BRNO UNIVERSITY OF TECHNOLOGY ANNUAL REPORT 2013

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BRNO UNIVERSITY OF TECHNOLOGY

BRNO UNIVERSITY OF TECHNOLOGY 2013 ANNUAL REPORT is submitted as required by Act no. 111/1998 Coll. concerning universities. It was made according to the university activity guidelines for 2013 published by the Ministry of Education, Youth, and Sports. To a wider public, it presents data and major results of all the activities related to Brno University of Technology as part of the Czech and international higher education system, research and social activities.

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INTRODUCTION

RECTOR'S WORD

The annual report of each organisation is a summary of all its activities. This one in not an exception: leafing through it, you can relive the year 2013 with Brno University of Technology – picturing all its achievements, events, anniversaries, and other activities taking place at our university.

For me, however, this annual report is a little different. The year 2013 was the last one I spent in the office of BUT rector.

I am extremely glad that I can say that this year was a success for our university

in all aspects. Therefore, I would like to extend my most sincere thanks to all those without whose help we could have never made all those advances in research and teaching. In my opinion, among BUT's most important and closely watched activities in 2013 was the relatively problem-free building of most of the faculty centres and both centres of excellence financed from the projects of the Research and Development for Innovations and Education for Competitiveness operative programmes of the Ministry of Education, Youth, and Sports. Also, the progress of most faculty projects for regional centres can receive a positive evaluation. It is, however, vital for us not to lose the existing momentum. The problem is not only that of funding, but also of the human resources available. For the years to come, it will be necessary to make every effort to have sufficient reserves for staffing all the projects not only with leading scientists from abroad but also with teams consisting of our own doctoral students. Well-launched projects are always only the beginning. Most important is that, despite all the problems caused mostly by the volatile economic and political situation at home and abroad, we should manage to keep all our projects sustainable. Not only because this is required by the EU commissioners. Concentration on enhancing research activities brings multiplicative effects in the financial flows of each faculty or institute. More so because – exactly in the case of a recurring recession or volatility – we do not depend on vague promises by industrial enterprises to apply our research outcomes in practice. The BUT management, both the old and the new one, wants and will support the researchers and artists who publish their results in international impacted journals conducting research at an international level. They should continue to receive all incentives possible.

Having mentioned cooperation with the industrial sphere, I would also like to appreciate the close cooperation with the South Moravian regional Authority helping us remove many barriers and launch cooperation projects with the companies. As has already become a tradition, via innovation vouchers, BUT has won the most orders of the four Brno universities and participating institutes of the Academy of Sciences of the Czech Republic. Very useful and beneficial is also cooperation with the Chamber of Commerce. The university pays much attention to building a quality system, which, headed by staff from our university, has already been worked on as part of an IPn project supervised by the ministry of education for the third year in succession. There was a number of the traditional forms and particular methods of support for the quality of researchers and students in the previous year, too.

I regret that, despite many an effort and partial wins, we have not succeeded in setting the system of technical education to be able to cope with the sometimes critical lack of experts in practice. It is evident that we have to use our own funding to design a better promotion system of technical education to recruit more students. Although not traditional, merit scholarship for first-year students was a good idea. As such, it will continue to be granted.

However, I would not like to sound pessimistic at the end. I am happy that a great deal of students is actively involved in long-term positive activities in addition to their study. As examples may serve student teams working on the design of student racing cars and winning international races. I am glad that the BEST student organization, in addition to being successful on an international scale, has managed to be widely acclaimed beyond the university.

I could go on listing similar achievements for a long time. What more can actually a leaving rector wish? I only hope that Brno University of Technology will keep following this successful path and that each of my successors will need more space to list all the achievements and thank all those bringing them.

Karel Rais, rector of BUT

SIGNIFICANT EVENTS

EVENTS

In December, BUT hosted dr. Georg Smith, the 2009 Nobel Prize winner in physics. "The CCD processors opened the electron eyes of our age," said Smith in his lecture to an audience crowding the great hall.

On 5th November 2013, by secret ballot, the twenty-seven members of the BUT Academic senate elected prof. RNDr. Ing. Petr Štěpánek, CSc. candidate for the office of rector for the years 2014–2018.

After a number of minor and major reconstructions and additions, the BUT Faculty of Civil Engineering finally saw in June the opening of its new campus. The last stage of the work started in March 2011 and finished on 7th June 2013. A total of almost 420.5 million CZK was spent on the construction with 85 percent being paid from the EU funds.

OUTSTANDING ACHIEVEMENTS AND AWARDS

◁ Three honorary doctorates were awarded by BUT to three distinguished scientists. In January, it was Professor Josef Dadok for his major contribution to the birth and development of nuclear magnetic resonance. In late May, the honorary degrees went to two leading scientists: Professor Boris Anatolyevich Jakimovich, rector of Kalashnikov State Technical University in Izhevsk, for long-standing cooperation in academic mobility, joint research and teaching between the Izhevsk technical university and BUT, and Professor Vladimír Mařík, head of the Department of Computer Science – EU Centre of Excellence at Czech Technical University in Prague, among others, for his work in artificial intelligence and support for student projects at Czech Universities.

A Gold Medal was given by rector of BUT at a special academic meeting in November to prof. Ing. Pavel Jura, CSc., for his significant contribution to the development of universities and to the building of BUT reputation. ▷

A certificate of ČSN EN ISO 9001:2009 compliance of the quality management system implemented at Rector's office and at other university constituent parts (except dormitories and canteens) was given to Brno University of Technology in February 2013. The certificate was awarded following an audit carried out by an independent certification body. The strict certification criteria were also met in November by the BUT Faculty of Business and Management, which then received a similar certificate. In January, the BUT Institute of Forensic Engineering obtained a CEPI Eur certificate by the CEPI European Council of Real Estate Professions.

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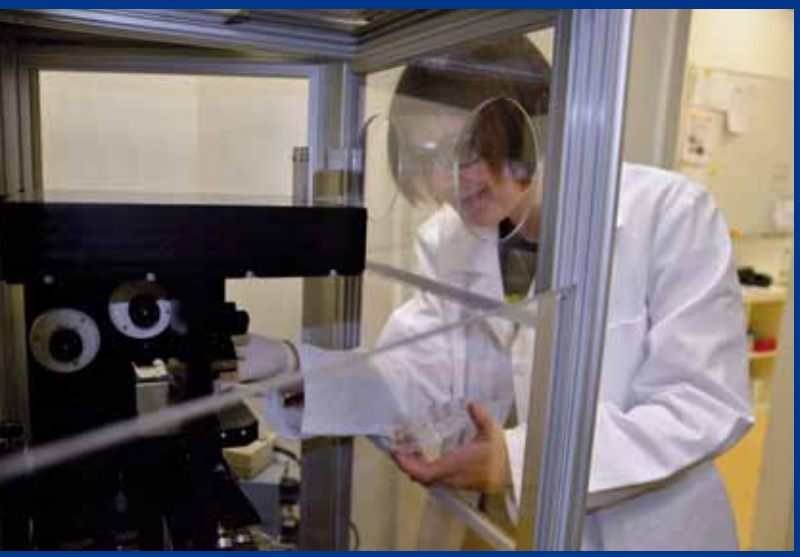
◁ Two prestigious awards were received in 2013 by rector of BUT prof. Ing. Karel Rais, CSc. In April, he won the Crystal Laurel Order from the Chamber of Commerce for his top management expertise in education. Next Professor Rais' management expertise was appreciated by the second place in this year's twentieth annual TOP 10 Managers of the Year competition.

◁ In January, Prof. Ing. Radimír Vrba, CSc., received from the mayor of Brno a City of Brno Prize in the technological advancements category. Professor Vrba conducts research in applied electronics and sensorics and, as member of research teams, was granted tens of research projects at home and abroad with outcomes applied in engineering practice.

In October, a gold medal of the 2013 International Trade Fair was given to the smart autopilot of EPOS, an aircraft designed at the BUT Faculty of Information Technology that can enhance the flight security by guiding the pilot out of dangerous zones.

In September, a unique multimodal holographic microscope developed by a team led by Radim Chmelík, vice-dean of the BUT Faculty of Mechanical Engineering, obtained a US patent in addition to the home and European ones.



NAFIGATE Corporation, a. s., a Czech based company engaged in transferring leading edge technologies and commercialization of hi-tech products, launched on the Chinese market Hydal, a unique Czech patent-protected technology designed by a team led by Professor Ivana Márová at Brno University of Technology. With this technology, waste deep-fry oil can be processed into a biopolymer most frequently used to produce environment-friendly bioplastic containers.

A specific research project was implemented at the BUT Faculty of Fine Arts called „Art and architecture as tools used to construct public space in the communist era and their reflection in the contemporary art ." Three monographs were published as part of the project: Past Future, by Jan Zálešák, The Židenice Funeral Parlour as a collective monograph, and Mutually, a monograph by Barbora Klímová nominated for the Most Beautiful Book of 2013.

A national patent for Photovoltaic Element Including a Resonator was awarded to doc. Ing. Pavel Fiala, Ph.D., from the Faculty of Electrical Engineering and Communication. This is the design of a structure (the size of nanometres), conceived as an element of a periodic structure with properties substantially better than those of the standard state-of-the-art semiconductor structures for the photovoltaic effect utilizing solar energy. The structure design can be adapted to the weather conditions so that the incident energy exploitation percentage (IR A, B, C, D) is between 50 and 90, which is a major advantage compared with the present 8 to 15 % for the photoelectric phenomenon in the visible part of the spectrum.

△ The Memories of the Future II exhibition at the Dům pánů z Kunštátu, a curator project of Mgr. Jan Zálešák, Ph.D., head of the Department of the Theory and History of Art of the BUT Faculty of Fine Arts, was focused on artistic research of memory, history, or archive. The artists that provided works for the exhibition are from post-communist countries and the works selected represented a range of themes and approaches such as investigation of the memory mechanism, work with a picture found, and a specific interest in utopia and visions of the future not only in socialism.

◁ BUT News won the Gold Semicolon competition in the best state, public and non-profit-sphere journal category. This was the eleventh annual competition organized by PR Klub, a communication and public relations association.

Posted on YouTube in February, a new BUT promotion clip scored about half a million views within a month. This spot was initiated by the BUT Department of External Relations. ▷

STUDENTS

A team from the BUT Faculty of Information Technology and its rteSound logical game was chosen in April as the best project by the jury of the Czech final of Imagine Cup 2013. In the international final held in Petersburg, Russia, the team finished among the first ten in Game Design thus joining the world's best teams.
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Dragon 3 is the third Formula Student car designed and manufactured by the TU Brno Racing student team. Like its Dragon 1 and Dragon 2 predecessors, it is a joint product of several BUT departments and faculties working under the leadership of the Institute of Automotive Engineering at the BUT Faculty of Mechanical Engineering sponsored by a number of industrial companies such as Bosch Diesel, s. r. o., Jihlava.

Adéla Kyselová, a student of the BUT Faculty of Architecture, took the 4th place among more than 800 students and 271 registered teams from 41 countries in a Tur(i)ntogreen – Farms In A Town student international competition. The aim of the competition was to design an urban structure based on a model of town farms or a combination of housing and agriculture.
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◁ The winter swimmer, Aneta Lokajová, student of the BUT Faculty of Chemistry, became in August the sixth Czech woman-swimmer to cross the English Channel. Only two of her predecessors were FCEer than she.

In April, the BUT Centre hosted Junior Forensic Science Brno 2013 (JuFoS 2013), the 5th annual international forensic research conference of doctoral students. Here, students could present their research and scientific work experience in diverse forensic fields.

Jiří Mekyska, a 3rd year doctoral student at the Department of Telecommunications won the Joseph Fourier Prize for Computer Science, a competition organized by the French Embassy in the Czech Republic and Bull, s. r. o. He received the prize for his research in non-invasive computing analysis of neurological diseases and for work on thermal image processing.

Attended by BUT architecture students and students of prof. Zeev Druckman from Bezalel Academy of Arts and Design, Jerusalem, the international Lost Public Spaces of Brno – BRNO RING BOULEVARD workshop was held from 2nd to 8th April 2013 at the BUT Faculty of Architecture. The aim was to find new conceptual solutions to such a unique and important public space as the Brno Ring Boulevard.

ANNIVERSARIES

The US-MBA studies co-organized by the BUT Faculty of Business and Management and Dominican University in Chicago have been offered at BUT from 2003. Over this decade, there have been 217 graduates also from European and other countries such as Norway, Belgium, Italy, Slovakia, Russia, Austria, and Yemen.

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In 2013, the BUT Faculty of Fine Arts, which is unique in the Czech artistic educational space by its coexistence with a technical university, commemorated its twentieth anniversary. Established at BUT in 1993, for seven years, the faculty was the only of one of its kind in the Czech lands.

◁ Its 20th birthday celebrated also the BUT Vox Iuvenalis choir at a concert held at the BUT Centre in Antonínská Street. In twenty years, a total of 307 choir members have sung 4,680 hours at rehearsals, given over a hundred concerts, and recorded 3 CDs.

MAJOR PROJECTS

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CENTRAL EUROPEAN INSTITUTE OF TECHNOLOGY (CEITEC) – is a project of Brno universities and research institutions (Brno University of Technology – 36% participation, Masaryk University, Mendel University, University of Veterinary and Pharmaceutical Sciences Brno, Institute of Physics of Materials of the Czech Academy of Sciences, and Veterinary Research Institute), who have joined efforts to create a leading European research institute focusing on organic nature sciences and advanced materials and technologies. Its principal aim is to build a major European centre of science and education providing top services for the best researchers. Its achievements will help improve the quality of human life and health. |The year 2013 was important for building the CEITEC infrastructure. Structural work was done at the BUT Pod Palackého vrchem campus with the interior parts added, first specialised technology units built in and preparatory works carried out for installing unique devices. Tenders were invited for the supply of equipment and services to be installed on the new premises built in 2014. | CEITEC continues to follow the trend of internationalization and commercial cooperation. It launches new cooperation projects with leading European and overseas institutions gradually winning new partners for joint projects. As an example of excellent cooperation may serve the paper on magnetic whirls, Preparation and Characterisation of Nanostructures, published in Nature Nanotechnology by a group of scientists led by Professor Tomáš Šikola. Researchers from CEITEC, University of California, San Diego, and Synchrotronic Laboratory at Berkeley cooperated to verify the theory. Another no less important achievement in international cooperation is the high success-rate in winning international grants. A group led by Professor Karel Maca and his colleague dr. David Salomon were successful in raising funds for a project of special bioactive replacements for jawbones from the FP7 programme. Here, they cooperate with researchers from Germany, Spain, Sweden, and China. | Students were admitted to the first CEITEC doctoral inter-university programme. In line with the policy of admitting to study excellent candidates interested in science, CEITEC launched recruitment campaign for the next year.

IT 4INNOVATIONS CENTRE OF EXCELLENCE – IT4Innovations is a unique project to build a national centre of research excellence in information technology. This new centre will help concentrate a number of IT-related fields of research to accelerate their development. | As part of the project, a superpower computer is to be installed in Ostrava in mid 2015, ranking among the world's 100 most powerful computers by that time. Already in mid 2013, an Anselm supercomputer was put in operation in Ostrava. Funded from the project, too, it is currently the most powerful computer in the Czech Republic. | The project is being jointly prepared by: VŠB – Technical University of Ostrava, University of Ostrava, Silesian University in Opava, Brno University of Technology (exclusively by the Faculty of Information Technology – FIT), and Institute of Geonics AS CR in Ostrava. | The IT4Innovations centre of excellence should serve as an academic research centre as well as a centre of applied research and contracted cooperation with the commercial sphere. The principal objectives of the centre will include high- performance computing in Ostrava and research of imbedded systems and image and speech processing based in Brno. | The IT4Innovations project was approved by the European Commission on 21st June 2011. The bulk of its funding goes to Ostrava and its smaller part is implemented in Brno. From the beginning of the project, the Brno building was being constructed and equipped at the campus of the BUT Faculty of Information Technology (FIT) and finished in 2013. As part of the project's start-up, the selected staff was hired and the project meets the monitoring criteria according to the plan. | To cope with the implementation of IT4Innovations, FIT established its own Research Centre of Information Technology (RCIT) in the new building. This was necessitated by the ever increasing number of projects implemented at FIT. Its primary purpose is to manage most of the faculty's projects. Thus, the RCIT integrates in itself the human and spatial resources and equipment required for the envisaged activities. The building is well equipped for good application research and development. It has ample and flexible room for researchers and developers, offering computing equipment adequate to meet the aims and objectives foreseen providing a link with the supercomputer in Ostrava, conference rooms for video and other conferences and meetings as well as the necessary service. The vicinity of the faculty's other teacher and student rooms provides RCIT with the necessary support resulting in a synergy of the academic and commercial spheres. | The RCIT resources are ready and in most cases intended for cooperation with external third parties. Emphasis is on cooperation on joint research projects with FIT and it is expected that, after the project's start-up phase, this cooperation will provide the bulk of its funding. Already during construction, negotiations were conducted with the stakeholders to know their precise requirements and sign agreements with them, so that when the building is put into operation, we do not start using it from scratch – most of its parts have already been contracted. However, we are still open to negotiations with those interested in the intended activities especially those with a considerable potential of contracted research.

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ADMAS RESEARCH CENTRE – the implementation of the Advanced Building Materials, Structures and Technologies project (AdMaS) started in early 2011 at the BUT Faculty of Civil Engineering. The centre' s focus is on research, development, applications of advanced building materials, structures, and technologies (not only) in civil engineering, but also in transportation systems, as well as town and landscape infrastructure. | AdMaS has received 791 million CZK in funding from the RDI Operative Programme, priority axis 2. In 2012, construction work began at the Pod Palackého vrchem campus. On 11th December 2012, a foundation stone was tapped and a workshop held of the centre's young research staff along with a press conference with representatives of the centre and BUT management. | Regarding the 2013 research activities, the AdMaS centre continued to work on 38 research projects receiving a total of 28 million CZK in funding by the Grant Agency of the Czech Republic, Technology Agency of the Czech Republic, Ministry of Industry and Trade, innovation vouchers). Next, the centre worked on 257 contracted research orders for 16.1 million CZK. Also new project applications were created for new national and international research projects. | Several new unique devices were bought. These include a scanning electron microscope, x-ray tomograph, a device measuring 3D deformations, devices and instruments measuring and testing asphalt mixtures, georadar, a device testing acoustic emissions, and one testing the skidding and acoustic properties of roads. Further devices are planned to be bought in the first half of 2014. In late 2013, 150 AdMaS staff members were engaged in research while 50 worked in an implementation team.

NETME CENTRE – as first of the Brno projects, the NEw Technologies for Mechanical Engineering (NETME) centre received funding from the EU structural funds. This project of the BUT Faculty of Mechanical Engineering was launched on 1st January 2010 with its implementation finished by 31st December 2013. Based on long successful research and development work of a number of the faculty's research teams, the centre's activities are structured in five divisions: power engineering, processes and ecology; mechatronics; virtual design, and testing. | The year 2012 saw the opening of the central D5 building. Being erected on the grounds of an old building of the faculty campus, this building provides unique space and equipment for research and development work, the required administrative training, and meeting facilities. | Thanks to the activities of the engaged research workers, the set goals as measured by the monitoring indicators are being met and exceeded (these monitoring indicators involve the outcomes of R&D activities such as papers published in impacted journals, patents, applied research outcomes). Particularly cooperation with the commercial sphere testifies to the excellence of the teams involved, which keep increasing the volume of applied research. NETME Centre is also ready to meet its obligations concerning future revenues from contracted research and, already now, it achieves outstanding results. Despite many problems (such as those caused by over-complicated rules of the Ministry of Education, Youth, and Sports or complex conditions of purchase tenders), a number of key devices and equipment have been bought for the project. Considerable progress has been made in reconstructing old laboratories and testing rooms. It should be noted that the centre staff's activities are by no means confined to the rooms and equipment of buildings located at the faculty campus, but field studies are also conducted in industrial plants, thus gaining a precious feedback for further development. | NETME Centre' international evaluation being positive, a follow-up project was granted of the national sustainability programme.

