOTAL	**45**	**1**	**100**	**3**	**172**	**28**	**66**	**13**	**53**	**6**	**436**	**51**
Faculty of Electrical Engineering and Communication Technologies												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	4		7		8	3	3	2	9	2	31	7
0,31–0,5	6		8		7	2	1	1	4		26	3
0,51–0,7	3	1	7		6				13	2	29	3
0,71–1	22	1	52	9	67	13	13	9	20	5	174	37
More than 1	1		2	1	4				2		9	1
TOTAL	**36**	**2**	**76**	**10**	**92**	**18**	**17**	**12**	**48**	**9**	**269**	**51**
Faculty of Architecture												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	1						2				3	0
0,31–0,5			3	1	3		4	1	2	1	12	3
0,51–0,7							4	2			4	2
0,71–1	4	2	9	1	11	4	7	2			31	9
More than 1					1						1	0
TOTAL	**5**	**2**	**12**	**2**	**15**	**4**	**17**	**5**	**2**	**1**	**51**	**14**

Brno University of Technology	Academic staff								Scientific staff		Total	Of whom women
Faculty of Chemistry												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3									20	4	20	4
0,31–0,5	3		1	1	1	1			2	2	7	4
0,51–0,7			4	3	2	1					6	4
0,71–1	7	2	13	2	31	14			6	1	57	19
More than 1	1				1	1					2	1
TOTAL	**11**	**2**	**18**	**6**	**35**	**17**	**0**	**0**	**28**	**7**	**92**	**32**
Faculty of Business and Management												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	2				1		5	3	2		10	3
0,31–0,5	2				4	1			4	2	10	3
0,51–0,7	1								1	1	2	1
0,71–1	7	3	16	4	32	12	2	1			57	20
More than 1			1								1	0
TOTAL	**12**	**3**	**17**	**4**	**37**	**13**	**7**	**4**	**7**	**3**	**80**	**27**
Faculty of Fine Arts												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3			1				1		3	1	5	1
0,31–0,5					2	1	3	3	3	2	8	6
0,51–0,7					2	2			1		3	2
0,71–1	4		11	2	6	1	14	3	2	1	37	7
More than 1											0	0
TOTAL	**4**	**0**	**12**	**2**	**10**	**4**	**18**	**6**	**9**	**4**	**53**	**16**
Faculty of Information Technology												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3			2		4	1	1		14	2	21	3
0,31–0,5	1				4	1			4	1	9	2
0,51–0,7	1		5		7						13	0
0,71–1	7		15	1	24	1	2		11	2	59	4
More than 1											0	0
TOTAL	**9**	**0**	**22**	**1**	**39**	**3**	**3**	**0**	**29**	**5**	**102**	**9**

Brno University of Technology	Academic staff								Scientific staff		Total	Of whom women
Institute of Forensic Engineering												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	1		1		2	1	4	2	4		12	3
0,31–0,5	1		1		3	2			2	1	7	3
0,51–0,7					1						1	0
0,71–1			3		5	1					8	1
More than 1			1								1	0
TOTAL	**2**	**0**	**6**	**0**	**11**	**4**	**4**	**2**	**6**	**1**	**29**	**7**
Centre of Sports Activities												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3			1		2	2	1				4	2
0,31–0,5											0	0
0,51–0,7											0	0
0,71–1					7	4	5	3			12	7
More than 1			2	1							2	1
TOTAL	**0**	**0**	**3**	**1**	**9**	**6**	**6**	**3**	**0**	**0**	**18**	**10**
CEITEC BUT												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	1		1		5	1			81	18	88	19
0,31–0,5					4				23	3	27	3
0,51–0,7			1		8				17	3	26	3
0,71–1	1		2		22	4			43	9	68	13
More than 1					3	1			14	2	17	3
TOTAL	**2**	**0**	**4**	**0**	**42**	**6**	**0**	**0**	**178**	**35**	**226**	**41**
Other workplaces, total												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3											0	0
0,31–0,5											0	0
0,51–0,7											0	0
0,71–1							1				1	0
More than 1											0	0
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**

