



CZECH TECHNICAL UNIVERSITY IN PRAGUE





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MESSAGE FROM THE RECTOR

Dear reader,

It is my great pleasure to present to you the Czech Technical University in Prague, the oldest technical university in the Czech Republic. Above all, our University forms the cornerstone of the Czech system for science & research. Our students have an opportunity to work on top research projects in collaboration with international teams, or to work closely with the university's industrial partners. The Faculties and Institutes of our University cover a broad spectrum of knowledge and capabilities, ranging from nuclear research to architecture, from artificial intelligence to healthcare, and from civil engineering to mechanical engineering. We offer education and research capabilities in a very broad range of technical sciences, and we can satisfy almost every industrial demand for research or innovation. The Czech Technical University is set up to be a leader in innovation, technological development and science. We will be pleased if the information about our University presented in this booklet is of interest to you.

A handwritten signature in blue ink, appearing to read 'V. Petráček'.

doc. RNDr. Vojtěch Petráček, CSc.

Rector / Czech Technical University in Prague

CTU IN NUMBERS

- 18 317 students
- 2 995 International students in accredited programmes:
1 970 (BSc), 784 (MSc), 241 (PhD)
- 1 041 outgoing and 3 604 incoming exchange students
- 169 study programmes
- 1 525 academic staff, including 197 professors
- 1 585 non-academic staff

▼ **Research Funding:** 38% of the total budget

▼ **Journal papers in WoS (2017):** 1 125

2018 QS World University Rankings: 491st to 500th,
Civil and Structural Engineering – 101 to 150; Mechanical,
Aeronautical and Manuf. Engineering – 151 to 200; Computer
Science and Information Systems – 201 to 250; Electrical and
Electronic Engineering – 201 to 250; Mathematics – 251 to 300;
Physics and Astronomy – 151 to 200; Natural Sciences – 220;
Architecture/Built Environment – 151 to 200, and Engineering
& Technology – 220



SYSTEM AND ORGANISATION OF STUDIES

CTU offers accredited bachelor, master and doctoral study programmes. Each faculty, and also MIAS School of Business, offers and administers a range of its own programmes.

Teaching period: The Winter semester usually starts at the end of September. The Summer semester starts in mid February and ends at the end of May.

↳ Bachelor study programmes

The standard length of a bachelor study programme is 3 or 4 years. The study plan includes some optional courses and a final bachelor project. By their choice of optional courses and their final project, students are able to shape their studies in accordance with their own interests.

Students are recommended to spend at least one month of their studies within the framework of an exchange programme at a foreign university. A bachelor study programme is duly completed by the state bachelor examination.

All graduates automatically receive a Diploma Supplement, which specifies that the title Bc. is a bachelor degree.

↳ Master study programmes

Master study programmes are open to bachelor graduates. The standard length of a master study programme is 1.5 or 2 or 3 years. The obligatory courses in a master study programme ensure that the programme is challenging and of high quality. Work on a scientific project (or a creative project) forms an integral part of each master study programme.

We recommend students to study for at least one semester at another university, preferably abroad. Special attention is given to developing students' presentation, communication and managerial skills. Graduates are awarded the title Ing. (i.e. engineer). At the Faculty of Architecture and at the Faculty of Civil Engineering (study programme in Architecture and Construction) the title awarded is Ing. arch.

All graduates automatically receive a Diploma Supplement, which specifies that the title Ing. or Ing. arch. is a master degree.

↳ **Doctoral study programmes**

The standard length of a PhD study programme is 3 or 4 years. In the education of doctoral students, the key personality is the supervisor, i.e. a teacher with research and teaching qualifications at the level of professor, associate professor or senior scientific worker. At least a one-semester study stay at a foreign university forms a recommended part of the programme. All doctoral study programmes at CTU are also accredited and offered in English language.

↳ **Lifelong learning**

Each university faculty and institute organizes a very wide range of courses and events aimed at expanding the horizons of its staff and students, its partners and the general public – specifically including children and senior citizens.



