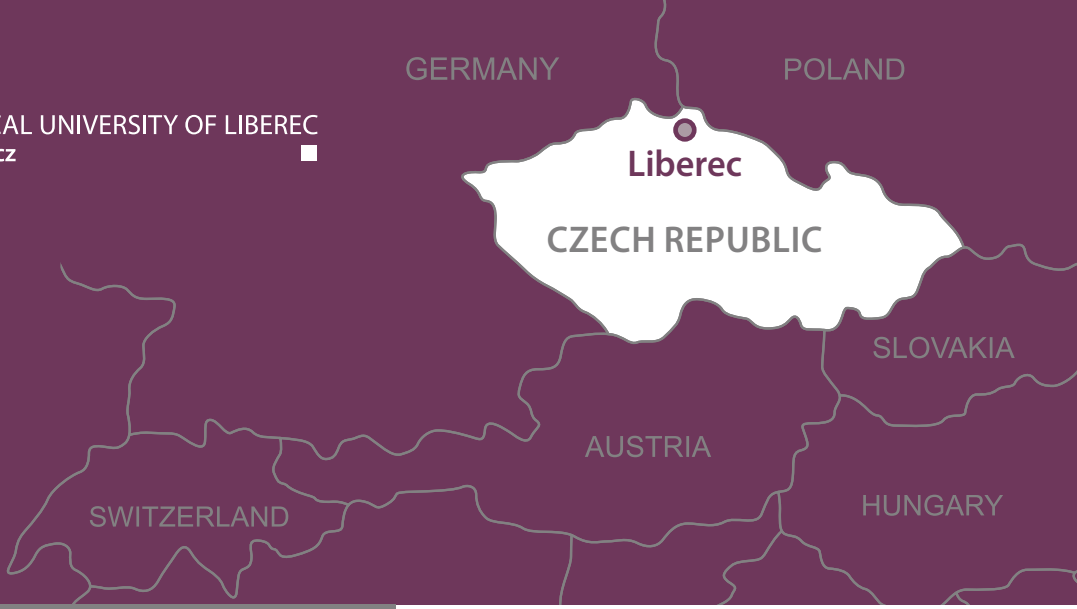
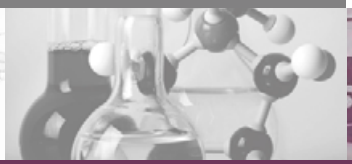
TECHNICAL UNIVERSITY OF LIBEREC
www.tul.cz

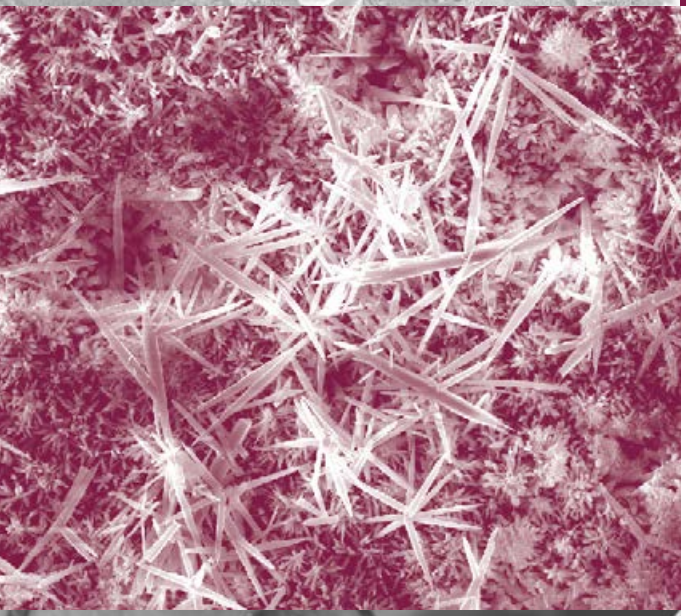


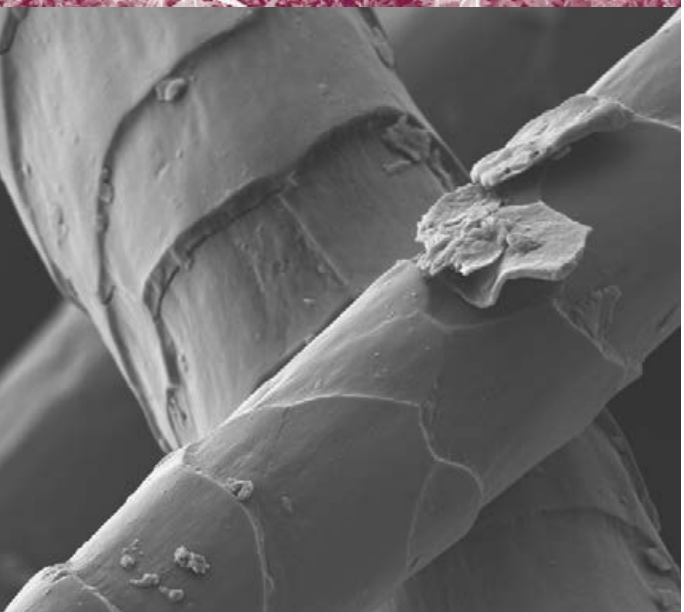
TECHNOLOGY, AND MUCH MORE!



Study

AT THE TECHNICAL UNIVERSITY OF LIBEREC IN THE CZECH REPUBLIC





CONTENTS

TECHNOLOGY, AND MUCH MORE!

A WORD FROM THE RECTOR

The Technical University of Liberec offers a wide range of study programmes in traditional technical disciplines specializing in high-tech engineering, textiles and mechatronics. More and more teaching and learning space at the university is engaged by modern interdisciplinary degree courses and study programmes focusing on computer science, robotics, biotechnical engineering and nanotechnologies. Applicants for studies in Liberec can also find study programmes in humanities, economics, arts and in health-oriented studies.

The Technical University of Liberec provides fair access to education to all would-be students. All applicants are provided with excellent accommodation facilities. The sports facilities and rich opportunities for leisure time spending make the university and the town of Liberec the best choice for studies.