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SENSOR, INFORMATION, AND COMMUNICATION SYSTEMS (SIX) CENTRE – BUT started the implementation of the Sensor, Information, and Communication Systems (SIX) centre in August 2010. With its laboratories being fully equipped by the end of 2013, the centre could be put into operation on 1st January 2014. | In 2013, the SIX centre employed almost 200 researchers with about 70 full-time job equivalents. In 2013, 43 Master's and 14 doctoral students graduated from the centre with 95 students being engaged in work. The research outcomes were described in over 100 publications with almost 40 application outcomes (prototypes, software, and utility patterns). The contracted research revenues exceeded 5 million CZK, those from grant projects reached over 30 million CZK. | At present, the research teams of the SIX centre concentrate on the preparation of new research projects of the HORIZONT 2020 programme.

CENTRE OF RESEARCH AND USE OF RENEWABLE ENERGY SOURCES (CRURES) – 2013 was the last implementation year of a project to build a regional research centre concentrating major research, development, and innovation resources for work on a wide range of issues related to renewable energy sources. Members of the research team mainly dealt with problems of chemical and photovoltaic energy resources, electrical mechanics, electrical technology, power engineering, electric drives, and industrial electronics. The centre focuses on three main research programmes: 1. Electromechanical conversion of energy, 2. Chemical and photovoltaic energy resources, 3. Production, transfer, distribution, and use of electric energy. It does not deal only with the research itself, but also extend it activities to include cooperation of the faculty with the application sphere and acceleration of the transfer of new technologies to industrial practice. | As the most important result of last year can be seen the completion of two strategic laboratories: laboratory of switching devices and laboratory of very high voltage. Being the main part of the Professor List Technopark, both laboratories were successfully put into operation in September 2013. The equipment of these laboratories delivers new capacities for research and development in diagnostics and testing electric devices. Currently, documents are being prepared for accreditation of these important laboratories. | The next major outcome was a successful accreditation of the measurement and photovoltaic laboratories by the ČSN EN ISO/IEC 17025:2005 standard, now used to investigate the climatic and mechanical resistance of electrical equipment and special diagnostic of photovoltaic panels. | All the CRURES laboratories form a unique infrastructure, which will undoubtedly attract the attention of major industrial partners whose production is closely related to the research implemented in this research centre. | The centre building project received over 260 million CZK in funding from the RDI Operative Programme, with more than 221 million CZK contributed by the EU and 39 million CZK added by the state budget of the Czech republic. | At the end of the year, the centre employed 78 research workers.

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CENTRE OF MATERIALS RESEARCH AT THE BUT FACULTY OF CHEMISTRY – The regional Centre of Materials Research (CMR) as part of the BUT Faculty of Chemistry has been in full operation since 1st January 2014. Thanks to a start-up project, a research centre was built equipped with state-of-the-art technology closely cooperating with firms producing inorganic binders, advanced organic materials and biomaterials. | The centre's advantage is an interdisciplinary team of experts in chemical and structural analysis, physical chemistry, biotechnology, and biochemistry, physics, inorganic and organic synthesis. | Being established via a project of the RDI Operative Programme, the centre received more than 200 million CZK in instrumental equipment and research services financed both from the EU and national funds. The EU part of the subsidy covered more than 60 devices, many unique in the Czech Republic as well as in Central and Eastern Europe. | Although still in the initial stage, the project has already made several very important discoveries, which may be seen as forerunners of sustainability after spending the EU money in late 2013. Already today, the centre provides over 50 companies with contracted research. The project engages more than 70 researchers, who are supervisors of tens of Bachelor's and Master's projects, and doctoral theses. The CMR infrastructure is used by over 100 students. |
A remarkable discovery was achieved by a team of experts led by doc. Ivana Márová, who have found a way of utilising waste oil turning it into biodegradable bioplastic. By way of an example, an empty water bottle made of such plastic can be just thrown into a waste bin or compost heap letting nature do its job quickly. The licence for the bioplastic production technology has already been sold successfully and is heading for the Asian markets.

National University of Singapore, one of Asia's most prestigious universities, and its centre of nanotechnologies have joined the team for cooperation. | A team of Professor Miloslav Pekař conducts basic and applied research of biocolloid systems focussing on their use in medicine, pharmacy, cosmetics, and environment protection. It is particularly research of the use of the hyaluronic acid for healing wound-dressings that offers a huge commercial potential. | Other research teams are concerned with research of advanced organic materials. With their work in electronics and photonics, a research team of doc. Martin Weiter was very successful in implementing large EU projects cooperating with such companies as Merck, Phillips, and Fiat. | Also, activities of experts about Professor Jaromír Havlica concerned with use of secondary raw materials especially from power and metallurgical industries contributed to linking application and research sphere. | In 2012, CMR also received accreditation of a new Bachelor's degree programme, Chemistry for Medical Applications. It is focused on the use of nanotechnologies extending the standard chemical teaching by courses providing the basics of chemistry required for studying selected medical application. The new field of study reflects the current demands of the labour market in teaching experts in technical chemistry the basics of the current advanced technologies (nanotechnology, biotechnology, functional materials, etc.). | The principal purpose of the CMR is to accelerate the transfer of knowledge and technologies into practice. The results achieved by CMR in a relatively short time show that spending the money received in funding on state-of-the-art devices, human resources, and future of students of materials science is the right way of meeting the challenges of innovative society.

CREATING NANOSTRUCTURES FOR STUDYING THE NANO--WORLD – the dust-free laboratories of the Institute of Physical Engineering of the BUT Faculty of Mechanical Engineering are used to create and characterize nanostructures for studying physical phenomena of the nano-world environment. The study of such structures gives rise to new branches of physics such as plasmonics and spintronic. They are being diagnosed not only in the above-mentioned dust-free laboratory, but also at cooperating institutions abroad such as Imperial College and Laboratoire Louis Néel in Grenoble, France. In this connection, the institute worked on projects such as the MSM0021630508 Plan, Centre of basic research (LC06040), and a project of the Nanotechnology For Society programme or new projects such as the 7th Framework EU project, UNIVSEM, and the AMISPEC Centre of Competence in cooperation with leading domestic and international institutions and firms (above all Brno-based TESCAN). Work on the above projects formed a team of over 25 doctoral students and young scientists publishing papers in top impacted journals such as Nature Nanotechnology and Nano Letters. Students also take part in the research of nanostructures by work on their own projects of the IMPI Science for Competitiveness Operative Programme coordinated by the institute funded by the industrial fund every year providing 14 junior projects with 750,000 CZK in funding.

DURABLE CONCRETE STRUCTURES – in 2013 the project, Concrete Structures with Non-Metal reinforcement and Increased Resistance to Fire an Aggressive Environment of the TIP programme of the Ministry of Industry and Trade was successfully completed. In October, an external examination was done by a team consisting of experts, funding providers, and representatives of solution providers. The project received an excellent grade with outcomes at an international level. | Thee outcomes include two utility models and one European industrial model, concerned with composite (FRP) reinforcement of building structures with markedly higher fire resistance. Another important outcome was the application of a patent for a system of production of special surface finishes of these reinforcements. The above advancements and evolution steps of the reinforcement system (related issues have been investigated for a number of years at the faculty) greatly extends the possibilities of using composite reinforcement in places where its advantages over the classic steel reinforcement are evident and where it was could not be used due to its low fire resistance such as in chemical processes, power industry, some transport structures).

BUT EXPERIMENTAL AIRCRAFT – In late 2009, the Institute of Aerospace Engineering (IAE) at BUT finished work on the VUT 001 Marabu experimental aircraft. In 2010 then, a successful test flight and a number of flight measurements were carried out. The first testing phase was finished in August 2011. The aircraft's development continues. | In 2013, the Institute of Aerospace Engineering and his industrial partner, První brněnská strojírna Velká Bíteš, finished and test flew a VUT 061 Turbo experimental aircraft powered by a new TP-100 turbine engine developed by PBS Velká Bíteš. The basis for the design of VUT 061 was the design of the original VUT 001 Marabu. The aircraft is used as a flying laboratory for the construction of a new drive unit. | Also, a VUT 051 RA Y experimental aircraft was designed at the IAE in 2013 with an electric drive unit and the Department of Power Electrical and Electronic Engineering and JIHLAVAN airplanes significantly participated in designing the aircraft. The design of VUT 001 Marabu again served as a base for the new aircraft.

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BASIC DATA

a) Full name of the public higher-education institution, acronym used, addresses of all its parts

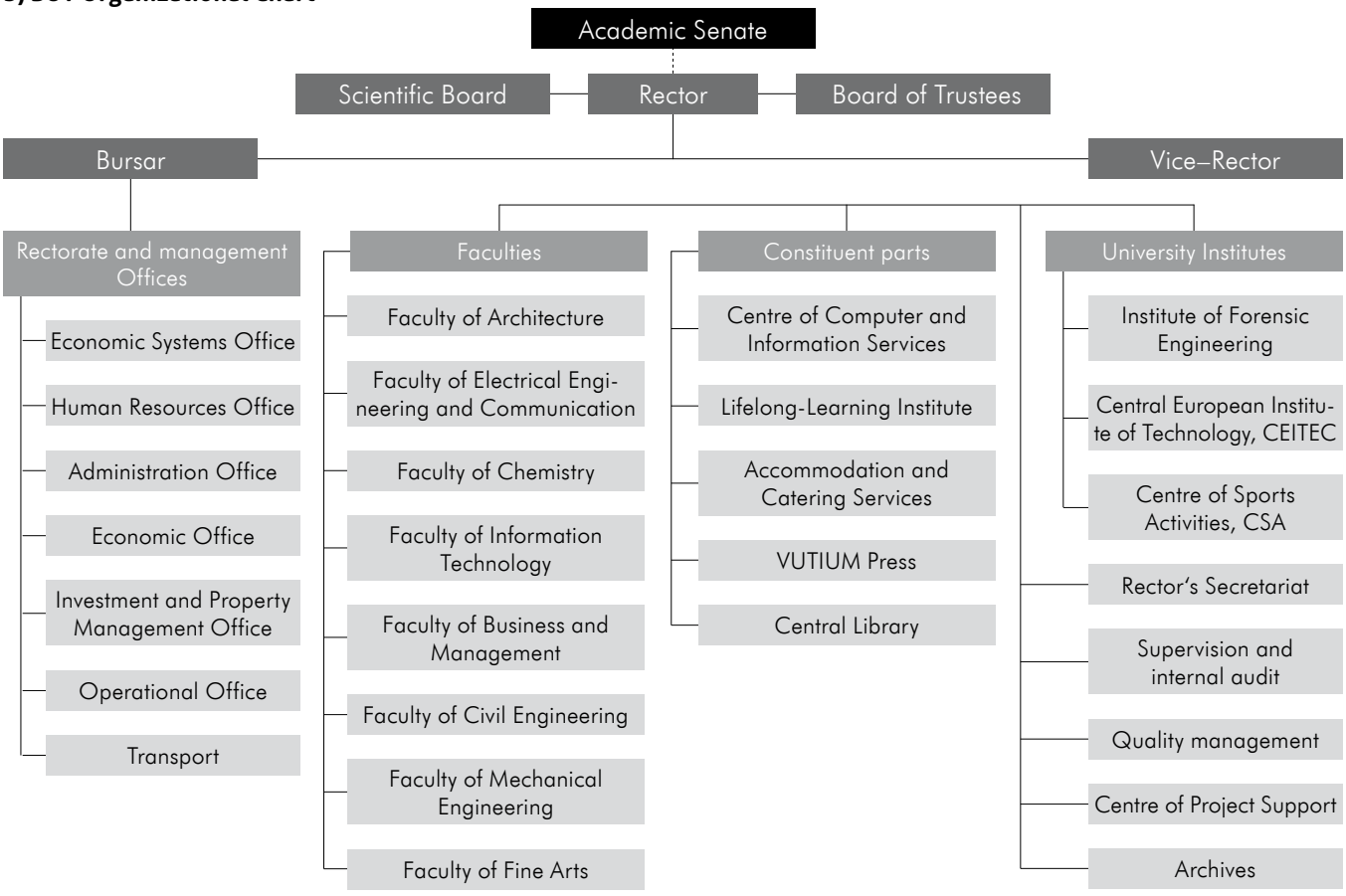
Faculties

BUT Faculty of Architecture, BUT FA, Poříčí 237/5, 639 00 Brno, http://www.fa.vutbr.cz
BUT Faculty of Electrical Engineering and Communication, BUT FEEC, Technická 3058/10, 616 00 Brno, http://www.feec.vutbr.cz
BUT Faculty of Chemistry, BUT FC, Purkyňova 464/118, 612 00 Brno, http://www.fch.vutbr.cz
BUT Faculty of Information Technology, BUT FIT, Božetěchova 1/2, 612 66 Brno, http://www.fit.vutbr.cz
BUT Faculty of Business and Management, BUT FBM, Kolejní 2906/4, 612 00 Brno, http://www.fbm.vutbr.cz
BUT Faculty of Civil Engineering, BUT FCE, Veveří 331/95, 602 00 Brno, http://www.fce.vutbr.cz
BUT Faculty of Mechanical Engineering, BUT FME, Technická 2896/2, 616 69 Brno, http://www.fme.vutbr.cz
BUT Faculty of Fine Arts, BUT FFA, Rybářská 125/13/15, 603 00 Brno, http://www.ffa.vutbr.cz

University Institutes

Central European Institute of Technology, CEITEC, Technická 3058/10, 616 00 Brno, http://www.ceitec.cz
BUT Centre of Sports Activities, BUT CSA, Technická 2896/2, 616 69 Brno, http://www.cesa.vutbr.cz
Institute of Forensic Engineering, Údolní 244/53, 602 00 Brno, http://www.usi.vutbr.cz

b) BUT Organizational Chart



c) BUT Scientific Board, Managerial Board, Academic Senate

BUT SCIENTIFIC BOARD

Name	Position, workplace	Field of research
prof. Ing. Karel Rais, CSc., MBA, dr. h. c.	rector of BUT	business and management
Ing. Aleš Bartůněk	general manager, IBM Česká republika, s. r. o.	information technology
prof. Ing. Albert Bradáč, DrSc.	director, BUT Institute of Forensic Engineering	forensic engineering
prof. RNDr. Milan Češka, CSc.	BUT Faculty of Information Technology	information technology
prof. Ing. Jarmila Dědková, CSc.	dean, Faculty of Electrical Engineering and Communication	theoretical electrical engineering
Ing. Jaroslav Doležal, CSc.	Honeywell, s. r. o.	management automation
prof. RNDr. Miroslav Doupovec	dean, BUT Faculty of Mechanical Engineering	applied mathematics
prof. Ing. Rostislav Drochytka, CSc.	dean, BUT Faculty of Civil Engineering	construction materials engineering
prof. RNDr. Miloslav Druckmüller, CSc.	BUT Faculty of Mechanical Engineering	applied mathematics
Ing. Miloš Filip	director, Prefa Kompozity, a. s.	composite materials
prof. Ing. Jan M. Honzík, CSc.	BUT Faculty of Information Technology	information technology
prof. Ing. Tomáš Hruška, CSc.	BUT Faculty of Information Technology	information technology
prof. RNDr. Josef Jančář, CSc.	BUT Faculty of Chemistry	macromolecular chemistry
doc. Ing. Josef Jettmar, CSc.	vice-rector, Czech Technical University in Prague	geotechnics
prof. Ing. Pavel Jura, CSc.	vice-rector, BUT	cybernetics, automation, and measurement
Ing. Jaroslav Klíma	chairman, board of directors, TESCAN, a. s.	scanning electronic microscopes
prof. RNDr. Michal Kotoul, DrSc.	vice-rector, BUT	applied mechanics
prof. Ing. Vladimír Kučera, DrSc.	Czech Technical University in Prague, Faculty of Electrical Engineering	technical cybernetics
Ing. arch. Vlasta Loutocká	FORM ARCH	architecture
prof. Ing. Miroslav Ludwig, CSc.	rector, University of Pardubice	organic chemistry
doc. Ing. Jaroslav Machan, CSc.	manager, ZPESV, Škoda Auto, a.s.	engineering informatics in transportation and communication
doc. Ing. Lubomír Mikš, CSc.	chairman, board of directors, Qualiform, a.s.	technology of construction
prof. Ing. Drahomír Novák, DrSc.	BUT Faculty of Civil Engineering	structure mechanics, reliability of structures
prof. Ing. Ladislav Omelka, DrSc.	vice-dean, BUT Faculty of Chemistry	physical chemistry
Ing. Eduard Palíšek, Ph.D., MBA	general director, Siemens s.r.o.	
prof. Ing. Miloslav Pekař, CSc.	BUT Faculty of Chemistry	physical chemistry
prof. Ing. arch. Petr Pelčák	BUT Faculty of Architecture	architecture
prof. PhDr. Jan Sedlák, CSc.	BUT Faculty of Fine Arts	architecture
prof. RNDr. Eduard Schmidt, CSc.	Masaryk University in Brno, Faculty of Science	solid state physics
prof. Ing. Vladimír Smejkal, CSc.	forensic engineer	business and management
prof. Ing. Jana Stávková, CSc.	dean, Faculty of Business and Economics, Mendel University in Brno	statistics
prof. Ing. Petr Stehlík, CSc.	BUT Faculty of Mechanical Engineering	process engineering
prof. Ing. arch. Jiljí Šindlar, CSc.	BUT Faculty of Architecture	architecture
prof. RNDr. Ing. Petr Štěpánek, CSc.	vice-rector, BUT	concrete structures
prof. Ing. Jan Šulc, CSc.	BUT Faculty of Civil Engineering	water structures, hydromechanics
prof. Ing. Ivo Vondrák, CSc.	rector, VŠB-Technical University of Ostrava	information technology
prof. Ing. Radimír Vrba, DrSc.	BUT Faculty of Electrical Engineering and Communication	electrical and electronic technology
prof. RNDr. Ing. Jan Vrbka, DrSc.	BUT Faculty of Mechanical Engineering	mechanics of solids
doc. RNDr. Petr Lukáš, CSc.,	director, Institute of Physics of Materials AS CR – died	
Mgr. Rostislav Koryčánek	director, Brno House of Arts, resigned from the board	

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until 14. 8.2013, from 25. 10. 2013 ThDr. Ing. Lukáš Evžen Martinec
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Ing. Martin Pecina
JUDr. Michal Hašek until 15. 5. 2013 (sesigned), from 31. 5. 2013 prof. RNDr. Eduard Schmidt, CSc.
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Vice-chairperson and chairperson of the Chamber of Student
Ing. Karel Koranda

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MgA. Tomáš Hrůza (FFA)
Ing. arch. Bohumila Hybská (FA)
MgA. Barbora Klímová (FFA)
doc. Ing. Jana Korytárová, Ph.D. (FCE)
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doc. Ing. Libor Matějka, CSc., Ph.D., MBA (FCE)
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doc. Ing. Aleš Vémola, Ph.D. (IFE)

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– until 11. 3. 2013
Ing. Libor Chládek (FBM)
Bc. Barbora Jakubíková (FA)
Ing. Karel Koranda (FIT)
Mgr. Jana Kořínková (FFA)
Ing. Zdeněk Krychtálek (IFE)
– until 30. 11. 2013
Bc. Tomáš Mejzlík (FEEC)
– from 12. 2. 2013
Ing. Petra Rozehnalová (FME)
Ondřej Peňák (FCE)
– from 12. 3. 2013
Ing. Jiří Švec (FC)

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Ing. Karel Koranda
Ing. Zdeněk Krychtálek
– until 30. 11. 2013
Ondřej Peňák – from 9. 4. 2013

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Bc. Barbora Jakubíková
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Ing. Zdeněk Krychtálek
– until 30. 11. 2013
Bc. Tomáš Mejzlík (FEEC)
– from 12. 2. 2013
Ing. Petra Rozehnalová
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doc. Ing. Libor Matějka, CSc., Ph.D., MBA
RNDr. Pavel Popela, Ph.D.
Students
Bc. Barbora Jakubíková
Mgr. Jana Kořínková
Ing. Petra Rozehnalová
Ondřej Peňák – from 9. 4. 2013
Ing. Jiří Švec

d) BUT representatives in the representation of universities

CZECH RECTORS' CONFERENCE
Prof. Ing. Karel Rais, CSc., MBA, dr. h. c., rector of BUT, member of CRC

BUT REPRESENTATIVES IN THE COUNCIL OF HIGHER EDUCATION INSTITUTIONS

doc. Ing. Eva Münsterová, CSc.	CHEI board member
RNDr. Vlasta Krupková, CSc.	CHEI assembly member for BUT
Ing. Tomáš Krejbich	CHEI Chamber of Students – until 22. 11. 2013
Ing. Petr Dvořák	CHEI Chamber of Students (stand-in)

BUT REPRESENTATIVE IN THE ACADEMY ASSEMBLY OF THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC
prof. RNDr. Milada Vávrová, CSc.

e) Nature of BUT mission, vision, and strategic goals

As one of the most important Czech universities, Brno University of Technology makes every effort to be an excellent university, particularly in the main areas of its mission, that is, in teaching, research, and cooperation with the application and social spheres.