Brno University of Technology	Academic staff								Scientific staff		Total	Of whom women
Brno University of Technology												
Range of work load	**prof.**		**assoc. prof.**		**DrSc., CSc., Dr., Ph.D., Th.D.**		**others**					
	total	**women**	**total**	**women**	**total**	**women**	**total**	**women**	**total**	**women**		
Up to 0,3	14	1	29	1	47	15	51	16	160	34	301	67
0,31–0,5	24	0	31	4	67	17	37	10	61	15	220	46
0,51–0,7	18	1	33	3	49	12	18	6	45	9	163	31
0,71–1	104	12	242	28	453	114	94	40	123	24	1,016	218
More than 1	5	0	13	2	19	3	0	0	19	2	56	7
TOTAL	**165**	**14**	**348**	**38**	**635**	**161**	**200**	**72**	**408**	**84**	**1,756**	**369**
University TOTAL	**165**	**14**	**348**	**38**	**635**	**161**	**200**	**72**	**408**	**84**	**1,756**	**369**

Tab. 6.4: Leading personnel (natural persons)

Brno University of Technology	Rector/Dean	Vice-Rector/Vice-Dean	Academic Senate	Scientific/Artistic/ Academic Council	Quaestor/Secretary	Board of Directors	Director of an institute, university agricultural or forest farm	Head of department/ institute/research facility	Leading personnel total
Rectorate	1	5	26	45	1	15			**93**
Of whom women	0	1	7	4	0	2			**14**
Faculty of Civil Engineering	1	4	40	58	1			22	**126**
Of whom women	0	0	12	7	0			3	**22**
Faculty of Mechanical Engineering	1	4	36	36	1			14	**92**
Of whom women	0	0	5	0	0			1	**6**
Faculty of Electrical Engineering and Communication Technologies	1	4	21	32	1			14	**73**
Of whom women	0	1	7	2	0			0	**10**
Faculty of Architecture	1	4	13	15	1			8	**42**
Of whom women	0	0	4	3	0			1	**8**
Faculty of Chemistry	1	4	15	33	1			5	**59**
Of whom women	0	1	5	6	0			1	**13**
Faculty of Business and Management	1	4	21	27	1			4	**58**
Of whom women	0	2	7	7	0			0	**16**
Faculty of Fine Arts	1	5	11	20	1			21	**59**
Of whom women	0	3	3	8	1			4	**19**
Faculty of Information Technology	1	5	13	32	1			4	**56**
Of whom women	0	0	2	5	0			0	**7**
IFE, CEITEC BUT and CESA	0	0	0	40	2		3	9	**54**
Of whom women	0	0	0	3	0		0	2	**5**

Brno University of Technology	Rector/Dean	Vice-Rector/Vice-Dean	Academic Senate	Scientific/Artistic/ Academic Council	Quaestor/Secretary	Board of Directors	Director of an institute, university agricultural or forest farm	Head of department/ institute/research facility	Leading personnel total
Other workplaces, total									
Of whom women									
Faculties, university institutes and other workplaces, total	8	34	170	293	10		3	101	**619**
Of whom women	0	7	45	41	1		0	12	**106**
University TOTAL	**9**	**39**	**196**	**338**	**11**	**15**	**3**	**101**	**712**
Of whom women	0	8	52	45	1	2	0	12	**120**

Tab. 6.5: Academic and research staff with foreign citizenship (recalculated average numbers)

