BRNO UNIVERSITY OF TECHNOLOGY ANNUAL REPORT 2011

2011

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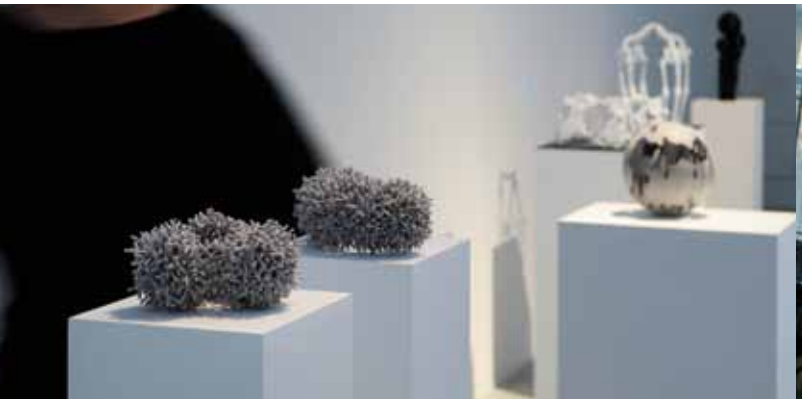

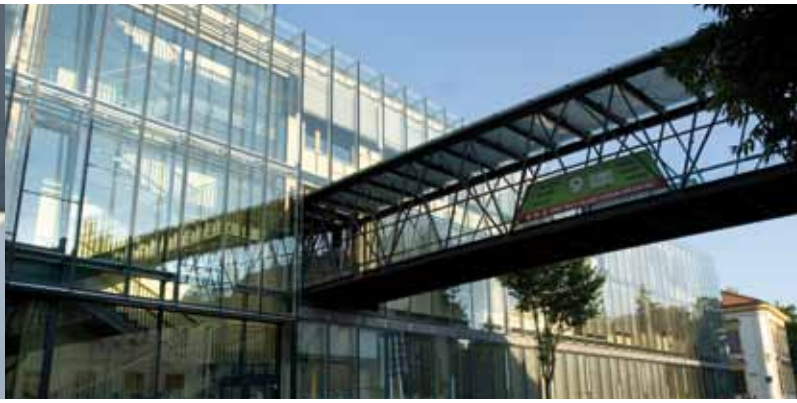

BRNO UNIVERSITY OF TECHNOLOGY
2011 ANNUAL REPORT

is submitted as required by Act no. 111/1998 Coll. concerning universities. It was made according to the university activity guidelines for 2011 published by the Ministry of Education, Youth, and Sports. To a wider public, it presents data and major results of all the activities carried at and related to Brno University of Technology as part of the Czech and international higher education system, research and social activities.

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RECTOR'S WORD

The BUT annual report records the university's activities and development in 2011, a year in which the whole higher-education system was facing a number of difficulties brought about by the unclear and unmethodical policy of the Ministry of Education. Still one can say that even in 2011 Brno University o Technology maintained and improved its quality as a higher-education institution towards a prestigious European educational and research university.

The university marked some excellent results in teaching, science, research, and creative activities in engineering, natural sciences, economic and artistic fields. The BUT annual report starts with highlighting a selection of the most important achievements in science and technology transfer reporting on some remarkable events of 2011 at BUT.

In my opinion, one of the greatest and most visible achievements was the acceptance by the Ministry of Education of almost all projects of the Research and Development for Innovations and Education for Competitiveness operational programmes. I also see as valuable the fact that, virtually since 2004, Brno University of Technology has been cooperating with other Brno universities on some RDI operational programmes on a mutual-benefit basis – this has resulted in almost 6 billion CZK in funding received for a Central European Institute of Technology project. In the history of Brno University of Technology, this is a unique project in terms of not only its preparation but also of the forms of cooperation between the project partners. For almost seven years, tens of organizers and researchers from BUT, Masaryk University and other Brno universities as well as scientists for the Academy of Sciences have worked on it. During those seven years, we have shown our ability to work together, trust each other and, with joined forces, change the research map of the Czech Republic in favour of the Brno region.

Most of the faculty projects known as regional centres may also receive a high mark. These do not include just the NETME Centre project, which has recently opened its first building, but other faculty projects as well.

We have received almost nine billion CZK in the EU operational programmes, which also means additional commitments for BUT such as in the co-financing-conditioned cases.

Next, I would like to emphasize the continual strengthening of BUT's traditional advantage of the university cooperating with enterprises and organisations. Although we did not receive a golden medal at this year's Brno International Trade Fair like we did in 2010, the work of individuals and faculty teams was appreciated in other forms. As an example, I will mention the award given to Professor František Pochylý in the Czech Head competition for applying his methods of eliminating toxic algae from water reservoirs.

I see as essential the close strategic cooperation with the South Moravian Regional Authority, which in numerous cases provides us with a free passage to the South Moravian enterprises. Traditionally through innovation vouchers, BUT received more orders than any other Brno university and institute of the Academy of Sciences. Cooperation with the Chamber of Commerce, both at the local and regional levels, occurs in a number of different forms, which all lead to a common goal – signing business contracts and establishing close links between the university and particular enterprises. Almost all incubators run by our university and the South Moravian Innovation Centre closely linked financially to the South Moravian Regional Authority are fully occupied by companies. For this reason, we plan a joint research and technology park to be built close to the building of the Central European Institute of Technology.

Although the above outstanding achievements in research are important for BUT in its effort to present itself as an excellent research institution, they by no means diminish its educational role.

Over the last years, the number of students registered has been on a steady reasonable increase; this trend also continued last year. In 2011, the university again extended and diversified its offer of degree programmes and study fields. It can also teach more courses in foreign languages in joint-degree and double degree programmes. The quality of BUT as an institution of higher education is also testified to by the prestigious ECTS Label a DS Label certificates received from the European Commission for the years 2009 to 2013.

BUT has also made other partial improvements: the cooperating institutions from abroad are more in number; internationalization of teaching has been extended substantially; new programmes taught in English are accredited; a number of research teams have received international awards; some of our students have been among the best of the Czech Republic in various competitions, etc.

BUT officials have long put an emphasis on the quality of work both in research and teaching. This is, for instance, evidenced by BUT having long been among the four Czech universities included in the prestigious QS University Rankings.

Finally, I would like to thank the BUT academics and non-academic employees for their long-standing commitment and hard work contributing to Brno University of Technology being among the elite institutions both in the Czech Republic and on an international scale.

Karel Rais, rector of Brno University of Technology

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SIGNIFICANT EVENTS

President Václav Klaus arrived in Brno on 12th April to accept an honorary doctorate conferred upon him by Brno University of Technology. The ceremony took place in a Cartesian monastery at the BUT Faculty of Information Technology campus.

A project for a Central European Institute of Technology (CEITEC) to be built in Brno within three years, was presented on 7th June in the presence of deputy-minister of education Ivan Wilhelm, regional council president Michal Hašek, Brno mayor Roman Onderka, rector of Masaryk University Petr Fiala, rector of BUT Karel Rais, and other officials. A week before, 5.2 billion CZK in funding of this scientific excellence project was finally approved from the Research and Development for Innovations operative programme. Establishing closer links between research in engineering and science, the institute will be used by almost 600 scientists and more than 1200 students as well as by domestic and foreign firms. It should boost the Czech basic and applied research to the top level. The centre of excellence project was jointly initiated by Masaryk University, Brno University of Technology, Mendel University in Brno, University of Veterinary and Pharmaceutical Sciences Brno, Institute of Physics of Materials of the Academy of Sciences of the Czech Republic, and the Veterinary Research Institute. The CEITEC project was officially launched on 26th September by an opening conference.

At BUT in March, Honeywell presented its Honeywell Initiative for Science and Engineering (HISE), a new worldwide programme of technological, engineering, and mathematical education. It was opened by a lecture and colloquium given by Douglas D. Osheroff, 1996 Nobel prize winner for his discovery of superfluidity in helium 3He.

Mayor of Brno Roman Onderka conferred the City of Brno Prize on thirteen officials including prof. Ing. Karel Rais, CSc., MBA, rector of Brno University of Technology. The rector received the city's highest award for an extraordinary achievement in business development.

For solving the problem of eliminating toxic algae from water reservoirs, prof. Ing. František Pochylý, CSc. (Faculty of Mechanical Engineering) was given a Czech Head award from the Ministry of Environment in November. .

In May, prof. RNDr. Miloslav Druckmüller, CSc., received an award of the Learned Society of the Czech Republic for developing new mathematical methods used to process pictures of the solar corona. The algorithms he devised are unique in displaying the corona's yet unobserved and unexplored structure.

On the occasion of the 160th anniversary in December of the Commercial and Trade Chamber in Brno, whose successor the Brno Regional Chamber of Commerce is, BUT rector Karel Rais was given an award for extraordinary and long-standing cooperation. Among the award recipients, he was the only representative of a university.

In November, prof. Ing. Mária Režňáková, CSc. (Faculty of Business and Management) received a Milada Paulová prize. The prize is given to distinguished researchers and teachers for their contribution to the development of the field as well as for cooperation with civic organisations and the commercial sphere.

MgA. Filip Cenek, a teacher at the Faculty of Fine Arts, was nominated for the 2011 Jindřich Chalupecký Prize for his present creation. At an exhibition of the prize laureates, the author presented a minimalist installation called Unstable Cinema consisting of multichannel slide projection without sound in a dark room.

At a special 12th BUT academic gathering in November, two academics from the Faculty of Electrical Engineering and Communication were rewarded with BUT golden medals., One of the medals went to RNDr. Vlasta Krupková, CSc., for her contribution to pedagogy and teaching and, for success in research and development, particularly for winning the CEITEC project from the RDI operative programme, a medal was given to prof. Ing. Radimír Vrba, CSc.

Jindřich Brezovský, Jan Havlík, and Marek Šnyrch, Master's students, and Radovan Zelík, a doctoral student of the Faculty of Architecture supervised by Ing. arch. Helena Zemánková, CSc., spent ten days of a short stay at TOMIOKA, a former factory in the Gunma prefecture, Japan. An exceptional piece of industrial heritage, the factory used to produce raw silk, and is now a candidate for the UNESCO world heritage list. Cooperation was agreed for the faculty with the director of the World Heritage Registration, Promotion Division, Gunma prefecture, and students were assigned their degree projects.

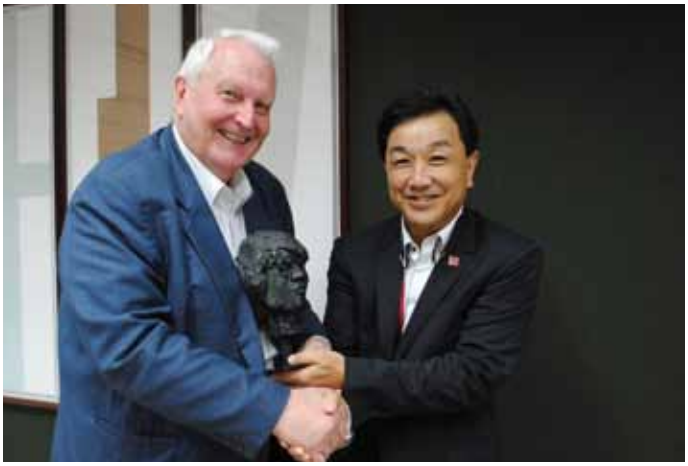
After two years' work, a VUT SUPER EL II electric car was homologated in June 2011 as a new car under the VUT mark, passing a technical inspection received its own VUT VIN and a licence plate. In 2009, BUT was donated parts of a non-homologated Škoda Superb 2.0 TDI saloon by Škoda Auto, a. s. to be rebuilt to an electric car. The design was initiated by Martin Solař, a Master's student from the Faculty of Mechanical Engineering and Miroslav Svačina, a doctoral student from the Faculty of Information Technology supervised by Ing. Jaromír Marušinec, Ph.D. MBA. A 48kW onboard battery charger for this vehicle was designed by doc. Pavel Vorel, Ing. Dalibor Červinka, and Ing. Jan Kuzdas from the Faculty of Electrical Engineering and Communication. VUT SUPER EL II's full-battery range is 137 miles with a maximum speed of 106 mph.

In November, the Faculty of Chemistry marked its hundredth anniversary. On this occasion, a book was published entitled Brno University of Technology – 100 years of the Faculty of Chemistry.

For devising an algorithm to enhance 3D resolution and reduce speckles in ultrasound image processing, Ing. Radovan Jiřík, Ph.D. – UBMI and prof. Torfinn Taxt took out a patent at the BUT Faculty of Information Technology. The algorithm may provide an improved interpretation of ultrasound images used mostly in medicine diagnostics to increase the information value of ultrasound images.

Doc. Ing. J. Omelková, CSc., from the Faculty of Chemistry and her research team prepared an enzyme immobilisation carrier that can be made of PET packaging and, thanks to its properties, can also be used in food processing. At present, this carrier is protected by a utility model and a patent application has been submitted.

Ing. Zdeněk Vašíček and prof. Ing. Lukáš Sekanina, Ph.D., from the Faculty of Information Technology won a silver medal in Human competitive awards in genetic and evolutionary computation (Humies), a competition taking place for an eighth consecutive year as part of a Genetic and Evolutionary Computation COnference (GECCO) in Dublin, Ireland. They were rewarded for their unique method of evolutionary optimization of digital circuits. Attended by almost 600 scientists from all over the world, GECCO is the world's most important event in genetic algorithms and genetic programming.



In September, prof. Ing. arch. Vladimír Šlapeta, DrSc., participated in UIA 2011 Tokyo, the 24th World Congress of Architecture presenting a lecture on the Czech art deco and Japan.

In cooperation with EPIGUS, an Austrian research institute, a project was implemented at the BUT Institute of Forensic Engineering called: Sharing experience and good practices when analysing and preventing road accidents. Co-financed by the EU Regional Development Funds, the project was finished in 2011 and the outcomes presented at a European congress of the European Automobile Engineers Cooperation (EAEC) in Valencia.

CONFERENCES AND EXHIBITIONS

Attended by 236 experts from 11 countries, a fifth annual Chemistry and Life conference was held on 5th September organized by the BUT Faculty of Chemistry. While abstracts could be found in the Chemické Listy journal, the full conference papers were published in the impacted Chemical Papers.

Organized by the BUT Faculty of Business and Management, a CEM 2011 international conference was held in April. This sixteenth annual conference aimed to create a common platform for discussions on the current trends of and changes in economy and management against the global environment.

Sight-Specific – an exhibition by doc. MgA. Petr Kvíčala (a teacher at the Faculty of Fine Arts) lasted two months at the DOX Centre of Contemporary Art in Prague. It consisted of two parts – a selection of painting series of the last two years and Zig Zag Corridor paintings on the walls of a ramp between the exhibition space and a cafe of the DOX centre.

The BUT Institute of Forensic Engineering organized a 20th annual international conference of forensic engineering. Attended by about 200 participants, it consisted of the sections, „Analysis of Road Accidents, Motor Vehicle, Machine, and Equipment Assessment“, „Civil Engineering and Real Estate Assessment“ and, newly, the Forensic Environmental Technology section.

In March the Faculty of Business and Management was the organizer of an ETAP 2011 international workshop and European Accountancy Week intensive programme. Attended by academics and students from 14 European countries, the workshop focused on accounting and financial analysis.

A 13th annual JUNIORSTAV 2011 doctoral student conference was held at the Faculty of Civil Engineering in February. Here, doctoral students could publish and present to a wider audience the results of their research as well as discuss interesting topics. 343 participants registered for the conference from the Czech Republic, Slovakia, and other countries.

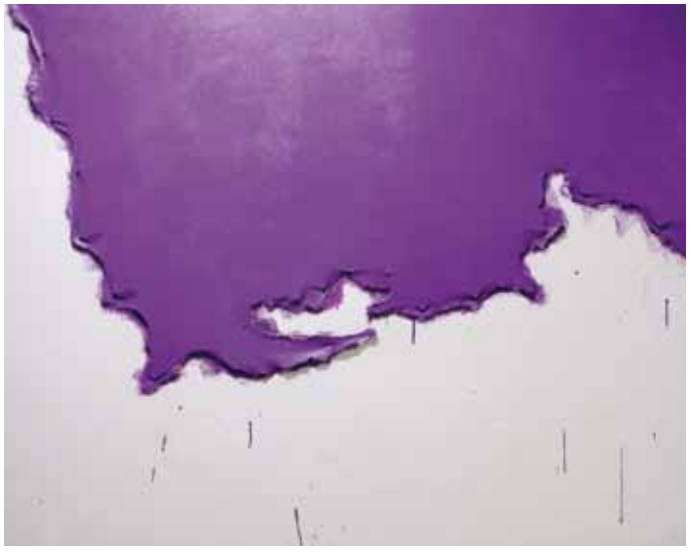
An exhibition called Viewed from the Tugendhat Villa and Architectural Structures took place in June in the Czech Centre building in New York. It presented a collection of paper models of space structures documented in 18 specimens accompanied by selected high-quality architecturally clean student projects from a recent period reflecting the present and looking into the future such as a housing project in Prague of 2050.

STUDENTS

< Bc. Michal Šírek a Master's student at the Faculty of Civil Engineering, won a prize with his project of a road bridge spanning a railway line. In a competition aiming to promote new TX-ACTIVE technologies using smog-absorbing cement, he was successful with his design of an Air-Clean Bridge being inspired by the graceful wing movements. In addition to elegant design, the shape and the material chosen make the bridge capable of cleaning the surrounding air polluted by exhaust fumes.

A project by doctoral student Ing. arch. Ondřej Chybík won > the main prize in an anonymous architectural and town-planning idea competition for university students of architecture and building structures organized by the Central Group company and the Prague municipality in cooperation with the MF DNES and iDNES.cz media partners to find the best answer to the question, what living in Prague will be like in 2050.

MgA. Petr Dub, Dis., a doctoral student at the Faculty of Fine Arts advanced to the final round of ESSL ART AWARD > CEE, an international competition of young artists and students of artistic universities. The prestigious award won biennially by young talents from the Czech Republic, Bulgaria, Croatia, Hungary, Romania, Slovakia, and Slovenia was founded in 2005 by Agnes and Karlheinz Essl, art sponsors, and owners of Baumax, Austria. In 2011, the jury of experts from the above countries chose more than 400 works with Milka (2009) from the UNFRAMED series by MgA. Petr Dub among them.



Ing. Marcela Šimková, a doctoral student of the Faculty of Information Technology won the first prize in the information security, system development management standards, and multi-disciplinary approaches category for her degree project on hardware accelerated function verification.

In September 2011 at the French Embassy in Prague, Jean-Marie Lehn, the 1987 Nobel Prize winner for chemistry, awarded to students the Joseph Fourier computing science international prizes. The main prize was won by Ing. Zdeněk Vašíček, a doctoral student at the Faculty of Information Technology for his research of methods for accelerating the evolution design of circuits.

Ing. Zuzana Olejníčková and Ing. Richard Sýkora, Faculty of Chemistry students took the first and second places in an international competition of degree projects on water protection. They received a Jakub Svatopluk Čech prize for their projects, „Removing residuals of specific anthropogenic water pollution by organic substances with hormonal effects during treatment for drinkable water" and „Using GC/MS in medicament analysis".

Organized by the Brno municipality, the South Moravian Authority, and Brno University of Technology, a sports and entertainment integration day was organized on the BUT Pod Palackého vrchem sports ground for disabled children and grown-ups, students of primary and secondary schools and universities and children from a children's home. A sixth annual Athletics Grand Prix of Brno and South Moravian Region then followed attended by 100 athletes from the European countries and the Czech Republic.

In the third traditional ice hockey match between Masaryk University and Brno University of Technology, the BUT students beat the MU team, 5-3.

SIGNIFICANT PROJECTS

CEITEC – CENTRAL EUROPEAN INSTITUTE OF TECHNOLOGY – is a European centre of excellence in natural sciences and advanced materials and technologies aiming to build an important European centre of science and learning with a top background and conditions for leading scientists. Its outputs will contribute to an improvement of the quality of life. The year 2011 was CEITEC's major milestone. Approved by the European Commission on on 6th June 2011, it was the first major project of the Research and Development for Innovations operative programme. A subsidy of 5.246 billion CZK went to Masaryk University in Brno, which submitted it along with other partner institutions: Brno University of Technology, Mendel University in Brno, University of Veterinary and Pharmaceutical Sciences Brno, Institute of Physics of Materials of the Academy of Sciences, and the Veterinary Research Institute. Brno University of Technology is the project's second largest partner with 36-percent participation. Once the project was approved, the Centre's activities started with full intensity. On 26th September 2011, CEITEC was officially presented to the public at an opening conference endorsed by Prime Minister Petr Nečas. The institute started cooperation negotiations with several research centres of world renown. In October, researchers from CEITEC and the European Molecular Biology Laboratory (EMBL) met in Brno to extend the existing contacts and launch new joint-projects. In December 2011 at the London Imperial College, a team of CEITEC experts met their counterparts and had an audience with pro-vice-chancellor for foreign relations was Simon Buckle. The parties agreed that cooperation based on the particular needs of each research group of both institutions was important. CEITEC is built on the synergy of seven research programmes. Situated at two Brno campuses, of Brno University of Technology in Královo Pole and of Masaryk University in Brno in Bohunice, the core facilities or central laboratories are the main integrating element. Both parts will serve as interdisciplinary university research sites with the BUT coordinators managing two of the seven research programmes:

– Advanced nanotechnologies and microtechnologies,
– Advanced materials.

IT4INNOVATIONS (IT4I) CENTRE OF EXCELLENCE

– IT4Innovations is a unique project to build a national centre of excellent IT research. The new centre will embrace a number of IT-related research fields to achieve their development. The installation by 2014 of an extremely powerful supercomputer will be part of the project, which at that time should be among the world's 100 most potent computers. Five institutions have joined to prepare the project: VŠB – Technical University of Ostrava, University of Ostrava, Silesian University in Opava, Brno University of Technology, and Institute of Geonics AS CR. The IT4Innovations centre of excellence should serve both as an academic and applied research centre. Being the basis of the future centre and forming a framework for all other scientific disciplines, computing will be formulated into four interrelated key parts:

1) Information for People (IT4People) – research focusing on an improvement of the quality of life by modern information technology.

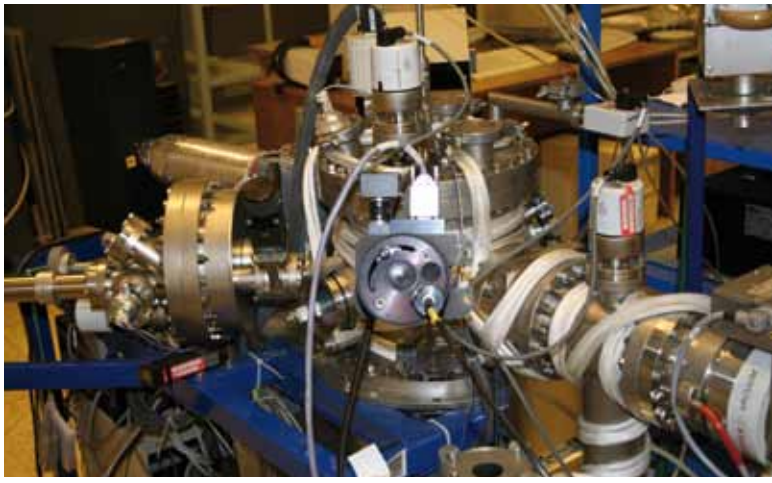
2) Supercomputing for Simulations (SC4Simulations) – for solving problems in industry, modelling in natural sciences and nanotechnologies (shape optimisations, materials design, biomechanical simulations).