CONTACT

**Head of Department for Education and Students Affairs
Rectorate of CTU**

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INTERNATIONAL STUDENTS

The number of incoming international students has been growing steadily. The table below shows the top ten countries from which CTU receives the largest numbers of students (as of June 30th 2018):

Number of students:

Slovakia	1 071	France	160
Russia	770	Belarus	78
Ukraine	318	China	62
Kazakhstan	235	Spain	60
India	169	Germany	49

The numbers are influenced by the following factors:

- Students from Slovakia may study programmes offered in Czech language without paying a tuition fee
- Most students from Russia, Ukraine, Belarus, Kazakhstan and Vietnam also study in Czech language. They usually study Czech language for one year at a language school in the Czech Republic, and then they enrol in a study programme offered in Czech language
- The students from France, Spain and Germany are mostly Erasmus+ students
- Study opportunities at European universities are in great demand in India, and students appreciate the comparatively low tuition fees and living costs at CTU
- Contacts with Chinese universities have been developing rapidly in recent years

↘ The Study in Prague Project

The Study in Prague project started in 2014 as an initiative of five Prague-based public universities. The aim is to recruit fee-paying international students for the study programmes taught in English language at the participating institutions. The Consortium (which has now been joined by two Prague-based universities of arts) offers accredited study programmes leading to bachelor, master and doctoral

degrees, in a very broad range of fields of study, including language and literature, teacher education, social sciences, natural sciences, human medicine, music, drama, dance and film, architecture, economics, business, management, informatics and computer science, nanotechnology, chemistry, mathematics, biotechnology, nuclear physics, statistics, engineering and technologies, as well as food, agriculture and forestry sciences, architecture, design, graphics and performing arts.

www.studyinprague.cz



▸ Main international academic partners:

Europe: RWTH Aachen, TU München, TU Dresden, TU Wien, STU Bratislava, TU Košice, Politechnika Warszawska, Supélec Paris, Écoles Centrales de Nantes, de Marseille, de Lille, de Lyon, TU Delft, UPM Madrid, KTH Stockholm, Chalmers University Göteborg, Aalto University Helsinki, TPU Tomsk

Overseas: Kansas State University, North Carolina State University, Purdue University, Université Polytechnique de Montréal, Tecnológico de Monterrey, Mexico, Nanyang Technical University, Singapore, National Tsing Hua University, Taiwan, Kanazawa University, Japan, Indian Institute of Technology Chennai, India, RMIT Melbourne, Australia, Queensland University of Technology, Brisbane, Australia, Stellenbosch University, South Africa

More about study at our University on:

<http://www.studyatctu.com/>

<https://www.facebook.com/studyatctu>

<https://twitter.com/studyatctu>

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SCIENCE AND RESEARCH

We are one of the largest research institutions in the powerful Prague cluster, and in the Czech Republic as a whole. We cover a broad range of research areas in many fields of engineering as well as physics. Basic and applied research have a long-term role at CTU. Research is carried out at all eight faculties, and also at the university institutes.

CTU in Prague harbors many excellent workplaces for cutting edge, international research. This is true not only for typical engineering disciplines such as combustion engines, (renewable) energy sources and (intelligent) buildings. The university also provides a home for curiosity-driven research such as mathematics, as well as theoretical, experimental and applied studies in a broad range of fields of physics (nuclear physics, plasma physics, laser physics, physics of materials and solids, physical electronics, physical radiation and radiological physics, to name just a few examples). Major worldwide programmes and projects that CTU is involved in include collaboration with CERN and JINR, Fermilab, with laser plasma projects (PALS), collaboration in the development of the ITER experiment, collaboration in H2020 projects, in ESA projects, and others.

With its history stretching back over three hundred years, CTU covers traditional technical fields and also architecture. It is a vibrant, modern institution, and new fields of interest develop and eventually form new institutes and faculties. However new they may be historically, two particularly dynamic fields deserve a mention here: informatics, from its mathematical roots through to applications in computer science, cybernetics and artificial intelligence, and biomedical engineering, which makes our lives better, longer and more productive.

The results of our research find applications in real life. They save and prolong human lives, protect computer networks from attack, enable artists to create cartoons, help to predict and prevent disasters, produce safe electricity, design fine buildings and urban plans, enable progress in

communications, and make transportation fast and reliable. In addition to being extremely useful, our research is interesting and inspiring.

↳ Research centers and infrastructures

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(pacovsky@fsv.cvut.cz)

Water Management Experimental Centre (pollert@fsv.cvut.cz)

Centre for Effective and Sustainable Transport Infrastructure

(akohout@fsv.cvut.cz)

Research Center of Manufacturing Technology (jan.smolik@fs.cvut.cz)

Josef Božek Research Center of Engine and Automotive Engineering

(jan.macek@fs.cvut.cz)

Center of Vehicles for Sustainable Mobility (bohupil.mares@fs.cvut.cz)

Center for Large-Scale Multi-Modal Data Interpretation

(matas@fel.cvut.cz)

Advanced Photovoltaics Center (markvto1@fel.cvut.cz)