We are also proud to host a growing team of young people from almost fifty countries. For them, we have prepared study programmes taught in English, but also internships in renowned Czech and international companies. International students can choose to study also in the Czech language. In this case, their degree study programme is provided for free. For courses taught in English a tuition fee is charged. Scholarships are awarded to international students with good study results. Financial rewards are also granted for addressing specific scientific tasks within various grant projects.

Due to mobility opportunities and the development of critical employability skills, most of our graduates find jobs easily in the Czech Republic and abroad. These trends contribute to team learning, shared vision and a radical rethinking of the core functions of the university.

Prof. Dr. Ing. Zdeněk Kůs
Rector of the Technical University of Liberec

In its more than sixty-year-long history, our university has joined other educational institutions which are world leaders not only in teaching but also in the field of science and research. We have cutting-edge laboratories for education and research, bringing together researchers from the University with actively-involved students. Our research teams and students participate in more and more projects in cooperation with partners from the world of business and technology and with our international partners too.

WE ARE LOOKING FORWARD TO MEETING YOU AT OUR UNIVERSITY.

ABOUT THE UNIVERSITY

The Technical University of Liberec was founded in 1953 as the College of Mechanical Engineering. Soon, it was extended by another faculty focused on textile engineering. Since its transformation and development in the nineties, the middle-sized university has offered a wide variety of subjects to satisfy even the most demanding applicants. Courses in science, humanities and technology are provided at seven faculties. Besides high school graduates, study courses are provided for children and their grandparents, for whom special courses are prepared at the so-called Children's University and the TUL Centre of Continuing Education. Furthermore, a highly specialized scientific centre, the Institute for Nanomaterials, Advanced Technologies and Innovation can be found directly on the university's main campus.

At present, almost 8,000 students are studying in Liberec. They are treated with a highly personal approach and are able to work with the most up-to-date instruments and equipment. The range of studies consists of over 200 subject modules and is constantly evolving. Student exchange programmes such as Erasmus+ mobility are integrated into study programmes as contracts for cooperation have been signed with numerous universities from all over the world. The opportunity to spend a part of the study course abroad complements the study course and further reinforces the gained experience and knowledge, which provides the best grounding for the future professional life.

The publication in your hands presents the most important parts of the university, its faculties and institute. We hope you will find it useful to get familiar with the Technical University of Liberec.

Czech Republic

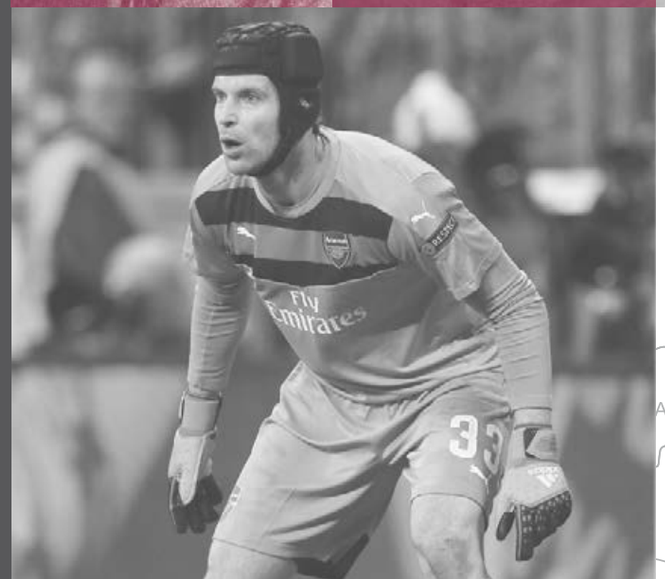
The Czech Republic is situated in the heart of Europe; it shares its borders with Germany, Austria, Slovakia and Poland. There are 10.5 million residents, of which one tenth lives in the capital city – Prague.

The Czech Republic is a member of important international associations such as the World Bank (since 1993), Organisation for Economic Cooperation and Development (OECD, since 1995), North Atlantic Treaty Organisation (NATO, since 1999) and the European Union (since 2004).

The Czech economy is stable and one of the most prosperous of the post-communist countries that underwent a transformation after 1989. The Czech currency is the Czech Crown (CZK).

Culture and creativity play a very important role in the life of Czechs and that is why it is no great surprise that the Czech Republic is closely linked to a number of famous personalities. These include:

Composers: Bedřich Smetana, Antonín Dvořák
Writers:
Franz Kafka, Bohumil Hrabal, Jaroslav Hašek, Karel Čapek
Rulers and Presidents:
Emperor Charles IV, Tomáš Garrigue Masaryk, Václav Havel
Scientists and Thinkers:
Jan Amos Komenský (founder of modern education),
Gregor Johann Mendel (founder of genetics),
Jan Jánský (discoverer of blood groups),
Otto Wichterle (share in a major improvement and development of contact lenses)
Sportsmen:
Emil Zátopek (marathon), Jaromír Jágr (ice hockey),
Petr Čech (football), Petra Kvitová (Wimbledon winner)



THE CZECH REPUBLIC, A JEWEL IN THE HEART OF EUROPE

The Czech Republic is a landlocked country, but its landscape is exceptionally varied. There are picturesque valleys along clean rivers full of fish, mountains with forrests, protected areas in national parks, but also busy towns and cities. Visitors can experience the temperate continental climate with relatively high differences between summer and winter temperatures. On the warmest days in July and August temperatures can reach as high as 30 degrees Celsius and in winter temperatures range around the freezing point. But exceptionally they can drop to minus 20 degrees with a lot of snow. Generally, the higher in the mountains one is, the lower temeprature s/he can experience. That is why for an international visitor not used to this type of climate, it is a significant matter to dress up properly for each season.

As all other countries, the Czech Republic has its distinctive traditional cuisine. Visitors can enjoy various types of meals with rich taste and often served with dumplings, but light vegetable-based dishes are available too.

There are limitless choices for spending one's free time and getting familiar with the country, its people and culture. The country can offer interesting options to all people of all age groups and interests.

THE CZECH REPUBLIC WILL QUICKLY BECOME YOUR SECOND HOME OR YOUR HOME OUT OF HOME.