3) Embedded Computing for Innovations (EC4Innovations) – research of embedded control systems in mechatronics and innovative medicine.

4) Theory for Information Technology (Theory4IT) – a field oriented towards basic research concerned mostly with the design of new non-traditional computing methods (knowledge mining, theory of anthills). The IT4Innovations project was approved by the European Commission on 21st June 2011.

NETME CENTRE (Centre of New Technologies for Mechanical Engineering) – was the first Brno project to receive an EU SF funding. Officially launched on 1st January 2010, this is a project of the BUT Faculty of Mechanical Engineering. It should develop and strengthen the traditional scientific and research efforts made by numerous leading research teams of the faculty engaged in the activities of five divisions (power engineering, processes and ecology; mechatronics; virtual design and testing; aircraft and automotive technology; progressive metal materials). By the end of 2011 (the second year of the project's implementation phase) almost 150 R&D researchers had joined the NETME Centre project thanks to whom the project's research objectives measured by so-called project indicators are being met without problems (the indicators include R&D outcomes such as papers published in impacted journals, applied research results, patents and such). By a number of indicators, the research objectives as originally planned by the Ministry of Education, Youth, and Sports are even being surpassed. This may particularly be evidenced by cooperation with the commercial sphere thanks to the high quality of the research teams, which are continually increasing the volume of applied research. Unlike other projects, NETME Centre has no reason to doubt that its obligations concerning future revenues from contracted research will be met showing already now excellent results. Despite numerous difficulties (such as due to the complicated rules set by the ministry unclear conditions of purchasing by tenders) a number of key machinery and equipment could be bought by the end of 2011 and the construction of an aircraft testing laboratory was also finished – the first completed building financed by the Research and Development for Innovations operative programme. A considerable step forward was also made in constructing building D5 (central building with unique research space and the necessary office, training, and meeting background) and in reconstructions to be finished in 2012.

ADMAS RESEARCH CENTRE – on 1st January 2011 implementation started at the Faculty of Civil Engineering of an AdMaS project, (Advanced Building Materials, Structures and Technologies), focused on research, development, and applications of advanced building materials, structures and technologies (not only) in civil engineering, but also of transport systems and the infrastructure of towns, villages, and landscape. On 1st September then the actual centre operation was launched involving a number of research activities requiring the newly built facilities. The AdMaS centre receives 818 million CZK in funding from the RDI operative programme, priority axis 2 (with 695 million CZK coming from EU and 123 from the CR State Budget) with almost 300 million CZK spent on equipment. Consisting of two research programmes, Development of Advanced Building Materials and Development of Advanced Structures and Technologies, the Centre employed 88 new persons in late 2011 with their number expected to grow in the years to come. Among the Centre's activities in 2011 was also the purchasing of new equipment starting with inviting tenders and the actual purchases of specialised devices, mostly those that can be installed without the AdMaS Centre building being completed. Also in 2011, the initial construction work began such as the site preparation consisting in rehabilitation of woody plants in the areas afflicted by the future construction. Next, the project documents were completed for selecting the contractor, with the actual construction expected to begin in mid 2012. In order to increase the awareness of the application sphere of the cooperation opportunities with the AdMaS centre, a promotion campaign was launched by presenting the AdMaS Centre at conferences, exhibitions and at a new website updated on a continual basis (www.admas.eu).



Plasma generating apparatus and its use

MATERIALS RESEARCH CENTRE (MRS) – a regional research centre run as an independent department of the BUT Faculty of Chemistry. It is primarily oriented towards applied research of inorganic materials, transport systems for healthcare, and organic-semiconductor-based sensors. The Centre of Material Research project at the Faculty of Chemistry is implemented as part of the RDI operative programme, priority axis 2. More than 200 million CZK will be spent from April 2010 to December 2013 on building a state-of-the-art centre for materials research in two main directions: inorganic materials and transport systems and sensors.

- **Inorganic materials research programme** – the main objective is to create a research centre providing the silicate industry with instruments and knowledge necessary to advance its innovation potential. The inorganic materials research programme plans to apply a materials engineer-chemist's comprehensive view to finding relationships between the chemical and phase microstructure and morphology and the resulting properties and behaviour of materials. In this programme, research and development concentrates on three specialised areas (activities) including inorganic binders, ceramic materials and metal materials. The outcomes and results of these research activities will be concerned with the following issues and systems:
- **Transport systems and sensors research programme** – the „transport systems" research activity focuses on the preparation of functional nanomaterials and nanotechnological equipment and carrier systems for medical, cosmetic, food, agricultural, and environmental applications. Physical chemistry for preparing and characterizing the properties of a system of targeted transport of biologically active substances used, for instance, in diagnostics, medicine, healthcare, and environment protection. The second research activity is based on the first one while expanding and developing it. It aims to use organic and biological in optical, electronic, and sensor devices. Developed at the department within a large European project, www.materials-research.cz, organic „plastic" solar cells and illumination panels as well as photovoltaic fabrics may serve as examples of new electronic elements that are being designed.

CENTRE FOR SENSOR, INFORMATION AND COMMUNICATION SYSTEMS (SIX) – receiving almost 300 million CZK in funding from the RID operative programme, its implementation began at BUT in August 2010. The primary research is oriented towards generating, emitting, broadcasting, receiving, and processing communication signals in the 71 – 76 GHz, 81 – 86 GHz, and 92 – 95 GHz bandwidths, expected to find numerous applications in the near future. In 2011, the project implementation team concentrated on tenders for the purchases of measuring devices. The devices, measurement and experimental systems were grouped in four blocks each containing devices of a total expected price of 60 million CZK. Through its total price, each tender block attracted numerous vendors, which pushed down the purchase price of many devices. At present, the results of all the tenders are officially published. Tenders for the first device block have all been finished and the devices bought already installed in the existing research infrastructure. Along with the purchasing, work is done, too, on the improvement or research competence of research teams. Members of research teams are trained within several projects of the Education for Competitiveness operative programme. In September 2012, competitions are planned to select the SIX Centre director and head of each research programme. The SIX research centre should start operation on 1st January 2013.

CENTRE FOR RESEARCH AND UTILIZATION OF RENEWABLE ENERGY SOURCES – 2011 was the second implementation year of a project to build a research centre concentrating major research, development, and innovation capacities for work on the comprehensive task of renewable energy sources. Members of the research team will be concerned with open problems related to chemical and photovoltaic cells, electromechanics, electrotechnology, electric power engineering, electric drives, mobile robots, and industrial electronics. The research centre has the following research programmes:

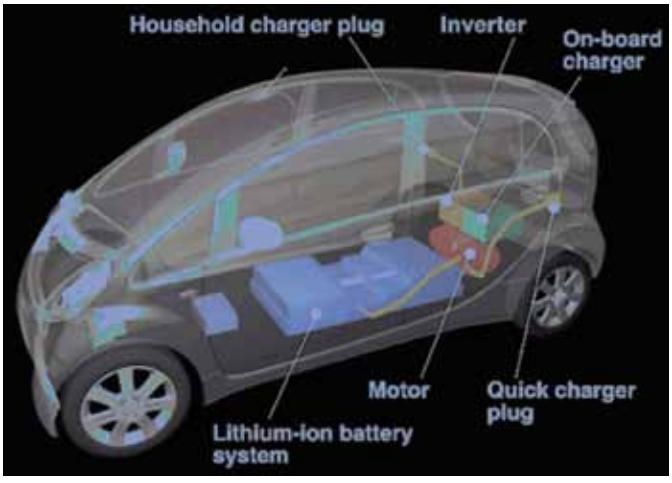
1. Electromechanical energy transformation,
2. Chemical and photovoltaic cells,
3. Generation, transmission, distribution, and use of electricity.

Supported by the RDI operative programme, the project aims not only to conduct research but also to intensify cooperation between the university and the application sphere and to accelerate the transfer of new technologies to the industrial practice. The foreseen applications include environment-friendly transportation systems, robots with environment-friendly drives, innovations of co-generation units to produce electricity. The CRURES project received over 260 million CZK in funding, of which more than 221 million CZK come from the EU and the rest from the state budget of the Czech Republic. Well over 200 million CZK of these funds will be spent on state-of-the-art laboratory equipment. In 2011, measuring and testing devices were bought for almost 17 million CZK. At the end of 2011, 58 employees worked with the research centre.

Vector peripheral analyser for measurements of up to 110 GHz

NEW EXPERIMENTAL VUT 001 MARABU AIRCRAFT – the Institute of Aerospace Engineering at Brno University of Technology finished its design in late 2009 by. Having been run in during 2010, the aircraft underwent a number of flight tests. Its fuselage being made from composite materials, the aircraft has an all-metal wing and horizontal tail assembly and is driven by a piston engine with propeller in thrust arrangement. Apart from this drive unit, the aircraft also possesses a small jet engine placed asymmetrically over the left side of the wing. VUT 001 Marabu is designed for experimental testing of equipment and installations developed primarily for pilotless aircraft. This testing is required by the new regulations to be introduced for the development and operation of civil pilotless aircraft. A number of applications may be expected in which pilotless craft are used. When designing VUT 001 Marabu, the Institute of Aerospace Engineering cooperated with a number of industrial partner receiving support from the Ministry of Industry and Trade, which shows the great interest of commercial companies in this area. The above-mentioned jet engine, for instance, was manufactured by První brněnská strojírna Velká Bíteš (designed among others for use in pilotless craft) and its parameters will be tested along with the plane. Due to the new legislation, plane equipment will have to be flight-tested for safety before being installed in a purely pilotless aircraft. VUT 001 Marabu will also make it possible for BUT to carry numerous flight experiments and measurements in other research programmes. Already in 2010, new aircraft versions were being designed to test new driving units. Next to the cooperation with První brněnská strojírna resulting in the newly designed TP-100 jet engine being installed on the aircraft, also a project was implemented to install an electric drive in a VUT 051 RAY prototype.

VUT 001 Marabu aircraft



Basic modules of the E3Car electrical car

E3CAR NANOELECTRONICS FOR AN ENERGY EFFICIENT ELECTRICAL CAR – (Faculty of Electrical Engineering and Communication) the project aims to enable major advances in the design of nanotechnologies, parts, miniaturized systems for the next generations of electric vehicles and accelerate industrial and commercial applications in the segment of electrical vehicles and cars. The project should increase the efficiency of electric power by raising mobility by 35 percent as compared with the current technologies. This will enable lower consumption of primary energy and raw materials reducing drastically the CO2 emission levels by using solar energy. The E3Car project is focused on the research and development of superpower and high-voltage electronic and nanoelectronic circuits and intelligent microsystems for electric cars, particularly power and high-voltage technologies, parts, and circuits for output transformation, energy renewal, output control, power modules, connection to a network of power stations and electronic systems for increased flexibility and quicker upgrade. As one of the FP7 European projects, the E3Car Nanoelectronics for an Energy Efficient Electrical Car project is coordinated by Reiner John from Infineon Technologies AG, Germany. The project consortium consists of 33 European partners including two universities and six research institutes and associations.

Laboratory of surfaces, thin layers, and nanotechnologies, Institute of Physical Engineering, BUT Faculty of Mechanical Engineering

DURABLE CONCRETE STRUCTURES – Continuing the finished project of the BUT Faculty of Civil Engineering, New Generation Durable Concrete Structures With Increased Resistance to Aggressive Environment, the project, Non-Metal-Reinforced Concrete Structures with Increased Fire and Aggressive Environment Resistance, as part of the TIP programme of the Ministry of Industry and Trade is concerned with the behaviour of a system of structure reinforcement in strongly aggressive environments and in situations with extreme temperature gradient such as during a fire. This determines the future use of such structures and elements in building, transportation, and industrial construction. A number of experiments were conducted in the project including:

- Fire tests of floor FRP-reinforced concrete slabs (a maximum resistivity of 60 minutes has been achieved at present, which is about twice as many as the theoretically attainable limit). During the tests, the slabs are statically loaded with different values.
- resistance tests of the reinforcements themselves exposed to increased temperatures and fire, dynamic load, and long-term static load.
- Preparation of the manufacture of composite-reinforced pre-fabricated slabs with increased resistance to aggressive environment. The preparation involves the manufacture of trial elements to be tested for load capacity and resistance.
- A gold IBF medal was won at an international building fair in 2010 for the reinforcement developed.
- Patent no. 302103 was taken out for Non-Metal Building Reinforcement, Particularly Suitable for Pre-Stressed Building Structures and a Method of its Modification.

Next, close cooperation was established during fire tests with the authorities defining fire-protection and fire-resistance standards for buildings. The aim was the creation of a methodology for testing these components and materials and, subsequently, a methodology for designing and assessing composite-materials-reinforced structures. The following results have already been achieved:

- A gold IBF medal was won at an international building fair in 2010 for the reinforcement developed.
- An award was received in an Innovation of 2009 competition organized by the Association of Innovative Business of the Czech Republic
- A footbridge was reconstructed in 2009 using prefabricated composite-reinforced floor panels combined with a composite- rail system.

NANOSTRUCTURES TO STUDY NANOWORLD – Nanostrutures are created and studied in the dustfree labs of the Institute of Physical Engineering of the Faculty of Mechanical Engineering to study the nanoworld physical phenomena. This study develops new fields of physics such as plasmonics and spintronics. These nanostructures (magnetic nanowire created in cooperation with TESCAN Brno) are also diagnosed in dustfree laboratories of the institute's international partners (Laboratoire Louis Néel, Grenoble, France). This also involves work on research projects such as MSM0021630508, Centre of Basic Research (LC06040) or a project of the Nanotechnology for Society programme or newly approved projects such as a UNIVSEM project or the AMISPEC Centre of Competence of the 7th Framework EU Programme in which leading domestic and international institutions and companies participate (mainly the Brno-based TESCAN). Thanks to the above projects, a team was created of more than twenty-five doctoral students and young researchers. Students also participate in nanostructure research working on their own projects of the NPVII MSMT2E-08017 programme (Human Resource Development) coordinated by the institute in which 32 junior projects have been assigned each receiving an average of about 100 thousand CZK in funding.

The composite reinforcement in testing frames after a fire test – a view of the furnace

Project	Centre's budget on 31st December	researcher numbers
CEITEC	CEITEC – 122 764 077,28 CZK CEITEC BUT – 17 027 000,00 CZK	CEITEC – 173,00 CEITEC BUT – 20,88
IT4I	530 222,48 CZK	3,67
NETME	203 493 086,03 CZK	31,25
AdMaS	45 590 467,86 CZK	13,04
CMV	80 371 482,50 CZK	32,00
SIX	29 341 972,56 CZK	0
CVVOZE	30 500 000,00 CZK	13,18

2



BASIC DATA

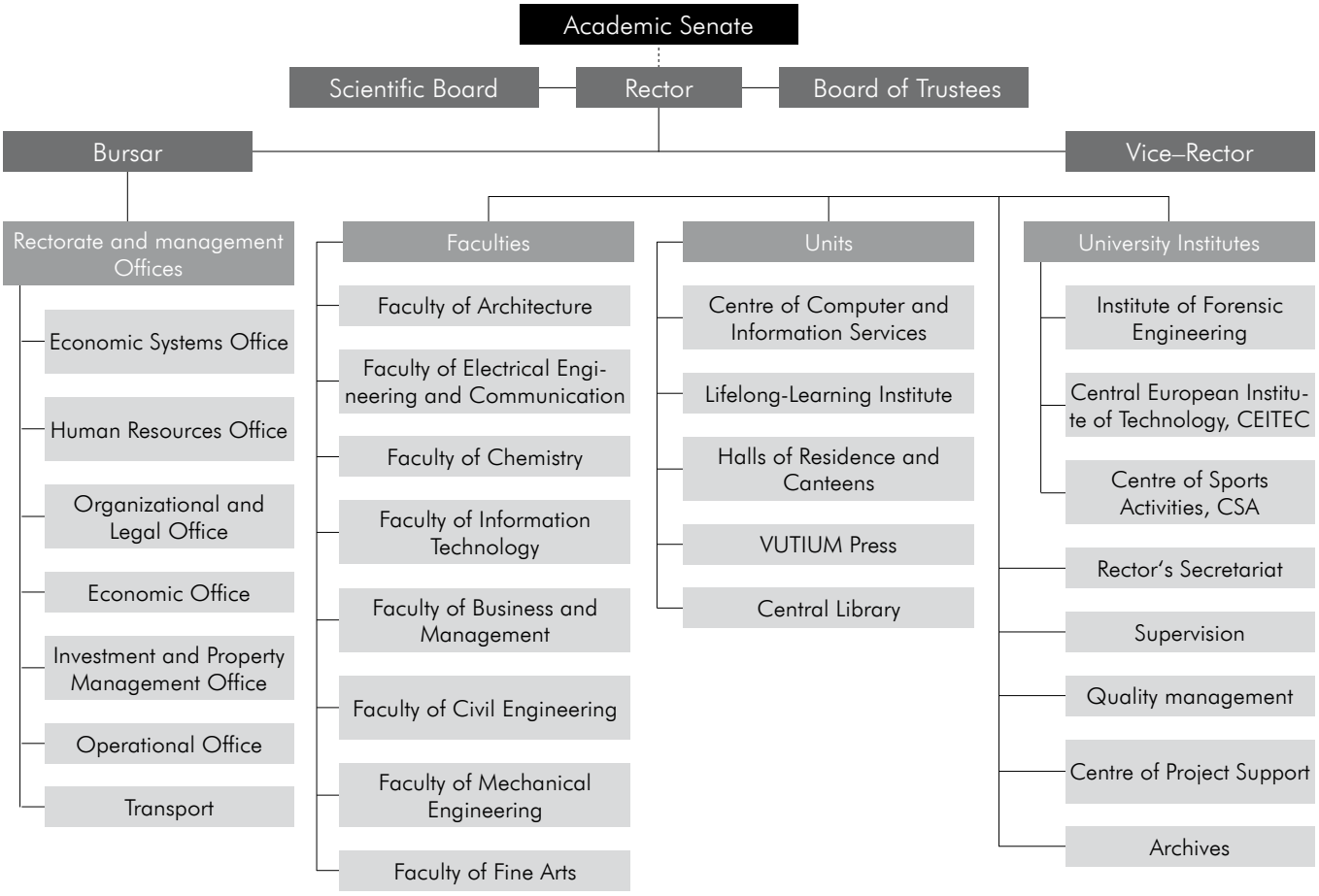
2.1. Full name of the public higher-education institution, acronym used, address, names and addresses of all BUT faculties

Brno University of Technology, BUT, Antonínská 548/1, 601 90 Brno, http://www.vutbr.cz

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, Údolní 244/53, 602 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, Antonínská 548/1, 601 90 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, BUT IFE, Údolní 244/53, 602 00 Brno, http://www.usi.vutbr.cz

2.2. BUT Organizational Chart (university structure and its parts)



2.3. BUT Scientific Board, Managerial Board, Academic Senate

BUT SCIENTIFIC BOARD

Name	Position, workplace	Field of research
prof. Ing. Karel Rais, CSc., MBA	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.	vice-dean, BUT FIT	information technology
prof. Ing. Jarmila Dědková, CSc.	dean of the Faculty of Electrical Engineering and Communication	theoretical electrical engineering
Ing. Jaroslav Doležal, CSc.	Honeywell, s. r. o.	management automation
prof. RNDr. Miroslav Doupovec	dean of the Faculty of Mechanical Engineering	applied mathematics
prof. Ing. Rostislav Drochytka, CSc.	dean, BUT FCE	construction materials engineering
prof. RNDr. Miloslav Druckmüller, CSc.	BUT FME	applied mathematics
Ing. Miloš Filip	director, Prefa Kompozity, a. s.	composite materials
prof. Ing. Jan M. Honzík, CSc.	BUT FEEC	information technology
prof. Ing. Tomáš Hruška, CSc.	dean, BUT FIT	information technology
prof. RNDr. Josef Jančář, CSc.	BUT FC	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
Mgr. Rostislav Koryčánek	Director, The Brno House of Arts	architecture
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. RNDr. Petr Lukáš, CSc.	director, Academy of Sciences, Institute of Materials Physics	materials physics
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 FCE	structure mechanics, reliability of structures
prof. Ing. Ladislav Omelka, DrSc.	vice-dean, BUT FC	physical chemistry
prof. Ing. Miloslav Pekař, CSc.	BUT FC	physical chemistry
prof. Ing. arch. Petr Pelčák	BUT FA	architecture
prof. PhDr. Jan Sedlák, CSc.	BUT FFA	architecture
prof. RNDr. Eduard Schmidt, CSc.	Masaryk University in Brno, Faculty of Science	solid state physics
prof. Ing. Vladimír Smejkal, CSc.	forensic engineer, Prague	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 FME	process engineering
prof. Ing. arch. Jiljí Šindlar, CSc.	BUT FA	architecture
prof. RNDr. Ing. Petr Štěpánek, CSc.	dean, BUT FCE	concrete structures
prof. Ing. Jan Šulc, CSc.	BUT FCE	water structures, hydromechanics
prof. Ing. Ivo Vondrák, CSc.	rector, VŠB-Technical University of Ostrava	information technology
prof. Ing. Radimír Vrba, DrSc.	dean, BUT FEEC	electrical and electronic technology
prof. RNDr. Ing. Jan Vrbka, DrSc.	BUT FME	mechanics of solids

BUT MANAGERIAL BOARD

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vie-chairperson

- Ing. Vladimír Jeřábek, MBA

Members

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- Valentin Girstl
- Ing. Miroslav Hošek
- JUDr. Michal Hašek
- RNDr. Barbora Javorová
- PhDr. Miroslava Kopicová
- Ing. Oldřich Kratochvíl
- doc. Ing. Otakar Smolík, CSc.
- Ing. Pavel Suchánek
- RNDr. Věra Šťastná
- Ing. Jiří Škrla
- Ing. Michal Štefl

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doc. Dr. Ing. Petr Hanáček, chairperson
doc. Ing. Jana Korytárová, Ph.D.,
vice-chairperson and chairperson
of the Chamber of Academics
Ing. Tomáš Krejbich, vice-chairperson and
chairperson of the Chamber of Students

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PaedDr. Jitka Dýrová (CSA)
prof. Ing. Eva Gescheidtová, CSc. (FEEC)
doc. Dr. Ing. Petr Hanáček (FIT)
Ing. Helena Hanušová, CSc. (FBM)
MgA. Milan Houser (FFA)
– until 31.01.2011
PhDr. Kaliopi Chamonikola, Ph.D. (FFA)
doc. Ing. Jana Korytárová, Ph.D. (FCE)
doc. Ing. Aleš Krejčí, CSc. (FCE)
RNDr. Vlasta Krupková, CSc. (FEEC)
doc. Ing. Zdeňka Lhotáková, CSc. (FA)
doc. Ing. Miloslav Meixner, CSc. (FA)
doc. Ing. Jiřina Omelková, CSc. (FC)
RNDr. Pavel Popela, Ph.D. (FME)
Ing. Jan Roupec, Ph.D. (FME)
doc. Ing. Stanislav Škapa, Ph.D. (FBM)
prof. RNDr. Milada Vávrová, CSc. (FC)
prof. PhDr. Hana Vykopalová, CSc. (IFE
and other institutes – IFE)