The following are BUT's main priorities in teaching:

- quality teaching providing students with knowledge sufficient for their future jobs;
- developing internal quality assessment systems with emphasis on increasing the quality of the degree programmes (using the teaching output) and their supporting activities;
- strongly preferring the improvement of the quality of study to trying to win as many students as possible;
- supporting and gradually implementing the government-approved support for engineering fields (establishing and extending inter-disciplinary specialisations and recruiting talented Bachelor's graduates from other universities);
- preparing a system of assessing the quality of the pedagogic process and the teachers that will be designed and gradually implemented at the faculties and other university constituent parts;
- in line with the university's orientation towards research and applications, its tradition, and quality of teaching, trying to increase the proportion of Master's and doctoral students;
- providing incentives and rewards for teachers to educate excellent students;
- helping faculties and constituent parts to intensify internationalization not only in relation to students (opening degree programmes, modules, and courses taught in English), but also by inviting more experts from abroad to teach at the university;
- providing support for student mobility using also BUT-financed scholarships and money from concrete cooperation with the commercial sphere.
- continuing to support the development of lifelong education and supplementary pedagogic study (SPS); SPS will be developed not only for secondary school teachers of engineering subjects but also for talented doctoral students and BUT academics.

In science and research, BUT's strategic objectives include:

- remaining a prestigious research-and-innovations-oriented university;
- supporting and cultivating the centres of excellence and regional centres established at BUT within the RDI operative programme;
- creating opportunities for receiving funding for projects with international participation in order to engage BUT's experts in the European research space; the support from the EU framework programmes will mostly be one of economic and legal nature;
- supporting two-way international mobility of university researchers.

In cooperation with companies, BUT's strategies are the following:

- providing systematic support for the financial sustainability of the European centres of excellence and BUT regional R&D centres by enabling the use of the results of the centres' R&D projects in the application sphere;
- achieving more results of the centres of excellence and regional centres in applied research, increasing the number of results used in practice;
- supporting the establishing of spin-off companies and companies established in cooperation with industrial partners to extend BUT's financial resources.

In cooperation with the application sphere, BUT:

- supports mutually advantageous cooperation with the application sphere and protection of intellectual property aiming to finance the protection of intellectual property from the domestic and international RDI projects;
- will prepare and implement a system for assessing the cooperation between BUT and the application sphere focusing primarily on outcomes that can be used by both sides;
- will prepare, discuss and approve variants of incubator use.

The means employed to put in place the above objectives also include changes in the BUT structure foreseen and to be implemented after analysing and evaluating their contribution to Brno University of Technology:

- development of and support for BUT human resources
- development of new constituent parts and support of the current ones, reflecting the long-term requirements of the labour market and needs of society or those likely to appear;
- optimizing the university administration to reflect the changes brought about by the reform-ripe environment and determined by the economic situation in the Czech Republic ;
- restructuring the Rector's office units and sections supposed to provide information, methodological, economic, and legal support for projects aiming towards intensive participation in international cooperation in research, development, and innovations.

It should be noted that the external conditions, especially the worldwide economic recession, the economic slowdown in the Czech Republic and the subsequent austerity measures (limiting the number paid students, the financial limit per student) as well as the demographic decline have had a negative impact on the fulfilment of BUT's visions, and strategic aims.

f) Amendments to BUT internal regulations in 2013

In 2013 the following changes were done in BUT internal regulations.

- 2 internal regulations amended
  – amendment no. 1 To the Admissions Rules
  – amendment no. 6 to Labour Rules
- 4 new Rector's guidelines issued
- 4 amendments to Rector's guidelines issued
  – amendment no. 1 to Rector's guideline no. 4/2013

– amendment no. 1 to Rector's guideline no. 5/2012
– amendment no. 3 to Rector's guideline no. 2/2010
– amendment no. 1 to Rector's guideline no. 20/2008

- 6 new Bursar's guidelines issued
- 7 amendments to Bursar's guidelines issued
  – amendment no. 2 to Bursar's guideline no. 1/2012
  – amendments no. 2 to 5 to Bursar's guideline no. 1/2010
  – amendments no. 4 to 5 to Bursar's guideline no. 62/2004
- 23 new Bursar's decisions made
- 12 new Bursar's instructions issued

g) Providing information under Act no. 106/1999 Coll., concerning free access to information

Number of requests for information – 4
Number of requests granted – 4
Number of decisions to turn down a request – 0
Number of appeals against a decision – 0
List of exclusive licenses granted – 0
Number of complaints filed under Section 16a of the Act – 0

13 14 15 16 17 18 19 20

DEGREE PROGRAMMES, STUDY ORGANISATION, AND EDUCATION

a) Accredited degree programmes (numbers in master groups according to study type and form) listed by faculty or other constituent parts offering an accredited degree programme or its part

Tab. 3.1: Accredited degree programmes (numbers)*

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
Faculty of Architecture									
technical sciences and disciplines	21-39	1	0	0	0	1	0	1	3
Faculty of Civil Engineering									
technical sciences and disciplines	21-39	4	2	0	0	3	1	2	12
Faculty of Fine Arts									
art and culture sciences and disciplines	81,82	1	0	0	0	1	0	1	3
Faculty of Chemistry									
natural sciences and disciplines	11-18	0	0	0	0	0	0	2	2
technical sciences and disciplines	21-39	2	2	0	0	4	4	3	15
Faculty of Electrical Engineering and Communication									
technical sciences and disciplines	21-39	4	1	0	0	2	1	2	10
Faculty of Information Technology									
technical sciences and disciplines	21-39	1	0	0	0	1	0	1	3
Faculty of Business and Management									
economy	62,65	3	2	0	0	2	1	1	9
Faculty of Mechanical Engineering									
technical sciences and disciplines	21-39	2	1	0	0	4	1	6	14
Institute of Forensic Engineering									
technical sciences and disciplines	21-39	0	0	0	0	2	0	1	3
Central European Institute of Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	1	1
Total		**18**	**8**	**0**	**0**	**20**	**8**	**21**	**75**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance

b) Degree programmes taught in a foreign language by faculties or other constituent parts offering an accredited programme or part thereof

Tab. 3.2 Programmes taught in a foreign language (numbers)

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
Faculty of Architecture									
technical sciences and disciplines	21-39	0	0	0	0	1	0	1	2
Faculty of Civil Engineering									
technical sciences and disciplines	21-39	1	0	0	0	1	0	2	4
Faculty of Fine Arts									
art and culture sciences and disciplines	81,82	0	0	0	0	0	0	0	0
Faculty of Chemistry									
natural sciences and disciplines	11-18	0	0	0	0	0	0	4	4

Faculty of Electrical Engineering and Communication									
technical sciences and disciplines	21-39	1	0	0	0	1	0	2	4
Faculty of Information Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	1	1
Faculty of Business and Management									
economy	62,65	0	0	0	0	1	0	2	3
Faculty of Mechanical Engineering									
technical sciences and disciplines	21-39	2	0	0	0	3	0	2	7
Institute of Forensic Engineering									
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0
Central European Institute of Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	1	1
Total		**4**	**0**	**0**	**0**	**7**	**0**	**15**	**26**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance

c) Joint/Double/Multiple degree programmes

Table. 3.3: Joint/Double/Multiple Degree Programmes

Brno University of Technology, Faculty of Mechanical Engineering	
Production Systems	
Partner organizations	Technische Universität Chemnitz (Chemnitz, Germany)
Adjoined organisations	
Beginning	2006
Programme category (Joint/Double/Multiple Degree)	Double degree
Length of study (semesters)	2
Programme type (Bachelor's, follow-up Master's, Master's, doctoral)	follow-up Master's
Programme description including admissions and completion	One-year study in Czech, one-year study in German
What diploma and diploma appendix are issued and how?	After completing the programme, students receive degrees at both universities. Diploma and diploma supplement are received at graduation ceremony or in person.
Student mobility type	Student exchange within an Erasmus programme or the FME 25/7 development programme for one academic year

Industrial Engineering	
Partner organizations	Art et Métiers ParisTech (Cluny, Francie)
Adjoined organisations	
Beginning	2006
Programme category (Joint/Double/Multiple Degree)	Double degree
Length of study (semesters)	2
Programme type (Bachelor's, follow-up Master's, Master's, doctoral)	follow-up Master's
Programme description including admissions and completion	One-year study in Czech and one-year study in French. A student from the general Bachelor's programme of "Mechanical Engineering" can be admitted for Industrial Engineering if he or she has completed the final year of the Bachelor's programme at a French university

What diploma and diploma appendix are issued and how?	After completing the programme, students receive degrees at both universities. Diploma and diploma supplement are received during graduation ceremony or in person.
Student mobility type	Student exchange within an Erasmus programme or the FME 25/7 development programme for one academic year

Brno University of Technology, Faculty of Business and Management	
N6208 Economics and Management, field: 6208T150 European Business and Finance	
Partner organizations	Nottingham Trent University (GB), Karol Adamiecki Economic University, Katowice, Poland, Brno University of Technology (CZ)
Adjoined organisations	
Beginning	Academic year 2007/2008
Programme category (Joint/Double/Multiple Degree)	Joint Degree
Length of study (semesters)	4
Programme type (Bachelor's, follow-up Master's, Master's, doctoral)	follow-up Master's
Programme description including admissions and completion	Study organization: full-time study, the 1st and 2nd semesters are studied at the BUT Faculty of Business and Management, the 3rd semester at Nottingham Trent University, 4th semester is devoted to work on the degree project (in English) at a Czech or British company. Conditions of admission: 1) completed similar Bachelor's programme 2) passing a written entrance exam (aptitude and English test). Completion of study: 1) achieving 120 credits at the BUT Faculty of Business and Management, passing a state exam (consisting of degree project presentation and an oral exam in the theoretical background – both parts in English), 2) meeting the conditions of Nottingham Trent University.
What diploma and diploma appendix are issued and how?	1) The „inženýr" degree diploma along with the supplement is issued by BUT, 2) The Master of Science degree diploma along with the supplement is issued by Nottingham Trent University signed by the rectors of all three participating universities.
Student mobility type	One-semester study stay

d) Accredited degree programmes offered in cooperation with another Czech-Republic-based university

Table. 3.4 Accredited degree programmes offered in cooperation with another Czech-Republic-based university

Brno University of Technology, Faculty of Electrical Engineering and Communication	
Biomedical Technology and Bioinformatics	
Master group	B3930
Partner university	Masaryk University in Brno, Faculty of Medicine
Beginning	2007/2008
Length of study (semesters)	6
Programme type (Bachelor's, follow-up Master's, Master's, doctoral)	Bachelor's
Programme description including admissions and completion	Regular full-time two-year Master's degree study taking place at the Faculty of Electrical Engineering and Communication and MU Faculty of Medicine using the specialised departments of the Teaching hospital at Brno-Bohunice. For admission eligibility a Bachelor's degree is required and meeting the BTBIO-F admission rules. Completion – by presenting and defending a Master's project and passing a state exam.

Biomedical Technology and Bioinformatics	
Master group	N3952
Partner university	Masaryk University in Brno, Faculty of Medicine
Beginning	2010/2011
Length of study (semesters)	4
Programme type (Bachelor's, follow-up Master's, Master's, doctoral)	follow-up Master's
Programme description including admissions and completion	Regular full-time two-year Master's degree study taking place at the Faculty of Electrical Engineering and Communication and MU Faculty of Medicine using the specialised departments of the Teaching hospital at Brno-Bohunice. For admission eligibility a Bachelor's degree is required and meeting the BTBIO-F admission rules. Completion – by presenting and defending a Master's project and passing a state exam.

e) Accredited degree programmes offered in cooperation with a higher-education college

BUT does not offer such a degree programme.

f) Accredited degree programmes or their parts offered out of town

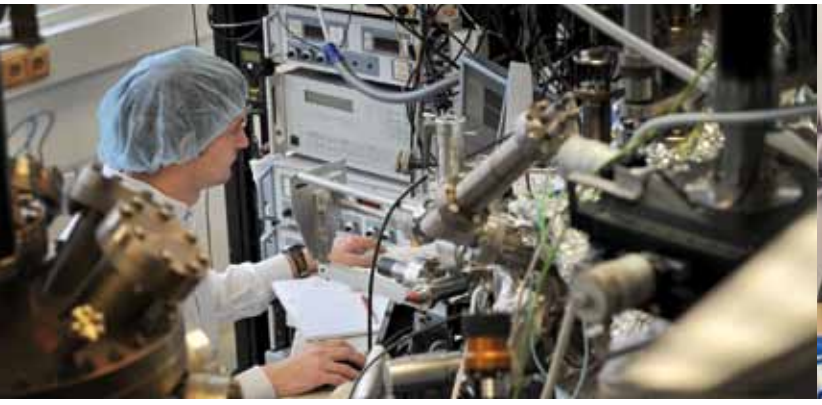
BUT does not offer such a degree programme.

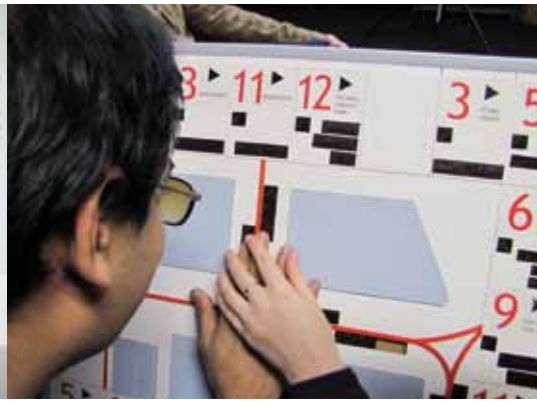
g) Number of accredited degree programmes described by the teaching outcomes methodology in compliance with the National Qualifications Frame for tertiary education

BUT accredited degree programmes are currently in full compliance with the conclusions of the teaching outcomes methodology according to the National Qualifications Frame. In 2013, we regained the ECTS and DS Labels. The teaching outcomes have been acknowledged by the EC.

h) Brief description of the credit system

BUT holds the ECTS and DS Labels of 2009. In 2013, we regained both certificates. The assessment system used in all the degree programmes is compatible with ECTS (Local grades) certified by the ECTS Label in 2009. The information system allows for an internal conversion to the correct ECTS credit system.





STUDENTS

a) Students in accredited degree programmes

Tab. 4.1: Students in accredited degree programmes (numbers)

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
Faculty of Architecture									
technical sciences and disciplines	21-39	383	0	0	0	198	0	79	660
Faculty of Civil Engineering									
technical sciences and disciplines	21-39	3 961	385	0	0	1 493	122	478	6 439
Faculty of Fine Arts									
art and culture sciences and disciplines	81,82	168	0	0	0	95	0	19	282
Faculty of Chemistry									
natural sciences and disciplines	11-18	0	0	0	0	0	0	70	70
technical sciences and disciplines	21-39	741	73	0	0	156	48	113	1 131
Faculty of Electrical Engineering and Communication									
technical sciences and disciplines	21-39	2 073	234	0	0	929	197	468	3 901
Faculty of Information Technology									
technical sciences and disciplines	21-39	1 665	0	0	0	600	0	210	2 475
Faculty of Business and Management									
economy	62,65	1 883	64	0	0	1 002	551	83	3 583
Faculty of Mechanical Engineering									
technical sciences and disciplines	21-39	2 709	233	0	0	1 052	113	407	4 514
Institute of Forensic Engineering									
technical sciences and disciplines	21-39	0	0	0	0	495	0	130	625
Central European Institute of Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	14	14
Total		**13 583**	**989**	**0**	**0**	**6 020**	**1 031**	**2 071**	**23 694**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance

b) Students paying for their studies

Tab. 4.2: Students paying for their studies ** (numbers)

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
Faculty of Architecture									
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0
Faculty of Civil Engineering									
technical sciences and disciplines	21-39	3	0	0	0	0	0	0	3
Faculty of Fine Arts									
art and culture sciences and disciplines	81,82	0	0	0	0	0	0	0	0
Faculty of Chemistry									
natural sciences and disciplines	11-18	0	0	0	0	0	0	0	0
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0

Faculty of Electrical Engineering and Communication									
technical sciences and disciplines	21-39	0	0	0	0	1	0	2	3
Faculty of Information Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0
Faculty of Business and Management									
economy	62,65	0	0	0	0	40	0	0	40
Faculty of Mechanical Engineering									
technical sciences and disciplines	21-39	0	0	0	0	0	0	2	2
Institute of Forensic Engineering									
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0
Central European Institute of Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0
Total		**3**	**0**	**0**	**0**	**41**	**0**	**4**	**48**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance
*** – the numbers of these students are not included in reports determining the state-budget subsidy for education*

c) Students over 30 years of age

Tab. 4.3: Students over 30 years of age

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
Faculty of Architecture									
technical sciences and disciplines	21-39	3	0	0	0	3	0	42	48
Faculty of Civil Engineering									
technical sciences and disciplines	21-39	5	115	0	0	7	31	155	313
Faculty of Fine Arts									
art and culture sciences and disciplines	81,82	5	0	0	0	10	0	13	28
Faculty of Chemistry									
natural sciences and disciplines	11-18	0	0	0	0	0	0	7	7
technical sciences and disciplines	21-39	0	6	0	0	0	9	22	37
Faculty of Electrical Engineering and Communication									
technical sciences and disciplines	21-39	5	67	0	0	4	60	132	268
Faculty of Information Technology									
technical sciences and disciplines	21-39	1	0	0	0	3	0	43	47
Faculty of Business and Management									
economy	62,65	2	18	0	0	5	71	26	122
Faculty of Mechanical Engineering									
technical sciences and disciplines	21-39	3	55	0	0	2	29	98	187
Institute of Forensic Engineering									
technical sciences and disciplines	21-39	0	0	0	0	11	0	60	71
Central European Institute of Technology									
technical sciences and disciplines	21-39	0	0	0	0	0	0	1	1
Total		**24**	**261**	**0**	**0**	**45**	**200**	**599**	**1 129**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance

d) Dropouts from accredited degree programmes

Tab. 4.4: Dropouts from accredited degree programmes (numbers)

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
natural sciences and disciplines	11-18	0	0	0	0	0	0	7	7
technical sciences and disciplines	21-39	2 292	503	0	0	491	197	243	3 726
economy	62,65	351	12	0	0	125	78	14	580
art and culture sciences and disciplines	81,82	14	0	0	0	4	0	3	21
Total		**2 657**	**515**	**0**	**0**	**620**	**275**	**267**	**4 334**

*Note: * – FT – full time*
C – combined/distance

e) Measures to reduce the number of dropouts

The relatively high number of dropouts, particularly in the Bachelor's degree programmes, is a recurring problem of the level of technical and natural scientific subjects at secondary schools and the parameters of the school-leaving exam. BUT makes every effort to offer supplementary courses for mathematics and physics and, within re-accreditations, also study fields are included for profession Bachelor's students.