Liberec

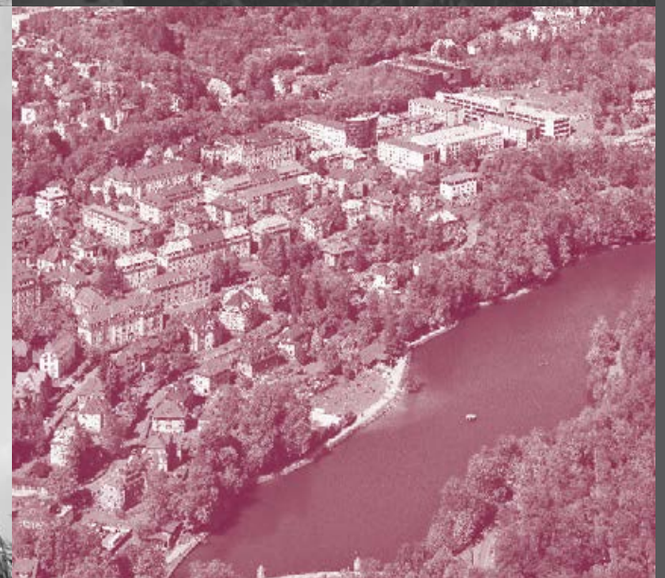
Liberec is situated in the north of the Czech Republic on the border with two other countries: Germany and Poland. It is 100 km far from the capital city of Prague, which is the largest hub of air, rail and bus transportation. Due to the good motorway connection and frequent bus services, the travel time from Liberec to Prague does not exceed 70 minutes.

Travelling on a modern train from Liberec takes a tourist or traveller to Dresden in Germany in about two hours. Walking in the woods not far from the town can easily take you to Poland. Reaching other European countries is a matter of a very short travelling time too.

Liberec, which has 100,000 inhabitants, is situated at the foot of the picturesque Jizera Mountains. This is one of the reasons why it is known as the city of sports and tourism. The conditions for both summer and winter sports are unique, both indoors and outdoors. The town is also the centre of the regional government, a focal point of culture and commerce.

The symbol of Liberec is Ještěd – the mountain hotel with a transmitter located at the top of the mountain of the same name (opened in 1973). It is a well-known example of Czech architecture and its designer from Liberec, the Czech architect Karel Hubáček, was awarded the Auguste Perret Prize by the International Union of Architects for its creation in 1969.

Numerous buildings in the area of the town illustrate its rich history and how the face of the town has been changing since it was first mentioned in the documents from the 14th century till these days. Sightseeing tours need to include the townhall, Regional Museum, Gallery - Museum of European Art, but also examples of contemporary architecture, such as the only Jewish synagogue built in the Czech lands since the WWII, which is included in the complex of the Municipal Library.



THE CITY OF LIBEREC, THE PEARL OF THE NORTH

Liberec has the oldest ZOO in the Czech Republic, which was open as early as 1919, but its modern appearance does not reveal its age. There is a wide variety of fauna (about 143 species on 13 hectares), including large mammals like elephants, giraffes, sea lions and white tigers, which are a genetic anomaly and hence very rare. The ZOO participates in breeding activities of endangered species to help preserving the gene pool. The Botanical Garden in Liberec comprises nine glasshouses for visitors and 13 exhibition themes, nine plantation glasshouses and a large exterior terrain. It continues the legacy of a botanical garden established in 1876 by the Verein der Naturfreunde ("Society of Friends of Nature") on a nearby site and it is therefore considered the oldest one in the Czech Republic.

Visitors interested in technology and technical development will appreciate the Technical Museum, the reconstructed old trams going in the streets of the town, the narrow gauge steam railway in the neighbouring town of Zittau in Germany, the science centre IQ Landia, the swimming pool built within the old unused factory and the fact that the founder of the Porsche car company, Ferdinand Porsche was born here.

COME AND EXPERIENCE THE RICH CHOICE THE TOWN OF LIBEREC CAN OFFER.

A WORD FROM A FOREIGN EXPERT

Assoc. Prof. Rajesh Mishra

An expert in textile science, composites and fibrous structures, employed by the Faculty of Textile Engineering of the TUL since 2009

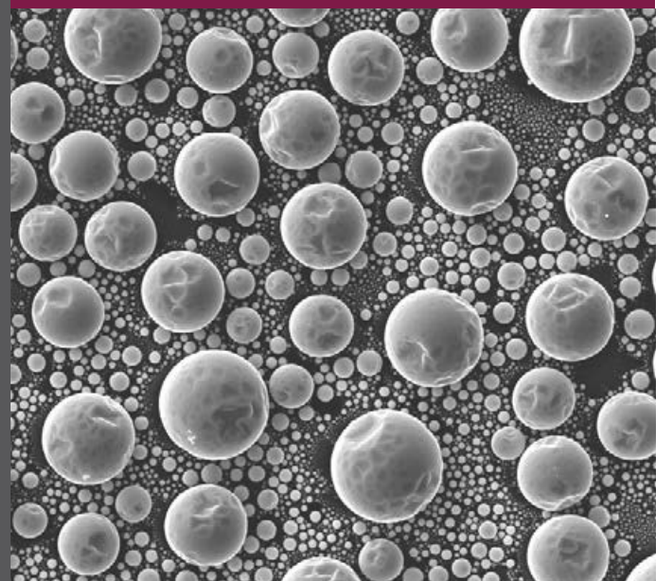
Students at the Technical University of Liberec meet not only Czech, but also foreign professionals during their studies. Predominantly, they are experts from the European Union, but also from India, Russia, the USA and other countries.

The Technical University of Liberec in general and the Faculty of Textile Engineering in particular are well known around the world for the novelties in the field of science and innovation. The inventions of shuttleless weaving (jet looms), open-end spinning and industrial production of nanofibers created a revolution in the textile research and brought TUL to the limelight. The cooperation of the TUL with many foreign universities in producing technocrats and academicians is remarkable. In the last 50 years, many graduates have established themselves in industry, research and the academias around the globe. The Faculty's partners abroad include Auburn University, USA, Shinshu University, Japan, Indian Institute of Technology in New Delhi, India, Wuhan Textile University, China and many others.