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MgA. Petr Dub, DiS. (FFA)
Ing. Patrik Halfar (FIT)
Ing. Tomáš Krejbich (FBM)
Bc. Marián Maslák (FEEC)
– until 22.02.2011
Ing. Martin Moos (FC)
– until 25.01.2011
Ing. Petra Nováčková (FME)
Bc. Viktor Odstrčilík (FA)
Ing. Vladimír Panáček (IFE)
Lucia Spišiaková (FEEC)
– from 19.04.2011
Bc. Stanislav Stříteský (FC)
– from 29.03.2011)

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Ing. Jan Roupec, Ph.D.
members:
prof. Ing. Eva Gescheidtová, CSc.
doc. Ing. Aleš Krejčí, CSc.
doc. Ing. Zdeňka Lhotáková, CSc.
doc. Ing. Jiřina Omelková, CSc.
students:
Bc. Marian Maslák – until 22.02.2011
Ing. Vladimír Panáček

Economic committee:
chairperson
RNDr. Pavel Popela, Ph.D.
members:
doc. Dr. Ing. Jan Černocký
Ing. Helena Hanušová, CSc.
MgA. Milan Houser – until 31.01.2011
doc. Ing. Jana Korytárová, Ph.D.
RNDr. Vlasta Krupková, CSc.
doc. Ing. Miloslav Meixner, CSc.
prof. RNDr. Milada Vávrová, CSc.
prof. PhDr. Hana Vykopalová, CSc.
students:
Ing. Patrik Halfar
Ing. Martin Moos – until 25.01.2011

Pedagogic committee:
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RNDr. Vlasta Krupková, CSc.
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doc. Ing. Jiřina Omelková, CSc.
prof. PhDr. Hana Vykopalová, CSc.
students:
Ing. Stanislava Dermeková
Ing. Tomáš Krejbich
Bc. Marian Maslák – until 22.02.2011
Ing. Petra Nováčková
Ing. Vladimír Panáček

Creative activity committee
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members:
prof. Ing. Eva Gescheidtová, CSc.
MgA. Milan Houser – until 31.01.2011
doc. Ing. Jana Korytárová, Ph.D.
RNDr. Pavel Popela, Ph.D.
doc. Ing. Stanislav Škapa, Ph.D.
students:
Ing. Stanislava Dermeková
Ing. Tomáš Krejbich
Ing. Martin Moos – until 25.01.2011
Ing. Petra Nováčková

BUT ACADEMIC SENATE

from 25.10.2011 to 31.12.2011
doc. Dr. Ing. Petr Hanáček, chairperson
doc. Ing. Jana Korytárová, Ph.D., vice-
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of the Chamber of Academics
Bc. Karel Koranda, vice-chairperson and
chairperson of the Chamber of Students

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doc. Dr. Ing. Petr Hanáček (FIT)
Ing. Helena Hanušová, CSc. (FBM
MgA. Tomáš Hrůza (FFA)
– from 22.11.2011
Ing. arch. Bohumila Hybská (FA)
MgA. Barbora Klímová (FFA)
– from 22.11.2011
doc. Ing. Jana Korytárová, Ph.D. (FCE)
doc. Ing. Jiří Kunovský, CSc. (FIT)
Ing. Libor Matějka, CSc., Ph.D., MBA (FCE)
doc. Ing. Miloslav Meixner, CSc. (FA)
RNDr. Pavel Popela, Ph.D. (FME)
Ing. Jan Roupec, Ph.D. (FME)
PaedDr. Milan Slezáček (CSA)
doc. Ing. Miloslav Steinbauer, Ph.D.
(FEEC)
doc. Ing. Stanislav Škapa, Ph.D. (FBM)
prof. RNDr. Milada Vávrová, CSc. (FC)
doc. Ing. Michal Veselý, CSc. (FC)
doc. Ing. Aleš Vémola, Ph.D. (IFE)

CHAMBER OF STUDENTS
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Ing. Libor Chládek (FBM)
Barbora Jakubíková (FA)
Bc. Karel Koranda (FIT)
Mgr. Jana Kořínková (FFA)
– from 22.11.2011
Ing. Zdeněk Krychtálek (IFE)
Ing. Petra Nováčková (FME)
Lucia Spišiaková (FEEC)
Ing. Jiří Švec (FC)

BUT AS WORKING COMMITTEES
Legislation committee:
chairperson
Ing. Jan Roupec, Ph.D.
members:
prof. Ing. Eva Gescheidtová, CSc.
doc. Ing. Miloslav Meixner, CSc.
doc. Ing. Stanislav Škapa, Ph.D.
doc. Ing. Aleš Vémola, Ph.D.
doc. Ing. Michal Veselý, CSc.
students:
Barbora Jakubíková
Bc. Karel Koranda
Ing. Zdeněk Krychtálek

Economic committee:
chairperson
RNDr. Pavel Popela, Ph.D.
members:
Ing. Helena Hanušová, CSc.
MgA. Tomáš Hrůza – from 22.11.2011
Ing. arch. Bohumila Hybská
doc. Ing. Jana Korytárová, Ph.D.
doc. Ing. Jiří Kunovský, CSc.
Ing. Libor Matějka, CSc., Ph.D., MBA
doc. Ing. Miloslav Steinbauer, Ph.D.
prof. RNDr. Milada Vávrová, CSc.
doc. Ing. Aleš Vémola, Ph.D.
students:
Ing. Libor Chládek
Bc. Karel Koranda
Mgr. Jana Kořínková

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chairperson
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members:
doc. Ing. Jiří Kunovský, CSc.
PaedDr. Milan Slezáček
doc. Ing. Miloslav Steinbauer, Ph.D.
doc. Ing. Michal Veselý, CSc.
students:
Ing. Stanislava Dermeková
Ing. Libor Chládek
Ing. Zdeněk Krychtálek
Ing. Petr Nováčková
Lucia Spišiaková
Ing. Jiří Švec

Creative activity committee
chairperson
prof. RNDr. Milada Vávrová, CSc.
members:
prof. Ing. Eva Gescheidtová, CSc.
Ing. arch. Bohumila Hybská
doc. Ing. Jana Korytárová, Ph.D.
Ing. Libor Matějka, CSc., Ph.D., MBA
RNDr. Pavel Popela, Ph.D.
doc. Ing. Stanislav Škapa, Ph.D.
students:
Ing. Stanislava Dermeková
Barbora Jakubíková
Ing. Petra Nováčková
Ing. Jiří Švec

2.4 BUT representatives in the representation of universities (Czech Rectors' Conference, Council of Higher Education Institutions)

CZECH RECTORS' CONFERENCE
prof. Ing. Karel Rais, CSc., MBA, dr.h.c., rector of BUT,
vice-chairman for external affairs until June 2011

REPRESENTATIVES IN THE COUNCIL OF HIGHER EDUCATION INSTITUTIONS
doc. Ing. Eva Münsterová, CSc., board member
prof. RNDr. Milada Vávrová, CSc., CHEI assembly member for BUT
Ing. Patrik Halfar, CHEI Chamber of Students
Ing. Tomáš Krejbich, CHEI Chamber of Students (stand-in)

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

2.5 Nature of BUT mission, vision, and strategic goals

As one of the most importnant Czech universites, 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, cooperation with the application and social spheres. The following are BUT's main priorities in teaching:

- preferring higher quality of study to winning as many students a possible;
- implementing at the university the government-approved support for engineering fields, that is, establishing and extending inter-disciplinary specialisations and recruiting talented Bachelor's graduates from other universities;
- 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;
- motivating the 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;
- provide support for student mobility using also BUT-financed scholarships and money from concrete cooperation with the commercial sphere.

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

- remaining a prestigious research-and-innovations-oriented university;
- supporting and cultivating 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;
- support for two-way international mobility of university researchers.

In cooperation with the application sphere, 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.

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

- development of new constituent parts, 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 reforming environment;
- restructuring the Rector's office units and sections supposed to provide information, methodological, economic, and legal support for projects towards intensive participation in international cooperation in research, development, and innovations.

It should be noted that the external conditions such as the worldwide economic crisis, the economic slowdown in the Czech Republic and the subsequent austerity measures as well as the demographic decline have had a negative impact on the fulfilment of BUT's mission, visions, and strategic aims and objectives contributing to its deceleration.

2.6 Amendments to BUT internal regulations in 2011

Brno University of Technology Statutes– Amendment no. 5 – registered by the Ministry of Education on 05.01.2011
Brno University of Technology Statutes – Amendment no. 6 – registered by the Ministry of Education on 14.11.2011
Election and procedure rules of the BUT Academic Senate – Amendment no. 2 – registered by the Ministry of Education on 21.03.2011
Election and procedure rules of the BUT Academic Senate – Amendment no. 3 – registered by the Ministry of Education on 14.11.2011
BUT study and examination rules – registered by the Ministry of Education on 05.01.2011
BUT study and examination rules – Amendment no. 1 – registered by the Ministry of Education on 06.06.2011
BUT study and examination rules – Amendment no. 2 – registered by the Ministry of Education on 21.07.2011
BUT rules for occupying academic positions – registered by the Ministry of Education on 05.01.2011.

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

By virtue of Section 18 of Act no. 106/1999 Coll., as amended, BUT publishes data on its activities related to providing information as part of its Annual Report:

Number of requests for information	3
Number of requests granted	1 fully granted 2 partially granted
Number of decisions to turn down a request	2 requests partially turned down
Number of appeals against a decision	2
Number of exclusive licenses granted	
Number of complaints filed under Section 16a of the Act	2



3


DEGREE PROGRAMMES, STUDY ORGANISATION, AND EDUCATION

3.1 Accredited degree programme student numbers

A total of 75 degree programmes both full-time and combined were accredited at BUT in 2011 including 57 active ones with students registered. A new Bachelor's programme taught in English was accredited in 2011, Electrical, Electronic, Communication and Control Technology with the study fields, Automation and Measurement, Electronics and Communication, Microelectronics and Technology, Power Electrical and Electronic Engineering, and Teleinformatics. Accreditation was extended of Bachelor's programmes, Electrical Engineering, Electronics, Communication and Control Technology with the study fields, Automation and Measurement, Electronics and Communication, Microelectronics and Technology, Power Electrical and Electronic Engineering, and Teleinformatics, Applied sciences in Engineering with the study field Mathematical Engineering, Applied Sciences in Engineering with the study field Mathematical Engineering taught in English, Mechanical Engineering with the study fields Construction of Machines and Equipment and Manufacturing Technology, Economics and Management with the study field Tax Consultancy, Civil Engineering with the study field Civil Engineering Management. Next the accreditation was extended for the Forensic Engineering Master's programme with the study field Expert Engineering in Transport, and Real Estate Engineering, the Metrology and Testing doctoral programme with the study field Metrology and Testing, Chemistry and Technology of Foodstuffs with the study field Foodstuff Chemistry, Physical Chemistry with the study field, Physical Chemistry, the same programme taught in English, Civil Engineering with the study field Engineering Management, the same programme taught in English. The degree programmes cover a wide spectrum of traditional technical, economic, and science fields, including architecture and arts next a number of interdisciplinary programmes linking engineering with natural; sciences, economics and health care. Table 3.1 shows accredited programmes, Tab. 3.1_a lists active accredited programmes sorted by faculty.

Tab. 3.1 Accredited degree programmes

Faculty	Accredited degree programme groups	Bc.		Mgr.		follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
FA	technical sciences and disciplines	1	0	0	0	1	0	1	3
FCE	technical sciences and disciplines	3	2	0	1	3	1	2	12
FFA	culture and art sciences and disciplines	1	0	0	0	1	0	1	3
FC	technical sciences and disciplines / natural sciences and disciplines	3	3	0	0	4	4	6	20
FEEC	technical sciences and disciplines	2	1	0	0	2	1	1	7
FIT	technical sciences and disciplines	1	0	0	0	1	0	2	4
FBM	technical sciences and disciplines	2	2	0	0	2	1	1	8
FME	economy	2	1	0	0	4	2	6	15
IFE	technical sciences and disciplines	0	0	0	0	2	0	1	3
Total		15	9	0	1	20	9	21	75

Tab. 3.1_a Active accredited programmes sorted by faculty

Faculty	Bc.	follow-up Mgr.	Mgr.	Ph.D.	Total
FA	1	1	0	1	3
FCE	3	3	1	2	9
FFA	1	1	0	1	3
FC	3	4	0	6	13
FEEC	2	2	0	1	5
FIT	1	1	0	2	4

FBM	2	2	0	1	5
FME	2	4	0	6	12
IFE	0	2	0	1	3
Total	**15**	**20**	**1**	**21**	**57**

3.2 Courses taught in a foreign language, joint/double degree programmes, BUT degree programmes accredited to be taught in a foreign language

Most of the programmes are accredited both in Czech and in English, one programme in German. Table 3.2 lists the active programmes accredited to be taught in a foreign language with students registered. Preparation is also under way for accreditation of joint-degree programmes. At present, three full-fledged joint and double degree programmes are accredited (Tab. 3.3_a and 3.3_b), others are in the pipeline. This is a continual process and faculties are working on its intensively. Tab. 3.4 shows information on the accredited Bachelor's programme, Biomedical technology and bioinformatics, which is offered in cooperation with another university. Tab. 3.5 lists the accredited Bachelor's programme, Mechanical Engineering, with the 3rd year of combined study taking place in a branch university at Žďár nad Sázavou.

Tab. 3.2 Active accredited degree programmes taught in a foreign language

Faculty	Accredited degree programme groups	Bc.		Mgr.		follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
FA	technical sciences and disciplines	0	0	0	0	0	0	0	0
FCE	technical sciences and disciplines	1	0	0	0	1	0	2	4
FFA	culture and art sciences and disciplines	0	0	0	0	0	0	0	0
FC	natural sciences and disciplines	0	0	0	0	0	0	4	4
FEEC	technical sciences and disciplines	1	0	0	0	1	0	2	4
FIT	technical sciences and disciplines	0	0	0	0	0	0	1	1
FBM	economy	0	0	0	0	1	0	2	3
FME	technical sciences and disciplines	1	0	0	0	1	0	0	2
IFE	technical sciences and disciplines	0	0	0	0	0	0	0	0
Total		**3**	**0**	**0**	**0**	**4**	**0**	**11**	**18**

3.3 Joint/double degree programmes

Tab. 3.3_a Joint/double degree programmes – Faculty of Mechanical Engineering

Programme title	1) Production Systems 2) Industrial Engineering
Coordinator	1/ doc. Ing. Petr Blecha, Ph.D. 2/ prof. Ing. Miroslav Píška, CSc.
Partner organizations (Project consortium)	1/ Technische Universität Chemnitz (Chemnitz, Germany) 2/ Art et Métiers ParisTech (Cluny, France)
Adjoined organisations	

Beginning	1/ 2009 2/ 2010
Programme category	Double degree
Length of study	2 years
Programme type	follow-up Master's
Number of credits	120
Programme organisation, admissions, graduation	1/ **Production Systems** – one-year study in Czech, one-year study in German 2/ **Industrial Engineering** – one-year study in Czech and one-year study in French. A student from a Bachelor's programme can be admitted 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?	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	Within an Erasmus programme or the FME 25/7 development programme
How cooperation with EU countries is implemented, is a contract signed, what is covered by the contract?	Cooperation according to bilateral agreements signed as a result of intensive personal contacts.

Tab. 3.3_b Informace o joint/double degree programech – Faculty podnikatelská

Programme title	**Economics and Management**
Coordinator	doc. Ing. Stanislav Škapa, Ph.D.
Partner organizations (Project consortium)	Nottingham Trent University (GB) Ekonomická univerzita Karola Adamieckého v Katowicích (PL) Vysoké učení technické v Brně (CZ)
Adjoined organisations	
Beginning	Academic year 2007/2008
Programme category	Joint degree
Length of study	2 years
Programme type	follow-up Master's
Number of credits	120
Programme organisation, admissions, graduation	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?	1) The „inženýr" degree diploma along with the supplement is issued by BUT 2) The Master of Science degree diploma is issued by Nottingham Trent University signed by the rectors of all three participating universities.
Student mobility type	One-semester study stay
How cooperation with EU countries is implemented, is a contract signed, what is covered by the contract?	Consortial agreement between Nottingham Trent University, BUT, and Karol Adamiecki Economic University.

Tab. 3.4 Accredited degree programmes offered in cooperation with another university

BUT	Faculty of Electrical Engineering and Communication
Degree programme	**Biomedical Technology and Bioinformatics**
Study field	**Biomedical Technology and Bioinformatics**
Partner university	Masaryk University in Brno, Faculty of Medicine
Programme started	2007/2008
Length of study	6
Programme type	Bachelor's
Description of study organisation, admissions, and graduation	Regular full-time three-year study taking place at the Faculty of Electrical Engineering and Communication and Faculty of Medicine using the specialised departments of the Teaching hospital at Brno-Bohunice. For admission eligibility, the completion is required of a secondary school and meeting the BTBIO-A admission rules. The study is completed by presenting and defending a Bachelor's project and passing a state exam.
Degree programme	**Biomedical Engineering and bioinformatics**
Study field	**Biomedical Engineering and bioinformatics**
Partner university	Masaryk University in Brno, Faculty of Medicine
Programme started	2010/2011
Length of study	4
Programme type	follow-up Master's
Description of study organisation, admissions, and graduation	Regular full-time two-year study taking place at the Faculty of Electrical Engineering and Communication and 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. The study is completed by presenting and defending a Master's project and passing a state exam

Tab. 3.5. Accredited degree programmes or parts thereof taught out of town (excluding on-the-job training)

BUT	Faculty of Mechanical Engineering (FME)
Degree programme	**Mechanical Engineering**
Study field	**Manufacturing Technology**
Name and place of university branch where degree programmes or parts thereof are offered	VOŠ and SPŠ Studentská 1, 591 00 Žďár nad Sázavou
Form	Combined
Length of study	3 years
Programme type	Bachelor's
Do state exams take place at the university branch?	NO
Are degree projects presented and defended at the university branch?	NO
Branch university employee number	14 teachers from FME

3.6 Using the credit system – Diploma Supplement Label and ECTS label

BUT uses the European Credit Transfer and Accumulation System (ECTS) and all its compatible tools in all of its Bachelor's and Master's programmes. The IS module it uses has been recommended by the European Commission. All BUT graduates are entitled to a free English-Czech diploma and an English-Czech diploma-annex using the recommended format and content.

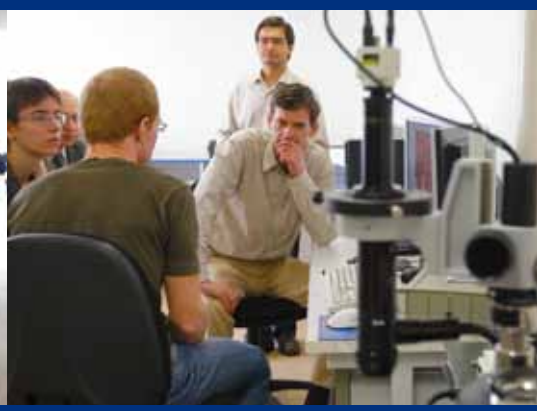
Brno University of Technology hold the prestigious ECTS Label and DS Label for the period 2009–2013 in recognition of its quality as a higher-education institution.

As one of two Czech universities, BUT received the **ECTS Label** already in 2009. It is certifies correct implementation of the credit system in all Bachelor's and Master's programmes as part of the implementation of the Bologna process.

The **DS Label** went to BUT in recognition of its free provision for all graduates of a diploma annex. The labels testify that BUT meets the strict EU criteria concerning higher education. They significantly help extend student mobility thus enhancing the university's internationalization.

4





STUDENTS

4.1 Students in accredited degree programmes

Over recent years, the number of registered students at BUT has been on a steady increase. Entrance exams take place at every faculty to ensure the quality of the admitted applicants. Tables 4.1 list the student numbers on 31.10.2011 arranged by faculties, degree programme groups, and tertiary education degrees. For a number of years, no student have been admitted to long non-follow-up Master's programmes, their numbers are very low covering only near-graduate students. Tab. 4.1_1 shows student numbers including suspended studies by degree programme groups, Tab. 4.1_2 is sorted by the programme type, Tab. 4.1_3 by faculties and programme type, Tab. 4.1_4 by the study type and form, Tab. 4.1_5 by degree programmes. Tab. 4.1_6 lists the numbers of international students. Tab. 4.4 shows the total number of students that pay for their studies and are not included in the lists determining the state subsidy on education. Tab. 4. contains numbers of students over 30 years of age.