Brno University of Technology	Academic staff						Scientific and professional staff			Other employees
	Professors	Associate professors	Assistant professors	Assistants	Lectureres	Scientific. research and development workers involved in pedagogical activities	Postdoctoral students ("postdoc")	Researchers not falling into other categories	Other scientific. research and development workers	
Faculty of Civil Engineering	0.5	1	3.596	3.058	0	0	0.901	4.584	0	4
of which: Germany								0.604		
Poland										
Austria								0.455		0.15
Slovakia	0.5	1	3.596	1.058			0.901	3.192		2.207
Other EU states										
Other states outside EU				2				0.333		1.643
Women from the total number (regardless of citizenship)			0.6	0.309			0.251	0.563		2.949
Faculty of Mechanical Engineering	0	0.17	5.485	1.811	0	0	5.369	9.357	0	11.473
of which: Germany										
Poland										
Austria		0.15								
Slovakia		0.02	4.485	1.653			2.267	1.269		6.67
Other EU states								1		0.484
Other states outside EU			1	0.158			3.102	7.088		4.319
Women from the total number (regardless of citizenship)				1.316			1.817	2.1		3.604

Brno University of Technology	Academic staff						Scientific and professional staff			Other employees
	Professors	Associate professors	Assistant professors	Assistants	Lectureres	Scientific. research and development workers involved in pedagogical activities	Postdoctoral students ("postdoc")	Researchers not falling into other categories	Other scientific. research and development workers	
Faculty of Electrical Engineering and Communication Technologies	0.1	2.149	6.314	0	0	0	4.3	6.489	0	11.641
of which: Germany							0.268	0.125		
Poland	0.1							1		
Austria										
Slovakia		2.149	3.314				1.023	2.164		8.834
Other EU states							0.583	1.2		
Other states outside EU			3				2.426	2		2.807
Women from the total number (regardless of citizenship)		1	1.333				2.277	3		2.437
Faculty of Architecture	0.433	0	0	0.584	0	0	0	0	0	0
of which: Germany										
Poland										
Austria										
Slovakia	0.433			0.584						
Other EU states										
Other states outside EU										
Women from the total number (regardless of citizenship)	0.433									
Faculty of Chemistry	0	1.584	1	0	0	0	0	1.457	0	1.768
of which: Germany										
Poland										
Austria										
Slovakia		1.584	1					0.457		1.768
Other EU states								1		
Other states outside EU										
Women from the total number (regardless of citizenship)		0.584	1					0.415		1.319
Faculty of Business and Management	0.25	2.749	1.248	0.377	0	0	0	0	0	0.32
of which: Germany										
Poland										
Austria										
Slovakia	0.25	2	1							0.32
Other EU states										
Other states outside EU		0.749	0.248	0.377						
Women from the total number (regardless of citizenship)		1	1.248	0.314						0.16

Brno University of Technology	Academic staff						Scientific and professional staff			Other employees
	Professors	Associate professors	Assistant professors	Assistants	Lectureres	Scientific. research and development workers involved in pedagogical activities	Postdoctoral students ("postdoc")	Researchers not falling into other categories	Other scientific. research and development workers	
Faculty of Fine Arts	0	1	1.624	1.333	0	0	0	1.518	0	0
of which: Germany										
Poland										
Austria										
Slovakia		1	1					1.518		
Other EU states				0.333						
Other states outside EU			0.624	1						
Women from the total number (regardless of citizenship)			1.624	0.333				1.351		
Faculty of Information Technology	0	1	1.4	0	0	0	1	2.968	0	25.565
of which: Germany										
Poland										1
Austria										
Slovakia		1	0.4					0.775		14.79
Other EU states			1				1	0.193		1
Other states outside EU								2		8.775
Women from the total number (regardless of citizenship)							1	1.459		4.596
Institute of Forensic Engineering	0	0	0.166	0	0	0	0.125	0.509	0	0.909
of which: Germany										
Poland										
Austria										
Slovakia			0.166				0.125	0.509		0.909
Other EU states										
Other states outside EU										
Women from the total number (regardless of citizenship)								0.509		
Centre of Sports Activities	0	0	0	1	0	0	0	0	0	2
of which: Germany										
Poland										
Austria										
Slovakia				1						2
Other EU states										
Other states outside EU										
Women from the total number (regardless of citizenship)										1