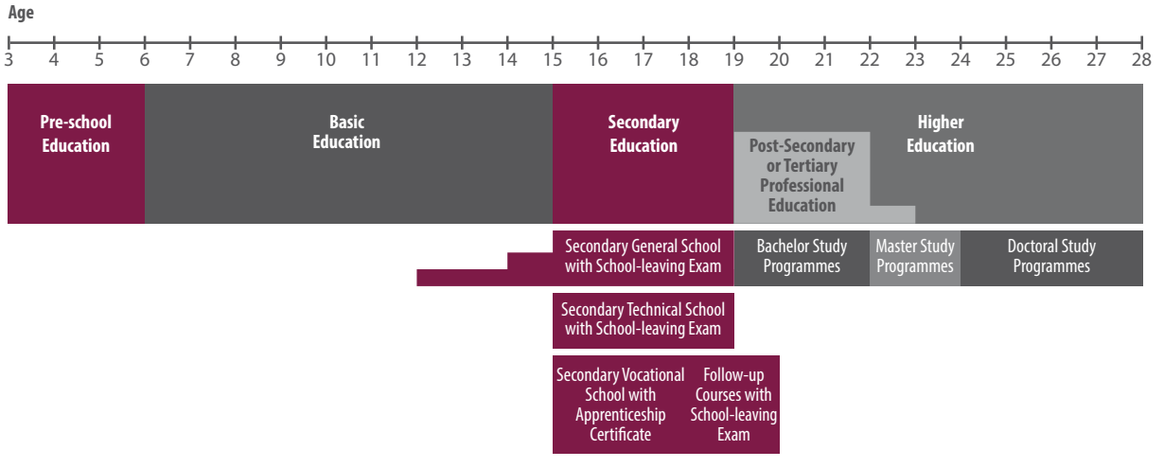
In recent years a lot of students enrolled into Master and Ph.D. study programmes in English and successfully completed their study. They experience working in an environment charged with scientific thinking and academic excellence. The university also offers short term professional development programmes for working professionals from industry and educational institutions or universities.

A good number of projects have been realized with international partners to solve scientific and technical issues. The application oriented research is the right approach in making it more realistic and industry useful. Numerous product prototypes and research papers including patents are realized to achieve this goal.

To conclude briefly, the achieved scientific harmony is remarkable as it helps overcome the geographical boundaries defined by current day complex political scenario.



THE EDUCATIONAL SYSTEM IN THE CZECH REPUBLIC



APPLICATION PROCEDURE

The deadline for submitting applications for each academic year is usually in March and the precise date is announced on the University webpage. The applicants from abroad will be expected to pay the admission procedure fee of maximum 25 USD.

International students need to undergo the process of recognition of their previously completed studies.

Bachelor degree applicants need to contact the authorities competent to make decisions on recognition of international secondary school leaving certificates in the Czech Republic, namely the Regional Educational Authorities (School departments of Regional Authorities). Any graduate from a foreign Bachelor/Master degree course is eligible for a post in a Master/Ph.D. degree course at the Technical University of Liberec after the successful completion of the recognition process. For more details concerning the application procedure please check the university website or contact the International Office.

For the full list of study programmes of the Technical University of Liberec accredited in English see:

http://www.tul.cz/en/programmes

THE ORGANIZATION OF STUDIES AT THE TECHNICAL UNIVERSITY OF LIBEREC

The academic year for students in Bachelor, Master and Ph.D. programmes at the Technical University of Liberec lasts from October to September. Each year is split into the winter and summer semesters. Teaching activities are covered generally in 14 weeks and are followed by the assessment period with examinations. There is always a break in teaching at the Christmas period in December and in the main summer months of July and August.

COST OF LIVING IN LIBEREC

The cost of living varies, of course, depending on personal needs, but below you can find an estimate of what the adequate cost of living per month may be for an international student in the Czech Republic:

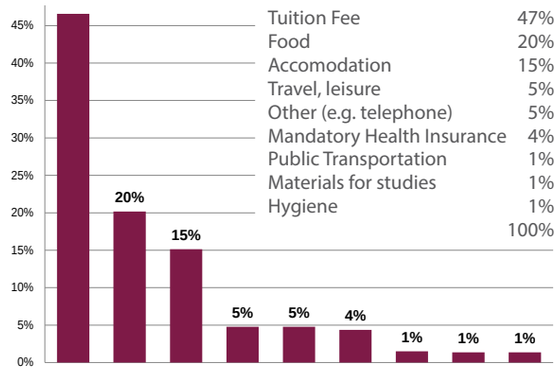
Estimated cost of living	USD / year
Food	1776
Accommodation (double room, university Halls of Residence)	1332
Travel, hobby, leisure	420
Other (telephone, clothes, etc.)	420
Mandatory Health Insurance	384
Public transportation	132
Materials for studies	120
Hygiene	120
Total	**4704***

**A laptop/notebook is a necessary tool for success in Bachelor/Master study programmes at TUL. Minimum estimated cost of a new laptop is USD 300.*

TUITION FEES FOR PROGRAMMES TAUGHT IN ENGLISH

Bachelor Degree Courses:	3,000 – 5,000 USD
Master Degree Courses:	3,000 – 5,000 USD
Ph.D. Courses:	1,200 – 2,000 USD

USD / ACADEMIC YEAR / APPROXIMATELY



Tuition Fee	47%
Food	20%
Accomodation	15%
Travel, leisure	5%
Other (e.g. telephone)	5%
Mandatory Health Insurance	4%
Public Transportation	1%
Materials for studies	1%
Hygiene	1%
	100%

Erasmus+

ERASMUS+ PROGRAMME AT THE TECHNICAL UNIVERSITY OF LIBEREC

The Technical University of Liberec considers internationalization as one of its priority areas. That is why the 7 faculties and professional institute of the University value incoming international students under the Erasmus+ Exchange Programme and support all forms of study stays and internships abroad for Czech students of the Technical University. Simultaneously, the programme is used for the development of the staff members via the teaching stays, work stays and job shadowing opportunities. The TUL cooperates with numerous Erasmus+ international institutions and is open to start cooperation with further partners.