Tab. 4.1 Student numbers in accredited degree programmes on 31.10.2011

Faculty	Accredited degree programme groups	Bc.		Mgr.		follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
FA	technical sciences and disciplines	437	0	0	0	227	0	107	771
FCE	technical sciences and disciplines	4 255	530	0	3	1 485	128	429	6 830
FFA	culture and art sciences and disciplines	184	0	0	0	93	0	22	299
FC	technical sciences / natural sci. and discipl.	44	104	0	0	195	60	171	1 014
FEEC	technical sciences and disciplines	1 948	288	0	0	987	183	475	3 881
FIT	technical sciences and disciplines	1 700	0	0	0	659	0	211	2 570
FBM	economy	1 805	84	0	0	987	410	99	3 385
FME	technical sciences and disciplines	2 509	248	0	0	1 087	200	481	4 525
IFE	technical sciences and disciplines	0	0	0	0	412	0	154	566
Total		**13 322**	**1 254**	**0**	**3**	**6 132**	**981**	**2 149**	**23 841**

Tab. 4.1_1 Student numbers including suspended studies by programme groups

Programme group	Master group code	Bc.	Mgr.	follow-up Mgr.	Ph.D.	Total
technical sciences and disciplines	23 to 39	12 503	3	5 623	1 967	20 096
natural sciences and disciplines	14	0	0	0	61	61
economy	62 and 65	1 889	0	1 397	99	3 385
culture and art sciences and disciplines	82	184	0	93	22	299
Total		**14 576**	**3**	**7 113**	**2 149**	**23 841**

Tab. 4.1_2 Student numbers by programme type

Degree	Programme	full-time	combined	Total
Bc.	Bachelor's	13 322	1 254	14 576
Mgr.	Master's	0	3	3
follow-up Mgr.	follow-up Master's	6 132	981	7 113
Ph.D.	Doctoral	1 187	962	2 149
Total		**20 641**	**3 200**	**23 841**

Tab 4.1_3 Student numbers by faculty and programme type

Faculty	Bc.	Mgr.	follow-up Mgr.	Ph.D.	Total
FA	437	0	227	107	771
FCE	4 785	3	1 613	429	6 830
FFA	184	0	93	22	299
FC	588	0	255	171	1 014
FEEC	2 236	0	1 170	475	3 881
FIT	1 700	0	659	211	2 570
FBM	1 889	0	1 397	99	3 385
FME	2 757	0	1 287	481	4 525
IFE	0	0	412	154	566
Total	**14 576**	**3**	**7 113**	**2 149**	**23 841**

Tab. 4.1_4 Student numbers by faculties, programme type, and study form

Faculty	Student numbers								Total
	Bc.		Mgr.		follow-up Mgr.		Ph.D.		
	C	FT	C	FT	C	FT	C	FT	
FA	437	0	0	0	227	0	50	57	771
FCE	4 255	530	0	3	1 485	128	198	231	6 830
FFA	184	0	0	0	93	0	19	3	299
FC	484	104	0	0	195	60	113	58	1 014
FEEC	1 948	288	0	0	987	183	282	193	3 881
FIT	1 700	0	0	0	659	0	139	72	2 570
FBM	1 805	84	0	0	987	410	58	41	3 385
FME	2 509	248	0	0	1 087	200	255	226	4 525
IFE	0	0	0	0	412	0	73	81	566
Total	**13 322**	**1 254**	**0**	**3**	**6 132**	**981**	**1 187**	**962**	**23 841**

Tab. 4.1_5 Student numbers by faculties and degree programmes

Fac.	Prog. code	Title	Men	Women	FT	C	Total
FA	B3501	Architecture and town-planning	166	271	437	0	437
FA	N3501	Architecture and town-planning	106	121	227	0	227
FA	P3501	Architecture and town-planning	62	45	50	57	107
FCE	B3503	Architecture of building structures	84	124	208	0	208
FCE	B3607	Civil engineering	3 065	1 269	3 886	448	4 334
FCE	B3646	Geodesy and cartography	131	112	161	82	243
FCE	M3607	Civil engineering	3	0	0	3	3
FCE	N3504	Architecture and development of settlements	41	58	99	0	99

FCE	N3607	Civil engineering	1 010	430	1 312	128	1 440
FCE	N3646	Geodesy and cartography	42	32	74	0	74
FCE	P3607	Civil engineering	293	117	189	221	410
FCE	P3646	Geodesy and cartography	11	8	9	10	19
FCE	P3917	Forensic engineering	0	0	0	0	0
FFA	B8206	Fine arts	83	101	184	0	184
FFA	N8206	Fine arts	35	58	93	0	93
FFA	P8206	Fine arts	11	11	19	3	22
FC	B2801	Chemistry and chemical technology	160	242	338	64	402
FC	B2825	Protection of population	7	7	6	8	14
FC	B2901	Chemistry and technology of food	38	134	140	32	172
FC	N2805	Chemistry and technology of environment protection	13	44	36	21	57
FC	N2806	Consumer chemistry	17	41	54	4	58
FC	N2820	Chemistry, technology and properties of materials	39	24	54	9	63
FC	N2901	Chemistry and technology of food	20	57	51	26	77
FC	P1404	Physical chemistry	10	33	36	7	43
FC	P1405	Macromolecular chemistry	6	2	5	3	8
FC	P1422	Macromolecular chemistry (4-year prog.)	7	3	9	1	10
FC	P2805	Chemistry and Environment Protection	15	29	22	22	44
FC	P2820	Chemistry, technology and properties of materials	21	14	17	18	35
FC	P2901	Chemistry and technology of food	5	26	24	7	31
FEEC	B2643	Electrical engineering, electronics, communication, and control technology	1 887	52	1 651	288	1 939
FEEC	B3930	Biomedical technology and bioinformatics	162	135	297	0	297
FEEC	N2643	Electrical engineering, electronics, communication, and control technology	1 031	30	878	183	1 061
FEEC	N3952	Biomedical engineering and bioinformatics	66	43	109	0	109
FEEC	P2613	Electrical engineering and communication technology	439	36	282	193	475
FIT	B2646	Information technology	1 594	106	1 700	0	1 700
FIT	N2646	Information technology	636	23	659	0	659
FIT	P2646	Information technology	1	1	2	0	2
FIT	P2651	Computing technology and informatics	197	12	137	72	209
FBM	B6208	Economics and management	668	688	1 287	69	1 356
FBM	B6209	System engineering and informatics	454	79	518	15	533
FBM	N6208	Economics and management	553	617	760	410	1 170
FBM	N6209	System engineering and informatics	194	33	227	0	227
FBM	P6208	Economics and management	53	46	58	41	99
FME	B2341	Mechanical engineering	2 232	149	2 133	248	2 381
FME	B3901	Applied sciences in engineering	316	60	376	0	376
FME	N2301	Mechanical engineering	960	57	836	181	1 017
FME	N2344	Production systems	4	0	4	0	4
FME	N2345	Industrial Engineering	3	2	5	0	5

FME	N3901	Applied sciences in engineering	213	48	242	19	261
FME	P2302	Machinery and devices	226	17	136	107	243
FME	P2303	Manufacturing technology	40	12	18	34	52
FME	P3901	Applied sciences in engineering	61	3	38	26	64
FME	P3910	Physical and materials engineering	65	15	49	31	80
FME	P3913	Applications of natural sciences	18	7	11	14	25
FME	P3917	Forensic engineering	0	0	0	0	0
FME	P3920	Metrology and testing	13	4	3	14	17
IFE	N3917	Forensic engineering	195	128	323	0	323
IFE	N3950	Risk engineering	30	59	89	0	89
IFE	P3917	Forensic engineering	104	50	73	81	154
Total			**17 916**	**5 925**	**20 641**	**3 200**	**23 841**

Tab. 4.1_6 International student numbers

Programme type		International students
Bc.	Bachelor's	1 695
Mgr.	Master's	0
follow-up Mgr.	follow-up Master's	887
Ph.D.	Doctoral	194
Total		**2 776**

Tab. 4.4 Students paying for their studies

Fakulty	Accredited degree programme groups	Bc.		Mgr.		follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
FA	technical sciences and disciplines	0	0	0	0	0	0	0	0
FCE	technical sciences and disciplines	4	0	0	0	2	0	0	6
FFA	culture and art sciences and disciplines	0	0	0	0	0	0	0	0
FC	technical sciences and disciplines	0	0	0	0	0	0	0	0
FEEC	technical sciences and disciplines	0	0	0	0	1	0	3	4
FIT	technical sciences and disciplines	0	0	0	0	0	0	1	1
FBM	economy	0	0	0	0	41	0	1	42
FME	technical sciences and disciplines	0	0	0	0	0	0	0	0
IFE	technical sciences and disciplines	0	0	0	0	0	0	0	0
Total		**4**	**0**	**0**	**0**	**44**	**0**	**5**	**53**

Tab. 4.5 Students over 30 years of age

Faculty	Accredited degree programme groups	Bc.		Mgr.		follow-up Mgr.		Ph.D.	Total
		FT	C	FT	C	FT	C		
FA	technical sciences and disciplines	4	0	0	0	4	0	52	60
FCE	technical sciences and disciplines	4	152	0	3	9	10	120	298
FFA	culture and art sciences and disciplines	5	0	0	0	9	0	13	27
FC	technical sciences and disciplines / natural sciences and disciplines	0	26	0	0	0	4	19	49
FEEC	technical sciences and disciplines	3	96	0	0	4	44	86	233
FIT	technical sciences and disciplines	1	0	0	0	2	0	35	38
FBM	economy	4	22	0	0	3	70	31	130
FME	technical sciences and disciplines	3	68	0	0	4	76	107	258
IFE	technical sciences and disciplines	0	0	0	0	12	0	52	64
Total		**24**	**364**	**0**	**3**	**47**	**204**	**515**	**1 157**

4.6 University drop-outs

The relatively high number of dropouts, particularly during the first years of Bachelor's degree programmes, is a recurring problem of technical universities. Efforts to further reduce the number of dropouts by reforming the content and structure of the Bachelor's degree courses would only bring about lower quality of graduates. This is characteristic of technical universities in an effort to educate good creative graduates for the industrial practice. The drop-out rate keeps the number of drop outs at approximately the same level. Tab. 4.6 lists students that dropped out in 2011.

Tab. 4.6 Dropouts from accredited degree programmes

Programme group	Master field 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	9	9
technical sciences and disciplines	21-39	2 528	593	0	1	561	168	251	4 102
economy	62, 65	287	7	0	0	116	63	25	498
culture and art sciences and disciplines	81, 82	10	0	0	0	4	0	2	16
Total		**2 825**	**600**	**0**	**1**	**681**	**231**	**287**	**4 625**

5

GRADUATES

5.1 Graduates

In the last two years, the number of BUT graduates has been staying level with a slight tendency to grow. As the last non-follow-up Master's students finish their studies, the number of students graduating from follow-up Master's programmes is on an increase. Arranged by programmes and degrees of tertiary education, the numbers are shown in Tab. 5.1, Tab. 2.9_1 lists 2011 graduates by faculty and programme. Table 5.1_3 contains doctoral graduates, their supervisors, and the titles of their theses. Table 5.1_4 lists graduates receiving awards in 2011.

Tab. 5.1 Graduates from BUT accredited degree programmes from 01.01.2011 to 31.12.2011

Programme group	Master field 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	6	6
technical sciences and disciplines	21-39	2 190	151	0	16	2 131	119	129	4 736
economy	62, 65	285	32	0	0	285	135	5	742
culture and art sciences and disciplines	81, 82	26	0	0	0	33	0	1	60
Total		**2 501**	**183**	**0**	**16**	**2 449**	**254**	**141**	**5 544**
Percentage of Bachelor's graduates registered in the academic year for a follow-up Master's programme at the same university									*78,65 %*

Tab. 5.1_1 Graduates from accredited degree programmes from 01.01.2011 to 31.12.2011 by faculty and programme

Faculty	Programme	Men	Women	Including international students	Total
FA	B3501	42	40	12	82
FA	N3501	51	44	14	95
FCE	B3503	18	27	3	45
FCE	B3607	468	173	28	641
FCE	B3609	4	2	0	6
FCE	B3646	32	29	5	61
FCE	M3607	14	2	0	16
FCE	N3504	8	17	2	25
FCE	N3607	405	186	31	591
FCE	N3646	19	17	5	36
FCE	P3607	26	6	0	32
FFA	B8206	13	13	2	26
FFA	N8206	15	18	6	33
FFA	P8206	1	0	0	1
FC	B2801	34	44	3	78
FC	B2825	4	7	0	11
FC	B2901	9	13	4	22
FC	N2805	15	33	4	48
FC	N2806	5	17	1	22
FC	N2820	8	5	2	13

FC	N2901	6	45	3	51
FC	P1404	5	1	0	6
FC	P2805	5	8	0	13
FC	P2820	2	1	0	3
FC	P2901	0	2	0	2
FEEC	B2643	420	2	67	422
FEEC	B3930	40	30	3	70
FEEC	N2643	536	16	62	552
FEEC	P2613	25	2	5	27
FIT	B2646	311	13	67	324
FIT	N2646	223	10	64	233
FIT	P2646	4	0	0	4
FIT	P2651	5	1	0	6
FBM	B6208	86	113	9	199
FBM	B6209	100	18	14	118
FBM	N6208	211	200	25	411
FBM	N6209	7	2	2	9
FBM	P6208	1	4	0	5
FME	B2341	470	20	29	490
FME	B3901	73	16	9	89
FME	N2301	381	21	14	402
FME	N2344	4	0	0	4
FME	N2345	3	0	3	3
FME	N3901	78	18	5	96
FME	P2302	17	0	1	17
FME	P2303	1	0	0	1
FME	P3901	9	1	0	10
FME	P3910	6	1	0	7
FME	P3913	1	1	0	2
FME	P3920	0	3	0	3
IFE	N3917	48	31	6	79
IFE	P3917	2	0	0	2
Total		**4 271**	**1 273**	**510**	**5 544**

Tab. 5.1_2 Graduates from accredited degree programmes from 01.01.2011 to 31.12.2011 by faculty

Faculty	Graduates in degree programmes				Total
	Bc.	Mgr.	follow-up Mgr.	Ph.D.	
FA	82	0	95	0	177
FCE	753	16	652	32	1 453
FFA	26	0	33	1	60

FC	111	0	134	24	269
FEEC	492	0	552	27	1 071
FIT	324	0	233	10	567
FBM	317	0	420	5	742
FME	579	0	505	40	1 124
IFE	0	0	79	2	81
Total	**2 684**	**16**	**2 703**	**141**	**5 544**

Tab. 5.1_3 BUT doctoral graduates in 2011

Fac.	Name	Thesis title and supervisor
FA	Ing. arch. Najeh Mohammed Mohammed Al-Ibrahim	Integrating social life and urban space syntax. Supervisor: doc. Ing. arch. Maxmilián Wittmann, Ph.D.
FA	Ing. arch. Martin Kovařík	Anthropometric research of the adult population and its application in interior and architecture. Supervisor: prof. Ing. arch. Jiljí Šindlar, CSc.
FCE	Ing. Jan Přikryl	Study of the influence of fine-grained additives on the development of physical and mechanical properties of concrete. Supervisor: prof. Ing. Rudolf Hela, CSc.
FCE	Ing. Ondřej Horký	Innovating selected spatterdash and mortar masses with secondary raw-materials. Supervisor: doc. Ing. Jiří Bydžovský, CSc.
FCE	Ing. Pavla Matulová	Development of new grouting masses using secondary materials. Supervisor: prof. Ing. Rostislav Drochytka, CSc.
FCE	Ing. Roman Nosek	Optimizing the sewer network reconstruction process. Supervisor: doc. Ing. Jaroslav Raclavský, Ph.D.
FCE	Ing. Lubomír Jaroš	Using artificial-intelligence methods for operative control of the high-water low-rate of a reservoir. Supervisor: prof. Ing. Miloš Starý, CSc.
FCE	Ing. Jaroslav Vošmera	Indoor environment of overpressure hall-like buildings and ways of improving its quality. Supervisor: doc. Ing. Ladislav Štěpánek, CSc.
FCE	Ing. Lubor Kalousek	Hypothetical reconstructions of early Christian religious buildings in Great Moravia. Supervisor: doc. Ing. Milan Vlček, CSc.
FCE	Ing. Aleksandra Ručková Sala	Integrated protection of land against the unfavourable effects of the surface-water run-off. Supervisor: doc. Ing. Miroslav Dumbrovský, CSc.
FCE	Ing. Beáta Jánošová	Integrated system or waste water reuse. Supervisor: doc. Ing. Petr Hlavínek, CSc.
FCE	Ing. Michal Doněk	Axially loaded pile groups. Supervisor: doc. Ing. Jan Masopust, CSc.
FCE	Ing. Soňa Bártová	Use of solar energy for air-conditioning systems in low-energy houses. Supervisor: doc. Ing. Jiří Hirš, CSc.
FCE	Ing. Josef Bahr	Using phase transitions of heat carrying agents for improving the efficiency of air-conditioning systems. Supervisor: doc. Ing. Jiří Hirš, CSc.
FCE	Ing. Tomáš Alexa	Removing jointing mortar moisture by microwave warming. Supervisor: doc. Ing. Miloslav Novotný, CSc.
FCE	Ing. David Bečkovský	Methodology for material composition of structures with PCM materials from the point of view of building physics. Supervisor: doc. Ing. Miloš Kalousek, Ph.D.
FCE	Ing. Petra Církvová	Analysis of flood hazard risk to people. Supervisor: doc. Ing. Aleš Dráb, Ph.D.
FCE	Ing. Martin Deutsch	Influence of passive solar systems on the energy budget of a building. Supervisor: Ing. Danuše Čuprová, CSc.
FCE	Ing. František Girgle	Analysis of the anchoring parts of components pre-stressed by non-metal reinforcement. Supervisor: prof. RNDr. Ing. Petr Štěpánek, CSc.
FCE	Ing. Zbyněk Hlaváč	Probability analysis of the sag of reinforced-concrete slabs by non-destructive testing. Supervisor: Ing. Petr Cikrle, Ph.D.
FCE	Ing. Jiří Hodák	Risk analysis of earthfill dams. Supervisor: doc. Ing. Jan Jandora, Ph.D.

FCE	Ing. Petr Janál	Using a fuzzy model to predict water drain from a basin during a flood caused by torrential rains. Supervisor: prof. Ing. Miloš Starý, CSc.
FCE	Ing. Eduard Křivánek	Reduction of the energy consumption of air-conditioning system using co-generation. Supervisor: doc. Ing. Jiří Hirš, CSc.
FCE	Ing. Petr Mitrenga	Influence of coarse stone on the concrete elasticity modules. Supervisor: Ing. Petr Cikrle, Ph.D.
FCE	Ing. Jana Pexová	Rehabilitation of the traditional wooden ceiling structures using a concrete-slab-coupling method. Supervisor: doc. Ing. Miloslav Novotný, CSc.
FCE	Ing. Jan Plšek	Optimization of the design of concrete structures. Supervisor: prof. RNDr. Ing. Petr Štěpánek, CSc.
FCE	Ing. Jiří Rak	Influence of an information system on production quality. Supervisor: doc. Ing. Karel Kulísek, CSc.
FCE	Ing. Martin Sedlmajer	Study of the durability of concretes exposed to frost and chemically aggressive environment. Supervisor: prof. Ing. Rudolf Hela, CSc.
FCE	Ing. Michal Štrba	Steel brace anchors loaded by cyclic tensile force. Supervisor: doc. Ing. Marcela Karmazínová, CSc.
FCE	Ing. Jan Tureček	Bed-forming processes in the river Ostravice from the point of view of special constructions and anomalous phenomena. Supervisor: doc. Ing. Jaroslav Veselý, CSc.
FCE	Ing. Jan Vítek	Non-traditional shell design of a bridge for pedestrian and cyclists. Supervisor: prof. Ing. Jiří Stráský, DSc.
FCE	Ing. Martin Zlámal	Reinforcing brick vaults with additional non-prestressed reinforcement. Supervisor: prof. RNDr. Ing. Petr Štěpánek, CSc.
FCE	Ing. Michal Kriška-Dunajský	Research of the properties of filtering materials for earth filters and root treatment plants. Supervisor: prof. Ing. Jan Šálek, CSc.
FCE	RNDr. Milan Šálek	Combining data from meteorological radars and rain gauges to predict precipitation. Supervisor: prof. Ing. Miloš Starý, CSc.
FFA	MgA. Alexander Peroutka	Identity and information. Supervisor: doc. MgA. Marian Palla.
FEEC	Ing. Petr Kejík	Optimizing access to CDMA networks. Supervisor: prof. Ing. Stanislav Hanus, CSc.
FEEC	Ing. Marek Bobula	Contribution to effective use of a narrowband radio channel. Supervisor: prof. Ing. Aleš Prokeš, Ph.D.
FEEC	Ing. Assaid Othman Sharoun	Digital and programmable functional blocks working in the residual number system. Supervisor: prof. Ing. Vladislav Musil, CSc.
FEEC	Ing. Ibrahim R. H. Ben Ayad	Processing analogue signal with current-feedback integrated amplifiers. Supervisor: prof. Ing. Vladislav Musil, CSc.
FEEC	Ing. Jana Jílková	Multi-criteria optimisation in EMC. Supervisor: prof. Dr. Ing. Zbyněk Raida.
FEEC	Ing. Peter Kovács	Design and optimisation of structures with electromagnetic retention band. Supervisor: Ing. Zbyněk Lukeš, Ph.D.
FEEC	Ing. Jan Puskely	Reconstructing antenna near-fields. Supervisor: doc. Ing. Zdeněk Nováček, CSc.
FEEC	Ing. Tibor Jirák	Materials and components for li-ion accumulators. Supervisor: prof. Ing. Jiří Vondrák, DrSc.
FEEC	Ing. Miroslav Skalka	Analysing the effect of the mechanical moment of an asynchronous machine on the intrinsic induction of a magnetic circuit. Supervisor: doc. Ing. Čestmír Ondrůšek, CSc.
FEEC	Ing. Petr Špičák	Study of metal hydroxides and oxides in water solutions. Supervisor: prof. Ing. Jiří Kazelle, CSc.
FEEC	Ing. Olga Archalousová	Singular initial problem for ordinary differential and integro-differential equations. Supervisor: doc. RNDr. Zdeněk Šmarda, CSc.
FEEC	Ing. Ondřej Baran	Study of the effects of frequency instabilities of oscillators in satellite systems. Supervisor: prof. Ing. Miroslav Kasal, CSc.
FEEC	Ing. Jaroslav Klimek	Solutions of difference equations and their relationship with the Z-transformation. Supervisor: prof. RNDr. Josef Diblík, DrSc.
FEEC	Ing. Michal Pokorný	Modelling microwave semiconductor structures. Supervisor: prof. Dr. Ing. Zbyněk Raida.
FEEC	Ing. Martin Štumpf	Pulse electromagnetic radiation of slot antennas. Supervisor: Ing. Jaroslav Láčík, Ph.D.
FEEC	Ing. Martin Švrček	New approaches to optical measurements of the electric myocardium activity. Supervisor: prof. Ing. Ivo Provazník, Ph.D.
FEEC	Ing. Martin Vítek	Automatic delineation of ECG signals. Supervisor: doc. Ing. Jiří Kozumplík, CSc.

FEEC	Ing. Mahmoud Shaktour	Non-conventional circuit elements for ladder-filter design. Supervisor: prof. Ing. Dalibor Biolek, CSc.
FEEC	Ing. Jiří Hošek	New methods of ensuring high quality of data network services. Supervisor: doc. Ing. Karol Molnár, Ph.D.
FEEC	Ing. Jan Jeřábek	Frequency filters with current active elements. Supervisor: prof. Ing. Kamil Vrba, CSc.
FEEC	Ing. Jan Mikulka	Segmentation methods for processing biomedical images. Supervisor: prof. Ing. Eva Gescheidtová, CSc.
FEEC	Ing. Jaromír Bok	Resistance of appliances to short-term voltage drops and failures. Supervisor: doc. Ing. Jiří Drápela, Ph.D.
FEEC	Ing. Drahomír Pernica	Non-contact indicators of failure states in high-voltage transmission lines. Supervisor: doc. Ing. Petr Toman, Ph.D.
FEEC	Ing. Jan Škoda	Non-conventional measurement methods in photometry. Supervisor: doc. Ing. Petr Baxant, Ph.D.
FEEC	Ing. David Topolánek	Localizing the ground connection place in a compensated distribution network. Supervisor: doc. Ing. Petr Toman, Ph.D.
FEEC	Ing. Martin Koutný	Modelling data communication access methods along high-voltage transmission lines. Supervisor: doc. Ing. Jiří Mišurec, CSc.
FEEC	Ing. Ondřej Krajsa	Multi-tone modulation implemented by a filter bank. Supervisor: Ing. Pavel Šilhavý, Ph.D.
FC	Ing. Jiří Navrátil	Optoelectronic properties of organic semiconductors. Supervisor: doc. Ing. Martin Weiter, Ph.D.
FC	Ing. Martin Moos	Pre-concentration techniques for determining the amount of uranium using modified sorbents. Supervisor: prof. RNDr. Lumír Sommer, DrSc.
FC	Ing. Ludmila Mravcová	Use of gas- and fluid-chromatography-based separation techniques with different detector types to determine biologically active substances and selected xenobiotics. Supervisor: prof. RNDr. Milada Vávrová, CSc.
FC	Ing. Lucie Vydrová	Use of separation methods for studying biologically active substances in waters. Supervisor: prof. RNDr. Milada Vávrová, CSc.
FC	Ing. Zuzana Měřínská	Removing selected constituents from water by coagulation. Supervisor: prof. RNDr. Milada Vávrová, CSc.
FC	Ing. Jaroslav Cihlář	Study of perovskit oxide catalysts for partial methane oxidization. Supervisor: doc. Ing. Pavel Čičmanec, Ph.D.
FC	Mgr. Oldřich Živný	Calculation of standard thermodynamic functions of simple compounds in the thermal plasma conditions. Supervisor: doc. RNDr. František Krčma, Ph.D.
FC	Ing. Rutul Rajendra Trivedi	Study of the surfaces of thin-layer materials. Supervisor: prof. RNDr. Vladimír Čech, Ph.D.
FC	Ing. Soňa Kontárová	Nanolayered composites. Supervisor: prof. RNDr. Vladimír Čech, Ph.D.
FC	Ing. Kamil Křůmal	Analysis of organic markers to identify the sources of atmospheric aerosols. Supervisor: Ing. Zbyněk Večeřa, CSc.
FC	Ing. Jan David	Production, characterization, and design of applications of regenerated humic acids. Supervisor: doc. Ing. Jiří Kučerík, Ph.D.
FC	Ing. Ivo Soural	Study of plasma processes in afterglow. Supervisor: doc. RNDr. František Krčma, Ph.D.
FC	Ing. Roman Szkandera	Developing a technique of diffusion gradient in thin films (DGT) to determine mercury in water systems. Supervisor: prof. RNDr. Hana Dočekalová, CSc.
FC	Ing. Zuzana Pavlitová Letková	Ecotoxicological evaluation of selected industrial waste materials and inorganic composites with their content. Supervisor: prof. RNDr. Milada Vávrová, CSc.
FC	Ing. Pavel Krejčí	Study of miniature devices for the collection of hydride-generating elements in atomic spectroscopy. Supervisor: doc. RNDr. Bohumil Dočekal, CSc.
FC	Ing. Hana Lisá	Problems of determining medicament residuals in waste water. Supervisor: prof. RNDr. Milada Vávrová, CSc.
FC	Ing. Jana Trávníčková	Transport of metals in the soil/plant system. Comparing the active and passive sampling methods (technique of diffusion gradient in thin films). Supervisor: prof. RNDr. Hana Dočekalová, CSc.
FC	Ing. Petra Bursáková	Hydrating of humic substances. Supervisor: doc. Ing. Martina Klučáková, Ph.D.
FC	Ing. Jana Navrátilová	Methods of speciation analysis of arsenic compounds. Supervisor: prof. Ing. Peter Šimko, DrSc.
FC	Ing. Štěpánka Trachtová	Study of reversible adsorption of nucleic acids on solid surfaces. Supervisor: doc. Ing. Bohuslav Rittich, CSc.
FC	Ing. Lukáš Čapka	Using capillary zone electrophoresis to identify selected analgesics in water. Supervisor: prof. RNDr. Milada Vávrová, CSc.