Brno University of Technology	Academic staff						Scientific and professional staff			Other employees
	Professors	Associate professors	Assistant professors	Assistants	Lectureres	Scientific. research and development workers involved in pedagogical activities	Postdoctoral students ("postdoc")	Researchers not falling into other categories	Other scientific. research and development workers	
CEITEC BUT	0	0	1.125	0	0	16.204	9.452	7.446	0	26.418
of which: Germany						1				0.129
Poland						1.027				
Austria						1.918				0.3
Slovakia			0.125			3.071	0.378	1.704		14.174
Other EU states						1.2	3.51	1.398		0.704
Other states outside EU			1			7.988	5.564	4.344		11.111
Women from the total number (regardless of citizenship)			0.125			4.25	1.548	4.03		7.903
Other workplaces in total	0	0	0	0	0	0	0	0	0	4.888
of which: Germany										
Poland										
Austria										
Slovakia										4.888
Other EU states										
Other states outside EU										
Women from the total number (regardless of citizenship)										2.043
University TOTAL	**1.283**	**9.652**	**21.958**	**8.163**	**0**	**16.204**	**21.147**	**34.328**	**0**	**88.982**
of which: Germany	0	0	0	0	0	1	0.268	0.729	0	0.129
Poland	0.1	0	0	0	0	1.027	0	1	0	1
Austria	0	0.15	0	0	0	1.918	0	0.455	0	0.45
Slovakia	1.183	8.753	15.086	4.295	0	3.071	4.694	11.588	0	56.56
Other EU states	0	0	1	0.333	0	1.2	5.093	4.791	0	2.188
Other states outside EU	0	0.749	5.872	3.535	0	7.988	11.092	15.765	0	28.655
Women from the total number (regardless of citizenship)	0.433	2.584	5.93	2.272	0	4.25	6.893	13.427	0	26.011

Tab. 6.6: Newly appointed associate professors and professors (numbers)

Brno University of Technology	Number			Age average of newly appointed
	At this university		Own university employees appointed at other universities	
	total	of which regular employees of the university		
Faculty of Civil Engineering				
Professors appointed in 2020	2	1	0	44.26
of which women	1	0	0	45.12
Associate professors appointed in 2020	5	5	1	44.25
of which women	1	1	0	41.21
Faculty of Mechanical Engineering				
Professors appointed in 2020	0	0	0	
of which women	0	0	0	
Associate professors appointed in 2020	4	4	0	38.99
of which women	0	0	0	
Faculty of Electrical Engineering and Communication Technologies				
Professors appointed in 2020	1	1	0	43.72
of which women	0	0	0	
Associate professors appointed in 2020	7	6	0	39.04
of which women	0	0	0	
Faculty of Architecture				
Professors appointed in 2020	0	0	0	
of which women	0	0	0	
Associate professors appointed in 2020	0	0	0	
of which women	0	0	0	
Faculty of Chemistry				
Professors appointed in 2020	1	1	0	72.88
of which women	0	0	0	
Associate professors appointed in 2020	1	1	0	37.81
of which women	1	1	0	37.81
Faculty of Business and Management				
Professors appointed in 2020	1	1	0	40.48
of which women	0	0	0	
Associate professors appointed in 2020	1	1	0	34.42
of which women	1	1	0	34.42
Faculty of Fine Arts				
Professors appointed in 2020	1	0	0	61.86
of which women	0	0	0	
Associate professors appointed in 2020	0	0	0	
of which women	0	0	0	
Faculty of Information Technology				
Professors appointed in 2020	0	0	0	
of which women	0	0	0	
Associate professors appointed in 2020	0	0	0	
of which women	0	0	0	

Brno University of Technology	Number			Age average of newly appointed
	At this university		Own university employees appointed at other universities	
	total	of which regular employees of the university		
Institute of Forensic Engineering				
Professors appointed in 2020	0	0	0	
of which women	0	0	0	
Associate professors appointed in 2020	2	1	0	53.61
of which women	0	0	0	
TOTAL professors	**6**	**4**	**0**	**51.24**
of which women	1	0	0	45.12
TOTAL associate professors	**20**	**18**	**0**	**41.5**
of which women	3	0	0	37.81