Artificial Intelligence Center (pechoucek@fel.cvut.cz)

Computer Graphics Center (zara@fel.cvut.cz)

Doppler Institute for Mathematical Physics and Applied Mathematics

(igor.jex@fjfi.cvut.cz)

VR-1 Training Reactor (lubomir.sklenka@fjfi.cvut.cz)

Laser Plasma Center (jiri.limpouch@fjfi.cvut.cz)

Non-conventional Ventilatory Team (roubik@fbmi.cvut.cz)

Biotelemetric Systems (smrcka@fbmi.cvut.cz)

Research Center for Industrial Heritage (lukas.beran@fa.cvut.cz)

Processes and Tools of Urban Design and Spatial Planning

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MOLAB Cabinet of Design Modelling (achten@fa.cvut.cz)

Institute of Intermedia (berka@fel.cvut.cz)

Joint Systems Reliability Laboratory (hrubepav@fd.cvut.cz)

Centre for Applied Cybernetics (vladimir.kucera@cvut.cz)

Programming Research Laboratory (jan.vitek@fit.cvut.cz)

University Center for Energy Efficient Buildings (lukas.ferkl@cvut.cz)

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FACULTY OF CIVIL ENGINEERING

➤ **Number of students:** 2 355 BSc / 1 309 MSc / 443 PhD



The Faculty has been providing high-quality education for more than 300 years, and carries out research in three basic areas – structural engineering, architecture and geodesy. The quality of the Faculty is documented not just by its outstanding rating in the QS World University Rankings, but also by the fact that our graduates have no difficulty in finding employment corresponding with their field of study. We have been developing new fields of study, e.g. sustainable structures, energy-efficient buildings, and buildings & environment. When designing structures, we make an effort to link architecture and engineering. The Faculty makes use of non-traditional spaces, e.g. the Josef Underground Laboratory.

prof. Ing. Jiří Máca, CSc., dean

OUTSTANDING TEAM



Students of the Faculty won the Trail by Vinci international competition, with a proposal for a robot that clears up building sites. This competition is for innovative solutions and new technology in civil engineering. Students from 350 universities participated in the competition. The team, consisting of L. Stupková, J. Starosta, R. Benetka and J. Volf, won in the Leonard category, which provides access to the VINCI Construction incubator for the group, and they can start working on a real project with developers and specialists. The students started work on the clearing-up system at the department of construction technology, within the framework of an optional course in Robot Technology in Construction.

STUDY PROGRAMMES IN ENGLISH

↳ Bachelor's Degree Programme

Civil Engineering

↳ Master's Degree Programme

Civil Engineering

↳ Doctoral Degree Programme

Civil Engineering

Geodesy and Cartography

RESEARCH

Our research investigates theoretical and applied topics connected with civil engineering practice. This research is supported by Czech and EU grants. Research Centres: Experimental Centre, Centre of Experimental Geotechnics, Water Management Experimental Centre

UNIQUE FEATURES

- The highest-ranking faculty of civil engineering in the Czech Republic in the QS World University Rankings
- Research in the field of indoor environmental quality, energy performance of buildings, and sustainable construction
- An integrated building design approach – linking architecture and engineering

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FACULTY OF MECHANICAL ENGINEERING

↘ **Number of students:** 1 919 BSc / 883 MSc / 365 PhD



Mechanical engineering is a promising field with a global future. Graduates of our Faculty can find jobs in many spheres. The Faculty offers a broad range of fields of study, and graduates can find jobs not only in enterprises producing machinery, but also in companies engaged in automation, informatics, environmental engineering, power engineering, biomedical and rehabilitation engineering, and transportation engineering. They can also work in finance departments and in enterprise management.

prof. Ing. Michael Valášek, DrSc., dean

FACTS ABOUT THE FACULTY OF MECHANICAL ENGINEERING (FME)

FME, the oldest mechanical engineering faculty in the Czech Republic, is a constituent of the Czech Technical University in Prague (CTU). The Faculty is a direct descendant of the Engineering School in Prague, the first of its type in Central Europe, established in 1707.

CTU in Prague was ranked number one among technical universities in the Czech Republic in the QS World University Rankings, one of the most trusted university rankings in the world.

PARTNERS AND INDUSTRIAL COOPERATION

The partners of the Faculty include GE Aviation Czech, ŠKODA AUTO, Porsche, Honeywell and Bosch. This collaboration enables students in project-oriented education to participate in real industrial projects.