FC	Ing. Věra Hezinová	Development of instrumentation and methodology in proteomic and environmental analysis. Supervisor: Ing. Karel Klepárník, CSc.
FC	Ing. Lukáš Kalina	Geopolymer-based synthesis of aluminate-silicate systems oriented towards the use of secondary materials. Supervisor: prof. Ing. Jaromír Havlica, DrSc.
FC	Ing. Terezie Starečková	Use of waste material to produce enriched yeast-cell biomass. Supervisor: doc. RNDr. Ivana Márová, CSc.
FIT	Ing. Tomáš Herrman	Methodology of circuit test application based on the identification of testable blocks. Supervisor: doc. Ing. Zdeněk Kotásek, CSc.
FIT	Ing. Jaroslav Kadlec	Code Characterization for Automated User Interface Creation. Supervisor: doc. Dr. Ing. Pavel Zemčík.
FIT	Ing. Vítězslav Beran	On-line Data Analysis Based on Visual Codebooks. Supervisor: doc. Dr. Ing. Pavel Zemčík.
FIT	Mgr. Lukáš Holík	Simulations and Antichains for Efficient Handling of Finite Automata. Supervisor: prof. Ing. Tomáš Vojnar, Ph.D.
FIT	Ing. Michal Španěl	Delaunay-based Vector Segmentation of Volumetric Medical Images. Supervisor: doc. Ing. Přemysl Kršek, Ph.D.
FIT	Ing. Zbyšek Gajda	Evolutionary Approach to Synthesis and Optimization of Ordinary and Polymorphic Circuits. Supervisor: prof. Ing. Lukáš Sekanina, Ph.D.
FIT	Ing. Zdeněk Přikryl	Advanced Methods of Microprocessor Simulation. Supervisor: prof. Ing. Tomáš Hruška, CSc.
FIT	Ing. Pavla Sehnalová	Stability and Convergence of Numerical Computations. Supervisor: doc. Ing. Jiří Kunovský, CSc.
FIT	Ing. Stanislav Machalík	Image analysis in tribotechnical diagnostics. Supervisor: doc. Dr. Ing. Pavel Zemčík.
FIT	Ing. Jaroslav Rozman	Mobile robot navigation. Supervisor: doc. Ing. František Zbořil, CSc.
FBM	Ing. Vladimír Bartošek	Joint production planning in a logistic network. Supervisor: prof. Ing. Marie Jurová, CSc.
FBM	Ing. Lenka Černohorská	Corporate social responsibility measurement methodology. Supervisor: doc. RNDr. Anna Putnová, Ph.D., MBA.
FBM	Ing. Zuzana Němcová	Strategic management of a company e-shop. Supervisor: prof. Ing. Jiří Dvořák, DrSc.
FBM	Ing. Kristína Estélyiová	Establishing strategic partnerships in a selected region. Supervisor: prof. Ing. Vojtěch Koráb, Dr., MBA.
FBM	Ing. Klára Placier	Effects of recession on applying corporate social responsibility. Supervisor: doc. RNDr. Anna Putnová, Ph.D., MBA.
FME	Ing. Jan Křepela	Dynamic properties of the C-axis for a multifunctioal lathe centre. Supervisor: doc. Ing. Vladislav Singule, CSc.
FME	Ing. Hana Bellerová	Development of inverse heat transfer problems focusing on very fast processes on microscopic scales. Supervisor: prof. Ing. Miroslav Raudenský, CSc.
FME	Ing. Jan Boháček	Effect of flow parameters of water and air atomized sprays on cooling intensity of hot surfaces. Supervisor: prof. Ing. Jaroslav Horský, CSc.
FME	Mgr. Kateřina Brillová	Using spectral analysis in 3D evaluation of surfaces. Supervisor: doc. RNDr. Miloslav Ohlídal, CSc.
FME	Ing. Petr Cupák	Study of biogenous binders. Supervisor: prof. Ing. Karel Rusín, DrSc.
FME	Ing. et Ing. Aleš Horák	Experiment design for solving the inverse heat transfer problem. Supervisor: prof. Ing. Miroslav Raudenský, CSc.
FME	Ing. Lukáš Vavrečka	Effect of the high pressure water beam parameters on the quality of descaled surface. Supervisor: prof. Ing. Jaroslav Horský, CSc.
FME	Ing. Daniel Himr	Solution of nonlinear hydraulic networks. Supervisor: prof. Ing. František Pochylý, CSc.
FME	Ing. René Karásek	Transfer of heavy metals during waste incineration. Supervisor: doc. Ing. Zdeněk Skála, CSc.
FME	Ing. Zdeněk Sloupenský	Design of a centrifugal pump by methods of differential geometry. Supervisor: prof. Ing. František Pochylý, CSc.
FME	Ing. Vladimír Hubík	Electric actuating mechanisms for critical applications. Supervisor: doc. Ing. Vladislav Singule, CSc.
FME	Ing. Josef Novák	Methods of analysing aircraft operation and testing reliability data. Supervisor: doc. Ing. Karel Třetina, CSc.
FME	Ing. Vít Ondroušek	Use of reinforcement learning for four legged robot control. Supervisor: doc. RNDr. Ing. Tomáš Březina, CSc.
FME	Ing. Jan Pavlík	Problems of fast automatic exchange of machine cutting tools. Supervisor: prof. Ing. Zdeněk Kolíbal, CSc.

FME	Ing. Jan Pilch	Study of functional properties of thin NiTi threads for applications in smart structures and fabrics. Supervisor: prof. RNDr. Jaroslav Pokluda, CSc.
FME	Ing. Josef Polčák	Analysing solid body surfaces by photoelectrons – computer controlled experiments. Supervisor: prof. RNDr. Tomáš Šikola, CSc.
FME	Ing. Lenka Puskeilerová	Security of operation of ammonia refrigeration in ice arenas. Supervisor: prof. Ing. František Babinec, CSc.
FME	Ing. Milan Turek	Intelligent controller of an active magnetic bearing. Supervisor: doc. RNDr. Ing. Tomáš Březina, CSc.
FME	Ing. Dita Janíková	Model for economic process simulation (low quality costs monitoring). Supervisor: doc. Ing. Alois Fiala, CSc.
FME	Ing. Martin Nesvadba	Intelligent testing procedures of low-voltage asynchronous-motor traction drives. Supervisor: doc. Ing. Vladislav Singule, CSc.
FME	Ing. Michal Potoček	Thermal Desorption Spectroscopy (TDS) method and its application to research of surface processes. Supervisor: prof. RNDr. Petr Dub, CSc.
FME	Ing. Pavel Ryšavý	Stress-strain analysis of abdominal aortic aneurysm. Supervisor: prof. Ing. Jiří Burša, Ph.D.
FME	Ing. Michal Sikora	Innovation of the cooling system of electric rotating machines using CFD methods. Supervisor: prof. Ing. Ctirad Kratochvíl, DrSc.
FME	Ing. David Svída	Reduction of vibration and acoustic emissions of drive units by applying a virtual motor. Supervisor: prof. Ing. Václav Píštěk, DrSc.
FME	Ing. Pavlína Šamánková	Risk assessment of contaminated sites, case study of a landfill. Supervisor: prof. Ing. František Babinec, CSc.
FME	Ing. Josef Zapletal	Low-cycle and high-cycle fatigue behaviour of ADI. Supervisor: prof. Ing. Stanislav Věchet, CSc.
FME	Ing. Josef Pavlík	Selected problems in the diagnostics of insulation systems of electric rotating machines. Supervisor: doc. Ing. Miloš Hammer, CSc.
FME	Ing. Stanislava Dvořáková	Qualitative and numerical analysis of nonlinear delay differential equations. Supervisor: doc. RNDr. Jan Čermák, CSc.
FME	Dipl.-Ing. (FH) Thomas Elsäßer	Perspective methods of sewage sludge utilisation for energy production. Supervisor: prof. Ing. Petr Stehlík, CSc.
FME	Ing. Lubomír Fiedler	Fracture behaviour of tube polyolefins. Supervisor: prof. RNDr. Bohumil Vlach, CSc.
FME	Ing. Jan Fišer	Optimizing the microclimate in the cockpit of a small transport aircraft. Supervisor: prof. Ing. Miroslav Jícha, CSc.
FME	Ing. Filip Hort	Using the acoustic emission method to improve the diagnosis of damage to radial bearings. Supervisor: doc. Ing. Pavel Mazal, CSc.
FME	Ing. Martin Houfek	Design and construction of an experimental set to test the acetabulum of a TEP hip joint and determining the wear using an optical method. Supervisor: Ing. Zdeněk Florian, CSc.
FME	Ing. Adam Kracík	Mathematical model of the hardness distribution on a supporting cylinder. Supervisor: doc. RNDr. Bohumil Maroš, CSc.
FME	Ing. Jaroslav Kratochvíl	Design of Mitsuoka Kit Car. Supervisor: doc. akad. soch. Miroslav Zvonek, Ph.D.
FME	Ing. Petr Lošák	Optimization of modal damping for high pressure stages of a steam turbine. Supervisor: prof. Ing. Eduard Malenovský, DrSc.
FME	Ing. Jakub Roupec	Limit and degradation processes of magnetorheological suspension dampers. Supervisor: doc. Ing. Ivan Mazůrek, CSc.
FME	Ing. Petr Šperka	In-situ study of a change in the topography of the friction surfaces in an elastohydrodynamic contact. Supervisor: prof. Ing. Martin Hartl, Ph.D.
FME	Ing. František Vlašic	Evaluation of cyclic damage to aluminium- and magnesium-based alloys using the method of acoustic emission. Supervisor: doc. Ing. Pavel Mazal, CSc.
FME	Ing. Martin Zimmerman	Behaviour of the EHD lubrication during abrupt velocity and load changes. Supervisor: prof. Ing. Martin Hartl, Ph.D.
IFE	Ing. Jan Kůrka	Applying long-term condition monitoring to assess the existing railway arched masonry bridges. Supervisor: prof. Ing. Leonard Hobst, CSc.
IFE	Ing. Martin Brumovský	Standardizing and harmonizing the forensic procedure for assessing the usual property price. Supervisor: Ing. Milan Šmahel, Ph.D.

For her excellent study and research results in 2011, Ing. Kateřina Klimčáková won the prestigious prize of the Ministry of Education, Youth, and Sports awarded to excellent students of and graduates from the Applied Sciences in Engineering degree programme.

Tab. 5.1_4 2011 Awards for students and graduates

The Ministry of Education Prize		
	FME	Kateřina Klimčáková
Best Graduate Rector Award		
	FCE	Juraj Komačka
	FFA	Vojtěch Vaněk
	FEEC	Jan Ježík
	FC	Zuzana Olejníčková
	FIT	István Szentandrási
	FME	Petr Minář
Josef Hlávka Award		
	FME	Zdeněk Dančák
	FEEC	Tomáš Teska
	FIT	Václav Bartoš
	FC	Vojtěch Enev
	FFA	Michaela Mikovčáková
PRECIOSA Foundation Award		
	FEEC	Marek Požár
	FC	Magdalena Lukešová
	FME	David Košťál
Joseph Fourier computer science award		
	FIT	Ing. Zdeněk Vašíček

5.2 Cooperation with BUT graduates

In 2011, Brno University of Technology launched a new website at http://www.vutbr.cz/absolventi to inform its graduates on the educational, cultural, and sports events taking place at the university and also on jobs offered. There are also two BUT alumni clubs of former students of three faculties – mechanical engineering, electrical engineering and communication, and information technology. A second meeting of alumni took place at the Faculty of Business and Management in September 2011.

5.3 BUT graduate employment surveys and use of the results of such surveys

A fifth survey took place in 2011 on BUT graduates employed, with the graduates surveyed including those graduating from the 2009 and 2010 Master's programmes. 48 percent of the graduates surveyed responded.

As part of the project, Cooperation between Brno Universities and the Application Sphers, BUT co-organized a survey of cooperation between companies and universities – focusing on jobs for graduates, internships, and work with talented students. The information thus obtained will be used mostly in career consulting provided for the students by the Lifelong Learning Institute to help them obtain a job and get prepared for an interview.

5.4 Cooperation with the future employers of BUT graduates

BUT students and graduates can find offers of on-the-job training, internships, and job vacancies at the BUT and faculty websites.

The BUT Institute of Lifelong Learning offers to companies and job-consulting agencies free presentations and workshops for students.

In 2011, BUT co-organized JobChallenge, the largest Brno job fair, which was held on 9th November 2011. An iKariéra fair also took place at the Faculty of Business and Management and the Faculty of Electrical Engineering and Communication organized by IAEASTE, a student organization.

At every faculty, company presentations are organized to establish cooperation and offer jobs – in addition to events related to a single partner, there are also larger-scale presentations such as Day of Companies at the Faculty of Mechanical Engineering, Day of Chemistry at the faculty of Chemistry. The Faculty of Electrical Engineering and Communication then hosted a JobFair FEEC 2011.

6



DEMAND FOR STUDIES

6.1 BUT study applicants

Long term statistics show that the demand for studies at BUT has been growing at a constant rate. The number of applications submitted in 2011 was 22,357 with the students enrolled being by 300 more in number than in the previous year. The percentage of the students actually enrolled is not decreasing. This means that, of all the applications submitted to different universities, the applicants give those submitted to our university high priority. Tab. 6.1 shows the demand for each group of degree programmes and faculty while Tab. 6.2 gives the numbers of Master's students receiving Bachelor's degree from another university.

Tab. 6.1 Demand for BUT studies in 2011

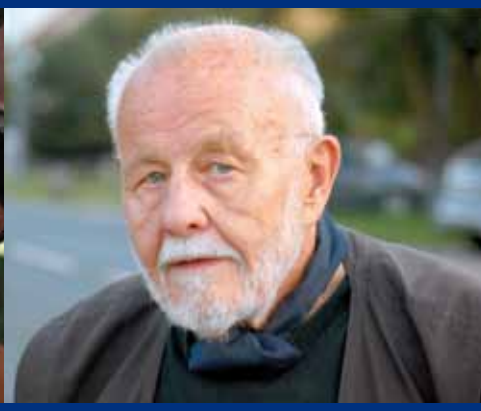
Fac.	Accredited degree programme groups	Bc.			follow-up Mgr.			Ph.D.		
		Applicants	Admitted	Enrolled	Applicants	Admitted	Enrolled	Applicants	Admitted	Enrolled
FA	technical sciences and disciplines	659	219	100	133	102	96	47	35	35
FCE	technical sciences and disciplines	4 233	2 860	1 887	1 137	911	772	130	110	253
FFA	culture and art sciences and disciplines	496	45	44	69	35	35	8	6	6
FC	technical sciences and disciplines / natural sciences and disciplines	1 017	652	450	216	150	134	47	42	130
FEEC	technical sciences and disciplines	1 772	1 157	984	815	771	598	116	96	90
FIT	technical sciences and disciplines	1 288	751	664	436	288	266	49	38	38
FBM	economy	3 483	1 792	839	2 232	1 193	712	35	21	16
FME	technical sciences and disciplines	2 435	1 621	1 387	964	963	658	108	90	81
IFE	technical sciences and disciplines	0	0	0	375	295	265	57	35	33
Total		**15 383**	**9 097**	**6 355**	**6 377**	**4 708**	**3 536**	**597**	**473**	**682**

Tab. 6.2 Master's students with Bachelor's degree from another university

BUT	percentage of enrolled first-year BUT students	
	follow-up Mgr.	Ph.D.
FA	28,1	25,7
FCE	5,2	5,1
FFA	37,1	50,0
FC	33,6	4,6
FEEC	8,0	16,7
FIT	7,1	10,5
FBM	49,2	25,0
FME	15,0	16,0
IFE	17,0	24,2
BUT average	**22,3**	**19,8**

7





ACADEMICS

7.1 Teachers

Tab. 7.1 lists the teacher and research staff numbers recalculated and structured by the university's internal qualification rules. Tab. 7.2 arranges these numbers by employment proportion and the highest qualification achieved, Tab. 7.4 contains numbers of teachers from other countries, Tab. 7.5 lists the professors and associate professors appointed in 2011.

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

BUT	Teachers						Research staff***	Total
	Total	Professors	Senior lectures	Senior assistans	Assistans	Instructors		
FFA	32,207	4,797	4,236	13,177	9,997	0	0	32,207
FCE	323,571	25,062	63,6	168,887	66,022	0	12,105	335,676
FME	272,119	41,353	69,31	133,371	28,086	0	8,886	281,005
FIT	61,433	6,504	18,28	30,673	5,98	0	0	61,433
FA	43,307	5,848	15,19	13,712	8,559	0	0	43,307
FC	60,365	10,576	14,31	34,482	0	1	10,09	70,455
FBM	80,619	9,15	15,25	39,594	16,627	0	0,193	80,812
FEEC	205,515	29,124	65,72	87,514	23,157	0	14,544	220,059
CSA	16,283	0,7	0,676	4,958	9,949	0	0	16,283
IFE	9,133	2,533	2	4,6	0	0	0	9,133
Total	**1 104,552**	**135,647**	**268,56**	**530,968**	**168,377**	**1**	**45,818**	**1 150,37**

*Note: * = Faculty or university constituent part offering an accredited degree programme/field of study. ** = (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). *** = In this case, research staff includes all persons that are not teachers (under Section 70 of Act no. 111/1998 Coll. concerning universities).*

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

BUT	Teachers										Research staff***		Total
	Professors		Sen. lectures		Senior assistans		Assistans		Instructors				
	total	fem.	total	fem.	total	fem.	total	fem.	total	fem.	total	fem.	
up to 29	0	0	0	0	22	5	76	23	0	0	13	3	111
30–39	1	0	55	1	310	45	99	29	0	0	36	10	501
40–49	14	0	51	8	73	24	26	16	1	1	8	1	173
50–59	50	3	86	14	93	47	7	6	0	0	10	0	246
60–69	57	6	82	13	74	33	1	1	0	0	5	1	219
over 70	36	0	36	4	8	0	2	1	0	0	6	0	88
Total	**158**	**9**	**310**	**40**	**580**	**154**	**211**	**76**	**1**	**1**	**78**	**15**	**1 338**

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

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

BUT	Teachers				Total
FFA					
Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	0	1	0	0	**1**
up to 0,5	2	1	0	6	**9**
up to 0,7	0	0	0	0	**0**
up to 1,0	3	3	0	21	**27**
FCE					
Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	3	4	4	17	**28**
up to 0,5	3	12	10	21	**46**
up to 0,7	0	1	1	3	**5**
up to 1,0	23	58	125	88	**294**
FME					
Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	5	12	15	9	**41**
up to 0,5	10	8	6	9	**33**
up to 0,7	5	6	10	1	**22**
up to 1,0	34	60	110	34	**238**
FIT					
Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	0	1	1	0	**2**
up to 0,5	0	0	0	1	**1**
up to 0,7	0	1	3	3	**7**
up to 1,0	7	17	23	10	**57**
FA					
Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	1	0	0	0	**1**
up to 0,5	0	0	0	0	**0**
up to 0,7	0	0	0	0	**0**
up to 1,0	6	15	7	17	**45**

FC

Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	3	0	1	0	**4**
up to 0,5	1	2	3	1	**7**
up to 0,7	1	3	0	0	**4**
up to 1,0	9	11	31	4	**55**

FBM

Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	0	0	0	0	**0**
up to 0,5	1	4	4	8	**17**
up to 0,7	1	0	1	4	**6**
up to 1,0	8	13	35	12	**68**

FEEC

Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	2	5	6	11	**24**
up to 0,5	2	3	3	9	**17**
up to 0,7	2	3	3	8	**16**
up to 1,0	27	66	70	24	**187**

CSA

Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	0	4	0	2	**6**
up to 0,5	0	0	0	2	**2**
up to 0,7	1	0	0	0	**1**
up to 1,0	0	0	2	14	**16**

IFE

Employment proportion	Professors	Senior lecturers	DrSc., CSc., Dr., Ph.D., Th.D.	others	
up to 0,3	0	0	0	0	**0**
up to 0,5	1	0	0	0	**1**
up to 0,7	1	0	1	0	**2**
up to 1,0	1	2	3	1	**7**

Tab. 7.4 Teachers from other countries ** (absolute numbers)

FFA	5
FCE	6
FME	3
FIT	1
FA	0
FC	4
FBM	5
FEEC	6
CSA	1
IFE	0
Total	**31**

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

Tab. 7.5 Newly appointed associate professors and professors (numbers)

Faculty	Number	Age average
Faculty 1 (civil engineering)*		
Professors appointed in 2011		
Associate professors appointed in 2011	5	39,2
Faculty 2 (mechanical engineering)*		
Professors appointed in 2011	3	47
Associate professors appointed in 2011	4	42,7
Faculty 3 (electrical engineering and communication)*		
Professors appointed in 2011	1	48
Associate professors appointed in 2011	5	40,6
Faculty 4 (architecture)*		
Professors appointed in 2011		
Associate professors appointed in 2011	1	36
Faculty 5 (business and management)*		
Professors appointed in 2011		
Associate professors appointed in 2011	1	31
Faculty 6 (information technology)*		
Professors appointed in 2011	1	35
Associate professors appointed in 2011		

*Note: * = Faculty or university constituent part offering an accredited degree programme/field of study.*

7.6 Further education courses for BUT academics

Every year due attention is given to further education of BUT teachers and research staff. BUT's own employees are offered English, German, and French 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 changes based on the current demand by the university staff and management. In 2011, there was an increase in the education courses for BUT academics by almost 48 percent (see Tab. 7.6).