Tab. 7.1: Involvement of the university in international cooperation programmes (regardless of the source of funding)

Brno University of Technology	H2020/7th EC Framework Programmes		Others	Total
	total	of which Marie-Curie Actions		
Number of projects	48	7	67	**115**
Number of students sent	0	1	517	**517**
Number of students admitted	0	1	398	**398**
Number of academic and scientific staff sent	22	3	71	**93**
Number of admitted academic and scientific staff	0	0	56	**56**
Subsidies in thous. CZK	498,815	42,658	415,119.02	**913,934.02**

Tab. 7.2: Mobility of students, academicians and other staff with regards country (regardless of the source of funding)

Brno University of Technology	Number of students sent			Number of students admitted		Number of academic scientific staff sent	Number of admitted academic staff	Number of other workers sent	Number of other workers admitted	Total for the states
Country	total	of which graduate internships	of which on-line	of which on-line	total					
Austria	49	1	1	1	9	2	0	0	0	**60**
Belgium	7	0	0	0	3	0	0	0	0	**10**
Brazil	0	0	0	0	38	0	0	0	0	**38**
Bulgaria	5	0	0	0	8	0	0	1	0	**14**
Canada	1	0	0	0	0	0	0	0	0	**1**
Chile	1	0	0	0	0	0	0	0	0	**1**
People's Republic of China	2	0	0	0	6	0	0	0	0	**8**
Republic of China (Taiwan)	5	0	0	0	9	0	0	0	0	**14**
Colombia	0	0	0	0	1	0	0	0	0	**1**
Croatia	6	0	0	0	2	1	0	0	0	**9**
Cyprus	0	0	0	0	1	0	0	3	0	**4**
Denmark	17	3	0	0	2	0	0	0	0	**19**
Estonia	16	0	0	0	8	0	0	0	0	**24**
Finland	16	0	0	0	3	0	0	0	0	**19**
France	22	0	0	0	79	1	0	0	0	**102**
Germany	51	2	3	0	23	1	0	0	0	**75**
Greece	9	0	0	0	19	0	0	0	0	**28**
Hungary	5	1	0	0	2	0	0	0	0	**7**
Iceland	4	2	0	0	0	0	0	0	0	**4**
India	1	0	0	0	1	0	0	0	0	**2**
Ireland	5	1	0	0	0	0	0	0	0	**5**
Italy	10	0	1	0	28	0	0	0	0	**38**
Kazakhstan	1	0	0	0	3	0	0	0	0	**4**
Kenya	0	0	0	0	9	0	0	0	0	**9**
Democratic People's Republic of Korea	0	0	0	0	17	0	0	0	0	**17**
Republic of Korea	5	0	2	0	0	0	0	0	0	**5**
Latvia	4	0	0	0	9	0	0	0	0	**13**
Liechtenstein	2	0	0	0	0	0	0	0	0	**2**
Lithuania	13	0	0	0	35	0	0	0	0	**48**
Malta	5	0	0	0	2	0	0	2	0	**9**
Mexico	1	0	0	0	7	0	0	0	0	**8**
The Netherlands	8	0	0	0	1	0	0	0	0	**9**
Norway	19	0	0	0	1	0	0	0	0	**20**
Poland	8	0	0	0	18	1	0	0	0	**27**
Portugal	45	0	0	0	58	0	0	0	0	**103**
Romania	1	0	0	0	4	0	0	0	0	**5**
Russian Federation	2	0	0	0	17	0	0	0	0	**19**
Serbia	0	0	0	0	1	0	0	0	0	**1**