GRADUATES

a) Graduates from accredited degree programmes

Tab. 5.1: Graduates from accredited degree programmes (numbers)

Accredited degree programme groups	Master Code	Bc.		Mgr.		Follow-up Mgr.		Ph.D.	Total
		P	K/D	P	K/D	P	K/D		
natural sciences and disciplines	11-18	0	0	0	0	0	0	5	5
technical sciences and disciplines	21-39	2 218	105	0	1	1 968	150	141	4 583
economy	62,65	429	34	0	0	322	133	12	930
art and culture sciences and disciplines	81,82	31	0	0	0	30	0	3	64
Total		**2 678**	**139**	**0**	**1**	**2 320**	**283**	**161**	**5 582**

*Note: * – FT – full time*
C – combined/distance

b) Cooperation with BUT graduates

BUT cooperates with graduates both in clubs and through a special website of www.vutbr.cz/absolventi. Here, former students are informed about educational, cultural, and sport events taking place at the university. This website also brings interviews with interesting graduates and job offers. Also sections for graduates can be found at the websites of the faculties of chemistry, business and management, and information technology. There are alumni clubs at three faculties – civil engineering, electrical engineering, and communication and information technology.

c) Graduate employment surveys

Every other year, BUT carries out graduate employment surveys and, occasionally, surveys on employers of BUT graduates. According to a 2013 survey of the 2011 and 2012 follow-up Master's graduates, the job opportunities offered were good and matching their specialisation with almost half of them finding jobs before graduation. Compared with the previous survey results, the average starting and current salaries have increased, too. The survey also focussed on the educational deficits the graduates feel in particular fields. They would appreciate learning more about fund raising. The language skills learned, which used to be rather poor, seem to have been improving continually.

d) Cooperation with the future employers of BUT graduates

Offers of on-the-job training, internships, and job vacancies can be found at the BUT and faculty websites by BUT students and graduates. The BUT Institute of Lifelong Learning offers to companies and job-consulting agencies free presentations and workshops for students. The university also co-organizes JobChallenge, the largest Brno job fair. An iKariéra fair organized by IAESTE, a student organization, took place at two faculties.

Every faculty also organizes company presentations offering students internships and jobs. There are also larger presentations participated in by tens of companies. They are organized by the Faculty of Mechanical Engineering, Faculty of Chemistry, and Faculty of Electrical Engineering and Communication.

The future employers of BUT graduates also cooperate on providing the themes of Bachelor's, Master's, and doctoral final projects. Also, the engagement of doctoral students in work on research projects of the cooperating companies is increasing.

DEMAND FOR STUDIES

a) Demand for BUT studies

Tab. 6.1: Demand for university studies

Accredited degree programme groups	Master Code	Bc.			Mgr.			Follow-up Mgr.			Ph.D.		
		Applicants	Admitted	Enrolled	Applicants	Admitted	Enrolled	Applicants	Admitted	Enrolled	Applicants	Admitted	Enrolled
Faculty of Architecture													
technical sciences and disciplines	21-39	621	193	112	0	0	0	229	154	103	41	10	10
Faculty of Civil Engineering													
technical sciences and disciplines	21-39	3 438	2 801	1 631	0	0	0	1 604	1 209	749	126	108	29
Faculty of Fine Arts													
art and culture sciences and disciplines	81,82	410	52	49	0	0	0	63	33	33	15	5	5
Faculty of Chemistry													
natural sciences and disciplines	11-18	0	0	0	0	0	0	0	0	0	19	17	16
technical sciences and disciplines	21-39	1 119	784	509	0	0	0	143	101	82	19	19	19
Faculty of Electrical Engineering and Communication													
technical sciences and disciplines	21-39	1 913	1 325	1 047	0	0	0	805	764	577	107	83	82
Faculty of Information Technology													
technical sciences and disciplines	21-39	1 419	896	711	0	0	0	464	305	299	53	49	49
Faculty of Business and Management													
economy	62,65	3 301	1 506	722	0	0	0	2 757	1 588	789	26	19	19
Faculty of Mechanical Engineering													
technical sciences and disciplines	21-39	2 699	2 682	1 380	0	0	0	1 138	852	533	92	72	64
Institute of Forensic Engineering													
technical sciences and disciplines	21-39	0	0	0	0	0	0	603	501	282	0	0	0
Central European Institute of Technology													
technical sciences and disciplines	21-39	0	0	0	0	0	0	0	0	0	21	19	28
Total		**14 920**	**10 239**	**6 161**	**0**	**0**	**0**	**7 806**	**5 507**	**3 447**	**519**	**401**	**321**

*Note: * – faculty or part of a university offering an accredited programme*
FT – full time
C – combined/distance

b) BUT entrance exams

BUT has a system of written entrance exams for all the degree programmes in the basic subjects such as mathematics, physics, chemistry, informatics and general study skills and a foreign language. There is also an aptitude test for the artistic and architectural fields. The admission procedure directives of most faculties include entrance exam waivers under precisely specified conditions. Entrance exams are organized by faculties on their own, without external suppliers.

c) Follow-up Master's and doctoral students who graduated from a previous degree programme at another university

Tab. 6.2: Follow-up Master's and doctoral students who graduated from a previous degree programme at another university
Numbers of fist-year follow-up Master's and doctoral students who graduated from a previous degree programme at another university

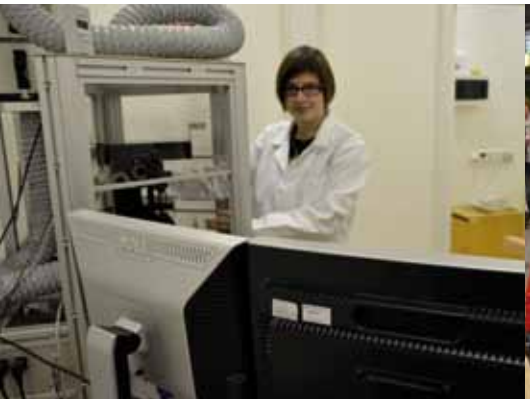
BUT	Follow-up Mgr.	Ph.D.
Faculty of Architecture	26	2
Faculty of Civil Engineering	72	28
Faculty of Fine Arts	9	3
Faculty of Chemistry	41	5
Faculty of Electrical Engineering and Communication	75	13
Faculty of Information Technology	29	13
Faculty of Business and Management	312	4
Faculty of Mechanical Engineering	57	16
Institute of Forensic Engineering	65	0
Central European Institute of Technology	0	3
Total	**686**	**87**

*Note – * – faculty or part of a university offering an accredited programme*

d) Cooperation of BUT with secondary schools

BUT makes presentations at secondary schools of the study options at its faculties and at foreign partner universities. We also show the students BUT facilities (halls of residence, canteens, sport facilities), options of spending free time and participating in various BUT student projects and organizations (Formula Student, BEST, Students for students, ISC, etc.). In 2013 BUT participated in the Gaudeamus education fairs in Brno and Prague and the Académia fairs in Bratislava and Gaudeamus fairs in Košice and Nitra. Apart from that, students and staff of the External Relations Office regularly go to grammar schools and secondary technical schools in selected regions.

15 16 17 18 19 20 21 22 2



ACADEMICS

a) Recalculated numbers of academics and researchers (Table 7.1)

Tab. 7.1: Teachers and research staff (recalculated numbers **)

BUT	Teachers							Research staff***	Total
	Total	Professors	Associate professors	Senior assistants	Assistants	Instructors	Research and development staff participating in teaching		
FFA	31,103	4,500	3,248	8,934	14,421	0,000	0,000	0,000	31,103
FCE	335,734	28,336	63,317	176,639	55,434	0,000	12,008	26,866	362,600
FME	248,347	41,975	66,040	118,413	21,919	0,000	0,000	24,850	273,197
FIT	64,552	9,000	16,062	37,135	2,355	0,000	0,000	14,017	78,569
FA	43,067	6,674	15,487	13,851	7,055	0,000	0,000	0,332	43,399
FC	69,869	9,659	15,799	42,411	1,000	1,000	0,000	15,189	85,058
FBM	77,556	8,926	15,410	43,046	10,174	0,000	0,000	0,472	78,028
FEEC	200,958	23,970	61,791	94,275	19,922	1,000	0,000	24,528	225,486
CSA	16,878	0,700	1,418	4,537	10,223	0,000	0,000	0,000	16,878
IFE	9,713	2,113	3,000	4,600	0,000	0,000	0,000	0,000	9,713
CEITEC	14,592	0,000	0,000	14,592	0,000	0,000	0,000	53,228	67,820
Total	**1 112,369**	**135,853**	**261,572**	**558,433**	**142,503**	**2,000**	**12,008**	**159,482**	**1 271,851**

*Note: * – Faculty or university constituent part offering an accredited degree programme/field of study.*
*Note: ** – (proportion of the total number of hours worked in a given period by all employees to the total yearly working hours per a full-time employee)*
*Note: *** – In this case, research staff includes all persons that are not teachers (under Section 70 of Act no. 111/1998 Coll. concerning universities)*

b) Age structure of academics and researchers with numbers of women

Tab. 7.2: Age structure of teachers and research staff (absolute numbers)

BUT	Teachers												Research staff***		Total
	Professors		Associate professors		Senior assistants		Assistants		Instructors		Research and development staff participating in teaching				
	total	fem.	total	fem.	total	fem.	total	fem.	total	fem.	total	fem.	total	fem.	
up to 29	0	0	0	0	14	5	44	15	0	0	1	1	17	5	76
30-39	2	0	49	2	343	60	93	28	1	1	11	1	87	20	586
40-49	13	0	58	4	89	24	21	12	1	1	1	0	17	5	200
50-59	50	3	66	17	80	41	14	12	0	0	0	0	17	1	227
60-69	57	7	94	10	74	33	2	1	0	0	0	0	10	1	237
over 70	41	2	40	7	12	4	1	0	0	0	0	0	8	0	102
Total	**163**	**12**	**307**	**40**	**612**	**167**	**175**	**68**	**2**	**2**	**13**	**2**	**156**	**32**	**1428**

*Note: *** – In this case, research staff includes all persons that are not teachers (under Section 70 of Act no. 111/1998 Coll. concerning universities)*

c) Teacher numbers by employment proportion and the highest qualification achieved (Table 7.3)

Tab. 7.3: Teacher numbers by employment proportion and the highest qualification achieved (absolute numbers)

BUT	Teachers				Total
FFA					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	0	0	0	0
up to 0,5	0	0	0	0	0
up to 0,7	1	0	0	13	14
up to 1,0	4	3	5	12	24
FCE					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	**0**
up to 0,3	3	5	4	18	30
up to 0,5	0	1	6	5	12
up to 0,7	6	11	14	21	52
up to 1,0	25	57	167	61	310
FME					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	5	9	23	6	43
up to 0,5	5	10	13	6	34
up to 0,7	10	9	18	3	40
up to 1,0	36	57	101	25	219
FIT					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	1	1	0	2
up to 0,5	0	0	4	1	5
up to 0,7	0	1	3	0	4
up to 1,0	9	16	37	2	64
FA					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	1	0	0	1
up to 0,5	0	0	0	1	1
up to 0,7	1	0	0	2	3
up to 1,0	6	16	7	12	41
FC					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	3	0	3	0	6
up to 0,5	0	1	4	1	6
up to 0,7	4	0	5	0	9
up to 1,0	6	15	39	2	62
FBM					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	0	1	0	1
up to 0,5	0	0	2	0	2
up to 0,7	0	0	9	5	14
up to 1,0	9	18	40	8	75

FEEC					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	7	3	9	1	20
up to 0,5	4	6	13	1	24
up to 0,7	9	8	11	10	38
up to 1,0	16	56	83	18	173
CSA					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	4	0	1	5
up to 0,5	0	0	0	2	2
up to 0,7	0	1	0	1	2
up to 1,0	1	0	6	6	13
IFE					
Employment proportion	**Professors**	**Associate professors**	**DrSc., CSc., Dr., Ph.D., Th.D.**	**others**	
up to 0,3	0	0	1	0	1
up to 0,5	1	0	0	0	1
up to 0,7	0	0	0	0	0
up to 1,0	2	3	3	1	9

*Note: * – Faculty or university constituent part offering an accredited degree programme/field of study the degree shown is the highest received*

d) Numbers of academics from other countries)

Tab. 7.4: Academics from other countries ** (absolute numbers)

BUT	Total
FFA	3
FCE	10
FME	6
FIT	3
FA	0
FC	9
FBM	5
FEEC	9
CSA	0
IFE	0
Total	**45**

*Note: * – Faculty or university constituent part offering an accredited degree programme/field of study*
*Note: ** – Persons employed by the university*

e) Numbers of associate professors and professors appointed in 2013

Tab 7.5: Newly appointed associate professors and professors

BUT	Number	Age average of newly appointed
Faculty of Civil Engineering		
Professors appointed in 2013	2	52
Associate professors appointed in 2013	4	43
Faculty of Mechanical Engineering		
Professors appointed in 2013	2	49
Associate professors appointed in 2013	5	40
Faculty of Electrical Engineering and Communication		
Professors appointed in 2013	1	41
Associate professors appointed in 2013	5	35
Faculty of Architecture		
Professors appointed in 2013	0	0
Associate professors appointed in 2013	3	53
Faculty of Chemistry		
Professors appointed in 2013	1	51
Associate professors appointed in 2013	2	37
Faculty of Fine Arts		
Professors appointed in 2013	0	0
Associate professors appointed in 2013	2	52
Faculty of Information Technology		
Professors appointed in 2013	0	0
Associate professors appointed in 2013	3	37
Total	**6**	**49**
Total	**24**	**40**

f) Further education courses for BUT academics (number of courses and number of participants) (Table 7.6)

BUT academic and other staff are offered English, German, French, Russian, and Spanish courses of different advancement levels – from beginners to conversation with native speakers.

In addition to language courses, BUT academics can attend a number of courses to improve their practical skills (computer courses of different specialisations and levels). Offered are also specialised courses developing expertise (marketing, management, project management) or soft skills developing courses.

One of the most frequently attended courses developing teaching skills is Complementary Pedagogical Study, which is required for all doctoral students and recommended to all teachers not yet educated in this area.

The portfolio of courses offered is subject to changes depending on the current demand by the university staff and management.

Tab. 7.6: Further education courses for academic staff *

BUT	Number of courses	Number of participants
Courses developing teaching skills	1	17
Courses developing general skills	197	1 417
Specialised courses		
Total	**198**	**1 434**

*Note: * = These include all further education courses offered by the university or outsourced courses in which the university contributes to the fees paid by the university employees.*

g) Career structure for the academic staff and incentives for rewarding employees by the results they achieve

BUT does not have a career structure for its academic staff. Once a year, individual evaluation of the employees' work results is carried out determining the amount of bonuses for the upcoming period. For fulfilling special tasks, extra bonuses are awarded.

SOCIAL AFFAIRS OF BUT STUDENTS AND EMPLOYEES

a) Scholarships paid to students listed by number of students who gained them or received regularly in the current year (by the scholarship type)

Tab. 8.1: Scholarships paid to students by the scholarship type (student numbers)

Scholarship type	Number of students	Number of scholarships
Merit scholarship under section 91, par. 2, letter a)	1 477	7 379
Scholarship for excellent results in research, development, innovation, arts or creation under section 91, par. 2, letter b)	2 328	4 525
Scholarship for research, development, and innovation activity under a special legal regulation, section 91, par. 2, letter c)	1 065	2 318
Social scholarship under section 91, par. 2, letter d)		
Social scholarship under section 91, par. 3	309	610
Scholarship for students in cases requiring special regard under section 91, par. 2, letter e)		
including accommodation scholarship	14 990	37 181
Support for studies abroad under section 91, par. 4, letter a)	1 711	2 753
Support for studies in Czech republic under section 91, par. 4, letter b)	9	60
Doctoral scholarships under section 91, par. 4, letter c)	1 411	14 900
Other scholarships	111	330
Total	**23 411**	**70 056**

b) Scholarship programmes offered by BUT

Apart from basic scholarship programmes from subsidies, BUT offers , in compliance with the internal regulation, scholarship programmes to support mobility (the mobility scholarship fund), admission of the best applicants to the first year of Bachelor's programmes (a single financial aid of 6000 CZK for 500 best candidates admitted based on the results in the common part of the school-leaving exam), support for students who or whose family cannot cover study expenses due to an exceptional family situation. Other scholarships are awarded by faculties (especially merit or social ones) or by the rector in accordance with the scholarship system.

c) Quality of the counselling services provided at BUT

Being part of the BUT Institute of Lifelong Learning, the student counselling section was established in 2006. At present, the section's principal activities include professional (group and individual), psychological, and social-legal counselling for students, study support for students with specific needs and cooperation with companies and other organizations. Counselling services may partially overlap. Demand for counselling is greater than the offer. Students are satisfied with the services based on their feedback

Professional counselling offers:

• Soft-skill-developing group activities (time management, assertiveness, presentation skills, personal efficiency, teamwork etc.) and preparation for job interviews (how to write a CV, preparation for the Assessment Centre), company presentations, JobChallenge fair. These services prepare graduates for entering the labour market and help to increase their chances of employment.

– A total of 21 courses were organized. 500 BUT students participated in the JobChallege fair. There were also lectures by company representatives and various experts.

• Individual activities: setting up a personal professional profile, career counselling (interview rehearsal, CV consulting, etc.), and coaching.

– There were 67 consultations provided.

Psychological counselling:

• Provides an opportunity to work on one's personal development by group or individual activities, to deal with difficult situations, study and adaptation problems.

– There were 206 consultations provided in total.

Study counselling:

• Part of study counselling are informative meetings for first-year students, where they learn about BUT studies, information systems, canteens and also Brno and their schoolmates. There are also courses focused on study efficiency improvement as well as courses intended for students with disablements .

– Nine group courses were offered for freshly admitted students on life at BUT, two courses on memory improvement and learning as well as two courses on speed-reading and speed-learning. Students could also attend two four-day courses on fighting with procrastination and three courses teaching self-management and time management. Finally, two stress management courses were offered for students to cope with the stress and increased workload of the examination period.

Counselling for students with various types of handicap:

• Socially handicapped students are offered social and legal counselling by the counselling section of the BUT Lifelong Learning Institute on access to information of the eligibility conditions of the social benefits and scholarships granted pursuant to the University Act and by Czech-Republic-based foundations. The counselling takes the form of personal consultation.

Socially handicapped students are further offered legal counselling to cope with stressful situations (usually concerning the duty to support and maintain), employment issues or questions are answered on criminal acts. Conselling is provided by a legal expert in individual or group sessions.

A total of 136 individual or group counselling sessions were offered lasting 60 minutes on average.

• *Applicants and students with specific learning needs* (learning or health disability, mental disorders, chronic somatic disorders) are provided with support given by the standards of the Ministry of Education, Youth, and Sports of the Czech republic. Services are provided either by enabling special admissions, organising study by offering supporting services and organisational measures (interpretations into the Czech sign language, simultaneous transcription, lending compensation aids, individual study timetables, etc.)

Services for applicants and students with special educational needs are guaranteed by a new Rector's guideline no. 3/2013 on the situation of applicants and students with specific educational needs.

• *Students with neural system disorders* (attention deficit disorders, mood irregularities, anxieties, sleep disorders, etc.) can attend nervous system training sessions by an EEG biofeedback method using a special electroencephalograph led by two certified therapists. A total of 370 sessions have been provided lasting 60 minutes each.

Others:

• Other activities of the counselling section include carrying out surveys among applicants, students and graduates or teachers, and promotion.

• A survey was carried out in 2013 to find out more on possible barriers for socially handicapped applicants, particularly those coming having had substitute family care. Interviews were done with staff of five children's homes. Part of the evaluation of the survey outcomes was to propose changes to the existing services provided by the university to cover the needs of this target group.

• We inform students on the results of job opportunity surveys among companies and other relevant sources of information to help them find jobs.

• We participate in a web survey among the applicants and students to find out about interest in counselling services. These are also used to promote all types of counselling services. Promotion of this type covered 3,684 persons.