Tab. 7.6 Further education courses for BUT academics *

BUT	Number of courses	Number of participants
Courses developing teaching skills	2	51
Courses developing general skills	51	850
Specialised courses		
Total	**53**	**901**

*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.*

8

SOCIAL AFFAIRS OF BUT STUDENTS AND EMPLOYEES

8.1 Social affairs of students

Under the University Act, Brno University of Technology awarded 293 social scholarships and 15,173 accommodation scholarships each month in 2011. These scholarships are paid from the targeted resources of the Ministry of Education, Youth, and Sports. In justified cases, the deans of the faculties and the director of the university institute may also have social scholarships paid. Since 2009, BUT has been using rector's fund to grant scholarships to students in sudden distress.

Tab 8.1 Scholarships paid to students (student numbers)

Scholarship types	Number of students
Merit scholarship	1 443
Scholarship for excellent results in research, development, innovation, arts or creation contributing to knowledge improvement	1 669
Scholarship for research, development, and innovation activity under a special legal regulation	955
Social scholarship	293
Support for studies abroad	1 559
Other extraordinary scholarships	0
Doctoral scholarships	1 444
Accommodation scholarship	15 173

Tab. 8.2 Scholarships paid to students by scholarship purpose (sums)

Scholarship types	Sums in thousand CZK
Merit scholarship	10 164
Scholarship for excellent results in research, development, innovation, arts or creation contributing to knowledge improvement	12 986
Scholarship for research, development, and innovation activity under a special legal regulation	20 921
Social scholarship	3 014
Support for studies abroad	1 450 thousand Euro
Support for studies abroad – CEEPUS	13
Support for studies abroad – development projects	4 667,35
Other extraordinary scholarships	0
Doctoral scholarships	99 296
Accommodation scholarship	75 736

8.3 Quality of the counselling services provided at BUT

The student counselling section is part of the BU Institute of Lifelong Learning. At present, the section's principal activities include professional, psychological, and social-legal counselling for students in 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.

Professional counselling offers

- Soft-skill-developing group activities (time management, assertiveness, presentation skills, personal efficiency, etc.) and preparation for interviews, company presentations, JobChallenge fair.

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

• On-line activities: web seminars on soft-skills and preparation for interviews.

• Enquiries: students are provided with information from graduate employment enquiries, enquiries among companies, and other relevant information sources for improving the chances of getting a good job.

Psychological counselling

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

Study counselling

Informative meetings for first-year students and courses on memory and learning are part of study counselling.

Counselling for students with specific educational needs

This type of counselling is targeted on students and applicants with physical, sensory, and cognitive disablements. Provided is mostly specific information on the admissions and study options and conditions as well as assistance in dealing with the BUT and faculty administration. Information is published at the website of the BUT Institute of Lifelong Learning.

Social and legal counselling

Information is provided on the social benefits an scholarships available and assistance offered in dealing with the public administration bodies and submitting applications. Users of this type of counselling mostly include students from low-income families seeking a solution to a critical situation. This is often connected with other problems in the family – debts, poor health condition of other family members, a low socio-economic status of parents. For this reason, social counselling often involves social work, too. The service has been provided since October 2011.

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 2011

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	263	20	40
Psychological, social	2/0,2	16	230	33	57
Career	2/0,5	16	756	50	1 100
Disabled students, candidates	1/0,8	16	66	12	24
Other	3/0,1	0	19	420	900

Note: Counselling is provided by three employees (two of them being part-time-employed (0.8) and one if full-time employed) and outsourced experts financed from development projects. Counselling is mostly done in a personal or group interview. For consulting by e-mail of phone, „contacts" are counted (including informative calls or e-mail messages).

8.4 Disabled groups of applicants/students at universities

In recent years, BUT has spent considerable sums from different funds on support for disabled students. Thanks to major reconstructions, almost all BUT buildings are equipped with barrier-free access.

8.5 Exceptionally talented students

Care of exceptionally talented students is mostly taken by the faculties. In recent years, BUT has participated in development programmes in support of talented students mostly in engineering and science fields. Active support is also provided for other programmes in this area including Education for Competitiveness operative programmes.

8.6 Accommodation and catering services at BUT

Tab. 8.3 Accommodation, catering

Total number of beds at BUT halls of residence	7 047
Number of beds in hired facilities	0
Number of accommodation applications submitted until 31st December 2011	7 984
Number of accommodation applications granted until 31st December 2011	7 076
Number of bed-days in 2010	1 870 186
Number of main meals sold to students in 2011	1 760 246
Number of main meals sold to BUT staff in 2011	108 200
Number of main meals sold to other diners 2011	90 537

9

INFRASTRUCTURE

9.1 BUT Central Library

The BUT Central Library serves as a coordinating centre of all BUT libraries. It provides consulting services and issues methodological guidelines.

The Central Library runs and administers an Aleph500 library system. Work continued in 2011 on enhancing the catalogue data consistency removing duplicate entries and checking on the existing catalogue entries and repairing them if necessary to improve the services offered. This also included harmonizing the local file of national name authorities with its national base as well as the creation of new authority records

The year 2011 was characterized by integrating the library system with the SAP system. Put into operation, this service made the ordering of books simpler and unified with the new acquisition method became an integral part of its processing. Upgrade to version 20 of Aleph500 was another important step. In order to integrate the library system with other systems, an analysis was made to unify the settings of partial library bases at individual libraries to make the system more user-friendly. Every year in autumn, BUT Central library organizes SU-Aleph, a meeting of Aleph users and, since 2010, it has been chairing this association.

Information courses have existed at BUT several years. Since 2007, they have had an e-learning form using Moodle, a university e-learning system. Attended by more than 2300 students, they are offered at six faculties and one university institute. In 2011 the Central Library started to create a new e-learning course to teach correct citing intended mostly for last-year and doctoral students. Putting into operation a new Citace PRO citation system will also help improve citing.

BUT users have access to several tens of specialised and multi-discipline resources and databases. After the termination of the INFOZ programme, an analysis was launched of the use of the resources available to optimise acquisition. The library portal was reconstructed – the trend is from a simple list of the resources available towards meeting the users' needs. In addition, Shibboleth was put into operation, a system enabling secure user authentication and unified logon. As Shibboleth does not always receive sufficient support from its providers, it was necessary to find a variant solution implementing remote access of users to these electronic information sources.

Providing electronic access to the content is a current trend in providing library information services. Attaching much importance to this trend, Brno University of Technology started to build its digital library dealing with this problem on a conceptual basis for the whole university. At present, the largest collection of the digital library is an electronic archive of university qualification projects.

The Central Library also joined the open-access support by participating in an Open Access Week. Within this initiative, it started to plan for using the Digital Library as an institutional repository presenting its research and development results.

Library funds

Tab. 9.1 University libraries

BUT	Number
Yearly collection increase	13 863
Total collection	253 107
Number of periodical titles: – paper form – electronic form (estimate)*	815/95

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.

9.2 VUTIUM Press

Nine new titles were published (Design of Machine Parts, Measuring in Electrical Engineering, Mystery of the Human Voice, Technological Aspects of Design and Retrofitting of Production Machines, Cartusia Brunensis 2, Introduction to Analytical Mechanics and Mechanics of the Continuum, Cooperation between Technical Universities and Industrial Enterprises, Museum als Ort der Begegnung, Revitalization of Water flows, and an additional issue of Structural Design 1 – the same ISBN).

A total of 198 ISBN's were assigned including 102 to the faculties and constituent parts and 96 within VUTIUM (87 scientific writings and 9 VUTIUM's own publications).

Eleven issues were published of BUT News in 17600 copies. Due to the cuts and change in the publishing pattern, VUTIUM prepared a new publishing concept for this magazine in 2011 in cooperation with the editorial board and the editor in chief.

In November, VUTIUM organized a soirée in the Literary Café of the Brno Academia bookshop to present VUTIUM's seven new publications.

In 2010, the editorial board of VUTIUM Press met in December to discuss the publishing plan for 2011 and the order of publishing the titles.

VUTIUM Press took part in five book exhibitions and fairs – Leipziger Buchmesse (March), London Book Fair (April), The World of the Book in Prague (May), Autumn Book Fair in Havlíčkův Brod (October), Frankurter Buchmese, Frankfurt am Main (October). At the Frankfurt book fair, VUTIUM Press representatives took part in a meeting of the Association of European University Presses. The Czech universities were represented by Brno University of Technology, Masaryk University, and Palacky University.

9.3 Computer And Information Services Centre (CISC)

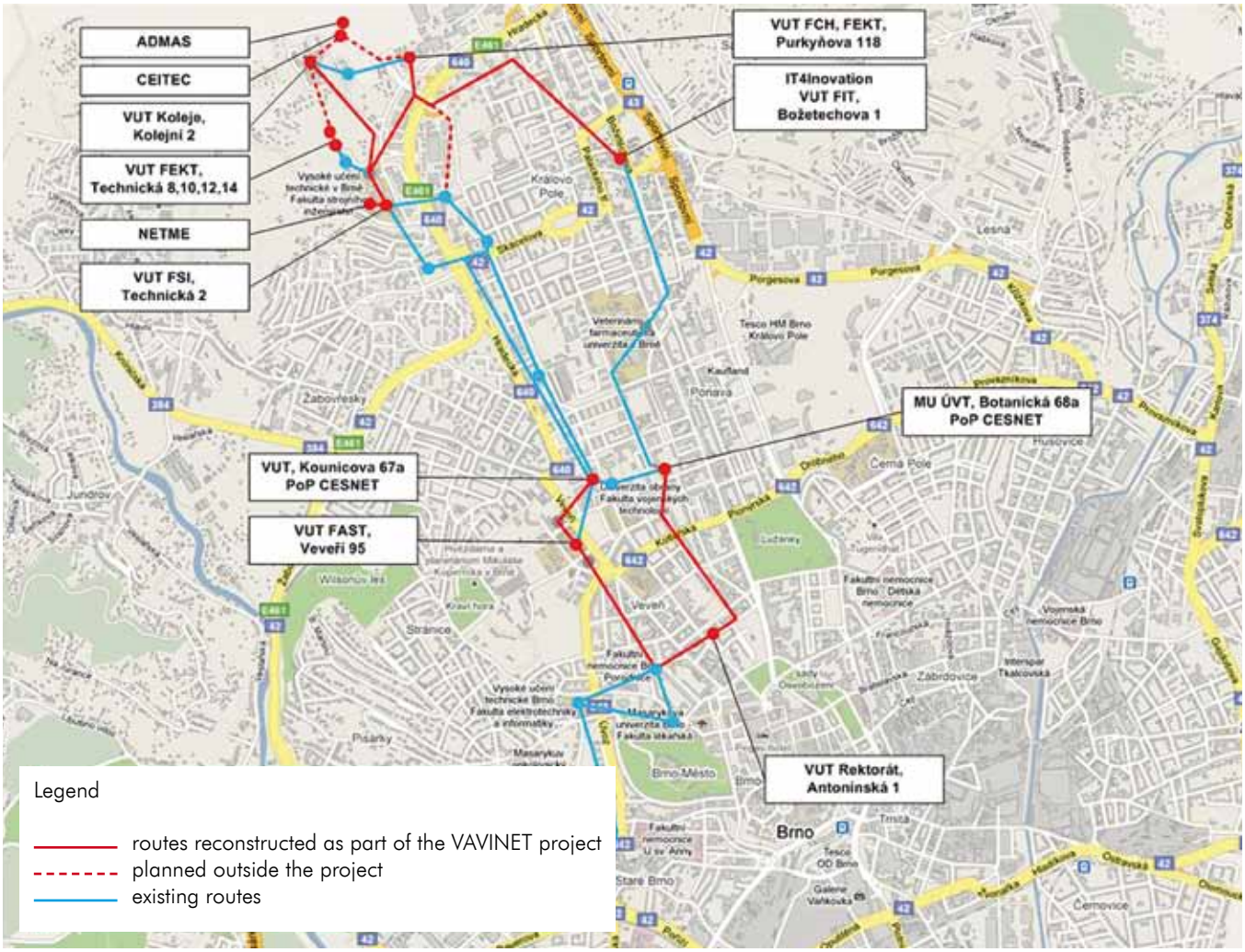
The main goal of the BUT IS development in 2011 was to prepare the installation of a new version of e-application and new Apollo modules for process management, research and development, a new internal-grant-agency module and search for plagiarisms in final projects. The Apollo IS newly uses the international Unicode making it possible to enter and process data in the Cyrillic, Greek, and other alphabets. The BUT Central Database was upgraded to a new Oracle 11g R2 RAC version and was prepared for processes used to enter data into the associate-professor and professor registry (REDOP).

The backbone computer network was transformed to a higher bit rate of 10Gb/s using a 10GBASE-LR technology to make a full use of the 40 Gb/s Cesnet connection. New active elements were installed at the faculties of information technology and business and management. Thanks to a new IPv6 network protocol in the backbone network, BUT obtained an independent PI IPv6 prefix, 2001:67c:1220::/46 and its own number, AS197451. This paved the way for a backup connection via BGP4+, generally independent of the access provider.

In 2011, CISC spent 2.5 million CZK on an upgrade of outdated elements of the KolejNet network and started the construction of a special network for IPv6 and on-line broadcast teaching. KolejNet now runs 6,700 ports with over one half of them transformed to 1000 Mbit from 100 Mbit, 6,160 Internet connections in 13 buildings transmitting 26 TV and radio channels, running 35 student servers, managing 13,945 active e-mail boxes of the accommodated students. KolejNet also provides commercial access of students, hotel guests, and company tenants. The KolejNet nodes are integrated in the BUT backbone network.

CISC started the implementation of VAVINET, a project of the RID programme to improve the R&D information infrastructure. As part of the project, the number of threads in the backbone fibre optic routs will be increased, new active elements will be bought for the backbone network, data halls will be reconstructed, new hardware bought for databases and information systems, and small computing clusters built for research centres. Also, software will be bought for project management and cooperation between research teams.

BUT fibre optic routes and plan of their development within the VAVINET project



10

LIFELONG LEARNING

Tab. 10.1 Lifelong learning courses offered by BUT (course numbers)

Accredited degree programme groups	Master Education Classification	profession-oriented courses			special-interest courses			U3A	Total
		up to 15 lessons	up to 100 lessons	more	up to 15 lessons	up to 100 lessons	more		
natural sciences	11-18							2	2
engineering	21-39		8					49	57
agriculture, forestry, veterinary	41, 43								
medicine, pharmacy	51-53							4	4
social sciences and services	61, 67, 71-73	1	1	18				5	25
economy	62, 65							1	1
law, public administration	68								
pedagogy, teaching, and social welfare	74, 75			1					1
psychology	77								
culture and art	81, 82							5	5
Total		**1**	**9**	**19**				**66**	**95**

Lifelong-learning courses offered by BUT with an indication of percentage change of the total student number on last year. In 2011, there was an increase of 23 percent in the number of participants. (see Table 10.2)

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

Accredited degree programme groups	Master Education Classification	profession-oriented courses			special-interest courses			U3A	Total	students admitted to an accredited degree programme by virtue of Section 60 of the University Act
		up to 15 lessons	up to 100 lessons	more	up to 15 lessons	up to 100 lessons	more			
natural sciences	11-18							45	45	
engineering	21-39		63					843	906	
agriculture, forestry, veterinary	41, 43									
medicine, pharmacy	51-53							135	135	
social sciences and services	61, 67, 71-73	74	44	293				532	943	200 – estimate
economy	62, 65							8	8	
law, public administration	68									
pedagogy, teaching, and social welfare	74, 75			32					32	
psychology	77									
culture and art	81, 82							498	498	
Total		**74**	**67**	**325**				**2 061**	**2 567**	

11

RESEARCH, DEVELOPMENT, ARTISTIC AND OTHER CREATIVE ACTIVITIES

11.1 Description of creative activities at BUT, innovations, transfer of knowledge to the application sphere

At the BUT eight faculties and one university institute, creative activities are carried out in a wide spectrum of engineering, natural sciences, and art. In engineering and natural sciences, this is basic and applied research as well as innovations. By the RVVI methodology, the proportion of the results achieved in basic research to the results in applied research and innovations is approximately 1:1. The quality of research and development is evidenced by the 2011 Evaluation of research organizations done by RVVI where two of the BUT faculties are among the best 20 organisations: Faculty of Mechanical Engineering in the 10th place and Faculty of Electrical Engineering and Communication in the 12th place. The present BUT research infrastructure receives much support from the five regional research centres of applied research financed within the first priority axis of the DIC operative programme and from the BUT's participation in the CEITEC project – a centre of excellence within the first priority axis of the DIC operative programme. One of the duties given by the funding conditions of research centres within the DIS operative programme is the creation of an internal system of commercialisation. BUT was among the first universities to establish a technology transfer department. This occurred in 2002 when the department had three employees. From the very beginning, this department has been the coordinator of a Regional Contact Organisation project that, for the fourth project period running in the South Moravian Region, has been providing information on the current Framework Programme calls, holding seminars, workshops, and working meetings. It is mainly thanks to the BUT TT Point project that, beginning in 2010, the number of persons employed by the department could be increased to 15 and the department's activities could include the services of a patent representative, legal intellectual property services and of technology transfer managers at the BUT engineering faculties. Within the region, the Technology Transfer Department mediates cooperation on the innovation-voucher projects. Traditionally, it also serves as the first contact point for companies interested in cooperation with the university. BUT makes every effort to provide support for the creation activities of its staff, such as by organising a TOP10 competition or rewarding innovators, authors of inventions, utility models, and other objects of industrial ownership. Through a development programme, authors of papers published in impacted journals should be rewarded in 2012.

11.2 Coupling creation with teaching

Several ways are used at BUT to couple creation with teaching: talented students of all degree programmes are encouraged to engage in research and become members of research teams, a motivation system is in place to reduce the age at which associate-professorship and professorship candidates may apply, practical experts are motivated to teach at BUT at present through projects of the research for competitiveness operative programme.

11.3 Bachelor's and Master's students engaging in creative activities at the university

Master's and doctoral student as well as some Bachelor's students are encouraged to engage in creative activities within research projects of all kinds. The themes of degree projects and doctoral theses are selected for students to able to try to do research guided by experienced supervisors. Here, projects of specific research have an important role by financing some costs of the research conducted by the students.

11.4 Total funding received for research, development, and innovations in 2011 including the sum transferred to solution co-providers and paid to suppliers

Tab. 11.4 Funding of research, development and innovations in 2011

Grant, research project	Funding in thousands of CZK	Transferred to solution co-providers
Kontakt (ME)	5 993	0
Bilateral International Cooperation, mobility (MEB)	677	0
EUREKA (OE)	1 740	0
INGO (LA)	334	0
COST (OC)	5 801	0
EUPRO (OK)	0	0
6th Framework Programme (6FP)	600	0

7th Framework Programme (7FP)	71 589	0
Ministry of Education programme to support international cooperation programme	23 922	0
AKTION	27	0
EOARD – European Office of Aerospace Research & Development	0	0
Transatlantic Cooperation (EC EU)	0	0
Ministry of Education Research Plans	96 644	0
Ministry of Education Research Centres	91 095	38 360
Ministry of Education National Research Programme II	30 379	0
Grant Agency of the Czech Republic	127 427	30 500
Technology Agency of the Czech Republic	31 223	8 702
Grant Agency of the Academy of Sciences of the Czech Republic	22 502	1 652
Ministry of Transport	2 487	1 654
Ministry of Industry and Trade	165 578	16 043
Ministry of Agriculture	1 813	0
National Security Authority	0	0
Ministry of Regional Development	345	0
Ministry of the Interior	25 406	0
Ministry of the Environment	0	0
Total	**705 582**	**96 911**

11.5 Scientific conferences (co-)organized by BUT in 2011 (numbers)

Tab. 11.5 Scientific conferences (co-)organized by BUT in 2011 (numbers)

Faculty	Total number	including those with 60 or more participants	including those with international participation
civil engineering	5	3	3
mechanical engineering	7	7	6
electrical engineering and communication	10	10	7
architecture	1	1	1
chemistry	8	7	5
business and management	7	2	7
information technology	6	4	4
institute of forensic engineering	6	4	4
Total	50	38	37

11.6 Policy adopted to provide support for doctoral students and post-doctorate researchers

A motivation scholarship is paid to 3rd- and 4th-year doctoral students for writing and presenting their theses. Doctoral students also receive a yearly scholarship based on the number of credits earned during the academic year. Credits can be obtained for publishing a paper in an impacted journal, a journal on the list of reviewed periodicals and journals. Next for a proceedings contribution of a conference listed in the Thomson Reuters database or of other domestic and international conferences and for publishing a book. Stays abroad and participation in project research teams are taken into consideration as well. A number of doctoral students using the combined study form have come to BUT from companies or institutes engaged in practical research. This creates cooperation opportunities and faculties offer such students the experimental background of faculties. Doctoral graduates who continue to work in post-doctorate positions receive support from the faculty budgets. In 2011, BUT won a project of the Research for Competitiveness programme for the support of the establishment of excellent multi-discipline research teams at BUT, which will be used to provide funding for 43 post-doctorate researchers.

11.7 Proportion of the costs of research, development, and innovations to the total costs of the university

The BUT proportion of the costs of research, development, and innovations to the total costs is rather heterogeneous. At research-oriented faculties, such costs form a major part of their budgets (FEEC – 51.6 %, FIT – 42.2 %). The average value for BUT is about 34 %.

11.8 Description of the ways of participation of the application sphere in the creation and implementation of degree programmes

The intensity and form in which the application sphere participates in creating and implementing degree programmes varies from faculty to faculty. The most usual form is the membership of application experts in the doctoral programme boards, scientific boards, Bachelor's and Master's state examination boards, and boards evaluating the presentations of Bachelor's and Master's projects. These experts also give lectures at BUT. A high intensity of participation is at the Faculty of Information Technology where application experts are members of an Industrial Board, which actively participates in the implementation of degree programmes with the members of the Industrial Board being regularly informed on the method, criteria and timing used to incorporate new courses in programmes.

More areas of cooperation are listed below:

- exchange of information on the needs of industries and universities,
- direct cooperation on research – use of the academic potential by the industries,
- joint action to obtain funding of research from the Czech and EU budgets,
- preparation of environment for better use of the research potential, common departments, technology transfer.

Tab 11.8 Application experts teaching in accredited programmes (numbers)**

Faculty	Number of persons
civil engineering	40
mechanical engineering	8 application experts, 12 AS CR researchers
electrical engineering and communication	22
architecture	35
chemistry	15
business and management	21
information technology	37
institute of forensic engineering	11
Total	

*Note: * = Faculty or other BUT constituent part offering an accredited programme/study field. ** = Persons teaching in at least one course of the academic year*

11.9 BUT cooperation with the application sphere on creating and transferring innovations

BUT collaborates with a number of companies on joint projects of application and contractual research. The new findings from such projects are then protected and licensed based on the contracts signed and on BUT internal regulations concerning commercialisation. Important is collaboration with the Regional Chamber of Commerce, which advertises activities carried out at BUT in its publications. Each year, new cooperation is initiated thanks to BUT's participation in the innovation-voucher projects not only in the South Moravian Region but also in Zlín, Karlovy Vary, etc. Another form of cooperation with the application sphere takes place based on the demand of companies for particular technical solutions to production technology problems. The new findings from projects are then protected and may further be licensed based on the contracts signed and on BUT internal regulations.