Brno University of Technology	Number of students sent			Number of students admitted		Number of academic scientific staff sent	Number of admitted academic staff	Number of other workers sent	Number of other workers admitted	Total for the states
Country	total	of which graduate internships	of which on-line	of which on-line	total					
Slovakia	16	2	1	0	15	0	0	0	0	**31**
Slovenia	19	1	0	0	9	1	0	0	0	**29**
Spain	26	1	1	0	98	0	0	0	0	**124**
Sahrawi Arab Democratic Republic	1	0	0	0	0	0	0	0	0	**1**
Sweden	15	1	0	0	2	0	0	0	0	**17**
Switzerland	6	0	0	0	0	0	0	0	0	**6**
Turkey	3	0	0	0	54	0	0	0	0	**57**
Ukraine	1	0	0	0	0	0	0	0	0	**1**
Republic of Northern Macedonia	0	0	0	0	1	0	0	0	0	**1**
United Kingdom	24	2	4	0	4	0	0	0	0	**28**
United States of America	17	0	21	0	0	0	0	0	0	**17**
Total	**474**	**17**	**34**	**1**	**607**	**7**	**0**	**6**	**0**	**1,094**

Note: The table above does not reflect the source of mobility funding. In the printed version of the annual activity report, only states for which BUT registered some form of foreign mobility in 2020 are listed.

Tab. 7.3: Mobility of graduates (numbers and shares of completed studies)

Brno University of Technology	Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total	
	proportion	number	proportion	number	proportion	number	proportion	number	proportion	number
Faculty of Architecture										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	18.87%	18.0			43.8%	43.0	0.0%	0.0	**32.5%**	**61.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							0.0%	0.0	**0.0%**	**0.0**
Faculty of Electrical Engineering and Communication Technologies										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	2.0%	8.0			8.8%	29.0	11.1%	3.0	**5.3%**	**40.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							7.4%	2.0	**7.4%**	**2.0**

Brno University of Technology	Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total	
	proportion	number	proportion	number	proportion	number	proportion	number	proportion	number
Faculty of Chemistry										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	2.2%	3.0			21.1%	30.0	68.8%	11	**14.9%**	**44.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							62.5%	11.0	**62.5%**	**11.0**
Faculty of Information Technology										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	3.8%	11.0			21.5%	28.0	25.0%	2.0	**9.6%**	**41.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							25.0%	2.0	**25.0%**	**2.0**
Faculty of Business and Management										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	2.3%	8.0			11.5%	41.0	100.0%	1.0	**7.1%**	**50.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							100.0%	1.0	**100.0%**	**1.0**
Faculty of Civil Engineering										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	6.9%	29.0			9.0%	45.0	22.2%	4.0	**8.3%**	**78.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							22.2%	4.0	**22.2%**	**4.0**
Faculty of Mechanical Engineering										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	0.7%	4.0			20.3%	118.0	29.4%	5.0	**11.0%**	**127.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							23.5%	4.0	**23.5%**	**4.0**
Faculty of Fine Arts										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	40.7%	11.0			36.4%	8.0	50.0%	1.0	**39.2%**	**20.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)									**0.0%**	**0.0**

Brno University of Technology	Bachelor's studies		Master's studies		Follow-up Master's studies		Ph.D. studies		Total	
	proportion	number	proportion	number	proportion	number	proportion	number	proportion	number
CEITEC BUT										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies		0.0				0.0	75.0%	9.0	**75.0%**	**9.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							75.0%	9.0	**75.0%**	**9.0**
Institute of Forensic Engineering										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies		0.0			1.4%	1.0	50.0%	2.0	**3.8%**	**3.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)									**0.0%**	**0.0**
Brno University of Technology										
Proportion [%] and number of graduates who went on a stay abroad for at least 14 days during their studies	3.8%	84.0			14.9%	328.0	36.2%	38.0	**9.3%**	**436.0**
Proportion [%] and number of doctoral graduates with a length of stay abroad of at least 1 month (i.e. 30 days)							31.4%	31.0	**31.4%**	**31.0**
Brno University of Technology	**3.8%**	**84.0**	**0.0%**	**0.0**	**14.9%**	**328.0**				