• The services offered by the counselling section to students were presented to students in 21 lessons. A new promotion brochure was printed with information on counselling services for students, which was distributed among 80 schools.

• An information bulletin, Specific features of support for and teaching of disabled applicants and university students, was published by the Lifelong Learning Institute in 2012, and handed to 350 academics teaching disabled students.

The services provided by the centre are used by:

- BUT students
- new graduates
- BUT study applicants

For more information, please, visit: www.lli.vutbr.cz/poradenstvi, www.presbloky.cz

Counselling offered in 2013

Counselling	Employees/recalculated full-time employments	Number of consultancy hours per week	* Number of counselling contacts		
			interview	by phone	by e-mail
Study	2/0,05	2	408	16	29
Psychological	2/0,2	16	207	7	20
Career	2/0,4	16	796	21	100
For students with various types of handicap	1/0,9 + 2/0,05	16	476	90	30
Others	3/0,1	1	3 684	31	1 920

*Note: * – Counselling services are provided by 3 employees (one of them works fulltime and two part time) and external experts mostly paid from development projects, who help provide psychological counselling and some services for handicapped students.*

Counselling is mostly done in personal or group interviews .The number of phone or e-mail sessions are included as contacts (including calls or e-mails giving information).

d) Work with students with specific needs

Care of students with specific needs is mostly taken individually by faculties, which even gain allowances from MEYS for more serious cases. Part of the Lifelong Learning Institute is a counselling centre coordinating the faculties in this sphere and helping by providing expert advice.

e) Support for exceptionally talented students and cooperation with secondary schools

In 2013, too, as part of the „Best 500" competition, BUT granted one-off scholarships to the best applicants admitted to the first year of the Bachelor's degree programmes. These 500 students were chosen based on the results in the common part of the school-leaving exam taken in 2013 where the students preferred and awarded were those who chose mathematics and English in the common part. The scholarships are supposed to encourage excellent secondary school students to study the technical fields at BUT. The outcome of this campaign is satisfactory as a greater number of more talented students applied for study in the first year.

BUT started a closer cooperation the secondary schools, from which provide the best graduate.

It is mainly the faculties that work with the talented students in the higher years of study. The students are awarded merit scholarships, participate in various projects, the position of a research or teaching student assistant is being restored.

f) Accommodation and catering services at BUT

Tab. 8.2: Accommodation, catering at BUT

Total number of beds at BUT halls of residence	6 583
Number of beds in hired facilities	0
Number of accommodation applications submitted until 31st December 2013	6 794
Number of accommodation applications granted until 31st December 2013	6 794
Number of bed-days in 2013	1 622 414
Number of main meals sold to students in 2013	1 137 294
Number of main meals sold to BUT staff in 2013	124 365
Number of main meals sold to other diners in 2013	82 051

g) Care of BUT staff

BUT provides all employees with medical care by a university physician. There are training and holiday centres out of Brno to be used by BUT employees. Employees can use the sports facilities of the Centre of sports activities.

Employees can take their meals at the BUT canteens, Masaryk University canteens and other catering facilities using meal vouchers. They are provided with a boarding allowance.

The school also contributes to the employees' pension by additional insurance and private life insurance. In exceptional social cases, it grants an allowance in the form of irretrievable financial aid.

BUT actively supports language skills improvement and enables the employees to increase and improve their qualifications.

6 17 18 19 20 21 22 23 24

INFRASTRUCTURE

a) BUT Central Library
The BUT Central Library serves as a coordinating site of BUT libraries providing consulting and counselling services and issuing methodological guidelines.

The BUT Central Library runs and manages the Aleph500 librarian system. The activities of 2013 included an upgrade to Aleph, Version 21 and completion of the configuration of partial library databases. In view of the large number of integrations of the library system with third-party systems (SAP, Citace PRO, book covers, etc.) much work was devoted to optimizing and linking such systems. Due attention was also paid to improving the catalogue quality and consistence, removing duplications, and inspecting and updating catalogue entries.

For a considerable part of the year, efforts were made to select a new system interface to replace the existing unsatisfactory web catalogue and to meet the specific needs of the BUT academics. In addition to employing as many electronic information sources as possible, one of the key conditions was an online link with the Aleph 500 library catalogue and DSpace Digital Library suitable for the existing information environment and the fulfilment of all our requirements such as automatic indexing of local sources, and customized search results using the existing user registration. All the above conditions were only met by the Primo system. The implementation stage was started in autumn to put the system into operation at the end of the year.

BUT users have access to tens of branch and multi-branch information resources and databases. At the library Portal, an update was made of the part designed to support the use of electronic information sources. In all sources, links were inserted enabling remote access or further help for more efficient work. Also, diagrams were added showing the usage of information sources. The total number of downloads from all information sources reached almost 500,000 in 2013.

Attention was also paid to promotion and offer of library and information services. An English version and web presentation of the Central Library were added to the library portal. In cooperation with the Centre of Computing and Information Services, a library intraportal was migrated into the BUT Portal as an information base for the staff of faculty libraries. A Facebook presentation was made, too.

Information education courses have been offered at BUT for several years, since 2007, they have been run using the Moodle university e-learning system. In 2013, almost 2,500 students completed e-learning courses co-tutored by the staff of faculty libraries. Since 1202, a Citations course has been added to the basic IVIG course teaching students how to include correct citations. The portfolio of the e-learning courses offered by the Central Library was increased by an EIZ course. Both courses are intended mostly for doctoral students, but will certainly be used by last-year students and academics, too. As part of information education, lectures and seminars took place with the number of attendants exceeding 800.

For several years, Brno University of Technology has been building a digital library as a conceptual solution to providing general access to the digital content created at the university. The largest collection is an archive of electronic versions of theses and final projects. Another major task is making available the R&D results in an open-access mode. In 2013, much emphasis was placed on promotion of and support for publishing in the open-access mode. BUT signed the Berlin declaration, thus embracing the principles of open publishing. Foundations were laid of system support and a support for open access publishing.

Tab. 9.1: BUT University libraries

BUT	Number
Yearly collection increase	14 306
Total collection	231 287
Number of periodical titles: – paper form – electronic form (estimate)*	757/89

*Note: * = Only the periodical titles subscribed to by the University (or received as a gift or by an exchange) in paper and electronic formats are shown. Not included are other periodic titles that can be accessed by the library users within full-text resource consortia.*

b) VUTIUM Press

The VUTIUM Press published five new titles (Applied Cryptography, Living in Gardens – Masarykova čtvrť in Brno), Karel Kobosil, Artistic Geometry Plus, For a More beautiful World)

A total of 192 ISBN's were assigned in 2013.

Eleven issues were published of the journal BUT News with a yearly edition of 9,900. The number of pages per issue is 32 plus 4 pages cover. The edition is 900 copies per issue. In April 2013, the journal won the Golden Semicolon competition in the Best Journal of State, Public, and Non-Profit Sphere category.

In 2013, the VUTIUM Press editorial board met in December to present the titles to be included in the 2014 publishing plan and their order.

The VUTIUM Press participated in 5 book exhibitions and fairs – Tchay-Pey (January), Ostrava Book Fair (March), World of Books, (Prague, May), Autumn Book Fair (Havlíčkův Brod, October), International Frankfurt Book Fair (October).

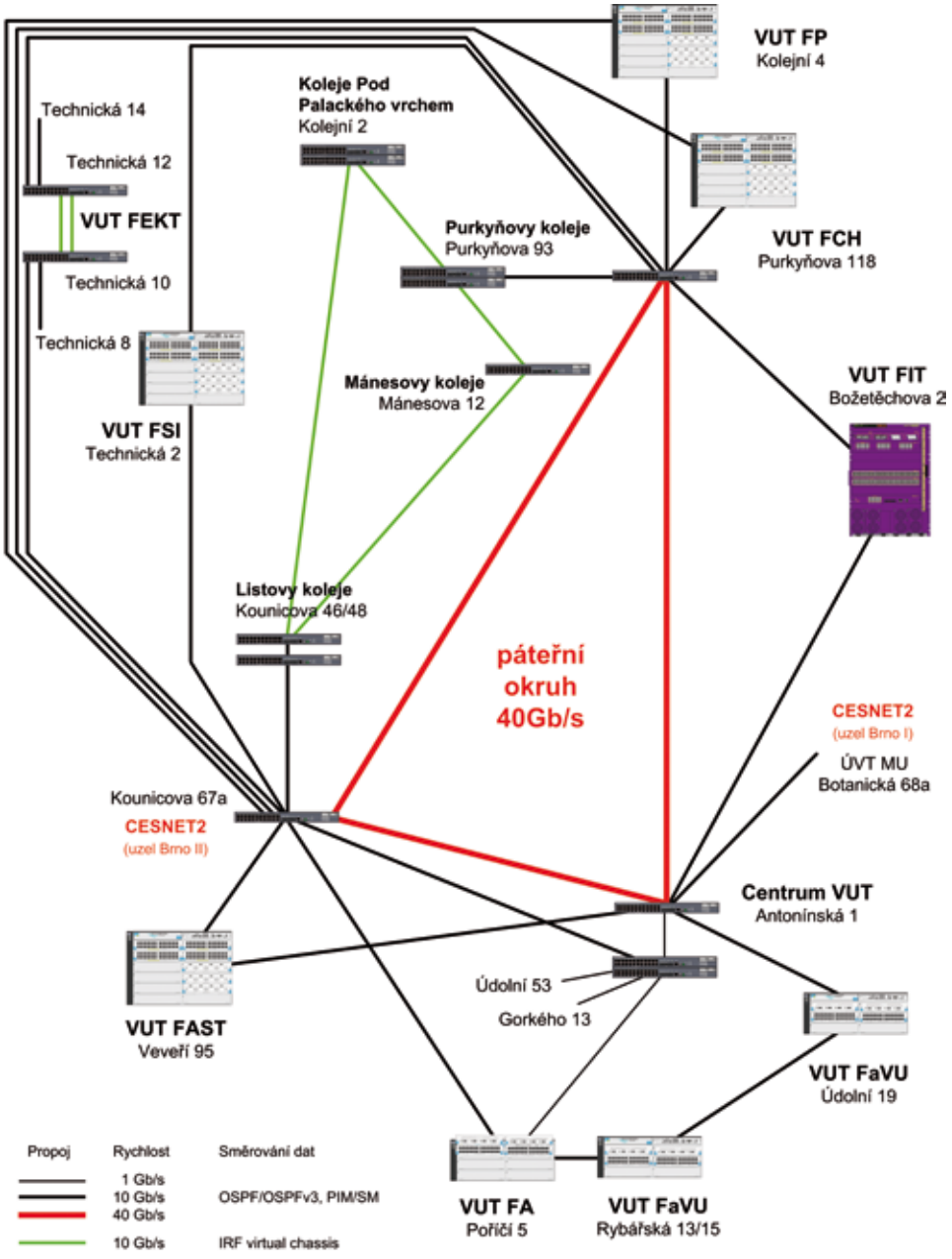
c) Centre of Computing and Information Services

Ten web application modules for teachers were upgraded in the BUT information system and, in the Apollo system, a new module was launched for entering the R&D outcomes with new ergonomic controls. A new tool was designed to help equip each new BUT project with an easy-to-use application with an editing system.

The VAVINET project of the RDI Operative Programme was finished furnishing BUT with server and virtualization e-infrastructure consisting of 142 servers, 3 disk arrays with 4,072 processor cores, 13,872 GB RAM and 973 TB disk capacity. The servers are used by the NETME, IT4I, CEITEC, and AdMaS research centres as well as by faculties and other universities. Also, technologies are available for desktop virtualization. Two main data rooms were reconstructed at BUT in Antonínská and Technická streets now using a central UPS and redundant aisle cooling units.

The BUT backbone network was upgraded to 100 Gps, which is a rate unique in the Czech Republic and in the world. Installing 1,000-MBps connection in each student dormitory room means that, in 2013, BUT had the fastest computer network in the Czech Republic. According to a report by Akamaii Technologies surveying the current state of the Internet worldwide, BUT is a leading university in introducing the IPv6 protocol. In an overall rating it is second with a 66-percent site performance.

Topology of the BUT L3 Backbone network in late 2013



LIFELONG LEARNING

a) Lifelong learning courses (Table 10.1)

Tab. 10.1 Lifelong learning courses (course numbers)

Accredited degree programme groups	Master Code	profession-oriented courses			special-interest courses			U3V	Total
		up to 15 lessons	up to 100 lessons	more	up to 15 lessons	up to 100 lessons	more		
natural sciences and disciplines	11-18							2	2
technical sciences and disciplines	21-39	5	7					47	59
agriculture, forestry, veterinary	41,43								
medicine, pharmacy	51-53							4	4
social sciences and services	61,67,71-73			39				7	46
economy	62,65							3	3
law, public administration	68								
pedagogy, teaching, and social welfare	74,75			1					1
psychology	77							3	3
art and culture sciences and disciplines	81,82							3	3
Total		**5**	**7**	**40**				**69**	**121**

b) Student numbers of lifelong-learning courses (Table 10.2)

Tab. 10.2 Lifelong-learning courses offered by BUT (student numbers)

Accredited degree programme groups	Master Code	profession-oriented courses			special-interest courses			U3V	Total
		up to 15 lessons	up to 100 lessons	more	up to 15 lessons	up to 100 lessons	more		
natural sciences and disciplines	11-18							48	48
technical sciences and disciplines	21-39	26	62					773	861
agriculture, forestry, veterinary	41,43								
medicine, pharmacy	51-53							156	156
social sciences and services	61,67,71-73			521				709	1 230
economy	62,65							38	38
law, public administration	68								
pedagogy, teaching, and social welfare	74,75			29					29
psychology	77							263	263
art and culture sciences and disciplines	81,82							214	214
Total		**26**	**62**	**550**				**2 201**	**2 839**

c) University of the 3rd Age

In 2013, the BUT University of the 3rd Age offered 69 courses with the essential ones including a three-year summary cycle informing the students with the subjects taught by the BUT faculties. In the last year of this course, they can select specialisations at their own discretion. A total of 2,201 senior students were registered in 2013. Traditionally, most of them were interested in courses on computer skills, architecture, prominent figures, and noble lineages. | As in the standard courses offered, the U3A works on improving the quality of teaching. This mainly involves the contents of lectures and the study materials given to the applicants on registration. Emphasis is also placed on the system of organisational information provided for students. | The BUT Centre in Antonínská Street is the seat of the Association of Universities of the 3rd Age in the Czech Republic.

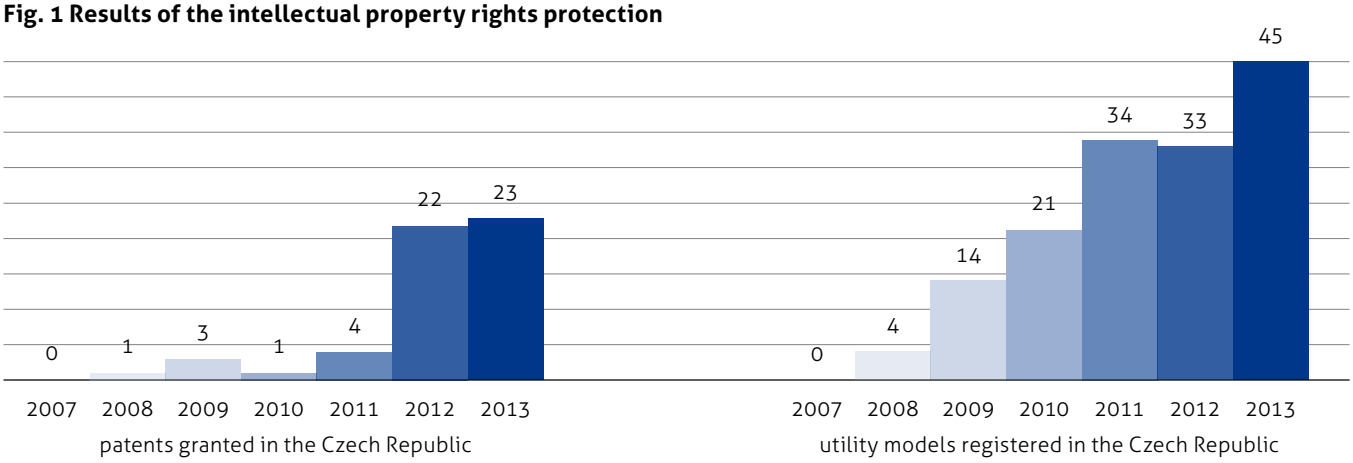
RESEARCH, DEVELOPMENT, ARTISTIC, AND OTHER CREATIVE ACTIVITIES

a) Accomplishing the MEYS and BUT Strategic Plan objectives as updated for 2013. Characteristic of creative activities at BUT

One of BUT's strategic objectives is to profile itself as a research university with all the relevant attributes. This objective is closely related to the requirement of sustainability of the five regional centres built within axis two of the RDI operational programme and two centres within axis one of the RDI operational programme and to the fulfilment of project indicators, to which BUT has committed itself.

Because of the wide range of its objectives, BUT's creative activities relate to technology, science and arts. The engineering and scientific areas include basic and applied research as well as innovations. In 2013, four of the five regional centres of applied research were finished funded from the second priority axis of the RDI Operative Programme. Therefore, it makes sense that the research conducted at BUT is mostly applied centering on cooperation with industries so that the number of basic research outcomes and that of applied research and innovations is approximately the same. The intense engagement of BUT in cooperation with the application sphere in 2013 was also reflected in the Best Cooperation Between Universities and the Application Sphere competition organized by the American Chamber of Commerce and the Association for Investment Abroad in cooperation with the Technological Agency of the Czech Republic. In this competition sponsored by the Ministry of Education, Youth, and Sports and the Ministry of Industry and Trade and supported by the CzechInvest agency, BUT took the first and second places: the first place was for the cooperation between BUT Brno and Tescan – multimodal holographic microscope, the second place for cooperation between BUT and První brněnská strojírna Velká Bíteš – flying laboratory for testing turbine driving units. As foreseen by the Strategic Plan and its amendments, BUT evaluates and publishes the results of its successful applied research activities (as in the case of basic research). As an example may serve the Hydal technology for recycling used oil initiated at the BUT Faculty of Chemistry that was to be implemented in China or the already mentioned holographic microscope. In keeping with its Strategic Plan, BUT makes every effort to ensure proper management of the ownership and usage rights to intellectual outcomes of the projects of the RDI Operative Programme worked on at BUT. Successful authors of inventions are rewarded and provided with servicing support and incentives. The results of the intellectual property right protection are shown in Fig. 1. The Technology Transfer Department also coordinates a Regional Contact Organisations project, which, in its fourth project period, continues to provide information in the South Moravian Region on the current calls of the framework programmes, to organize seminars, workshops, and working meetings. It is thanks to a BUT TT Point project of the Education for Competitiveness Operative Programme implemented from 2010 to 2012 and the subsequent pre-seed projects of the RDI Operative Programme that the number of staff could be increased from 5.5 to 15 employees. The projects made it possible for the department to add to its activities the services of a patent representative, legal services for the protection of intellectual property rights and hire profession managers of technology transfer at the BUT technical faculties. Within the region, the Technology Transfer Unit mediates cooperation in innovation voucher projects. Traditional is the Department's activity as the first contact point working with the industrial companies interested in cooperation and addressing BUT.