11.11 BUT income from licences in 2011

Revenues from commercialising R&D results in 2011	CZK
Comenius University in Bratislava, Services	25 000,00
Northwestern College, Services	6 536,70
Universita di Palermo, Services	2 574,00
Masaryk University, Services	67 500,00
Total	**101 610,70**

11.12 BUT income from contracted research

The income from research and development contracts, that is, from research, development, and innovation activities carried out at the university for and charged to the application sphere regardless of the fact whether the money paid by an application-sphere entity come from a public budget or a private company. In 2011, BUT received about 120 million CZK from contacted research.

11.13 Spin-off/start-up companies supported by BUT

The following innovative companies with close relations with BUT operated in 2011 at the technological incubator run by the South Moravian Innovation Centre: Bender Robotics, s. r. o., INVEA-TECH, a. s., LTR, s. r. o., Phonexia, s. r. o., Safetica Technologies, s. r. o.

11.14 BUT commercialisation policy

For a long time, BUT has maintained a unified approach to the protection of industrial rights, that is, ensuring the ownership rights to all its research and development results and preferring licensing to property-right transfers in commercialising the results. Co-ownership of the results by a third party, particularly in joint projects, is considered separately for each case depending on the particular result. Contract signed on the use of such results concentrate on governing the ownership rights, sharing the costs of legal protection, and splitting the revenues from the use of the results. Each result generated is protected by BUT according to its nature and based on an internal assessment of its commercial potential. The policy in each particular case is determined by the Technology Transfer Department. The result nature permitting, application for an invention, utility or industrial model is recommended. A usual procedure involves filing a Czech application for a Czech invention, and/or utility model. Within 12 months, the university decides, whether the protection should be extended on an international scale. This is mostly done via the European Patent Office or a Patent Cooperation Treaty. The protected results are published through the international EEN database (europ.ent net) or at the BUT portal.

11.15 Characteristic of BUT regional activities; BUT non-regional and nationwide character

A) BUT regional actions include:

- being the co-author of RIS
- cooperation with universities and companies (not only) in the region

B) BUT actions across regions include:

- Centres of excellence
- Regional centres, to guarantee research, development, and innovations in the Czech Republic and, possibly, in the Central European Region
- Results of the basic research (published in impacted journals and other renowned international journals indexed in the SCOPUS, WoS, etc. databases)
- Results of applied research patented (worldwide, European, Czech)
- Research cooperation with major manufacturers in the Czech Republic including international concerns such as Siemens, Škoda Auto Mladá Boleslav via both Škoda and VW research, Honeywell, Tescan, FEI, Microsoft, Bosch Diesel Jihlava, Evektor, AŽD Praha, and others

12

INTERNATIONALI-ZATION

12.1 BUT internationalization strategy, priority areas

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 particular areas. Priorities were set in its own Strategic Plan. The first aim is to increase the number of Master's students mostly those speaking a Slavonic language. The goal is their staying at the university to continue in doctoral programmes and get involved in the RDI operative programme projects. The next aim is to establish contacts with those Asian universities that have a research potential as well as to find a strategic partner among the leading EU universities. When recruiting international students, the university as a whole and its faculties, while offering all levels of programmes, concentrate on winning good 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 2011, the Centre granted 26 one-year starting scholarships. A subsidy was won from a development project of the Ministry of Education to be used for increasing the scholarships of talented international students at BUT. In 2011, such scholarships were paid to 50 students. The total subsidy amounted to 3,000, 000 CZK. This subsidy for the scholarship programme for BUT international students was a major boost for BUT internationalization, research, and marketing activities. In addition to the above summaries, it might be referred to the demographic structure of the scholarship target groups. The scholarships were paid to students from Belarus, Kazakhstan, Russia (majority group), Serbia, Syria, and Ukraine. Also mentioned should be the participation of BUT in SoMoPro, a project coordinated by the South Moravian Centre for International Mobility aiming to increase the number of leading domestic and foreign scientists working or staying at Brno universities. 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 the future, BUT plans for extending its participation in international educational fairs outside Europe as foreseen in its priorities of international cooperation. Participation in the ACADEMIA fair held in Bratislava is also desirable because of the geographical short distance, the language similarity and the number of Slovak students studying at BUT. Last year for the first time, BUT took part in the PRO EDUCO fair at Košice planning to keep this event on its future participation list. New teaching and research cooperation agreements were signed with the following universities: Ilia State University in Georgia, Institute of Technology at Bandung, Indonesia, Unitec Institute of Technology in New Zealand, Ural Federal University in Russia, Academy of Fine Arts and Design in Slovakia, University of Maribor in Slovenia, and Escola Massana in Spain. The university is also active as member of international organizations such as the European University Association (EUA) and Conference of European Schools of Advanced Engineering Education and Research (CESAER).

12.2 BUT involvement in international educational programmes

Three full-fledged joint- and double-degree programmes are offered at BUT in cooperation with international partners. Each BUT faculty on its own may be involved in European and other educational programmes as can be seen in Tab 12.1 and Tab. 12.3.

Tab. 12.1 BUT involvement in international educational programmes

BUT	EU Educational and Vocational Programmes												Total
	Erasmus	Comenius	Grundtwig	Leonardo	Jean Monnet	Erasmus Mundus	Tempus	others	Ceepus	Aktion	ME Development programme	others	
No. of projects	1						1		3		9		13
No. of out-students	726								7		117	5	855
No. of in-students	464			2			1	22	11		14	37	551
No. of out-teachers	190						2		3		12	3	210
No. of in-teachers	70						14		4		18	7	113
No. of other in-persons	44												44
No. of other out-persons	12												12
Subsidy in thous. CZK	**28 848**						**750**		**123**		**5 217**		**34 938**

12.3 BUT involvement in international research and development programmes

Tab. 12.2 BUT involvement in international research and development programmes

BUT	EC 7th Framework Programme			Total
	total	including Marie-Curie Actions	others	
No. of projects	26	1	69	95
No. of out-students*				
No. of in-students**				
No. of out-teachers and researchers***				
No. of in-teachers and researchers****				
Subsidy in thousand CZK				

*Note: * = Out-students – students staying abroad in 2011, included are also students beginning their stay in 2010. 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. ** = In-students – students staying at the university in 2011, included are also students beginning their stay in 2010. 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 2011, included are also teachers beginning their stay in 2010. 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 2011, included are also teachers beginning their stay in 2010. 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..*

12.4 Student and teacher mobility

In recent years, student and teacher mobility has been BUT's strategic goal. Mobility receives support from the development projects of the Ministry of Education, LLP/Erasmus, BUT Mobility Scholarship Fund, faculty scholarship funds and a number of other resources. Teacher mobility is supported by LLP/Erasmus and the development projects of the Ministry of Education as well as from the project activities of faculties.

Tab. 12.3 Student and teacher mobility by country

Country	Out-students	In-students	Out-teachers	In-teachers
Australia	1			
Belgium	33	4	8	8
Bulgaria	9	15	4	3
Monte Negro	1	5	2	2
Denmark	75	1	2	
Democratic Republic of Congo		1		
Estonia	5	7	4	2
Finland	54	7	12	8
France	65	54	16	8
Croatia		2		1
India		1		
Indonesia	3			
Ireland	4			
Iceland	1		4	1
Italy	23	8	14	3

Israel				1
Japan	4	1	1	
South Korea	3			
Jordan			1	
Canada	1			
Kenya			1	
Lithuania	10	31	8	3
Latvia	3	6	3	3
Luxemburg	1			
Hungary	5		4	1
Malta	11		2	1
Malaysia	3			
Morocco			2	
Germany	54	14	27	10
the Netherlands	20		1	
Norway	33		9	
New Zealand	1			
Poland	8	6	5	13
Portugal	54	82	12	2
Austria	71	3	14	4
Rumania	2	2	1	2
Russia		19	1	4
Greece	22	50	10	1
Slovakia	24	15	26	8
Slovenia	30	1	13	1
United Arab Emirates			2	
Serbia	1		2	17
Spain	61	117	15	4
Sweden	35		2	
Switzerland	21	22	3	2
Tai-wan	2	4		
Turkey	18	58	11	3
Ukraine	1	1		3
USA	8	3		3
UK	74	11	12	3
Total	**855**	**551**	**254**	**125**

13

EVALUATION OF ACTIVITIES CARRIED OUT

13.1 Internal evaluation of the quality of education

As required by the University Act and the BUT Statutes, systematic evaluation is carried out of the quality of teaching at all BUT Faculties. This evaluation is done by Subject-Area Boards. In addition, an assessment is made of the courses curricula, teaching methods, and the teacher's competence by sitting in on lectures and classes, organizing targeted pedagogic meetings and experience-exchanges. The results of such assessment are used to innovate and modernize the course curricula, improve the teaching methodology and to enhance the teachers' competences. Once or twice a year, autonomous surveys are made at faculties among students of their opinions on the quality of teaching using electronic or paper questionnaires, focusing on the content of the courses, the teaching methods and approach by the teachers . Organized by faculties in cooperation with the student chambers of academic senates, these surveys are taken to be integral parts of teaching quality assessment. The results are taken into consideration when assessing the teachers and checking on their teaching activities. In the future, the student evaluation is expected to be integrated and a unified approach is planned to the use of its results.

13.2 External quality evaluation at BUT in 2011

Over the year, the new and innovated degree programmes were monitored by the Accreditation Committee with no problems encountered. A survey is made among BUT graduates on a regular basis (once a year or biennially) to record the level of their education, knowledge and skills and the jobs they were offered. Results of such surveys are regularly taken into consideration in creating BUT educational policy and incorporated in the relevant strategic documents, used to improve degree programmes and course curricula. Moreover, teachers of faculties' departments are often in personal contact with the graduates when providing them with consulting, directly cooperating with them on research, development, and innovation projects; this cooperation, too, helps to fathom the effects of student education. The external evaluation of the quality of teaching and its results is also much helped by regular contacts with companies employing BUT graduates. Every year, Days of Companies are held at faculties offering cooperation and jobs to students before graduation; presented are also the profile and competence requirements of the company HR officers, who provide useful tips on improving the BUT graduates' education. Direct cooperation between BUT student and teachers with the commercial and social sphere is also useful for experience exchange. Also, an EUA/IEP international external quality evaluation took place at BUT in 2011. This was a follow-up evaluation after five years of a basic evaluation carried out in 2006 to check on the implementation of the recommendations made to BUT for improvement in all areas of its activities. As part of this follow-up assessment, BUT performed a new internal evaluation using the guidelines provided producing subsequently a self-evaluation report. This was then passed on to the EUA international commission as an underlying document for interviews with different groups of BUT employees, which then resulted in a new external evaluation report being provided by the EUA international commission. Its conclusions are accepted by BUT as guidelines for further activities and measures to be taken.

13.3 Financial audits carried out at BUT in 2011

A system of internal inspection was introduced at BUT in 2004 as required by Act no. 320/2001 Coll. concerning financial audits. Described by internal rules and guidelines, it received the status of a control inspection and independent internal audit. This created control mechanisms to check on the spending to achieve the fulfilment of the BUT Strategic Plan. In 2011 the internal financial audit mostly concentrated on the efficiency and adequacy of the management of projects implemented as part of the RDI operative programme based on an annual plan set up in view of the evaluation of the BUT risks. The frequency of the financial audits carried out in 2011 was also given by the need to improve the financial inspection of newly launched projects, that is, more than once a year. For each individual project, new internal regulations were issued to specify the scope and specific tasks of the inspection. Serious findings of the internal audit and the measures recommended to maintain the functionality of the system of internal inspection were discussed by the BUT top management and by the rector's advisory bodies on a continual basis. In addition to the standard risk management procedures, identification and evaluation of risks of implementing the tasks and objectives of the DIS projects were discussed by Rector's special advisory committee for the DIS-related risk management.

13.4 Information on the certification processes at BUT

In 2011 preparations were carried out at the BUT Rector's office for certification. The following are major system management activities carried out in 2011:

A) Surveying all the processes at the following organisational units of the BUT Rectorate (Phase 1 for SMK certification):

1. Rector (Rector's Office, Quality Section, Inspection and Internal Audit Section, AS Office, Lifelong Learning Institute, BUT Archives).
2. Vice-rector for strategic development (Strategic Development Department, Centre of Project Support).
3. Vice-rector for study and student affairs (Study Department).
4. Vice-rector for creation development (Creation Development Department, Technology Transfer Department).
5. Vice-rector for information systems (Computing and Information Services Centre, Central Library, VUTIUM Press).

6. Vice-rector for marketing and external relations (Department for Marketing and External Relations).

7. Bursar (Secretariat, Human Resources Office, Administration Office, Economic Office, Transport, Investment and Property Management Office, Operational Office, Economic Systems Office).

A total of about 400 processes were surveyed all stored in Excel databases. The following were the outputs: Process Roadmap, SIPOC with additional data for all the processes surveyed, Updated Organisational Chart – BUT other constituent parts except ACS, advisory committees and work groups – BUT other constituent parts except ACS.

B) Creating a PROCESY module of the Apollo IS. This module stores all the processes of the Rectorate and its departments. It contains the following information:

Bookmark 1: Process roadmap and other attachments – here, the following documents are available: Process Roadmap, Organisational Chart, advisory committees and work groups.

Bookmark 2: Process list – here, complete information is stored on processes. Some processes contain detailed descriptions (flow charts).

Bookmark 3: Process list – organisational units – here, processes can be generated to a selected organisational unit.

When double-clicked, a process is displayed with all details. Information is available to all internal employees (according to point 1) logged on to Apollo.

C) Creating a BUT Complaints Book – it can be accessed at https://www.vutbr.cz/uredni-deska/rizeni-kvality/dotaznik. Entered can be complaints about BUT activities, notes about the quality of services provided at BUT and suggestions for improvement of quality. In cooperation with CISC, a link was made to the Evaluation statistics in the Evaluation Module of the Apollo IS.

D) Acknowledgement of a new or updated document – created together with CISC and the Administration Office. This ensures that employees always know the latest version of a document (confirming this electronically). The rules set: the Administration Office is obliged to monitor the information about a new document or standard being acknowledged by all persons involved. This is to ensure that all such persons always know the latest version of a document. On demand, the Administration Office must provide the BUT Quality Department officers with its records. The head of the BUT Quality Department is always on the list of persons to be informed of any internal standard.

E) New documents for publishing (new or amended control documentation – 2011 drafts):

1. Policy of quality (Rector's decision – new document).
2. Quality objectives for 2012 (for all organisational units under item 1 of this e-mail) – (Rector's decision – new document).
3. Internal quality management audit – (Rector's guideline – new document) (internal auditors were appointed and trained in 2011).
4. Communication at BUT – (Rector's guideline – new document).
5. Document management at BUT – (Rector' guideline – updated document).
6. Quality manual (draft).

F) Work on a system of employee rating was started

G) Complementary equipment of the BUT Quality Department – new small technical aids were bought, eight key standards, five foreign books. Books and standards at the BUT Quality Department in 2011:

• List of technical standards:

1. ČSN EN ISO 9000 – Quality management systems – Basic principles and glossary (04/2006).
2. ČSN EN ISO 9001 – Quality management systems – Requirements (09/2010).
3. ČSN EN ISO 9004 – Management of organisation's sustainable success – Quality management approach (05/2010).
4. ČSN ISO/TR 10013 – Guidelines for quality management system documentation (09/2002).
5. ČSN ISO 10007 – Quality management systems – Configuration management guidelines.
6. ČSN EN ISO/IEC 17021 – Conformance judging – Requirements for bodies carrying out audit and certification of management systems.
7. ČSN EN ISO 19011 – Guidelines for quality management system auditing and/or environmental management systems.
8. ČSN ISO 26 000:2011 – Guidelines for corporate social responsibility.

• List of literature:

1. MODEL EXCELLENCE FEM. (2010) – Czech Society for Quality, ISBN: 978-90-5230-522-0.
2. Cost reduction analysis – Steven M. Bragg, ISBN – 978-0470-58726-3 (lent on 01.02.2012).
3. Management by Process – John Jest on and Johan Nelis – ISBN-13: 978-0-7506-8761-4 (lent on 01.02.2012).
4. How to Implement Lean Manufacturing – Lonnie Wilson – ISBN 978-0-07-162507-4 (lent on 01.02.2012).
5. Value Stream Management – Don Tapping, Tom Luyster, Tom Shuker – ISBN 978-1-56327-245-5 (lent on 01.02.2012).

13.5 Benchmarking BUT against domestic and foreign universities of similar character

Brno University of Technology benchmarking against other universities can be based on the QS World University Rankings, in which the university has appeared since 2005. In addition to four Czech universities, also four reference universities from abroad were included in the benchmarking list. A survey among the BUT study applicants then finds out how the university is subjectively perceived by them against other universities for which they apply. BUT regularly participates in national projects dealing with quality. Decentralised and centralised development projects implemented on themes of a ME development programme may be taken for examples as well as Quality Assurance and Assessment in Tertiary Education, an individual national project of the Education for Competitiveness programme, priority axis lifelong learning, whose outcomes are to be used for designing a reform of the Czech universities and for amending the university act.

BUT participation in international quality projects is also significant:
– From 2009 to 2011 BUT participated in an international benchmarking project organised by the European Centre for Strategic Management of Universities (ESMU) and European Benchmarking Initiative (EBI) on themes including Curriculum Reform and Governance. This involved conducting studies assigned on a continual basis, active participation in international workshops to establish contacts and direct cooperation, exchange experience, work out further project solution directions, prepare a final report comparing the participating institutions. The results of both parts of this project were used both at the Centre and at BUT faculties.
– In 2010 and 2011 BUT was a pilot university in enquiries of the international project, A Multi-Dimensional Global Ranking of Universities U-Multirank, as part of the CHEPRA Network, in two variants: U-Map and U-Rank. BUT as a whole was part of the surveys along with its faculties of mechanical engineering, electrical engineering and communication, business and management; at all these faculties the student evaluation of teaching was included. Cooperation with the international solution providing team continues.
– For the years 2011 to 2013, BUT is a pilot university in an international IBAR project, Identifying Barriers in Promoting the European Standards and Guidelines for Quality Assurance at Institutional Level . This project is financed from the EC funds and coordinated by CSVŠ, v. v. i., ČR. Universities and research institutions from six European countries participate in this project. They cooperate in nine thematic areas.
– In the years 2010 and 2011, BUT is a pilot university in the QUESTE_SI international project managed by the European Commission on sustainable (industrial) development in relation to social, economic and environmental sustainability. The project's outcomes should include a description of the situation at selected European technical universities and an evaluation of their quality by an international committee using the above aspects.

13.6 Self-evaluation of educational activities carried out outside BUT's campus (consulting centres, distant-learning centres, etc.)

Teaching at consulting centres and distant-learning centres is managed by the relevant BUT faculties, monitored on a continual basis and modified if and how needed.

14

UNIVERSITY'S NATIONAL AND INTERNATIONAL EXCELLENCE

14.1 BUT membership in international associations, organizations, and societies

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

International organization	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
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
EIBAĘ – The European Business Academy	Belgium	member
American 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
UIC – Union Internationale des Chemins de Fer / International Union of Railways		
UNESCO/UIA – Validation Committee for Architectural Education		
WTA – International Wissenschaftlich-Technische Arbeitsgemeinschaft für Bauwerkserhaltung und Denkmalpflege		

14.2 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		
Czech Concrete Society		
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 society for mechanics		
Czech society of environmental technology		
Czech welding society		
Czech vacuum society		
Czech societies for new materials and technologies		
Czecho-Moravian psychological society	CR	member
Czech normalisation institute	CR	member
Czech chamber of authorised engineers and technicians active in building		
Czech society for non-destructive testing		
ČSM – 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)	USA	member
IEEE (Institute of Electrical and Electronics Engineers)	CR	IT manager of Czech-Slovak section
IFAC		
IGeLU – The International Group of Ex Libris Users	internatio-nal	member
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		
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
SKIP	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 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

14.3 BUT's national and international awards in 2011

From the European Commission, Brno University of Technology received ECTS Label and DS Label prestigious certificates for 2009–2013 in appreciation of its quality as an institution of higher education. For the seventh consecutive time BUT was included in QS University Rankings.

14.4 BUT evaluation by a team of international experts

A follow-up visit took place at BUT of EUA to assess the situation at BUT after five years and formulate some recommendations for increasing BUT's competitiveness. An important finding of the experts is the fact that the system of management, decision-making, and powers at Czech universities is rather decentralised, sometimes not allowing for efficient university management.