STUDY PROGRAMMES IN ENGLISH

↳ Bachelor's Degree Programme

Mechanical Engineering

Theoretical Fundamentals of Mechanical Engineering

Production and Economics in Engineering

↳ Master's Degree Programme

Mechanical Engineering

Intelligent Buildings

Nuclear Power Engineering Equipment

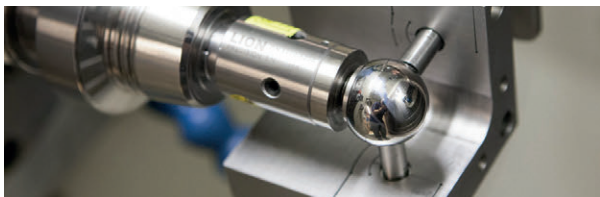
Master of Automotive Engineering (MAE)

Aeronautics and Astronautics

↳ Doctoral Degree Programme

Mechanical Engineering

Information on tuition fee arrangements is published in Appendix No. 5 of the CTU Statute. For second year students in the MAE double degree programme there is a special fee according to the partner university at which they study.



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FACULTY OF ELECTRICAL ENGINEERING

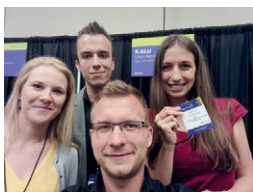
↘ **Number of students:** 1657 BSc / 892 MSc / 511 PhD



The Faculty's study programmes are closely linked to its research activities. The Faculty ranks among the top five research institutions in the whole Czech Republic. It has extensive research collaboration with top universities and research institutions worldwide. The Faculty offers innovative solutions to its industrial partners, military and security institutions. It participates in space research programmes and works for governmental agencies. In the future, the Faculty will strive to be a leading center of research and innovation with an even more internationalized academic staff and student body.

prof. Ing. Pavel Ripka, CSc., dean

OUTSTANDING STUDENTS



Marek Novák, Tomáš Pikous and Barbora Suchanová were awarded the Microsoft Imagine Cup for their credit card-sized smart baby glucometer.

STUDY PROGRAMMES IN ENGLISH

↘ Bachelor's Degree Programme

Electrical Engineering and Computer Science

↘ Master's Degree Programme

Aerospace Engineering

Biomedical Engineering and Informatics

Cybernetics and Robotics

Electrical Engineering, Power Engineering and Management

Electronics and Communications

Open Informatics

↳ Doctoral Degree Programme

Electrical Engineering and Information Technology

TOP RESEARCH

Centre of Advanced Photovoltaics (cap.fel.cvut.cz), led by Prof. Tomáš Markvart. Research Center of Informatics (rci.cvut.cz), led by Prof. Michal Pěchouček.

Our most productive research groups are: Quantum Structures (J. Hamhalter), Discharges and Plasma (P. Kubeš), Advanced Materials (T. Polcar), Antennas (M. Mazánek), Microwave (K. Hoffmann), Computational Electromagnetics (J. Macháč), 5G Mobile Communications (Z. Bečvář), Wireless and Fiber Optics (S. Zvánovec), Sensors and Magnetics (P. Ripka), Signal Analysis (R. Čmejla), Control Theory (M. Šebek), Computer Vision (J. Matas), Computer Graphics (J. Žára), Robotics (T. Svoboda), Artificial Intelligence (M. Pěchouček), Machine Learning (M. Navara), Bioinformatics (F. Železný) and Economics of Renewable Resources (J. Knápek).

INDUSTRIAL COOPERATION

The Toyota research lab was opened in 2018, and is a part of a network linking the University of Cambridge, ETH Zürich, KU Leuven, and the Max-Planck Institute for Informatics in Saarbrücken. The lab is led by Prof. Jiří Matas, who has cooperated with Toyota in computer vision since 2003. Our other industrial clients include Valeo, ABB, Siemens, Red Hat, Samsung, ŠKODA AUTO, Adobe, Cisco, Honeywell, Texas Instruments, Disney and ST Microelectronics.

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FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING

↘ **Number of students:** 818 BSc / 265 MSc / 276 PhD



Our mission is to prepare top experts in all fields of science, in particular mathematics, physics, nuclear chemistry and information technology. The teaching is highly individualized, tailored

to the needs of each student. The focus is on independent and creative thinking. The high standards promoted by the Faculty have been confirmed by the awards that our graduates and staff have received. Large national grants awarded in recent years have enabled the Faculty to pursue the latest trends in science, technology and teaching.

prof. Ing. Igor Jex, DrSc., dean

OUTSTANDING GRADUATE



Ing. Václav Potoček, Ph.D. decided to study physics after participating in the international Physics Olympics. He also loved mathematics, and mathematical physics was then the obvious choice for him. He participated in setting up international collaboration in the field of quantum walks with a partner institution in Paderborn, Germany, where experimentation converts theory into reality. His name is linked with several breakthrough results in the field of quantum walks. His work has won him several awards, and has been cited more than 500 times. After spending four years as a postdoc in Glasgow and Edinburgh, where he investigated the optics of rotating light beams, Václav has now returned to his alma mater, bringing with him maturity and new ideas.