The general framework for all activities of the Erasmus+ Programme is set by the Erasmus Charter and the Erasmus Policy Statement. The TUL was awarded Erasmus Charter for Higher Education under the following Application Reference Number: 48246-EPP-1-2014-CZ-EPPKA3-ECHE. The TUL is interested in extending the existing cooperation with current partners and/or adding more of them to include further opportunities for development via more targeted strategic partnerships in various fields of expertise. We are ready to welcome more partners to work together, to develop, share and transfer best practices and innovative approaches in the fields of education, training and youth and policy reforms identified as appropriate and useful.

TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Mechanical Engineering

Established: **1953**

Faculty of Mechanical Engineering

"The role of the faculty is to produce well qualified, flexible and employable graduates in a traditional field. "

STUDY PROGRAMMES

Bachelor's studies (3 years)**:**
- Mechanical Engineering

Follow-up Master's studies (2 years)**:**
- Mechanical Engineering – Innovation Engineering
- Engineering Technology and Materials
- Machines and Equipment Design
- Manufacturing Systems and Processes

Master's studies (5 years)**:**
- Mechanical Engineering – Applied Mechanics

Doctoral studies (4 years)**:**
- Mechanical Engineering
- Machines and Equipment
- Engineering Technology
- Applied Mechanics
- Manufacturing Systems and Processes
- Material Engineering

STUDIES AT THE FACULTY

The Faculty of Mechanical Engineering is the one with the longest history of development, which has always reflected the evolution of the engineering industry and the need for educated engineers for new industrial operations, especially in the north Bohemian region. At the time of its establishment it focused on education of engineers for the textile, glass and automotive industries. Today graduates get employment opportunities in applied cybernetics, robotics or management of production systems.

In the undergraduate programmes students participate in lectures for larger groups of students, in practical tasks and in laboratory practice. The students significantly shape their Master and Ph.D. programmes according to their specialization and the focus of their graduate work. Students are also involved in the research teams of the individual departments. Connecting research activities with the industrial sphere is one of the strong points of the faculty. Cooperation with specialists from industrial companies while developing teaching subjects and handling final theses of students significantly helps form the professional profile of the students. Besides financial benefits, this cooperation brings opportunities for professional visits to industrial enterprises and student internships and work placements, as well as topics for theses and dissertations.

The faculty constantly innovates the contents of individual subject modules, prepares digital learning materials, seeks ways for creation of international joint programmes and supports mobility.

SCIENCE AND RESEARCH

The faculty strives to strengthen its position among faculties focused on scientific research with the support of significant personalities, thematic research teams and multi-discipline teams and by providing appropriate facilities. The research potential is based on the traditional subjects of the faculty: applied mechanics, machine and equipment design, machining technology and materials, production systems and processes. Upon these foundations new lines of research are developed, with the principle of man and machine (interaction and substitution), and also the development of new materials and technologies. The main research aims include the enhancement of the useful qualities of products while reducing the material and energy demands of the production process and the creation of new machines and equipment, such as the special machine for producing nanofibres.

A significant element and driver of research and development is interdisciplinarity. This is reflected in the level of cooperation throughout all TUL technical faculties and the involvement of biological and medicinal subjects. The study of biological structures and processes is a reflection of the development of artificial models and systems involved in, e.g., bionics and biomechanics. Czech and foreign partners are open to cooperation, which is why funding from grants has almost doubled in the last five years.

The faculty staff members participate in solving research tasks supported by the Czech and EU grant programmes. A high proportion is made up of experimental and applied research projects, which indicates the level of interest from industry in cooperation. Applied research projects focus on, for example, developing geopolymer composites for technical use, modifying nanofibre materials by plasma technologies for technical usage, useful qualities and application possibilities of polymer materials with natural fillers and nanofillers on the basis of synthetic and PLA matrices, the development of new technological production and processing of metals and plastics, the design of equipment and preparation of nanofibres, the development of equipment for fast and effective diagnosis of infectious and genetically preconditioned human diseases, the development of prototype apparatus to ensure primary stability of complete hip replacements, research focused on increasing the thermal efficiency of heat exchangers, and operational verification in relation to renewable energy sources, new generation ecological fluid machining and more.

A significant proportion of the activities of the faculty consists of contract research and development, including such topics as implementing sophisticated methods into automatic production, methods and processing of flat glass and solving problems directly on the shop floor. Experts from the Faculty managed to resolve the issue of excessive vibration of Raschel knitting machines, which affected people living near the Juta 01 plant in Dvůr Králové. They developed a vibro-isolation storage unit made up of a combination of pneumatic and rubber springs, which significantly reduced the transmission of vibrations on the floor. They succeeded in replacing part of the carbon fuels of the combustion engine with the production of gas, thereby significantly reducing emissions of the combustion engine.

DEPARTMENTS

- **Department of Applied Mechanics**
- **Department of Machining and Assembly**
- **Department of Design of Machine Elements & Mechanism**
- **Department of Engineering Technology**
- **Department of Glass Producing Machines and Robotics**
- **Department of Manufacturing Systems and Automation**
- **Department of Material Science**
- **Department of Power Engineering Equipment**
- **Department of Textile Machine Design**
- **Department of Vehicle and Engines**

GRADUATE PROFILE

Graduates of the Bachelor and Master study programmes have a wide variety of career options in national and international small and medium-sized companies. Bachelor graduates have fundamental knowledge of the technical disciplines and the basics of mechanical engineering; they understand the methods and processes which lead to the solution of tasks in machining and mechanical engineering. They are able to seek out resources and use information and approaches to solve specialist problems, which they can clearly and persuasively communicate to experts.

The graduates from the Faculty of Mechanical Engineering at the TUL assist with the design of products and templates for present and future models of Škoda vehicles, in production and elsewhere. The greatest demand for graduates of doctoral studies is in research and development. They are able to clearly communicate their findings in their subject to members of the scientific community at an international level. During their studies, students maximize their abilities including languages and they prove successful outside the project office and industrial sector.

NOTABLE CURRENT AND FORMER FACULTY MEMBERS

Prof. Ing. Zdeněk Kovář, Ph.D.
He was a renowned scientist and engineer, who in the course of his academic assignment at the university and in industrial plants contributed to the development and innovation of combustion engines for trucks. In his function of the Rector of the Technical University in Liberec, he contributed to its unprecedented development, and under his leadership the institution was ranked among the best universities not only in the Czech Republic, but it also gained high international prestige and recognition.