Tab. 8.1: Conferences (co-)organized by the university (numbers)

Brno University of Technology	With the number of participants greater than 60		International conference	
	physical	virtual	physical	virtual
Faculty of Civil Engineering	4	3	6	4
Faculty of Mechanical Engineering	0	3	2	4
Faculty of Electrical Engineering and Communication Technologies	1	2	1	5
Faculty of Architecture	0	0	0	2
Faculty of Chemistry	1	0	1	1
Faculty of Business and Management	0	0	0	0
Faculty of Fine Arts	1	0	0	0
Faculty of Information Technology	1	1	1	0
Institute of Forensic Engineering	1	0	0	0
CEITEC BUT	0	1	0	2
Centre of Sports Activities	0	0	0	0
TOTAL	**9**	**10**	**11**	**18**

Tab. 8.2: Experts from the application sphere participating in teaching and practice in accredited study programmes (numbers)

Brno University of Technology	Persons having an employment relationship with the university or part of the university			Persons not having an employment relationship with the university or part of the university		
	Number of persons participating in teaching	Number of persons involved in the supervision of the final thesis	Number of persons involved in providing internships	Number of persons participating in teaching	Number of persons involved in the supervision of the final thesis	Number of persons involved in providing internships
Faculty of Civil Engineering	70	11		17	5	100
of which women	14	2		5		6
Faculty of Mechanical Engineering				26	143	42
of which women				5	11	4
Faculty of Electrical Engineering and Communication Technologies	116	18	2	24	11	46
of which women	17	13	7	2		
Faculty of Architecture	33	15	3	12	1	33
of which women	7	3	1	5		4
Faculty of Chemistry	55					
of which women	15					
Faculty of Business and Management	7	1	1	13		150
of which women	1			2		70
Faculty of Fine Arts	10			9		
of which women	5			4		
Faculty of Information Technology				9	55	
of which women				1	5	
Institute of Forensic Engineering	14	3				
of which women	2	1				
CEITEC BUT						
of which women						
Centre of Sports Activities	8		2	2		2
of which women	4					
TOTAL	**313**	**48**	**8**	**112**	**215**	**373**
of which women	65	19	8	24	16	84

Tab. 8.3: Fields of study/programmes which, in their content, have compulsory completion of professional practice for a period of at least 1 month (numbers)

Brno University of Technology	Number of fields of study/ programmes	Number of active studies					
		Bachelor's studies		Master's studies		Follow-up Master's studies	
		Academic profile	Profes-sional profile	Academic profile	Profes-sional profile	Academic profile	Profes-sional profile
Faculty of Civil Engineering	4	436				99	
Faculty of Architecture	2		90				69
Faculty of Chemistry	1		18				
Faculty of Business and Management	5	362	527				
Centre of Sports Activities	1		53				
TOTAL	**13**	**798**	**688**			**99**	**69**

Tab. 8.4: Transfer of knowledge and research results into practice

Brno University of Technology	In the Czech Republic	Abroad	Total number	Total revenue
Number of new spin-offs/start-ups			**0**	
Patent applications filed	11	10	**21**	
Granted patents	17	8	**25**	
Registered utility models	48	0	**48**	
License agreements valid as of December 31	22	48	**70**	
Newly concluded license agreements	11	15	**26**	**1,698,049.18 CZK**
Contract research, consultations and consultancy services			**1,064**	**158,768,087.26 CZK**
Paid training courses for employees of application spheres			**31**	**3,532,599.85 CZK**

Summary information on tab. 8.4

	Total number	Total revenue	Average revenue per 1 order
Newly concluded license agreements, contract research, consultations, consultancy services and paid training courses for employees of the application sphere	1,121	163,998,736 CZK	146,297 CZK