Fig. 1 Results of the intellectual property rights protection



In 2013 for the second time, BUT rewarded the authors of papers published in impacted journals from a special system of incentives funded from a development programme. A total of 320 papers were published in impacted journals including 86 in journals of the first quartile and 83 of the second quartile by WoS.

b) Links between creative activities and teaching

BUT uses two ways to connect teaching and creative activities: trying to engage talented students of all programmes in scientific work and research conducted in teams using incentives to reduce the average age of the applicants for associate professorships and professorships. It also uses a system of incentives for experts from practice to teach at BUT, which at present is funded from the projects of the Education for Competitiveness Operative Programme. Significant contribution is also made by projects of this programme designed to find positions for post-doctoral students, who in workshops and internal seminars contribute to linking creative activities and teaching.

c) Participation of Bachelor's, and Master's students in creative activities at BUT

Master's and doctoral students as well as some Bachelor's students are engaged on research projects of various types. This also includes assigning themes of Master's doctoral theses for the students to get opportunities to try and participate in research guided by experienced researchers. Major role is also played by projects of specific research, which help cover the costs of the research conducted by students.

d) Total targeted funding of research and innovations received in 2013 and university spending on grants or funding provided for solution co-providers and suppliers

The following table shows the total non-investment targeted funding of research and innovations received by BUT in 2013 indicating how much was spent on grants and projects worked on directly at BUT and how much was given by BUT to solution co-providers.

Received targeted non-investment funding of research, development, and innovations	
Total subsidies	1 019 708 tis. Kč
BUT subsidies	939 068 tis. Kč
Subsidies transferred to solution co-providers	80 640 tis. Kč

e) Scientific conferences (co-) organized by BUT (Table 11.1)

Tab. 11.1: Scientific conferences (co-) organized by BUT (numbers)

BUT	Total	Including with participant number greater than 60	Including with international participation
FCE	5	5	4
FME	6	6	6
FEEC	11	11	9
FA	3	1	2
FC	2	2	2
FBM	3	1	3
FIT	5	5	5
IFE	3	2	2
CEITEC	19	8	8
Total	**57**	**41**	**41**

f) Support for doctoral students and staff in postdoctoral positions

For defending a thesis in the 3rd and 4th years, doctoral students receive an incentive scholarship. Next, scholarships are paid out to doctoral students annually based on the number of credits obtained and activities during the academic years. Credits can be won for publishing in impacted journals, papers in journals listed as reviewed periodicals and other specialized journals. Next, credits are received for contributions to proceedings from the Thomson Reuters database, participation in domestic and international conferences, or publishing of books. Stays abroad are also taken into consideration as well as memberships of research teams of various types of projects. A number of combined study doctoral students come from research teams of companies or research institutes. This creates relationships necessary for cooperation and faculties provide such students with opportunities to use the servicing facilities at faculties. The doctoral graduates who continue their career in postdoctoral positions at faculties are supported from other faculty funds. Traditionally, support for doctoral students is prided from the institutional and development projects of the Ministry of Education, Youth, and Sports.

Also, projects of the Education for Competitiveness Operative Programme are of considerable help for postdoctoral positions in which the graduates contribute at various workshops and internal seminars to linking education with creative activities.

g) Participation of application sphere in creating and implementing degree programmes

The intensity and form of engaging the application sphere in creating and implementing degree programmes vary across faculties. The most frequent form involves having experts from practice sitting on doctoral programme committees, on scientific boards, state-examination boards, committees for the defence of Bachelor's and Master's theses. Experts from the application sphere also give lectures at BUT. Very intense engagement of experts from practice is at the BUT Faculty of Information Technology where they are represented in the Industrial Board. This takes an active part in implementing degree programmes with the members of the Industrial Board being regularly informed on the criteria and timing of offering new degree programmes.

h) Cooperation with the application sphere on providing and transferring information

BUT cooperates on joint projects of applied and contracted research with a number of companies such as Škoda Auto Mladá Boleslav through Škoda and research of the whole VW concern, Honeywell, Tescan, FEI, Microsoft, Bosch Diesel Jihlava, Evektor, AŽD Praha and others. Important is also cooperation with the regional chamber of commerce, which contributes to linking the commercial sphere with academia in the form of presentations, projects, and contact meetings. Every year, new cooperation projects are launched thanks to BUT being involved in the innovation vouchers project not only in the South Moravian Region but also in Zlín, Olomouc, Liberec, Karlovy Vary, etc. Next, cooperation with the application sphere takes the form of companies demanding particular technical solutions. To provide a summary of cooperation offers with the application sphere for BUT research teams and present the possible use of licensed research results, the Department of Technology Transfer launched its own web site, www.spolupracesvut.cz. In 2013, BUT continued work on the six projects submitted as part of the RDI Operative Programme, PO 3, Call 6.3 by submitting two projects of the RDI Operative Programme, PO 3, Call 7.3 to support pre-seed activities. Thus the already completed projects will be followed by a new one from 2014. The innovative results of the projects will be offered to the industrial partners in the years to come.

i) Number of agreements with the application sphere on the use of the results of research, development, and innovations

Year	2010	2011	2012	2013	Total
Licence agreements signed	2	7	5	9	23
Revenues from commercialization	0	101 611 Kč	620 708 Kč	33 976 Kč	756 295 Kč

Note: The table shows the revenues from the licence agreements signed and co-ownership of industrial rights administered by the DTT. It does not include revenues from licences and other forms of commercialization of intellectual property implemented by faculties alone (such as contracted research)

Brno University of Technology signed 220 agreements on the use of the results or research, development and innovations.

j) Numbers of experts from the application sphere participating in teaching in accredited degree programmes ** (numbers)

Tab. 11.2: Experts from the application sphere participating in teaching in accredited degree programmes

BUT	Number of persons
FCE	33
FME	73
FEEC	30
FA	97
FC	8
FBM	25
FIT	35
IFE	19
CEITEC	0
Total	**320**

*Note: * = faculty or other constituent part of university offering an accredited degree programme*
*Note ** = persons participating in teaching in at least one course*

k) Numbers of study branches with on-the-job training lasting at least one month included in their curricula (Table 11.3)

Tab. 11.3: Numbers of study branches with on-the-job training lasting at least one month included in their curricula

BUT	Number of study branchers
FCE	3
FEEC	6
FBM	1
Total	**10**

l) BUT licensing revenues in 2013

BUT licensing revenues in 2013

agreement year	number of licence agreements	partner	revenues 2011 in CZK	revenues 2012 in CZK	revenues 2013 in CZK
2010	2	FEI Czech republic, s. r. o.	0 Kč	0 Kč	0 Kč
		Lingea, s. r. o.	0 Kč	0 Kč	0 Kč
2011	7	Comenius University in Bratislava	25 000 Kč	0 Kč	0 Kč
		TESCAN, a. s.	0 Kč	0 Kč	0 Kč
		Northwestern College	6 537 Kč	0 Kč	0 Kč
		Universita di Palermo	2 574 Kč	0 Kč	0 Kč
		BD SENSORS, s. r. o.	0 Kč	0 Kč	0 Kč
		University of Zagreb	0 Kč	103 200 Kč	0 Kč
		Masaryk University in Brno	67 500 Kč	0 Kč	0 Kč
2012	5	Wilhelm Kachele GmbH	0 Kč	8 782 Kč	0 Kč
		Universidad de los Andes	0 Kč	6 720 Kč	0 Kč
		Freescale Polovodiče Česká republika, s. r. o.	0 Kč	0 Kč	0 Kč
		NAFIGATE Corporation, a. s.	0 Kč	500 000 Kč	0 Kč
		Institute of Orthopedic Research and Development	0 Kč	2 007 Kč	547 Kč
2013	9	Continuum Blue Ltd.	0 Kč	0 Kč	8 966 Kč
		Dcom, spol. s r. o.	0 Kč	0 Kč	0 Kč
		Forschungszentrum fur Medizintechnik und Biotechnologie	0 Kč	0 Kč	2 561 Kč
		HIT, s. r. o.	0 Kč	0 Kč	0 Kč
		Ing. Radim Nečas, Ph.D., Ing. Jiří Strnad, Ph.D.	0 Kč	0 Kč	0 Kč
		Itskov Consulting GU	0 Kč	0 Kč	10 903 Kč
		RWHT Aachen	0 Kč	0 Kč	8 411 Kč
		Shiraz University	0 Kč	0 Kč	2 588 Kč
		Zena, s. r. o.	0 Kč	0 Kč	0 Kč
Total			**101 611 Kč**	**620 708 Kč**	**33 976 Kč**
Grand total				**756 295 Kč**	

m) BUT contracted research and development revenues

BUT's total revenues in 2013 from contracted research and development orders amount to about 105 million CZK.

n) Numbers of spin-off/ start-up companies supported by BUT in 2013

No application was filed in 2013 for establishing a spin-off company with BUT participation.

o) BUT strategy for commercialization

For a long time, BUT has been adopting a consistent approach to the protection of intellectual property rights guaranteeing the ownership rights to all the research results and preferring licensing to property right transfer. Co-ownership of the results with a third party, particularly concerning the results of joint projects, is approached on an individual basis depending on a particular result. The agreement provisions mainly protect ownership rights, legal costs, and revenues sharing.

The results created protect BUT depending on their nature and based on the evaluation of the commercial potential. In particular cases, the intellectual property rights protection strategy is determined by the DTT. If required by the result's nature, registered legal protection filing in the form of invention, utility, and industrial model is recommended.

Within 12 months, the university decides whether a protection is to be extended to be effective abroad, too, which is done mostly through the European Patent Office or the Patent Cooperation Treaty.
The offer of protected results is published in the international EEN databasis (http://www.european-business-supportnetwork.eu/search-business/een-database) or at the BUT portal..

BUT intellectual property rights protection portfolio from 2010 to 2013

Year	2007	2008	2009	2010	2011	2012	2013
employees' inventions reported	8	29	28	49	36	94	83
European EPC invention applications filed	0	2	1	0	4	3	5
international PCT invention applications filed	0	1	3	0	5	1	5
American invention applications filed (USPTO)	0	0	0	0	1	0	2
Japanese invention applications filed	0	0	0	0	1	0	0
Chinese invention applications filed	0	0	0	0	1	0	0
Eurasian invention applications filed	0	0	0	0	1	0	0
Czech invention applications filed	4	11	11	22	20	25	44
Czech utility model applications filed	2	8	21	34	35	37	61
Czech trademark applications filed	0	0	0	2	0	0	0
industry model applications filed	0	0	1	4	9	8	12
OHIM applications filed	0	0	0	0	0	0	3
Czech patents granted	0	1	3	1	4	22	23
Czech utility models registered	0	4	14	21	34	33	45
Czech industry models registered	0	0	0	2	5	8	3
OHIM models granted	0	0	0	0	0	0	3
European EPC patents granted	0	0	0	0	0	2	2
American patents granted	0	0	0	0	0	0	1
Eurasian patents granted	0	0	0	0	0	0	1

p) Characterisation of BUT activities in and outside the region

BUT cooperates on joint applied and contracted research projects with a number of companies such as Škoda Auto Mladá Boleslav, through both Škoda and research of the whole VW concern, Honeywell, Tescan, FEI, Microsoft, Bosch Diesel Jihlava, Evektor, AŽD Praha, and others. Significant cooperation takes place with the regional chamber of commerce

contributing to the linking of the commercial sphere and academia through presentations, projects, and contact meetings. Every year, new cooperation projects are launched thanks to the BUT participation in the innovation vouchers project not only in the South Moravian Region but also in Zlín, Olomouc, Liberec, Karlovy Vary, etc. Another form of cooperation with the application sphere is implemented based on the demand by companies for particular technical solutions. Together with other Brno universities, the South Moravian Innovation Centre and the regional authorities, BUT participates in formulating and updating the South Moravian Innovation Strategy cooperating with selected secondary schools which provide BUT with graduates for study at the university.

INTERNATIONA-LIZATION

a) BUT strategy on the development of internationalization relations and environment

The key objective of the Ministry of Education's planning for the years 2011 to 2015 is to redirect the development efforts from quantity towards quality. As internationalization is among BUT's strategic plans, the university management decided to concentrate on concrete areas. Priorities were set in the university strategic plan and its amendments and in the strategic plan of international relations . The first objective is to increase the number of Master's students mostly those speaking a Slavonic language. The aim is to have them stay at the university in doctoral programmes, get involved in the RDI operational programme projects. Next aim is to establish contacts with those Asian universities that have a research potential, recruit Slovak students as well as self-paying students from abroad for courses taught in English.

When recruiting international students, the university as a whole and its faculties, while offering all levels of programmes, concentrate on winning good Master's and doctoral students from abroad. Last year, too, the services and assistance offered by the South Moravian Centre for International Mobility were used to the full. In 2013, the Centre granted 23 one-year starting scholarships.

In last year, we continued to support talented students from abroad studying at BUT. In 2013, 2,790,000 CZK was paid in regular scholarships to 50 students. This subsidy for the scholarship programme for BUT international students was a major boost for BUT research internationalization. In addition to the above summaries, the demographic structure of the scholarship target groups is worth noticing. The scholarships were paid to students from the Russian Federation, Ukraine, Serbia, Belarus, Sudan, Syria, Kazakhstan, and India.

BUT activities at international educational fairs were also important. BUT participated in GAUDEAMUS, a traditional international educational held in Brno and Prague, next in a fair organized by the European Association of International Education (EAIE) held in Copenhagen last year. In line with the priorities of international cooperation, BUT, for the first time, participated in educational fairs in Asia, particularly in Kuala Lumpur, and George Town. Participation in the ACADEMIA fair held in Bratislava is also desirable because of the geography, language similarity and the high numbers of Slovak students studying at BUT. Last year for the second time, BUT took part in the PRO EDUCO fair at Košice and, newly, took part in a "PRO EDUCO" fair in Nitra.

Traditionally, BUT took part in an international conference and education fair organized by the European Association of International Education (EAIE) last year held in Istanbul. It also participated in other education fairs in South East Asia (Malaysia, Kuala Lumpur) and South America (São Paulo, Brazil).

Also mentioned should be the participation of BUT in SoMoPro, a project administered by the South Moravian International Mobility Centre to increase the number of leading international and Czech scientists staying at Brno Universities.

New teaching and research cooperation agreements were signed with the following universities: Carnegie Mellon University, Austrália, Chongqing University of Posts and Telecommunications, China, National Technical University of Kharkov, Ukraine, and Toyota Technological Institute, Japan.

The university is also an active member of international organizations such as the European University Association (EUA), Conference of European Schools of Advanced Engineering Education and Research (CESAER), and, EUniverCities.

b) University involvement in international educational programmes including mobilities (Table 12.1)

Tab. 12.1: University involvement in international educational programmes

BUT	Programy EU pro vzdělávání a přípravu na povolání												Total
	Erasmus	Comenius	Grundtwig	Leonardo	Jean Monnet	Erasmus Mundus	Tempus	Others	Ceepus	Aktion	ME Development programme	Others	
No. of projects	1			2			1		3	5	17	5	34
No. of out-students *	701			9					1	2	136	57	906
No. of in-students**	560						5	4	5		44	39	657
No. of out-teachers***	155								3		39	24	221
No. of in-teachers****	86								4	3	4	12	109
No. of other out-persons	60												60
No. of other in-persons	2												2
Subsidy in thousand CZK	**21 250**								**100**	**271**	**4 750**	**3 297**	**29 668**

*Note: * = Out-students – students staying abroad in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*Note ** = In-students – students staying at the university in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*** = Out-teachers – teachers staying abroad in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*
**** = In-teachers – teachers staying at the university in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*

c) University involvement in international research and development programmes including mobilities (Table 12.2)

Tab. 12.2: University involvement in international research and development programmes

BUT	EC 7th framework programme		Others	Total
	Total	including Marie-Curie-Actions		
No. of projects	34		60	94
No. of out-students *	5		29	34
No. of in-students**			103	103
No. of out-teachers***	5		3	8
No. of in-teachers****	2		8	10
Subsidy in thousand CZK	**49 683**		**32 854**	**82 537**

*Note: * = Out-students – students staying abroad in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*Note ** = In-students – students staying at the university in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*** = Out-teachers – teachers staying abroad in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*
**** = In-teachers – teachers staying at the university in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*

d) Student and teacher mobility by country (Table 12.3)

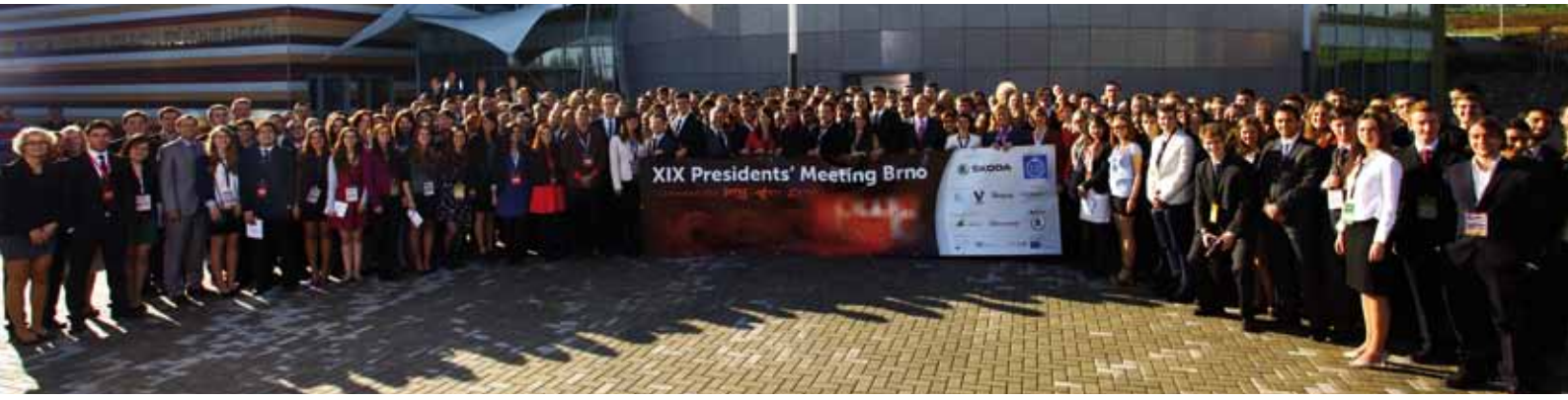
Tab. 12.3: Student and teacher mobility by country***

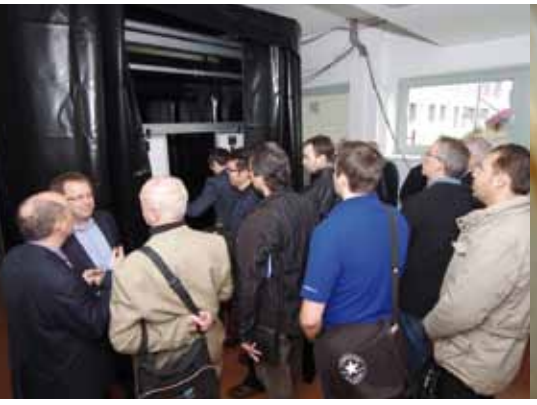
Country	out-students*	in-students**	out-teachers***	in-teachers****
Afghanistan		1		
Argentina	2			
Australia	4	1		
Austria	80	5	24	7
Belgium	28	10	7	3
Brazil		1	2	1
Bulgaria	8	23	7	7
Canada		1		
China		1	1	
Croatia	1	3	3	3
Cyprus	1			
Denmark	63	2	3	
Estonia	10	5	1	
Ethiopia	1			
Finland	52	15	11	5
France	44	57	12	5
Germany	85	27	12	7
Greece	13	76	11	3
Hoduras	2			
Hungary	4	4	2	1
Iceland	4	2	3	
India	1	1	1	
Ireland	6	1	2	
Israel	2		3	1
Italy	32	16	11	1
Japan	2	1		1
Jordan		1		
Kazakhstan		3		
Korean Republic	1	5		
Latvia	4	7	6	8
Liechtenstein	4			
Lithuania	13	18	7	3
Macedonia		2		1
Malta	19	6	2	
Mauritius	1			
Monte Negro		1		2
New Zealand	1			
Norway	47			1
Poland	2	19	3	8
Portugal	48	75	6	5
Republic of the Congo		1		
Rumania				1

Russia	7	19	2	
Serbia		9		
Slovakia	20	21	23	11
Slovenia	21	2	2	3
Spain	55	116	23	4
Sweden	51	1		
Switzerland	27	1	7	
Thai Wan	3	16		
the Netherlands	30			
Turkey	28	66	4	10
Ukraine	1	3	1	
United Kingdom	68	10	13	5
USA	10	2	6	1
Total	**906**	**657**	**221**	**109**

*Note: * = Out-students – students staying abroad in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*Note ** = In-students – students staying at the university in 2013, included are also students beginning their stay in 2012. Only students with stay-length longer than 4 weeks are included. If a university has another study-stay-length, this is noted below the table.*
*** = Out-teachers – teachers staying abroad in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*
**** = In-teachers – teachers staying at the university in 2013, included are also teachers beginning their stay in 2012. Only teachers with stay-length longer than 5 days are included. If a university has another study-stay-length, this is noted below the table.*

9 20 21 22 23 24 25 26 27





QUALITY ASSURANCE AND EVALUATION

a) Education quality assurance and internal audits

In order to assure / improve education quality, the BUT faculties fulfil the requirements of the national and international position documents such as ESG using and sharing previous experience from (mostly national) projects such as IPN Q-Ram, IPN PTPO, and IPN Quality – this is purposefully done by the former and current guarantors and experts of the above projects. This involves applying the outcomes principles in teaching and in evaluating the results achieved, encouraging students' initiative and independent educational activities, focus on individual approach to students and provision of constant counselling for students with special needs. The results of the national projects are also reflected in further training of BUT staff.