STUDY PROGRAMMES IN ENGLISH

↳ Master's Degree Programme

Application of Natural Sciences

Applied Algebra and Analysis*

Quantum Technologies*

Decommissioning*

/ expected start 2019/2020*

↳ Doctoral Degree Programme

Mathematical Engineering

Physical Engineering

Nuclear Engineering

Nuclear Chemistry

Radiological Physics

UNIQUE FACILITIES

We are the only faculty in Europe that operates both types of nuclear reactors for education and research – the VR-1 Sparrow nuclear fission reactor, and the Golem nuclear fusion reactor.

We are developing new devices, including the JetDep100 Ionized Jet Deposition (IJD) system, laser systems for medical applications, technologies for the detection of ionizing radiation, optical pulses and very accurate measurements of time, whose applications in space science are also under development.

INDUSTRIAL COOPERATION

Our Faculty cooperates with more than 40 commercial subjects in pure and applied research (e.g. the ČEZ group; CAN Superconductors s.r.o.; Noivion s.r.l.). This cooperation has led to a considerable number of products and new processes that significantly improve our everyday life.

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FACULTY OF ARCHITECTURE

↘ **Number of students:** 915 BSc / 608 MSc / 161 PhD



Over time, the Faculty of Architecture has become a prestigious place for studying and also for carrying out creative and publishing activities in architecture, urbanism, design and, more

recently, landscape architecture. The traditional position and the current status of FA CTU, the traditional local prestige and the growing international prestige of our results have formed stable foundations for further development of the Faculty, though it is also necessary to keep responding to new impulses given by the times. In upcoming years, it will be necessary to keep integrating into education the fundamental changes in the profession of an architect – modern technologies that are being introduced in the preparation and realization of construction and building manufacturing, management of buildings in the tendencies of Industry 4.0, and methods of sustainable development. The Faculty must also go with the increasing impact of globalization and internalization on education and on the work of architects.

prof. Ing. arch. Ladislav Lábus, Hon. FAIA, dean

OUTSTANDING STUDENTS

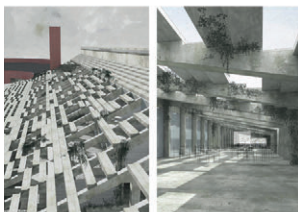
Filip Galko and Veronika Indrová

TOP 40 in Young Talent Architecture Award 2018

The master's projects of Ing. arch. Filip Galko and Ing. arch. Veronika Indrová achieved good results in the Young Talent Architecture Award (YTAA) 2018 competition. Among the 334 best master's projects nominated by schools of architecture in 32 countries, the international jury placed them in the Top 40. This success is an indicator of the quality of the graduates of the Faculty of Architecture of CTU in Prague, to whom leading Czech architects hand on their experience.



➤ Filip Galko / LASVIT FLAGSHIP STORE SHOWROOM PRAGUE



➤ Veronika Indrová /
CONVERSION
OF STADIUM STRAHOV
IN PRAGUE

STUDY PROGRAMMES IN ENGLISH

➤ Master's Degree Programme

Architecture and Urbanism
Design

➤ Doctoral Degree Programme

Architecture and Urbanism
Design

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FACULTY OF TRANSPORTATION SCIENCES

📌 **Number of students:** 814 BSc / 378 MSc / 125 PhD



Transportation is what moves the world! The research and the teaching at the Faculty cover a broad range of systematic views of transport, vehicle design and transport infrastructure, passenger behavior, network and flow optimization, safety control and safety management, reliability, economics, etc. The Faculty of Transportation Sciences offers a wide spectrum of study programs led by expert researchers who educate future professionals in transportation and logistics, as well as telecommunication engineers and also professional pilots.

doc. Ing. Pavel Hruby, Ph.D., dean

OUTSTANDING TEAM



Love, passion, enthusiasm and affection for motorbikes led to the formation of the CTU Lions in 2015, within the Faculty of Transportation Sciences, specifically at the Department of Vehicles.