Ing. Vladimír Svatý, CSc.
He was an exceptional, world-renowned figure in textile engineering, the author of 139 inventions, most of which were used in licensed production of leading foreign producers of weaving machines. His discoveries pushed weaving technology forward all over the world. He invented the principle of air and water jet machines.

Prof. Ing. Cyril Höschl
Several generations of engineers attended the excellent lectures of Professor Höschl. He was appointed Associate Professor for Elasticity and Strength at the Institute of Mechanical Engineering, where he was later appointed Professor and from 1966-1969 served as the Dean of the Faculty of Mechanical Engineering.

Prof. Ing. Iva Nová, CSc.
Iva Nová is a renowned expert in the field of engineering metallurgy. She is the author of numerous publications, regularly presents findings of her research at international conferences. She is a member of the Polish Academy of Sciences and a member of the International Commission of Graphitic Alloys.

Prof. Ing. Celestýn Scholz, Ph.D.
Prof. Celestýn Scholz draws on his long experience gained at the positions of head constructor and designer of engines in the company Liaz. In the recent years his main research interest has focused on hydrogen fuelled engines. He is the co-author of patents and utility patterns and lead researcher in various projects dealing with the development of engines.

TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Textile Engineering

Established: **1960**

Faculty of Textile Engineering

"This faculty is the only school in Europe that has been educating specialists in all fields of textile and material engineering."

STUDY PROGRAMMES

Bachelor's studies (3 years)**:**
- Textile

Follow-up Master's studies (2 years)**:**
- Textile Engineering
- Industrial Engineering

Master's studies (5 years)**:**
- Textile Engineering

Doctoral studies (4 years)**:**
- Textile Engineering

STUDIES AT THE FACULTY

This faculty is the oldest and only university-level pillar of education in textiles in the country. The study programmes on offer and research draw on the tradition and experience of the teachers while reflecting current trends in the dynamically developing textile industry: studies and research of nanofibres, non-woven and intelligent textiles, industrial management and tissue engineering. All Bachelor and subsequent Master study programmes taught in English are fully accredited by the international Textile Institute in Manchester, UK. The faculty also provides Ph.D. study programmes, which is the highest form of study for the preparation of creative and scientific workers.

As well as purely technical subjects, the Faculty offers special Bachelor subject modules focused on technology and the management of clothes shops or textile marketing. These subjects, along with Textile and Fashion Design, attract the greatest interest. Textile and Fashion Design focuses on creative activity related to discovering novel methods of artistic processing of classic and new types of materials.

Study programmes are constantly evolving in regard to the profile of the graduates. Educational methods focused on projects and e-learning are also supported at the faculty, in close relation to the character of the study programme. The faculty is a long-term holder of the FEANI (European Federation of National Engineering Associations) accreditation. After graduating from the master's course and gaining industrial experience, alumni can obtain the title of EURING.

SCIENCE AND RESEARCH

Research activities receive special support in line with rapidly developing research trends. Scientific and research work continues especially where the faculty has traditionally had highly-educated staff and where there is a good chance of gaining funding from grant competitions. The Faculty of Textile Engineering development in science and research is primarily focused on several areas, namely new materials, metrology and new methods of quality evaluation, advanced textile technology and use of nanotechnology.

Our researchers focus on development of new materials in the field of clothing and technical textiles, the development of composite structures with inorganic fibres, nanoparticles and textile reinforcement and construction and evaluation of intelligent textiles.

Experts in metrology and new methods of quality evaluation are involved in modelling the properties of fibre and textile units using computer supported projection, development of methods for evaluating the comfort of textiles, evaluating quality parameters, comfort of textiles and defects of textile fabrics.

Advanced textile technology teams focus on modification and development of technology for processing new materials, new sources of energy and new transport means in textiles, the interdisciplinary use of textiles, use of optical fibres and materials with shape memory for technical products, development in the field of textile sensors and sensors suitable for use in textiles, the ecological aspects of new technologies.

The Faculty of Textile Engineering is well known for its research, development and use of nanotechnology in textiles, production and use of nanofibres and nanofibre structures, application of nanoparticles for special effects. In cooperation with the sphere of applications, scientists from the faculty developed the Nanospider™. This is a machine for the mass production of nanofibres invisible to the human eye and non-woven textiles for filtering air and water. These can be used in the automotive industry, in construction, for health and pharmaceutical purposes and other areas.

The faculty participates in programmes provided by the Czech Ministries of Industry and Trade and Defence, and competes for projects within the EU programmes framework. The faculty has won grants announced by the Czech Republic Grant Agency, Academy of Science Grant Agency, University Development Fund and European Structural Funds.

Projects leading to the development of basic and applied research were conducted within the framework of two research centres completed in 2011. These were: the Textile Research Centre II and the Centre for Quality and Reliability (CQR). Its aim was to develop long-term cooperation in research, development and innovation between the public and private sectors.

Basic research projects are focused on fibre structures. In this field topics such as internal morphology and mechanical properties of fibre structures, elastic properties of textile composites derived from models of real structures, polarized cultures of hepatocytes and mesenchymal cells on nanofibre layers in experimental bioreactors, nanofabrics producing singlet oxygen, and micro- and nanofibre from biodegradable polymers have been processed.

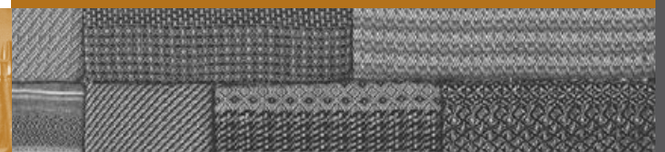
DEPARTMENTS

- **Department of Clothing**
- **Department of Design**
- **Department of Material Engineering**
- **Department of Nonwovens and Nanofibrous materials**
- **Department of Textile Evaluation**
- **Department of Textile Technologies**

GRADUATE PROFILE

The Faculty of Textile Engineering educates specialists for prospective textile industries. It is broadening its range with new specializations, especially in the field of technical and smart textiles. The faculty closely cooperates with a wide range of industrial partners, thereby significantly increasing opportunities for graduates.