Tab. 12.1: Accommodation, meals

Brno University of Technology	Number
Total bed capacity of university dormitories	6,353
Number of beds in rented facilities	0
Number of submitted applications/reservations for accommodation as of 31/12/2020	3,383/3,216
Number of positively processed applications/reservations for accommodation as of 31/12/2020	3,109/3,216
Number of bed days in 2020	1,484,366
Total number of terminated contracts (pandemics)	989
Total number of modified contracts (pandemics)	3,205
Total number of contracts with exception (pandemics)	401
Number of main meals issued to students in 2020	240,038
Number of main meals issued in 2020 to university staff	60,821
Number of main meals served in 2020 to other diners	30,302

Tab. 12.2: University libraries

Brno University of Technology	Number
Increase in library stock per year	5,355
of which increase in physical units	4,755
of which an increase in e-books in permanent purchase	600
Total library collection	244,113
of which physical units	242,198
of which e-books in permanent purchase	1,915
Number of subscribed periodical titles:	
physically	569
electronically (estimation)	100
in both forms	10

14 Conclusions

On previous pages, Brno University of Technology indicated where it was heading in the "epidemiologically difficult" year 2020. Today, it is quite certain that BUT and other universities will face other challenges in the coming calendar year 2021, including renewed internationalization and, for example, a return from distance learning back to lecture halls and laboratories. To meet future challenges, the cooperation of all people at BUT will be necessary, i.e. students, teachers, scientists and other employees. We will have to discuss, propose new solutions, and look for the most suitable ones for the entire university. So let me wish not only BUT students and employees, but also everyone else a lot of health and energy to cope with the challenges and overcome the obstacles of the "post-vision" period. We will certainly be able to do it together.

prof. RNDr. Ing. Petr Štěpánek, CSc., dr. h. c.
Rector of BUT

15 List of abbreviations used

CEITEC	Central European Institute of Technology
CIIRK	Czech Institute of Informatics, Robotics and Cybernetics CTU in Prague
CTU	Czech Technical University in Prague
CUA	Czech University of Agriculture
DFKI	Deutsches Forschungszentrum für Künstliche Intelligenz (German Artificial Intelligence Research Center)
EEICT	Electrical Engineering, Information Science, and Communication Technologies (conference at FEEC)
ESN	Erasmus Student Network
FA	Faculty of Architecture, BUT
FCE	Faculty of Civil Engineering, BUT
FFA	Faculty of Fine Arts, BUT
FEEC	Faculty of Electrical Engineering and Communication, BUT
FCH	Faculty of Chemistry, BUT
FIT	Faculty of Information Technology, BUT
UH Brno	University Hospital Brno
FBM	Faculty of Business and Management, BUT
FME	Faculty of Mechanical Engineering, BUT
GA CR	Grant Agency of the Czech Republic
HR Award	Human Resources Award
IAESTE	International Association for the Exchange of Students for Technical Experience
ILL	Institute of Lifelong Learning, BUT
ISAB	International Scientific Advisory Board
SMCIM	South Moravian Centre for International Mobility
SMIC	South Moravian Innovation Centre
CC	Career Centre of BUT
MEP	International Evaluation Panel
MEYS	Ministry of Education, Youth and Sports
MIT	Ministry of Industry and Trade
MU	Masaryk University
NAO	National Accreditation Office for Higher Education
OP RDE	Operational Programme Research, Development and Education
IEB	BUT Internal Evaluation Bard
UC	University Council
CRDI	Council for Research, Development and Innovation
SHAP	System of evaluation of academic staff
SPA	Secondary school professional activity
TA CR	Technology Agency of the Czech Republic
TU	Technical University of Liberec
IFE	Institute of Forensic Engineering, BUT
VSB-TUO	University of banska – Technical University of Ostrava
SRI	Science, research and innovation
WHO	World Health Organization
WoS	Web of Science
ZeMA	Zentrum für Mechatronik und Automatisierungstechnik gemeinnützige (German Research Center for Automation and Mechatronics)

BRNO UNIVERSITY OF TECHNOLOGY

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