The quality of education is also improved by work on projects related to the quality / innovations of educational programmes at BUT faculties. The interdisciplinary approach to dealing with education is being strengthened. The quality of education is also enhanced by continual attention paid to stays abroad of students and teachers, domestic exchange internships and cooperation, which help transfer and apply the experience gained.

The quality of education is systematically evaluated at all BUT faculties. In charge of these evaluations are degree-programme and course boards. In addition, the course curricula and teaching methods are tested by sitting in on classes, at targeted teachers' meetings, by experience being passed among academics and during (formal and informal) interviews of teachers with students.

Surveys among and interviews with students are very efficient sources of information, suggestions, and requirements by students provided that a suitable / both-sided open way of communication is enabled. Valuable contributions are also brought by regular surveys of student experiences and views complemented by systematic cooperation with employers to find out about their requirements of the graduates and their on-the-job behaviour. The outcomes of all these evaluating methods are used for upgrading the course curricula, enhancing the teaching methodology and qualification of teachers.

Electronic or paper questionnaire surveys among students on the quality of teaching is done at each faculty once or twice a year asking about the contents of courses, on the way the teaching is managed, and on the teachers' competences and approaches. The evaluations are then put into the internal information system to be further processed into reports to be archived. The evaluation is seen as an integral part of education quality assessment being organized by the faculty managements in cooperation with the student chambers of academic senates. The evaluation results are taken into consideration in overall teacher rating and testing. In the future, these student evaluation procedures may be integrated into the BUT evaluation and a unified way may be designed of the use of its results. Not only the management but also students themselves are interested in the results of their evaluation being part of the overall evaluation of teaching – there are efforts among students to have TOP 10 teachers listed at each faculty.

In our opinion, plagiarism is not a dominant feature of quality assurance at BUT. Still, considerable attention is paid to plagiarism-related issues by teachers and students. Mostly the ex-ante method is applied by informing and educating students, including surveys on their experiences and views in this connection. Several particular disputes between academics were resolved before a commission with remedial measures adopted and sanctions imposed. If needed, BUT is ready to apply the generally adopted investigation and information procedures.

However, BUT is not concerned only with evaluating the teaching activities. Guided by the Quality Management University Institute with its powers reaching also to the faculties, BUT also deals with quality management of all processes and activities in compliance with international standards and models.

b) External quality audits at BUT carried out in 2013, particularly evaluation by the Accreditation Commission of the Czech Republic

Pilot internal and external quality audits were carried out in 2013 at BUT (Rector's office and Faculty of Business and Management) as part of the Quality Individual National Project. A method was used designed by experts of the above project for institutions of tertiary education using the EFQM model of excellence.

Outcomes: Report on comprehensive internal quality audit at BUT Rßector's office and other BUT parts. Feedback report for Rector's office and other BUT parts. Report on comprehensive internal quality audit at BUT Faculty of Business and Management. Feedback report for the BUT Faculty of Business and Management. The findings of the external evaluation were used at seminars held and for subsequent amendment of evaluation methodology.

Using the prescribed procedure, accreditation, and reaccreditation was done of degree programmes of BUT faculties (and constituent parts) and granted based on their evaluation by the Accreditation Commission of the Czech Republic. No extraordinary results and measures have been necessary in this connection.

c) Financial audit in 2013

Every year, BUT verifies the setting of the internal audit system as introduced in 2004 pursuant to Act no. 320/2001 Coll. concerning financial audits, testing carried out particularly as part of planned and unplanned internal audits. Monitored is its adequacy and efficiency by verifying the operations of spending from the public funds. The resulting findings are then incorporated in the current legislation as amendments, above all, in the statutory instrument, Bursar's guideline no. 62/2004. This strengthens the control mechanisms and fine-tunes the rules of delegating duties, powers, and responsibilities in conformance with the objectives of the BUT Strategic Plan.

In 2013 audit continued of the projects of the RDI Operative Programme implemented at BUT. The results, findings, and measures recommended were discussed over the year by the BUT top management.

The identification and evaluation of university risks were discussed using the standard procedure by the rector's advisory board, particularly by the Committee for University Risk Management as well as by a special committee for managing the risks of the projects of the RDI Operative Programme.

d) Certificates of Quality (such as ISO) granted in 2013

After Rector's office, which was granted an ISO certification in late 2012, the BUT Faculty of Business and Management was granted certification in 2013 by a similar procedure based on the compliance with ČSN EN ISO 9001:2009, after the below activities were carried out:

Charting all the processes in the following organisational units of the Faculty of Business and Management:

- Dean (Dean's Secretariat, Department of Information Systems);
- Vice-Dean for development (Department of Project Coordination, Department of the „Trendy" journal);
- Vice-Dean for study (Study Department);
- Vice-Dean for science and research (Department of Creative Activities and Ph.D. Study);
- Vice-Dean for International Relations (Department for International Relations);
- Director, Institute of Informatics (institute secretariat, academics);
- Director, Institute of Economics (institute secretariat, academics);
- Director, Institute of Finance (institute secretariat, academics);
- Director, Institute of Management (institute secretariat, academics);
- Secretary (dean's office, economic department, technical and operational department, filing office, Department of Faculty Promotion, HR Department, Department of Scientific Information).

The following outcomes were created: Process roadmap at two levels of detail, SIPOC with extended data for all charted processes and updated organisational diagram.

A total of about 340 processes were charted. Everything was stored in databases. All outcomes were approved by the FBM top management.

Extending a module in the Apollo IS: PROCESY module for the Faculty of Business and Management
This module contains all the processes (activities) chartered at the Faculty of Business and Management. Here, the following information is available, which can be accessed by all internal employees of the Faculty of Business and Management after logging on to the Apollo IS:

- Tab 1: Process roadmap and other annexes – the following documents are available: Process Roadmap I, Process Roadmap II, and Organisational Diagram.
- Tab 2: List of processes – complete information on processes.
- Tab 3: Processes of organisational unit –processes can be generated for a particular organisational unit. Double clicking on a process will display it with complete information in Tab 2.

Listing activities necessary to achieve compliance of the Faculty of Business and Management governance with Quality Management Systems – Requirements of ČSN EN ISO 9001:2009

- Quality policy – new document – see Rector's Decision no. 5/2013 Quality Policy.
- Quality objectives – new document – see Rector's Decision no. 6/2013 Quality Objectives for 2013.
- Internal audits of quality management systems – completely new and system configured. Six internal auditors trained for quality management systems of the Faculty of Business and Management. New timetable created for internal audits of the quality management systems. The quality management system is officially defined and approved by the participating parties in: Dean's Guideline no. 4/2013 – Internal audit of the quality management system.
- Quality Manual – new document – see Dean's Decision no. 11-2013 Quality Manual.pdf. Analysis of the standard requirements concerning the existing quality management system at the Faculty of Business and Management. Resolving the compliance with the requirements that had not been system-configured. Implementation is described in the Quality Manual.
- Audit of the quality management system of the Faculty of Business and Management before the external certification audit – before the actual certification audit by an independent and accredited certification body, an internal system audit was held of first or second degree.
- Informative meetings were organized of employee groups – top management, senior staff, selected academics, administrative staff, and technical staff trained. Informative documents prepared.
- Procedure to select an external independent and accredited certification body – implementation of the selection procedure. The selection procedure was implemented in compliance with the current legislation and BUT internal rules. All documents concerning this selection procedure are available at the secretariat of the dean of the Faculty of Business and Management.
- Certification audit by an external independent and accredited certification body. An external independent and accredited certification organization was chosen by a selection procedure. The certification audit was carried out on 24th October 2013 and 25th October 2013 by three external certification auditors (as required by the Methodological Instruction of the Czech Institute for Accreditation). Based on the certification audit, the certification body issued the following documents: Audit report of the first and second degree. The certification audit was successful proving 100 percent compliance of the system of management at the Faculty of Business and Management with the requirements of ČSN EN ISO 9001:2009. It was decided to issue a certificate for 3 years.
- The certificate was handed over to the Faculty of Business and Management on 4th November 2013. An article published in BUT News.

Apart from the above certification objectives fulfilled, other significant activities were carried out at BUT in 2013:

- In cooperation with the Human Resources Office and Economic Systems Office, development continued of the system for evaluating and developing employees (guidelines, system setting, IS setting, pilot testing).
- At Rector's office and other BUT constituent parts, the first monitoring audit by an independent and accredited certified body was carried out. This audit did not find any system discrepancy and did not make any comments. It only listed the strong points with suggestions for an improvement of the quality management system.
- In 2013, an analysis began to define the key performance indicators of Rector's office and other constituent parts. The outcome will be a comprehensive report primarily intended for the BUT top management.
- In 2013, the preparation started of a survey of satisfaction with the services and administrative and supporting activities provided by Rector's office.

e) Benchmarking with universities of similar orientation in the Czech Republic or abroad

In 2013, BUT was offered to be included in an international ranking of 500 European technical universities by the U-Multirank system. In this ranking, BUT participated as a whole and with its faculties, Faculty of Mechanical Engineering, Faculty of Electrical Engineering and Communication, Faculty of Information Technology, and faculty of Business and Management. In addition, a survey was made among students rating the quality of teaching. Thus, BUT used all the options of participation in the ranking. All the e-questionnaires required by the ranking organiser were dispatched and corrections made in several steps to be processed and evaluated by the U-Multirank headquarters.

Important is also BUT's participation in consulting and solution providing activities of international quality management projects. From 2011 to 2013, BUT participated, as a pilot university, in Identifying Barriers in Promoting the European Standards and Guidelines for Quality Assurance at Institutional Level. This international project was financed from the EC funds coordinated by the Centre for Higher Education Studies (CHES). Other participants included higher-education and research institutions from six European countries. The participants cooperated in nine thematic circles. BUT attended the final closing seminars of the project.

BUT also systematically takes part in work on national quality management projects. Decentralized and centralized development projects as parts of the development programme of the Ministry of Education, Youth, and Sports may serve as an example as well as the individual national project, Quality Assurance and Evaluation in the System of Tertiary Education of the Education for Competitiveness Operative Programme of the System Framework of Lifelong Learning priority axis, whose outcomes are to be used in amending the university act and in work on other large projects financed from the EU funds. In 2013, BUT joined as fully engaged university the work on the KREDO IPn with BUT staff engaging as leading experts or, in large numbers, as experts for various key and thematic project activities.

f) Self evaluation of educational activities outside BUT campus (consulting centres, centres of distant education, etc.)

The teaching activities at consulting centres and centres of distant education are controlled, regularly monitored, and if necessary modified by the relevant BUT faculties.


INSTITUT FÜR STRUKTUR- UND FUNKTIONSKERAMIK
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UNIVERSITY'S NATIONAL AND INTERNATIONAL EXCELLENCE

a) BUT membership in international associations, organizations, and societies

Tab. 14.1 BUT membership in international associations, organizations, and societies

International organizations	Country	Status
Academy of International Business	USA	member
Academy of Materials and Manufacturing Engineering	Poland	
ACM	USA	member
Advisory Group for Aeronautics in FP6, Brussels		
AEEA-EAAE (Association europeenne pour l'enseignement de l'architecture-European Association for Architectural Education,		
AESOP – Association of European Schools of Planning		
AIB – Academy of International Business	USA	member
Air Infiltration and ventilation centre ECBCS IEA		
American ceramic Society,	USA	
American vacuum Society		
APA, division 35 Society for the Psychology of Women	USA	member
ASM – American Society for Materials	USA	
ASME	USA	member
ASME	USA	member
Berkeley Initiative in Soft Computing	USA	member
British Sociological Association	UK	member
CEWS – Center of Excellence Women and Science	Germany	member
CESAER – Conference of European Schools for Advanced Engineering Education and Research	USA	member
CIB – Conseil International du Bâtiment / International Council for Building		
Cisco Networking Academy	USA	CCNA and CCNP instructor
COST Action 615, Action G3, Action 633, Action P20, Action 0806 Particles		
Danube Rectors Conference	Austria	
DOCOMOMO International Documentation and Conservation Modern Movement		
EACES	UK	member
ECBCS International Energy Agency (IEA)		
ECSB – European Council for Small Business) EU (touring selected EU countries)	Finland	vice-president for CR
EIASM – European Institute for Advanced Studies in Management	Belgium	member
EIBA – The European Business Academy	Belgium	member
Electrochemical Society	USA	
EMAC – The European Marketing Academy		member
EPWS – European Platform of Women Scientists	Belgium	member
European Association for Language Testing and Assessment, Lancaster University	UK	
European Biometrics Forum	EU	member

European League of Institutes of the Arts – ELIA		member
European Quality Association for Recycling e.V. (EQAR)		
European Society for Artificial Organs		
European Society for Engineering and Medicine – ESEM		
European Structural Integrity Society		
Europäische Vereinigung für Unfallanalyse und Unfallforschung e.V. – European Association for Accident Research and Analysis		
FIB – Fédération internationale du béton / International Federation for Structural Concrete		
Gesellschaft für Informatik	FRG	member
GBATA (Global Business and Technology Association)	USA	board member
Heat Transfer Education Committee ASME		
IABSE – International Association for Bridge and Structural Engineering		
IASS – International Association for Shell and Spatial Structures		
ICAS – International Council of the Aeronautical Science		
IEEE – Institute of Electrical and Electronics Engineers USA	member	
IFToMM – International Federation for the Promotion of Mechanism and Machine Science		
International Association for Cross-Cultural Psychology	USA	member
International Institute of Forecasters	USA	member
International Journal of General Systems	USA	editorial board member
International Journal of Applied Research in Business Administration and Economics	Australia	editorial board member
International Project Management Association		
Journal of Enterprise Resource Planning Studies	USA	editorial board member
Journal of Global Business and Technology	USA	editorial board member
International board for Summer Conferences on Topology and Applications		
International union for vacuum sciences, technologies, and applications (IUVSTA)		
PRIME Networking	Belgium	founding member
Rehva – Federation of European Heating and Air-conditioning Association		
SIETAR UK – Society for Intercultural Training, Education and Research United Kingdom	UK	member
Society of Computational Economic	USA	member
Society for Materials Research	USA	
The International Society of Difference Equations	USA	member
The Society for the Psychological Study of Social Issues	USA	member
Transformation in Business and Economics	Latvia	editorial board member
UNESCO/UIA – Validation Committee for Architectural Education		
WTA – International Wissenschaftlich-Technische Arbeitsgemeinschaft für Bauwerkserhaltung und Denkmalpflege		

b) BUT membership of professional associations, organisations, and societies

Tab. 14.2 BUT membership of professional associations, organisations, and societies

Professional organisation	Country	Status
ACM	USA	member
Association of University Libraries	CR	executive committee member
AMSAT-DL		
AMSE		
AS-International		
Association of Moravia Designers in Union of Artists of CR		
Association of mechanical engineers		
Association of forensic engineers of the Czech Republic		
Centre for research of information systems, specialised sections of Czech Society for System Integration	CR	chairman
CESNET z.s.p.o.	CR	member, supervising board chairman
Cisco Networking Academy	USA	CCNA and CCNP instructor
CIRED		
CREA Hydro & Energy		member
Czech Concrete Society		member
Czech Physical Society		
Czech Logistic Association	CR	member
Czech Marketing Association	CR	FBM collective membership
Czech Foundry Society		
Czech Chemical Society	CR	member
Czech Society for Quality	CR	member, QA certification(Quality Auditor) and QM (Quality Manager)
Czech Society for Quality	CR	founder of specialised group for creation and innovations, chairperson
Czech Society for Cybernetics and Informatics		
Czech and Slovak Society for Soil Mechanics and Geotechnical Engineering	CZ/SK	member of executive committee, member
Czech Welding Society		
Czech Vacuum Society		
Czech Society for New Materials and Technologies		
Czech-Moravian Psychological Society	CR	member
Czech Normalisation Institute	CR	member
Czech Moravian Psychological Society	CR	member
Czech Chamber of Authorised Engineers and Technicians Active in Building		
Czech Society for Non-Destructive Testing		
Czech Society for Mechanics		

Czech Union for Civil Engineers		
Czech Union of Scientific and Technological Societies		
DeviceNet Organization		
DILIA	CR	collective member
EMAC – The European Marketing Academy	Belgium	member
ESA – European Space Agency		
ETAP Network – European Taxation and Accounting in Practice	France	founding member
EUNIS-CZ z.s.p.o.	CR	committee member
European Biometrics Forum	EU	member
Gesellschaft für Informatik	SRN	member
ICOM – The International Council of Museums		
IEEE (Institute of Electrical and Electronics Engineers)	CR	IT manager of Czech-Slovak section
IFAC		
IMAPS Czech and Slovak chapter		
International Association for Cross-cultural Psychology	Germany	member
International Society of Electrochemistry – ISE		
International Solar Energy Society – ISES		
International Union of Radio Science		
Interoperability of Railway Infrastructure (national technology platform)	CR	director
Engineering academy of the Czech Republic		
Union of Czech Mathematicians and Physicists		
LonWorks Association		
Moravian Association of Female Entrepreneurs and Managers	CR	chairperson of honour
National Association of AKTOP Experts and Institutions in Knowledge and Technology Transfer		
P-Net		
Working Group for the Preparation of the ISO 26 000 International Standard	CR	member
SPIE Europe – International Society for Optics and Photonics		
Society for Project Management	CR	member
Society for Radioelectronic Engineering		
SUAleph	CR and SR	chairman
Union of Czech Booksellers and Editors	CR	member
Technical Commission of the International Normalisation Organisation		
Technological Platform of Energy Security		
Association for Railway Infrastructure	CR	member
Association of Accountants and Tax Advisers	CR	board member
Society for Ethics in Economy	CR	board member
Society for Project Management	CR	member
Association for Rehabilitation of Concrete Structures		
Society for Environmental Technology		
Union of Czech Booksellers and Editors	CR	member
Czech National Committee for Hydrology	CR	member

Editorial Board of Journal of Hydrology and Hydromechanics	international	member
The European Confederation of Language Centres in Higher Education – CERCLES	international	member
Association of Libraries	CR	member
WTA International		
WTA CZ	CR	chairman
International Union of Testing and Research Laboratories for Materials and Structures (RILEM	international	member
World Road Association (PIARC)	France	member

c) BUT's national and international awards in 2012

From the European Commission, Brno University of Technology received ECTS Label a DS Label prestigious certificates for 2009–2013 in appreciation of its quality as an institution of higher education.

BUT has been repeatedly included in the QS University Rankings ending up for the fourth time in places 101 to 150 in the Structural and Civil Engineering category. It was also included in the Times Higher Education ranking among the first one hundred universities in the BRICS & Emerging Economies category included for the first time last year.

At the beginning of 2013, BUT as a whole and each of the BUT faculties received international awards for their participation in in the QUESTE-SI European project on significant quality criteria, that is, social responsibility and sustainability in higher education, research and development, and student participation in such activities.

d) BUT evaluation by a team of international experts

In 2013, BUT was not evaluated or accredited at an international level except for the MBA programmes offered at the Faculty of Business and Management in international cooperation.