Graduates can find work in the textile and clothing industries in the development department, as technologists, technical staff or in textile sales. They also enter the automotive textile industry as developers of car seat covers or technologists. Graduates of subjects related to design go on to work as designers of clothing, materials, glass, lighting, and accessories.



NOTABLE CURRENT AND FORMER FACULTY MEMBERS

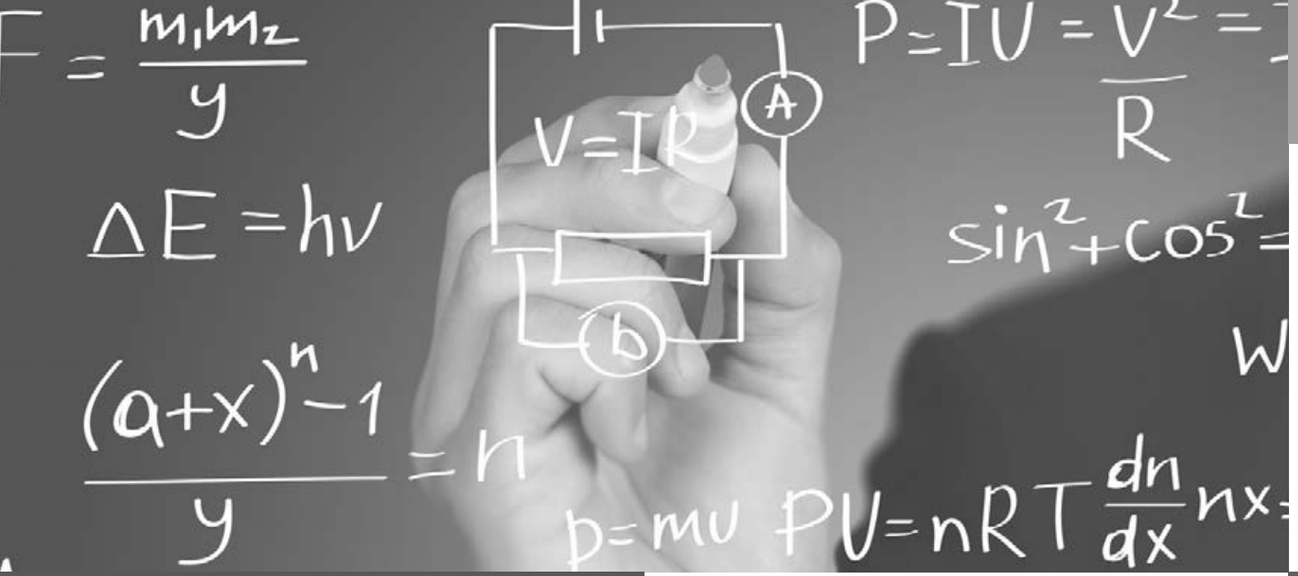
Prof. RNDr. Oldřich Jirsák, CSc.
Prof. Jirsák is the winner of the national award Czech Head 2006, Medal of Merit of the Czech president and TUL gold medal, author of over 40 patents in the field of fibres and non-woven textiles. STRATO production technology for volume non-woven textiles is one of his inventions. Under his leadership, the non-woven textile department team succeeded in developing the industrial production of nanofibres under the name of Nanospider.

Prof. RNDr. David Lukáš, CSc.
His specialization is the computer modelling of wetting fibres using the theory of spacial interaction based on random Markov fields, he is further involved in ultrasound applications for chemical fusion of non-woven layers and electrospinning. Professor David Lukáš has also done research and taught abroad, e.g. in the USA and Russia. At present he is the head of the non-woven textiles department of the Faculty of Textile Engineering at the Technical University of Liberec, and in 1997-2002 he was the university rector.

Prof. Ing. Jiří Militký, CSc., EURING, FEA
Professor Militký is a holder of S. G. Smith Memorial Medal of the Textile Institute in Manchester. He is a member of the Czech and Ukrainian Engineering and Technical Academies. Since 1991 he has acted as the Head of the Department of Material Engineering and from 1994 to 1999 and from 2003 to 2008 he acted as the Dean of the Faculty of Textile Engineering. He regularly lectures at international universities, e. g. in India and Turkey. His scientific interests cover textile fibres and their applications, rare textile structures, processing experimental data, etc.

Prof. Ing. Bohuslav Neckář, DrSc.
Prof. Neckář is the doyen of textile structure modelling and fibrous formations and a well-known scientific expert both at home and abroad. He participates in the Czech Academy of Science Assembly and acts as a visiting professor at a prestigious Indian university in Delhi every year. He is the author of a book which summarizes basic approaches to yarn modelling and contains a vast array of original ideas.

Assoc Prof. Dr. Ing. Dana Křemenáková
Dana Křemenáková is a researcher in the field of textile structure modelling, special metrology and textiles projection. She has long-year experience with coordination of significant national and international projects, e. g. The Textile Centre, the 7th Developmental Programme of the EU, Technology Agency of the Czech Republic. From 2005 to 2012 she acted as the Head of the Department of Textile Technologies. She regularly presents at universities abroad, e. g. Poland and India. She is the author and co-author of numerous publications and patents.



TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Science, Humanities and Education

Established: **1990**
(until 2008 the Faculty of Education)

Faculty of Science, Humanities and Education

"Teachers must captivate students and prepare them for their professional career and build a positive approach to teaching."

STUDY PROGRAMMES

Bachelor's (3 years), **Master's** (5 years), **follow-up Master's** (2 years) **and Ph.D. studies** (4 years)**:**
Specialization in Pedagogy, Social Work, Childcare, Special Pedagogy, Physics, Geography, Chemistry, Informatics, Mathematics, Physical Education and Sport, Philology, Historical Studies, Philosophy, Teaching in Elementary Schools, Teaching in Secondary Schools, Historical Science; Ph.D. studies in Applied Mathematics, Applied Science in Engineering.

International students can select numerous subjects from the Course Catalogue of Subjects Taught in English. Others are presented in the Czech language only.