With a commitment to design and fabricate a motorbike similar to the Moto3 class, like-minded students joined hands to form a team and take part in the 5th edition of MOTOSTUDENT. Our goal is to design, develop and construct a prototype of a racing motorcycle. Currently, our team is a full member of the competition, and is focusing on the design of the motorcycle, especially the design of the frame.

STUDY PROGRAMMES IN ENGLISH

📌 Bachelor's Degree Programme

Professional Pilot

Air Transport

↳ Master's Degree Programme

Intelligent Transport Systems
Air Traffic Control and Management
Master's degree (joint degree)
Intelligent Transport Systems
Smart Cities (beginning in 2019/2020)

↳ Doctoral Degree Programme

Technology in Transportation and Telecommunications
Engineering Informatics

TOP RESEARCH

MAVEN: Managing Automated Vehicles Enhances Network project, funded by the EC Horizon 2020 Research and Innovation Framework Programme. MAVEN will develop management regimes for highly-automated driving in urban areas, enabling automated vehicles to reach beyond the state-of-the-art of ADAS and C-ITS applications.

UNIQUE FACILITIES

The Railway Traffic Control and Interlocking Systems Centre of Excellence is devoted to practical research in the area of rail traffic control and security of railway operations.

INDUSTRIAL COOPERATION

Volkswagen AG is the key international partner, and there is also a wide range of other companies (e.g. Boston Venture Central Europe, AF-CITYPLAN, AMiT, ATEM, AŽD, CDV CGI IT Czech Republic, České dráhy, DEKRA AUTOMOBIL, ROPID, SFDI, SŽDC, ŠKODA AUTO, TSK Praha, etc.).

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FACULTY OF BIOMEDICAL ENGINEERING

↘ **Number of students:** 1090 BSc / 454 MSc / 103 PhD

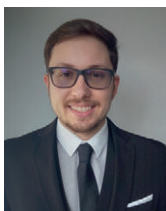


FBME is a faculty that specializes in medical technology, biomedical engineering and healthcare management, and in education for several medical and healthcare professions.

There is no other faculty in the Czech Republic that offers its students such modern and sophisticated laboratories, together with a wide range of practically-oriented education with extensive practical training in healthcare facilities. Close cooperation in education and research between technical experts and medical experts, facilitated by scientific collaboration with the best research and healthcare institutions all around the world, forms the basis for the high-quality education that the Faculty offers.

prof. MUDr. Ivan Dylevský, DrSc., dean

OUTSTANDING GRADUATE



Ing. Martin Fůs is one of our most outstanding graduates. In his master's project, he demonstrated his ability to apply theoretical knowledge to new technologies. He made use of virtual navigation in cataract operations, which has given his patients excellent post-operative acuity. He has also designed a program for improved and more objective post-operative diagnostics of patients with toric lenses.

During his studies, he participated in many conferences in the Czech Republic and also abroad. His conference contributions in Optics and Optometry Forum 2017 and in Instruments and Methods for Biology and Medicine 2016 and 2017 were the best in the section for students. He was awarded the Dean's Prize for his bachelor studies, and also an award from the Minister of Education for 2017.

STUDY PROGRAMMES IN ENGLISH

↳ Bachelor's Degree Programme

Biomedical Technician

↳ Master's Degree Programme

Biomedical Engineering

Biomedical Engineering – CEMACUBE (Common European

MAster's CoUrse in Biomedical Engineering, Erasmus

Mundus) – Double Degree with RWTH Aachen, Germany

Instruments and Methods for Biomedicine

Systematic Integration of Processes in Health Services

↳ Doctoral Degree Programme

Biomedical and Clinical Technology

TOP RESEARCH

- Interaction of XUV radiation with biological objects
- Optimization of mechanical lung ventilation
- Nanocomposite and nanocrystalline materials for implantology and biomedicine
- Biotelemetry systems for monitoring and supporting the treatment of diabetes patients
- Health technology assessment for medical devices
- Rehabilitation process quantification
- New trends in disaster medicine
- Evaluation of immediate eye, head, limbs and body position in clinical practice
- Development of high-speed thin-layer scintillators for high-resolution imaging

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FACULTY OF INFORMATION TECHNOLOGY

↳ **Number of students:** 1 744 BSc / 495 MSc / 68 PhD



FIT is a modern faculty that has been developing study programmes for bachelor and master students that will provide a basis for their future careers in a dynamically evolving field. The Faculty's current priority is to use available funding to support PhD students and postdocs in their research, and to raise the quality and the quantity of scientific findings. We also want to build up international networks and intensify our international relations with universities abroad in the area of teaching and research. The Faculty is working intensively on setting up a Virtual Reality Laboratory, and last but not least, we want to extend and deepen our collaboration with commercial companies, especially through joint projects.

doc. RNDr. Ing. Marcel Jiřina, Ph.D., dean

OUTSTANDING STUDENT



Ondřej Bíža is an undergraduate student and at the same time a research scientist in the Laboratory of Showmax (ShowmaxLab), a company working on optimizing artificial intelligence capable of understanding the content of films. His main interest lies in Deep Learning and Computer Vision. Ondřej's research focuses on analyzing videos. He has also gained experience in applying and teaching Reinforcement Learning.