15

UNIVERSITY DEVELOPMENT

15.1 BUT involvement in the operative programmes financed from the EU structural Funds

Tab. 15.1 BUT involvement in the operative programmes financed from the EU structural Funds

Project code	Operative program.	Implementation period	Total funding	Funding in 2011	Supported area
CZ.1.07/1.1.02/01.0029	ECOP	01.04.2009 – 31.12.2011	18 422 248,14	7 332 760,03	education quality improvement in SM region
CZ.1.07/1.3.10/02.0006	ECOP	01.10.2009 – 30.04.2012	1 635 104,00	371 209,41	further education of teachers
CZ.1.07/1.3.10/02.0018	ECOP	01.04.2010 – 30.06.2012	5 791 696,00	2 024 902,35	further education of teachers
CZ.1.07/1.3.10/03.0007	ECOP	01.03.2011 – 30.06.2012	3 345 704,00	1 089 392,62	further education of teachers
CZ.1.07/1.3.10/14.0001	ECOP	01.03.2010 – 28.02.2013	7 470 997,96	2 080 416,62	further education of teachers
CZ.1.07/2.2.00/07.0273	ECOP	01.05.2009 – 30.04.2012	15 914 584,13	2 568 112,96	university education
CZ.1.07/2.2.00/07.0390	ECOP	01.06.2009 – 31.05.2012	13 784 753,56	3 048 739,92	university education
CZ.1.07/2.2.00/07.0391	ECOP	01.06.2009 – 31.05.2012	7 409 988,00	2 055 297,92	university education
CZ.1.07/2.2.00/07.0402	ECOP	01.06.2009 – 31.01.2012	2 222 175,33	1 202 985,33	university education
CZ.1.07/2.2.00/07.0403	ECOP	01.05.2009 – 31.03.2012	12 000 000,00	5 441 601,59	university education
CZ.1.07/2.2.00/07.0406	ECOP	01.05.2009 – 30.04.2012	16 692 329,25	3 906 702,31	university education
CZ.1.07/2.2.00/07.0410	ECOP	01.05.2009 – 30.04.2012	13 166 993,87	2 623 870,26	university education
CZ.1.07/2.2.00/07.0411	ECOP	01.06.2009 – 31.05.2012	4 030 584,00	647 750,67	university education
CZ.1.07/2.2.00/07.0487	ECOP	01.06.2009 – 31.05.2012	11 232 905,53	4 356 653,51	university education
CZ.1.07/2.2.00/15.0139	ECOP	16.09.2010 – 31.08.2013	14 086 863,39	2 147 144,67	university education
CZ.1.07/2.2.00/15.0140	ECOP	01.01.2011 – 30.04.2013	3 324 213,21	0,00	university education
CZ.1.07/2.2.00/15.0142	ECOP	06.12.2010 – 31.07.2013	8 898 495,53	0,00	university education
CZ.1.07/2.2.00/15.0144	ECOP	01.10.2010 – 31.08.2013	8 820 309,45	578 282,49	university education
CZ.1.07/2.2.00/15.0147	ECOP	01.11.2010 – 31.10.2013	11 826 639,77	1 744 101,13	university education
CZ.1.07/2.2.00/15.0151	ECOP	01.10.2010 – 30.09.2013	4 491 965,34	719 321,54	university education
CZ.1.07/2.2.00/15.0154	ECOP	01.11.2010 – 01.09.2013	11 764 129,38	1 861 101,04	university education
CZ.1.07/2.2.00/15.0156	ECOP	01.04.2011 – 31.03.2014	11 799 760,95	5 364 163,66	university education
CZ.1.07/2.2.00/15.0158	ECOP	16.09.2010 – 31.08.2013	6 084 747,75	0,00	university education
CZ.1.07/2.2.00/15.0163	ECOP	01.10.2010 – 31.05.2010	12 634 490,18	0,00	university education

CZ.1.07/2.2.00/15.0165	ECOP	01.01.2011 – 30.09.2013	17 372 291,01	782 688,88	university education
CZ.1.07/2.2.00/15.0426	ECOP	06.12.2010 – 30.08.2013	14 149 254,11	413 814,17	university education
CZ.1.07/2.2.00/15.0428	ECOP	06.12.2010 – 31.07.2013	7 373 345,23	232 780,03	university education
CZ.1.07/2.2.00/15.0433	ECOP	16.09.2010 – 28.02.2013	3 279 680,20	0,00	university education
CZ.1.07/2.2.00/15.0485	ECOP	01.10.2010 – 31.01.2013	7 262 267,40	1 243 720,23	university education
CZ.1.07/2.2.00/28.0255	ECOP	01.12.2011 – 30.11.2014	11 371 940,27	3 709 276,00	university education
CZ.1.07/2.3.00/09.0031	ECOP	01.01.2010 – 31.12.2012	10 417 543,91	2 339 998,86	R&D HR
CZ.1.07/2.3.00/09.0067	ECOP	01.09.2009 – 31.08.2012	19 568 854,00	7 738 714,58	R&D HR
CZ.1.07/2.3.00/09.0092	ECOP	01.09.2009 – 30.06.2012	5 757 671,54	494 117,49	R&D HR
CZ.1.07/2.3.00/09.0105	ECOP	15.06.2009 – 31.12.2011	2 349 394,20	480 503,72	R&D HR
CZ.1.07/2.3.00/09.0115	ECOP	01.09.2009 – 31.08.2012	5 574 623,82	3 004 396,01	R&D HR
CZ.1.07/2.3.00/09.0162	ECOP	01.08.2009 – 31.07.2012	15 220 980,00	7 151 119,53	R&D HR
CZ.1.07/2.3.00/09.0214	ECOP	01.01.2010 – 31.12.2012	6 954 408,95	2 640 986,13	R&D HR
CZ.1.07/2.3.00/09.0222	ECOP	15.06.2009 – 14.06.2012	11 907 529,41	2 354 867,11	R&D HR
CZ.1.07/2.3.00/09.0224	ECOP	01.01.2011 -31.12.2013	15 928 980,49	845 871,30	R&D HR
CZ.1.07/2.3.00/09.0228	ECOP	01.07.2009 – 30.06.2012	16 740 883,00	3 801 008,07	R&D HR
CZ.1.07/2.3.00/20.0007	ECOP	25.02.2011 – 31.12.2012	33 243 409,03	12 788 858,63	R&D HR
CZ.1.07/2.3.00/20.0020	ECOP	14.04.2011 – 31.01.2014	36 585 445,60	12 804 905,00	R&D HR
CZ.1.07/2.3.00/20.0027	ECOP	01.08.2011 – 31.07.2014	39 857 603,63	15 133 573,57	R&D HR
CZ.1.07/2.3.00/20.0029	ECOP	01.08.2011 – 31.07.2014	32 390 964,23	12 550 407,62	R&D HR
CZ.1.07/2.3.00/20.0094	ECOP	30.05.2011 – 30.04.2014	14 172 281,58	4 960 298,00	R&D HR
CZ.1.07/2.3.00/20.0111	ECOP	01.09.2011 – 30.06.2014	20 240 579,14	7 084 202,00	R&D HR
CZ.1.07/2.3.00/20.0126	ECOP	01.09.2011 – 31.08.2014	28 291 928,80	9 902 175,00	R&D HR
CZ.1.07/2.4.00/12.0017	ECOP	27.10.2009 – 14.10.2012	15 166 163,36	5 758 161,94	partnership and networks
CZ.1.07/2.4.00/12.0019	ECOP	01.03.2010 – 28.02.2013	11 919 433,20	7 912 303,25	partnership and networks
CZ.1.07/2.4.00/12.0020	ECOP	27.10.2009 – 30.09.2012	30 510 136,00	7 576 187,24	partnership and networks
CZ.1.07/2.4.00/12.0024	ECOP	01.11.2009 – 31.10.2012	26 715 570,24	6 489 148,67	partnership and networks

CZ.1.07/2.4.00/12.0026	ECOP	27.10.2009 – 31.08.2012	14 560 997,00	2 882 543,49	partnership and networks
CZ.1.07/2.4.00/12.0028	ECOP	01.02.2010 – 31.12.2012	21 526 355,00	5 897 262,29	partnership and networks
CZ.1.07/2.4.00/12.0029	ECOP	01.12.2009 – 30.11.2012	6 792 572,00	2 120 071,00	partnership and networks
CZ.1.07/2.4.00/12.0030	ECOP	27.11.2009 – 31.10.2012	22 066 300,00	5 165 502,55	partnership and networks
CZ.1.07/2.4.00/16.0003	ECOP	01.04.2011 – 30.09.2012	6 374 543,50	1 873 677,79	partnership and networks
CZ.1.07/2.4.00/17.0006	ECOP	05.05.2011 – 30.04.2014	37 501 859,78	13 879 194,18	partnership and networks
CZ.1.07/2.4.00/17.0032	ECOP	01.01.2012 – 31.12.2014	32 109 802,12	11 238 430,00	partnership and networks
CZ.1.07/2.4.00/17.0100	ECOP	01.05.2011 – 30.04.2014	35 418 717,18	12 396 551,00	partnership and networks
CZ.1.07/2.4.00/17.0140	ECOP	05.05.2011 – 30.04.2014	21 579 707,60	6 884 061,91	partnership and networks
CZ.1.07/3.2.04/02.0031	ECOP	01.04.2011 – 31.03.2013	3 977 581,00	1 420 988,90	support for further education offer
CZ.1.05/2.1.00/01.0002	RDI OP	05/2009 – 12/2013	876 947 634,00	210 390 500,00	regional R&D centres
CZ.1.05/2.1.00/01.0012	RDI OP	01.12.2008 – 12/2012	232 772 000,00	70 497 120,00	regional R&D centres
CZ.1.05/2.1.00/01.0014	RDI OP	01.05.2010 – 31.12.2013	357 895 636,00	134 442 491,00	regional R&D centres
CZ.1.05/2.1.00/03.0072	RDI OP	12.07.2010 – 31.12.2013	293 781 336,00	134 400 000,00	regional R&D centres
CZ.1.05/2.1.00/03.0097	RDI OP	01.01.2011 – 30.06.2014	817 903 463,00	204 503 768,00	regional R&D centres
CZ.1.05/3.2.00/08.0146	RDI OP	01.05.2011 – 31.10.2013	70 345 814,00	10 389 654,00	R&D information infrastructure
CZ.1.05/4.1.00/04.0129	RDI OP	25.08.2010 – 31.07.2013	991 547 335,00	448 587 866,00	infrastructure for research related university teaching
CZ.1.05/4.1.00/04.0138	RDI OP	28.02.2011 – 30.11.2013	548 812 782,00	229 476 443,00	infrastructure for research related university teaching
Total			**5 079 089 276,25**	**1 697 804 718,17**	

15.2 BUT involvement in the development projects of the Ministry of Education, Youth, and Sports

Tab. 15.2 BUT involvement in the development projects of the Ministry of Education, Youth, and Sports projects in 2011

BUT	No. of projects accepted	Funding received	
		capital	ordinary
Decentralized development projects	**53 800**	**12 400**	**41 400**
Support for improvement of university activities	7	0	13 600
Equipment and technology enhancement	1	6 800	1 200
Support for university openness	3	0	5 450

Support for international university cooperation	5	0	14 225
Support for inclusive education	1	0	700
Support for the preparation of operative-programme projects	1	5 600	3 900
Support for university personnel development	2	0	2 325
Central development projects	**10 966**	**4 270**	**6 696**
Support for university cooperation in regions	2	0	952
Support for international cooperation between Czech and foreign universities	1	0	500
Support for short-term student mobility	1	0	63
Support for education in dentistry, engineering and science studies (such as chemistry oriented because of the Year of Chemistry) and in the preparation of teachers (especially those lacking qualification)	3	4 270	2 196
Support for other university activities		0	2 985
Total	**64 766**	**16 670**	**48 096**

15.3 BUT involvement in the University Development Fund

Tab. 15.3 BUT involvement in the University Development Fund in 2011

Thematic area	No. of projects accepted	Funding received		
		capital	ordinary	total
A	8	13 593	0	13 593
B	0	0	0	0
C	1	0	171	171
E	0	0	0	0
F	83	0	16 992	16 992
G	99	0	14 696	14 696
Total	**191**	**13 593**	**31 859**	**45 452**

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ACADEMIC SENATE ACTIVITIES

Elected until October 2011, the BUT Academic Senate convened in nine regular and one special sessions in 2011. A new BUT Academic Senate then convened in three sessions from October. Legislation, economy, teaching, and creation were the thematic areas in 2011. In February 2011, the BUT AS called a complementary election at the BUT faculties of chemistry and electrical engineering as two members of the AS student chamber terminated their studies. At its January meeting, the BUT AS discussed and approved amendments to the AS Election and Procedural Rules in view of the coming elections of a new AS taking office in late October 2011. To prepare the new election in time, the BUT AS approved legislative resolutions and election-related documents – in March the faculties received preliminary guidelines and time schedule; in April the BUT AS election for October 2011 to October 2014 was called and a time schedule approved; In June the names of the BUT election committee members were published and its chairperson appointed; next a committee was appointed to prepare the election of representatives in the BUT AS of BUT other constituent parts. In its first post-holiday session in September, the BUT AS approved a detailed organisational schedule for the election of a new BUT Academic Senate to be in office from October 2011 to October 2014.

Concerning the legislation area, a number of BUT AS discussions took place to approve the internal rules of the university, its faculties, and university institutes as well as other documents related to activities carried out at university institutes. As every year, BUT 2011 Subsidy Allocation Rules and, subsequently, the BUT 2011 budget were agreed and approved with continuing efforts to contribute to the preparation of BUT for new types of EU programmes. Due to the very difficult economic situation in the world and in the Czech Republic, with austerity measures introduced in all areas, in view of the BUT long-term strategy, the BUT AS dealt with a number of property--rights issues (BUT land purchasing and sales). Next in 2011, the BUT AS discussed and approved the BUT 2010 Annual Management Report and the 2012 amendment to the BUT Strategic Plan. All topics were analysed using standard procedures in BUT AS permanent working committees, whose activities back up the BUT AS actions and resolutions. In 2011, too, the BUT AS activity received support from the BUT AS Office.

The BUT AS Legislation Committee (LC) in 2011 convened in five sessions from January to September discussing mostly amendments to BUT internal rules, the internal rules of the BUT faculties and university institutes. In 2011 the following amendments were approved by the LC and recommended for approval by the AS: Amendment no. 2 to the BUT AS election and procedural rules (January 2011); Amendment no. 1 to the BUT Study and Examination Rules (January to February 2011); other changes to the BUT Study and Examination Rules (April to May 2011); Amendment no. 6 to the BUT Statutes (June to September 2011); Amendment no. 3 to the BUT AS Election and Procedural Rules (June to September); Amendment no. 6 to the BUR Working Rules (September 2011). Next the LC in 2011 discussed in detail and recommended to the AS for approval new FA Statutes (June to September 2011) and discussed the new wording of the CEITEC Statutes (September 2011); discussed and recommended to the AS for approval three IFE admissions guidelines (May to June 2011). From October to December 2011, the LC of the newly elected BUT AS discussed and recommended to the AS for approval Amendments to the Annex 5 of the FIT Statutes and discussed amended CEITEC Statutes and amended ACS Organisational Rules. In 2011, the Legislation Committee received much assistance from JUDr. Pavlíková of the Rector's Office Administrative Section.

The BUT AS Economic Committee (EC) convened in 18 sessions in 2011. In early 2011, it discussed and recommended to the AS for approval the BUT 2011 Subsidy Allocation Rules and, subsequently, the BUT 2011 budget was agreed and approved. The EC meetings were very difficult and complex due to the economic problems of the Czech state budget resulting in budget cuts at all Czech universities. Therefore, in each particular case, the EC made every effort to find the best and the most economical solution by working out compromises. Like every year, the EC discussed in detail and recommended to the BUT AS for approval the BUT 2010 Annual Management Report. Next it discussed in detail and recommended to the BUT AS for approval the strategic plans of the BUT constituent parts: The CSA 2011–2015 Strategic Plan and a 2011 amendment to the CSA Strategic Plan (February to March 2011); the CEITEC 2011–2015 Strategic Plan and a 2011 amendment to the CEITEC Strategic Plan (March to May); the IFE 2011–2015 Strategic Plan and a 2011 amendment to the IFE Strategic Plan (March to June).In October, at the end of its time in office, the EC in October discussed and recommended to the newly elected AS for approval Amendment no. 1 to the BUT 2011 budget and Amendment no. 1 to the BUT 2012 Strategic Plan. The new EC then discussed the request made by the BUT management to borrow the money necessary to complete the 2012–2015 investment projects. In 2011, the EC discussed and recommended to the BUT AS for approval about 10 property-rights issues concerning mostly the purchase of land in the Pod Palackého vrchem area needed to start major projects to develop the university and the granting of easements. All these documents were submitted in accordance with the BUT

Strategic Plan 2011 Amendment and the Amended Plan for the Completion of the BUT Infrastructure in 2009–2015.

The BUT AS Pedagogic Committee (PC) convened regularly in 2011 to deal with issues concerning cross-faculty programmes (courses offered by faculties, interdisciplinary cooperation between faculties), measurement of teaching load, enquiries to assess the quality of teaching to achieve at least partial unification, evaluation of the enquiry to find the BUT best teacher. Further steps were made towards cooperation with the BUT AS legislation committee on BUT internal teaching regulations. The PC closely cooperated with the Student Chamber of the BUT AS.

The Creative Activity Committee of the BUT AS (CAC) held six meetings in 2011. It was mostly concerned with problems in submitting results to RIV, that is mostly, with detecting the most frequent errors at submission. Next, the committee discussed the TOP evaluation, particularly concerning products, here the debate mostly focussed on setting new criteria for products as outcomes of creative activity of academics to be included. In cooperation with the EC, the CAC also prepared for a new version of methodology for assessing R&D in the Czech Republic and with the related methods of funding. At the end of 2011, intensive debates were held by the committee with the BUT vice-rector for creative development concerning the financing of research in 2011, particularly the position of cross-faculty projects. Based on these discussions, the BUT AS adopted a resolution on the rules for the BUT 2011 budget concerning specific research. The presidium of the Council of Higher Education Institutions again approved the chair of the CAC as the CHEI delegate for the Academic Senate of the Academy of Sciences of the Czech Republic.

A special meeting of BUT AS was held at the Medlov hotel in the Czech-Moravian Highlands in May, with the following agenda: teaching – situation in study area, ECOP projects and their effects; research – checks on the data entered into Apollo, drops in RIV points, situation in R&D, assessment of specific research; management – situation in management and finance: concerning the approved budget, the loan balances, situation in bureaucracy, situation according to the EUA evaluation (information on the report received); concepts of university financing for 2012; the future funding and the expected impact on future budgets (loans, constructions ...).

Through its representatives in the Council of Higher Education Institutions, the BUT Academic Senate kept a close watch on the higher-education reform prepared by the Ministry of Education, Youth, and Sports and related discussions. The BUT AS representatives in the Council of Higher Education Institutions, who regularly participated in meetings at the Ministry to comment on the new laws to be adopted, kept the BUT AS informed. In view of the critical situation about the preparation of higher-education reform, the BUT AS adopted three resolutions at its December meeting, strongly rejecting the above law drafts. These resolutions were then passed on to the Council of Higher Education to present them asking Mrs Vanýsková, BUT spokeswoman, to publish them at he BUT website and in the journal Events at BUT.

The BUT AS representatives in the Council of Higher Education informed the Academic Senate on all other actions of the Council in which they participated. As their time in office terminated on 31st December 2011, the new BUT Academic Senate elected new representatives for the 2012–2014 period in it first session.

Last academic year, the Student Chamber of the BUT Academic Senate (ASSC) was concerned with problems related to the amount of the doctoral scholarships. It also commented on changes in the BUT Study and Examination Rules. Together with the PC, its members worked on the concepts of TOP Pedagog and TOP Student, tools of teaching quality assessment to be launched in the academic year 2012/2013. Next the ASSC met the EUA evaluators participating in the BUT re-evaluation. ASSC also cooperated with the BUT External Relations Office and the student chambers of faculty academic senates, unions, and other student organizations in an effort improve information flow and promotion. ASSC members also worked in the Supervisory Board of the Accommodation and Catering Services to help improve student dormitory accommodation and meals in the canteens. The ASSC continued to write a manual for first-year students improving it in some aspects. The ASSC plans to carry on such activities also in its next term in office . At the end of 2011, close cooperation was established with student chambers of all other Brno universities mostly to coordinate students' comments on the university law-drafts and the law on financial help to students.

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CONCLUSION

It would be very difficult to ignore the fact that, in 2011, society, universities, and BUT were facing socially, economically, and politically troubled and unstable times both at home and in the world accompanied by a crisis of moral principles and values.

Despite this, BUT was heading in the right direction and its officials, employees, and students managed to keep the traditionally good corporate culture with appreciable achievements in all major and minor activity areas as recorded by the previous chapters of this report.

BUT takes a leading position not only in tertiary education and research, but also achieves excellent results in the economic sphere, aided by the consistently enhanced cooperation with the industry.

BUT has long been among the four Czech universities regularly included in the prestigious QS University Rankings.

BUT has received over 8 billion CZK in funding from the EU structural funds. This makes it one of the most successful Czech university in this respect. This funding is mostly used to improve the research infrastructure in materials technology and to build excellent European research teams. Some regional centres were already built in 2011 such as NETME with the building of regional centres starting. In 2011, the remaining land requested by BUT was purchased. Today all the centres of excellence are being built on BUT's own land.

Traditionally strong is BUT's position in cooperation with the industry. Through projects of the Education for Competition, a very close cooperation has been established with the South Moravian companies (about 170 contracts with companies of different sizes).

Owing to a balanced BUT 2011 budget and operative measures taken, a profit was achieved while maintaining the wage increase rate in all categories of BUT employees and meeting all the operating expenses. Despite the stagnation of the flat rate wages of the BUT employees, the annual payroll was higher than the last year's, with the BUT wage average increased by 3.73 percent on last year.

Next in 2011 BUT was successful in securing contractual co-funding of projects of the Research and Development for Innovations operative programme and pre-funding of projects prepared for the coming priority axis 4 of this operative programme.

All major building projects in the required scope were either finished in 2011 as planned or have achieved such a stage that they can be finished in time provided that no unexpected circumstances appear in 2012.

Due to problems with the dates of state-controlled school-leaving examinations being not synchronized with the entrance examinations, universities were facing a difficult task of organizing admissions and registrations with most of the applicants were not in the possession of a school-leaving certificate when turning up for the admissions. Thanks to increased efforts of administration staff, however, this difficult administrative problem was overcome. BUT was one of the initiators of an action to shift the date of school-leaving examinations, partially successful for the coming academic year 2012/13.

In the area of creative activities, one of the most significant factors is building and launching new research infrastructures financed by the Research and Development for Innovations operative programme. To insure the sustainability of such infrastructures, funding will be required both from public and private funds – in this case, this will be made possible through contracted research. Regarding the public resources, the eight-year programme (2012–2019) of the TAČR Centre of Competence is an important contribution in this respect. BUT was very successful in the Centre of Competence projects with nine-percent participation. A 30-percent increase in the contracted-research funding is next good-news.

In external relations, one of the priorities continues to be the strengthening of BUT internationalisation by establishing strategic partnerships with EU leading universities and making contacts with universities in Asia to start cooperation in science and research. In the field of marketing, secondary-school students have long been BUT's target in an effort to arouse their interest in engineering fields. Attention is also paid to work with graduates, who provide an important feedback.

The BUT Information System was enhanced mainly to prepare a new version of e-application and install new Apollo process-management modules, update the R&D module, launch a new module to implement an internal grant agency and search for plagiaries in the final projects. The backbone computer network was enhanced to a rate of 10 Gb/s to make the full use of the 40 Gb connection to the CESNET network. In 2011, CISC spent 2.4 million CZK to upgrade the KolejNet network and started the building of a special network for IPv6 and live-teaching broadcasts. KolejNet now runs 6,700 ports with half of them enhanced from 100 Mbit to 1000 Mbit, 6,160 Internet connections in 13 buildings, transmits 26 TV and radio channels, 35 student servers, and administers 13,945 active student e-mail boxes.

In 2011, efforts continued to increase the consistency of the Aleph500 library system catalogue. A SAP-connection was finished to enable a SAP-related book-purchasing service.

Attended yearly by over 2,300 students, information courses are offered at six faculties and one university institute. In 2011, the Central Library started to design a new e-learning correct-citing course.

After the IN- FOZ programme was terminated, an analysis was started of the information resources available and, in cooperation with other universities, an ESF project was submitted in priority axis 4 of the RDI operative programme.

In 2011, the VUTIUM Press published four new titles assigning 174 ISBN's. Six issues of the journal BUT Events were edited with 5,400 copies yearly. Due to austerity measures, the basic editing conception of the journal was changed. The monthly became a bimonthly with the number of pages per issue increased from 30 to 40, and a new full-colour layout. The number of copies per issue was reduced from 1,600 to 900. The VUTIUM Press participated in five book exhibitions and fairs.

This Annual Report looks back upon the year 2011 at a time when we all have already been confronting the difficult challenges of the year 2012 with full vigour and responsibility – knowing that the way in which many of them will be resolved will influence the years to come. The outlook is alarming and depressing as we still find ourselves in the middle of a crisis on a national, European, and worldwide scale. Still, this situation should not result in defeatist attitudes. On the contrary, it should stimulate the academic management, the self-government bodies, and the whole academic community in a firm determination to overcome the obstacles – by making a full use of the skills and knowledge available, in cooperation and unity. We believe even now that Brno University of Technology will continue to develop and remain an important Czech technical university with international renown.

BRNO
UNIVERSITY
OF TECHNOLOGY


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