However, after a follow-up visit of EUA in 2011, some of EUA's recommendations continue to be implemented concerning the university's competitiveness. Unfortunately, some of the recommendations cannot be adopted as the Czech higher-education model has a much-decentralised system of management, decision-making, and authorities having a negative impact on efficient university management.

4 **15** 16 17 18 19 20 21 22



BUT DEVELOPMENT

a) BUT involvement in MEYS centralized development projects (Table 15.1)

Tab. 15.1: University involvement in MEYS centralized development projects in 2013

BUT	No. of projects approved	Funding received in thousand CZK	
		Capital	Ordinary
Support for university cooperation	2	1 300	2 275
Support for cooperation between domestic and foreign universities			
Equal opportunities for Prague-based universities			
Total	**2**	**1 300**	**2 275**

b) BUT institutional development plan, its evaluation and achievement of goals in accordance with the 2013 Declaration of Development Programme for Universities (Table 15.2)

Tab. 15.2: BUT institutional development plan for 2013

Institutional development plan	Funding received in thousand CZK		Fulfilment of the set objectives/indicators	
	Capital	Ordinary	Initial status	End status
1.1 Building and activating an integrated BUT internal quality management system		4 916	certification of Rector's Office	re-certification of Rector's Office, ISO 9001:2009 certification at FBM, preparation for certification at FME
1.2 Implementing the EUA recommendations in line with the preparations at BUT of the reform of Czech universities		750	zero status – plan to establish a senior leadership board	senior leadership board established
1.3 Support for BUT publishing excellence		13 000	285	320
1.4 Support for intellectual property rights protection at BUT		1 300	45	45
1.5 Support for first-year students		3 000	450	487
1.6 Support for talented students		1 200	105	245
1.7 Support for External Relations Office		1 000	700 employers addressed, 5,750 students taking part in a survey, zero status for survey among graduates	650 employers addressed, 5,500 students taking part in a survey, 4,048 graduates taking part in a survey
1.8 Extending the activities of the Centre of Support for Projects for the academic community		1 000	90 projects submitted	99 projects submitted
1.9 Support for activities of the Lifelong Learning Institute for the academic community		2 000	820 members of BUT staff completing LLI courses	1,431 members of BUT staff completing LLI courses
1.10 Support for activities for establishing a new faculty		1 900	new faculty	the following documents issued: • FEEC statutes • FEEC scientific board rules of order • FEEC organisational rules • FEEC academic senate election rules and rules of order

2.1 Support for BUT marketing and presentation at home and abroad		2 500	participation in 2 domestic and 5 international fairs	participation in 2 domestic and 5 international fairs
2.2 Support for joint master degree programmes at BUT		950	25	25
2.3 BUT cooperation with elementary, secondary, and vocational schools		1 000	5	19
2.4 Support for BUT international cooperation		4 000	20 bilateral agreements, 30 partial and master international agreements	35 bilateral agreements, 32 partial and master international agreements
2.5 Support for BUT international teacher mobility		2 000	12	50
2.6 Support for BUT international student mobility		4 750	405	351
2.7 Support for handicapped BUT study applicants		1 000	680	1002
2.8 Support for U3A at BUT		650	1975	2328
3.1 Establishing Office for Strategy at BUT		1 000	zero status	Office for Strategy
3.2 Development of study computing network and main data centre	500	2 700	reduce the time needed to produce and deliver a student card to four days, increase the number of cores of the computing service to 400, increase the number of documents in BUT IS to 22,000, increase the numbers of switches to IPv6 to 1000, extend the perspective fibre-optic cables to 48 km, put into operation the backup air-conditioning system of the rectorate's main hall, upgrade 1300 oldest connections, redesign 10 web modules for teachers, incorporate the artistic outcomes register in the BUT IS	the time needed to produce and deliver a student card reduced to 1.12 days on average, the number of cores of the computing service prepared is 4,072, the current number of documents in BUT IS is 217,516, the current number of switches to IPv6 is 5,800, the perspective fibre-optic routes extended to 49 km, the backup air-conditioning system of the rectorate's main hall was put into operation, 5,630 computer connections were upgraded, 10 web modules for teachers were redesigned, the artistic outcomes register was incorporated in the BUT IS
Total	**500**	**50 616**		

c) BUT involvement in University Development Fund (Table 15.3)

Tab. 15.3 BUT involvement in University Development Fund in 2013

Thematic area	Number of projects approved	Funding received in thousand CZK		
		Capital	Ordinary	Total
A	14	21 856	0	21 856
B	9	0	1 705	1 705

C	0	0	0	0
E	0	0	0	0
F	0	0	0	0
G	20	0	2 773	2 773
Total	**43**	**21 856**	**4 478**	**26 334**



ACTIVITIES OF THE BUT ACADEMIC SENATE

In 2013, BUT Academic Senate (BUT AS) convened in 10 regular and 1 special meeting. The standard topics were legislation, economics, teaching, and creative activities. Concerning legislation, BUT AS discussed and approved changes in the internal regulations of BUT, faculties and BUT university institutes as well as other documents within the jurisdiction of the AS. At the meetings the rules were discussed for drawing up BUT budget rules and, subsequently comments to and approval of the BUT 2013 budget. In connection with the BUT long-term strategy, BUT AS regularly made comments on property matters, in particular on the purchase, sale, and gratuitous acquisition of or easement to real property. Next, BUT AS in 2013 discussed and approved 2012 BUT Annual Business Report and 2014 Amendment to the BUT Strategic Plan. Before being discussed by the BUT AS, all the above issues were discussed in detail by the senate working committees. The BUT AS activities in 2013 received standard backing from the BUT AS Office.

Legislation committee BUT AS (LC) in 2013 held 6 meetings on amendments to internal regulations of BUT, faculties and university institutes and admissions guidelines to university institutes. The LC adopted recommendations to these documents to be passed on to the BUT AS for approval. Also in 2013, cooperation with the Administration Office was of considerable help. The Economic committee of the BUT AS (EC) convened in 21 meetings trying to find the best and most economical solutions based on agreed compromises. Like every year, the EC discussed in detail the BUT 2012 Annual Business Report, rules relating to drawing up the budget and, subsequently, the BUT 2013 budget passing it to the BUT AS for approval. The EC was also concerned with issues relating to development and investment as well as with a large number of minor issues relating to property. The Pedagogic Committee of the BUT AS (PC) held two meetings in 2013 discussing mostly issues relating to teachers' workloads, cross-faculty courses, preparation and organisation of a survey to find the most popular BUT teacher. Its further activities were directed towards cooperation with the LC on discussing the BUT internal regulations concerning teaching activities. It closely cooperates with the BUT AS Student Chamber. The Committee for Creative Activity of the BUT AS (CCA) convened five times in 2013 discussing mostly issues relating to applying results in RIV, the TOP 10 ranking, particularly those related to products. It also cooperated with the vice-rector for creative development on open issues relating to the funding of specific research in 2013, particularly the cross-faculty projects of specific research.

At a special convention of the BUT AS held in Lednice in late 2013, a number of meetings took place on the following issues: Legislation: amendments to BUT internal regulations – transferring the BUT research staff to the academics category, selection procedures for the positions of academics; amendments to the BUT study regulations; micro-fees; election of a candidate for the office of rector; amendment to the University Act – implementation. Economics: increase in pay-scale salaries; budget responsibility rules bill; issues relating to the plan to invest in Technologický park, a.s.; increase in funding provided for FFA and CSA from the BUT AS reserve funds; Preparation / issues relating to the approval by the BUT AS of the budgets of the university institutes; limits on student numbers; sustainability of projects; the KREDO project, update of the BUT Strategic Plan, changes in the University Development Fund and RP.

Creative activities: redistribution of RIV points by constituent parts – question of costs and return on the financed projects; discussion on the Apollo information system (see the information systems used by CES, FIT, FCE); issues relating to the support of R&D and VKM – RIV points, TOP 10, rewards for IF, etc.; journal at BUT. Teaching: survey to find the best BUT teacher (TOP 10 academics); issues of teaching workloads; Accreditation.

In view of the current office of rector terminating in February 2014, in early April 2014 the BUT AS called for election of a candidate for the office of rector and approved a timetable for this election. Using this timetable, at its meetings the AS then implemented all the steps related to the preparation of this election. The election of a candidate for the office of rector took place at a meeting of BUT AS on 5th November 2013.

Through its representatives in the Council of Higher Education Institutions of the Czech Republic, the BUT AS continued to be informed at each meeting on all meetings of the CHEI presidium held every month and on the CHEI assembly held three times a year. Member of the BUT AS

RNDr. Popela, who chairs the CHEI working committee for strategy and development of higher-education institutions, was again nominated by CHEI for a working committee of the Ministry of Education, Youth, and Sports established to work on the renewed preparation of an amendment to the university act and attended the frequent meetings of this committee. Chairman of the BUT AS doc. Hanáček attended the meetings of the CHEI working committee – chairpersons of the academic senates of universities discussing the amendment. The CHEI delegates with some of them being members of the BUT AS, too, also continually attended the CHEI working meetings adding comments to the above amendment regularly informing the BUT AS on such meetings, as well as of all other meetings they attended.

Student Chamber of the BUT Academic Senate (SC)
In cooperation with the CCA, the BUT AS Student Chamber in 2013 was concerned with issues relating to the evaluation of specific research at BUT. SC also discussed the quality of services offered by the BUT Accommodation and Catering Services (ACS), mostly through its representatives in the ACS board of supervisors. Other SC activities in 2013 included the preparation of another volume of the First-Year Student's Guide with plans to publish this guide every year. SC representatives also participated in a Conference of Academic Senators held by the Student Chamber of CHEI where the topics discussed included illegal fees at universities and issues relating to academic self-government. The SC also prepared draft Rules of the Foundation for BUT Student Projects, as the basis of a foundation to provide support for student projects worked on at BUT starting in 2014.

Documents discussed at BUT AS meetings from January to December 2013:
Legislation:

- Annex no. 1 to the Rules of Procedure of the FFA Artistic Board – January, February
- Guideline of the director of CEITEC for admissions to doctoral programmes for 2013/2014 – February, March
- Call for election of a candidate for the office of rector from February 2014 to January 2018 and Election Timetable – April
- Annex no. 3 the FFA statutes – April, May
- Rules of Procedure of the FFA AS – April, May
- Amendment no. 1 to the guideline of the director of CEITEC for admissions to doctoral programmes for 2013/2014– May
- Appointment of the election and drafting committee for election of a candidate for the office of rector and appointment of chairperson of this committee – June (regular and special meetings)
- Amendment no. 6 to BUT Labour Code – June (regular and special meetings)
- Amendment no. 1 to the BUT Payroll Regulation – June (regular and special meetings)
- Amendment no. 1 to the Rules for staffing the positions of academics – June (regular and special meetings)
- Changes in the BUT Study and Examination Rules, BUT Scholarship Rules, and Rector's Guideline on study fees – June (regular and special meetings), December
- FFA Statutes – special meeting on June, October
- Amendment no. 1 to the Rules of Procedure of the IFE Scientific Board – special meeting in June, October
- Call for a gathering of BUT academics to elect a candidate for the office of rector – October
- Amendment no. 7 to the Rules of Procedure of Rector's office – October, December
- Guidelines for admission at IFE – December

Economic issues:

- Rules for allocating contributions, subsidies, and other funding for 2013 – January
- Updated strategic plan of IFE for 2013 – February, March, May, June
- BUT budget for 2013 – March, April
- Application for discussing easements – see a letter by the Bursar ref. 108/90310/2013 of 27th May 2013 – June (regular and special meetings)
- Application for discussing a plan to buy land in the cadastral area of Královo Pole – see a letter by the Bursar ref. 109/90310/2013 of 27th May 2013 – June (regular and special meetings)
- Amendment no. 1 to the BUT budget for 2013 – June (regular and special meetings)
- Application for discussing propriety-related matters – see a letter by the Bursar ref. 227/90310/2013 of 7th October 2013 – October, December
- Construction of a new FFA building; reconstruction of the FME A1 building at the Pod Palackého vrchem campus– October, December
- Amendment no. 2 to the BUT budget for 2013 – November, December
- Application for discussing propriety-related matters – see a letter by the Bursar ref. 273/90310/2013 of 2nd December 2013 – December

• Rules for allocating contributions, subsidies, and other funding for 2014 – December

Creative-activity-related issues:

• Issues relating to specific research – January, February, March, April, June
• Reallocation by the constituent parts of the RIV points – question of costs and return on the financed projects – special meeting in June
• Discussion of issues relating to the releasing of the locked funds for the DTT – special meeting in June
• Rector's guideline for specific research in 2014 (comments) – December

Teaching-related issues:

• Extending the accreditation of Risk Engineering offered by IFE – March, April
• Preparation and implementation of a survey to find the most popular teacher – June (regular and special meeting)
• Teaching-load-related issues – January and special meeting in June

Other important documents and BUT AS meetings:

• BUT Annual Report 2012 – May, June
• BUT Annual Business Report 2012 – May, June
• Amendment to the BUT Strategic Plan for 2014 – September, October
• Election of a candidate for the office of rector – November



CONCLUSION

The external conditions such as the worldwide recession, the economic slowdown in the Czech Republic followed by austerity measures (limiting the number of students for which subsidy is received, reducing the limit per student) as well as the beginning demographic slump made the fulfilment of the BUT strategic objectives in 2013 difficult. Despite his, the university achieved a number of successes in teaching, research, and in the social sphere. You can read about many of them in this annual report.

The academic management paid much attention to improving the university's strategic and operative governance, to balancing the actions of self-governing and other bodies, to efficient communication in the academic community. Emphasis was placed on the development of human resources focusing on younger staff, on change and risk management, on building a system of management and quality assurance, on strengthening the marketing, improving the overall performance and quality.

Brno University of Technology is a leading university in tertiary education and research achieving also excellent business results thanks to its painstaking attention to cooperation with the industrial sphere.

In an effort to recruit good secondary school graduates, within the framework of a development project implemented under the motto, The Best Students Study at BUT, BUT offered 500 scholarships for the best applicants admitted to study. This is a targeted effort to educate excellent graduates, who can find jobs in the centres build at BUT thanks to the structural funding and in practice.

For a long time, BUT has been among the four Czech universities included in the prestigious QS World University Rankings.

I recent years including 2013, BUT has received over 8 billion CZK from the EU structural funds. It is thus among the successful Czech universities receiving ESF and ERDF funding. The money is mostly spent on the development of the research infrastructure in materials technologies and on building top European research teams. In 2013, the implementation stages were successfully completed of the NETME, CVVOZE, SIX, and CMV projects of priority axis 2 of the RDI Operative programme. Also, RDI Operative Programme projects of priority axis 4 were successfully finished, namely, a new educational complex of the Faculty of Electrical Engineering and Communication at Technická 12 was built and the campus of the Faculty of Civil Engineering was reconstructed in Veveří and Žižkova streets.

In 2013, the construction the CEITEC centre of excellence was carried on at the Pod Palackého vrchem campus financed from the priority axis 1 of the RDI Operative Programme as well as the AdMaS campus financed from priority axis 2.

BUT cooperation with industries is traditionally excellent. Within the framework of the Education for Competitiveness Operative Programme, the cooperation with companies of the South Moravian region was exceptionally strengthened (about 170 agreements with companies of different sizes).

Thanks to the balanced budget for 2012 and operative measures adopted, the BUT fiscal year ended with a surplus while maintaining a growth of the average wage of all employee categories and covering all operating costs. Despite stagnation of fixed wages of all BUT employees, the total payroll sum was greater compared with 2012, with the average pay at BUT growing by more than 2.5 % on previous year.

BUT also succeeded in securing contracted co-financing of the approved projects financed from the RDI Operative programme and pre-financing of the projects of call 2.4 of priority axis 4 of the RDI Operative Programme launched in 2013.

The year 2013 saw the implementation of a majority of the key investment projects planned in the needed scope, with the projects being either completed as foreseen by the plan or being finished to such an extent that they may be completed by the deadlines set provided that no unexpected circumstances prevent this in 2014.

In 2013, the standard teaching activities continued. The numbers of admitted applicants and students were relatively stable without any major setbacks as compared

with the previous year. Despite some improvement, there are still problems with the leaving-school examinations at secondary schools. Most of the applicants arrive at the admissions without the result of the leaving-school examination, which brings about excessive administrative work – having passed the entrance examination, these applicants cannot be enrolled. This can only be done after they produce a leaving-school certificate. In view of the expected changes in legislation, we believe that the situation will improve with a more flexible permeability between the secondary and tertiary education.

For the development of research activities, it was important that, in 2013, new research infrastructures were finished financed from the RDI Operative Programme. These are the regional NETME, SIX, CVVOZE, and CMV research centres. To ensure the sustainability of these infrastructures, BUT was successful in receiving funds within the framework of the National Programme of Sustainability covering almost fifty percent of the operating costs of the centres. Co-financing will have to be found through projects funded from public and private resources – in this case via contracted research.

In order to receive more funding for research, it is necessary to pay maximum attention to the preparatory stages of projects focusing on interdisciplinary, non-traditional research and participate more in international cooperation, above all, in the Horizont 2020 programme. Being granted further projects will be important for supporting talented doctoral students and for securing postdoctoral positions, at present funded from the Excellence I and II projects of the Education for Competitiveness Operative Programme. The reason is that increase in young scientists is among the monitoring indicators of the RDI Operative Programme. As a result of the system of incentives for authors of papers published in impacted journals introduced in 2012, in 2013 the number of quality publications increased. The importance of these R&D results is greater also with respect to R&D evaluation using the 2013-2015 R&D Evaluation Methodology. However, BUT has still sufficient reserves in this respect given by a relatively low number of teachers compared with the number of students. In addition to good publications, the priority is also given to patents. As an example of good practice may serve the Hydal technology initiated at the BUT Faculty of Chemistry for recycling used oil, which was to be used in China or a multimodal holographic microscope developed at the BUT Faculty of Mechanical Engineering in cooperation with Tescan.

In external relations, one of the main priorities is still strengthening the internationalization of BUT, particularly by establishing contacts with universities abroad to start cooperation in teaching and research and recruiting international students paying for their studies in degree courses taught in English. In its marketing activities, BUT has, for a long time, placed emphasis on applicants from secondary schools trying to encourage their interest in technical fields. Attention is also paid to other target groups, mostly BUT students and graduates, who can provide valuable feedback with a wider public being not neglected either.

In the BUT information system, applications were upgraded for teachers and registration of R&D outcomes. The new e-infrastructure for research centres and the 100 Gbps computer network is among the world's best.

In librarian and information services, there were several major changes regarding the librarian systems. A new version of the Aleph 500 librarian software was installed. A new Primo searching interface was selected and put into operation, which makes it possible to search in multiple data sources. These include the library catalogue, BUT Digital Library and tens of prepaid specialised information databases.

The IVIG e-learning courses were completed in 2013 by almost 2,500 students. A pilot operation was launched of a new course on using electronic information sources. In information education, courses and seminars continued with the number of students exceeding 800.

For several years, Brno University of Technology has been building a BUT Digital Library. The Berlin declaration was signed and institutional policy adopted. Foundations were laid of system support and the creation of a fund to support Open Access publishing.

In 2013, VUTIUM Press published 5 new titles and assigned 192 ISBNs presenting itself at five book exhibitions and fairs (including Frankfurt, Tchaj-pej abroad). Eleven issues of BUT News were published with an annual edition of 9,900. In April, the journal won the first prize of the Gold Semicolon competition in the „Best Journal of the State, Public, and Non-Profit Sphere" category.

This annual report is a summary of the year 2013. In spite of the unfavourable circumstances, the BUT academic management, self-governing bodies, and the academic community, through many pedagogic and scientific achievements, succeeded in setting the standards of previous years again a little higher. We believe that, in the coming year, BUT will be successful, too, remaining an outstanding Czech university with international renown.

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