STUDY PROGRAMMES IN ENGLISH

↳ Bachelor's Degree Programme

Computer Science

Web and Software Engineering,

specialization in Software Engineering

↳ Master's Degree Programme

Web and Software Engineering,

focused on Software Engineering

Computer Security

Computer Systems and Networks

Design and Programming of Embedded Systems

TOP RESEARCH

The Programming Research Laboratory (PRL@PRG) at FIT CTU works on achieving a deeper understanding of programming languages and the ways in which they can be used. Prof. Jan Vitek's Evolving Language Ecosystems (ELE) project, funded by a prestigious European research grant, is carried out in this laboratory. The aim of the project is to find approaches that will reduce the cost of developing programming languages, with specific reference to R language. PRL@PRG collaborates with several top universities and companies. The Laboratory has an international research team, and students in the bachelor, master and PhD study programmes in related fields are integrated into the project.

INTERNATIONAL COOPERATION

FIT CTU collaborates with more than 30 companies on numerous projects. For example, Profinit has developed new business intelligence products in cooperation with the Faculty. With Showmax, we are developing artificial intelligence algorithms capable of understanding the content of a movie. With Datamole, we are working on applications of data mining algorithms in agriculture and in the food industry.

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KLOKNER INSTITUTE

The Institute was established in 1921 as the Research and Testing Institute of Materials and Building Structures. This was the first research institute to be established at CTU, and ranks among the four oldest independent scientific centres in Europe.

SCIENTIFIC AND RESEARCH ACTIVITIES

Results achieved in recent years confirm the Institute's unique standing in the Czech Republic and worldwide, namely in the following fields:

- Reliability theory of building structures
- Diagnostics, monitoring and assessment of structures
- Mechanics of composite materials, development and verification of new concrete technologies and new structural materials
- Degradation of reinforced concrete and masonry structures due to exposure to the environment, and methods for redeveloping these structures and designing modern structures

DOCTORAL DEGREE PROGRAMMES IN ENGLISH

Theory of Non-metal and Building Materials

Theory of Structures



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MIAS SCHOOL OF BUSINESS

The MIAS School of Business was established in 1992, reviving the tradition of research and education in economics, business and language studies, which has been an integral part of CTU since 1919, when the School of Commerce was set up.

Since the inception of the School of Business, core activities have included teaching in accredited Degree Programmes focusing on economics, management studies, regional development, engineering pedagogy and history. A total of 678 students graduated from a successful joint MBA programme with Sheffield Hallam University. MIAS also organizes a one-year Preparatory Programme for foreigners aiming to enrol at CTU or at other Czech Universities, welcomes students to the MIAS International Summer School, and is a leading certified institution in the area of general and specialized language training. MIAS participates in numerous research projects, and provide advisory services and training programmes for companies, professional bodies and public agencies.

BACHELOR DEGREE PROGRAMME IN ENGLISH

Economics and Management

MASTER DEGREE PROGRAMME IN ENGLISH

Innovation Project Management

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UNIVERSITY CENTRE FOR ENERGY EFFICIENT BUILDINGS

The Centre was established in 2009 and it brings together experts from the Czech Technical University in Prague dealing with sustainable buildings. The aim is to promote energy-efficient and environment-friendly buildings that are comfortable for their users.



R&D DEPARTMENTS:

- Architecture and the Environment: Environment-friendly, safe and comfortable buildings.
- Energy Systems of Buildings: A comprehensive focus on energy savings, optimization of energy sources, and the use of renewable energy sources.
- Indoor Environmental Quality: Research and development of systems that improve the quality and comfort of the indoor environment in energy-efficient buildings.
- Materials and Structures: Advanced tests on the mechanical properties of materials, building elements and components.
- Control and Monitoring of Intelligent Buildings: Design of advanced algorithms for controlling building energy systems, development of new sensors for monitoring the indoor environment and structure.

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CZECH INSTITUTE OF INFORMATICS, ROBOTICS AND CYBERNETICS

The Institute was established in 2013 with the vision to become a modern research and educational institute pooling the best research teams, young talent, and unique know-how; providing incentives for achieving world-class results; raising a future generation of researchers of international calibre.

SCIENTIFIC AND RESEARCH ACTIVITIES

The Institute strives to achieve excellent and applicable results in

- cyber-physical systems
- intelligent systems
- industrial informatics
- robotics and machine perception
- industrial production and automation
- biomedical engineering and assistive technology.

MASTER AND DOCTORAL STUDY PROGRAMMES

The Institute participates in study programmes accredited by the Faculties.

CONTACT

www.ciirc.cvut.cz

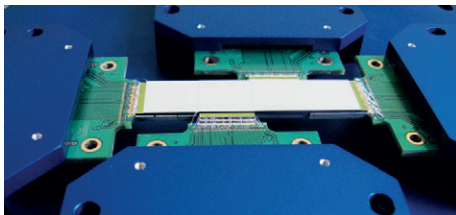
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INSTITUTE OF EXPERIMENTAL AND APPLIED PHYSICS



The Institute of Experimental and Applied Physics (IEAP) was established in May 2002 as a scientific and academic unit of CTU working on physics of the microworld and its applications. IEAP cooperates extensively with international partners (CERN, ESA, JINR, University of Montreal, etc.), making use of the infrastructure available to the Institute (Van de Graaff Laboratory, Central Detection and Analytical Laboratory, Radiation Imaging Laboratory), and supports close contacts with industrial partners.

SCIENTIFIC AND RESEARCH ACTIVITIES

IEAP covers a range of fields of astroparticle & non-accelerator physics (neutrino physics, radiation in space, dark matter), LHC physics (ATLAS, Timepix radiation monitoring, magnetic monopole), nuclear spectroscopy, radiation imaging (pixel detectors, X-ray radiography and tomography, charged particle & neutron imaging, biomedical imaging, and material science).

EDUCATIONAL ACTIVITIES

IEAP organizes classes for the University of the Third Age, and provides an educational program in radiation detection for teachers of secondary schools. The Institute also offers and supervises research projects for bachelor, master and PhD students.

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THE CTU ACADEMIC ORCHESTRA

The CTU Academic Orchestra is a unique musical ensemble in the Czech Republic that provides an opportunity for students from CTU, and also from other universities, to develop as musicians. The professional conductor is Jan Šrámek, who draws on long-term experience of working not only with professional musical ensembles but also as a director and in dramaturgy. The orchestra performs regularly in the Bethlehem Chapel, and also on stages elsewhere in the Czech Republic and abroad, with a classical and multi-genre repertoire. The orchestra enjoyed great success when it played a concert in Cambridge, where it presented a programme under the title *Jewels of Czech Music*. A number of renowned soloists have appeared with the orchestra.

STUDENT UNION

Our mission is to offer a range of free-time activities for students and to provide opportunities for students to expand all their skills outside the classroom. We have a long tradition, and we are able to arrange access for our members to knowledge and skills from the real world, in particular outside the sphere of technology. We organize social, cultural and sporting events, training courses and enjoyable leisure activities. We are an independent civic association, and most of our members are students of the Czech Technical University in Prague. We have approximately 7 000 members. Our members are predominantly students from the university dormitories, where about 90% are members. 23 student clubs with a broad range of activities are affiliated with the Student Union.



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FORMULA STUDENT

CTU CarTech and eForce FEE Prague Formula are a student project at the Czech Technical University in Prague that receives support from many companies in the Czech Republic and abroad. The aim of the project is to take part in the prestigious Formula Student/SAE international engineering competition, in which students from more than 500 universities all over the world participate. Our team contends for top results.



CTU CarTech brings together 40 students from several of the faculties of CTU. Since 2007, students have been able to construct a new car each year. The newest car is equipped with a carbon fiber monocoque, a carbon fiber fuel tank, and a much-modified combustion engine. Almost all the parts of the car are developed by students. The team uses cutting edge technology, such as titanium 3D printing and carbon fiber prepreg materials. This is one of the reasons why the car weighs only 195 kg.



eForce FEE Prague Formula brings together 50 students from many fields of study, mostly from the Faculties of Electrical Engineering and Mechanical Engineering at CTU in Prague. It is the only Czech team competing in the Formula Student competition that successfully builds a formula car with an electric drive. The seventh generation of the student formula car was designed with the emphasis on reliability and on improving the driving qualities of the car. Improved motors, battery and controls, together with the revised fully-composite monocoque, helped us to achieve a double win in 2018.



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