STUDIES AT THE FACULTY

This faculty has a wide range of accredited subjects. The study of pedagogical subjects focuses on gaining theoretical knowledge, which supports the practical part. During their studies, students take part in a compulsory, five-week work placement at faculty schools in the region. On top of this, students in lower years take part in class observations once a week. This kind of experience is priceless for students. Due to the size of the university, students receive a more individual approach than at large schools. It is the individual approach at the faculty that guides students to master teaching skills. Capable teachers are the driving force behind the faculty and their relations with students often go beyond the framework of teaching. It is not just students fresh out of secondary school who study at the Faculty, but also experienced people who need to supplement or broaden their education and apply for what are often the only courses of their kind in the country.

Teaching – focused disciplines are supplemented by non-teaching ones. There is a great deal of interest from applicants of all age categories in part-time studies of special pedagogy for pre-schoolers and for tutors in social and penal care or, e.g., free-time pedagogy. Future specialists for regional development can study Applied Geography. Every year there is a large number of applicants for Philology (Czech Language and Literature). Studies of Mathematics, Physics, Museology (Cultural History and Museological Studies) and Recreology, to name just few for illustration of how broad the range of subjects is.

The faculty has bilateral agreements on exchange programmes with numerous universities from around the world. The Faculty also governs the Academic Sports Centre, which offers athletes opportunities comparable to those of the biggest cities in the Czech Republic. Liberec sports facilities have the advantage of being close to each other. They include a climbing wall, swimming pool, gym, tennis courts, ropes course, sports hall with heated floor, table tennis gym, mini-golf and much more.

SCIENCE AND RESEARCH

Due to the wide variety of both natural sciences and humanities, the topics of scientific work are also very varied. Natural sciences are mainly represented at the Departments of Mathematics, Physics and Chemistry. Research work focuses on theoretic and applied statistics, research of adaptive wavelet methods, piezoelectric transformers and the development of technologies for use in nanomaterials. In humanities, the History Department experts have been researching the topic of modern history or, for example, the issue of criminal activity and investigative commissions in the post-war period. The histories of pedagogy and didactics are important research topics too. The sports laboratory is also a constituent part of the humanities. Here, the physiological preconditions of sportsmen are tested by using the most up-to-date instruments.

Long-term education courses organized by the Faculty enjoy considerable interest from teachers at elementary and secondary schools in the region. Courses within the "Modern Teacher" framework were one popular example, having trained over 900 teachers from the Liberec County in their 3-year existence, even though the original intent was to give training for just 300. The project has brought accreditation for 49 short courses of further education for elementary and secondary school teachers.

The subject module of Innovation and Business in New Technology emerged from the Innovation and Development framework of the Nanotechnology study programme.

Its aim is to equip students with fundamental knowledge about innovation and technological management, running research, development and technology transfer projects in the field of new technologies. During the course the student gains the knowledge and skills needed for starting work and planning a career in the field of high technology. The project connects teachers in study programmes with professionals with practical experience in teaching and improves the business and innovation skills of the students.

DEPARTMENTS

- **Department of Applied Mathematics**
- **Department of Chemistry**
- **Department of Czech Language and Literature**
- **Department of English**
- **Department of Geography**
- **Department of German**
- **Department of History**
- **Department of Mathematics and Didactics of Mathematics**
- **Department of Pedagogy and Psychology**
- **Department of Philosophy**
- **Department of Physical Education**
- **Department of Physics**
- **Department of Primary Education**
- **Department of Romance Languages**
- **Department of Social Studies and Special Pedagogy**

GRADUATE PROFILE

The Faculty graduates can adapt to the demands of the labour market and do not have trouble finding work. They are ready to communicate with individuals and whole groups and lead these groups. Necessary skills are developed continuously in the curriculum. Graduates of teaching subjects have a very wide variety of opportunities, most frequently posts at elementary and secondary schools and in the field of free-time activities. Graduates of non-teaching courses often enter the public administration or the private and non-governmental non-profit sectors, aided by their qualities and specialist, language and presentational skills.

NOTABLE CURRENT AND FORMER FACULTY MEMBERS

Prof. PhDr. Robert Kvaček, CSc.
He is a historian and Professor Emeritus at Charles University. He has been working with the TUL since the mid-1990s, and has been professor of the History Department since 1998. His area of expertise is Czech and Czechoslovak history in the 20th century and Czech-Slovak relations. The professor is a three-time winner of the Egon Erwin Kisch Prize and was awarded the Vojtěch Zamarovský Literary Prize for the book Bratislava in 2007.

R.D. Assoc. Prof. PhDr. Ing. Miloš Raban, Th.D.
Assoc. Prof. Miloš Raban was a Roman Catholic priest and theologian, and from 2005-2007 he acted as the Dean of the Faculty. He organized the renovation of the almost ruined Franciscan monastery and place of pilgrimage Basilica of the Visitation of the Virgin Mary in Hejnice. He was given the county mayor's award for his contribution to improving education in the Liberec Region in 2010.

Assoc. Prof. RNDr. Jan Tichý, CSc.
Prof. Tichý worked at the university in Liberec in the 50s and 60s. For a short time in 1969 he became the Vice-rector before he emigrated and taught physics in Switzerland. In 1989 he started to cooperate with the Technical University of Liberec again and took part in gaining the first post-revolution grants for researching piezoelectricity and first accreditations, including doctoral studies, habilitation and professorship procedures.

Assoc. Prof. Ing. Josef Šedlbauer, Ph.D.
Assoc. Prof. Šedlbauer works as the Head of the Chemistry department and a supervisor of the Nanomaterials study programme. He is the author of dozens of specialist publications of international repute. His scientific works are largely concerned with the environment.

Prof. RNDr. Bohdan Zelinka, DrSc.
Prof. Zelinka was a mathematician, a long-time teacher at the University and a long-term chair of the Liberec branch of the Union of Czech Mathematicians and Physicists. He achieved many significant results, especially in the field of graph theory, mainly at the beginning of the development of this subject in the Czech Republic.

TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Economics

Established: **1992**

Faculty of Economics

"We want to be a major part of the life and economic development of Liberec County."

STUDY PROGRAMMES

Bachelor's studies (3 years)**:**
- Economics and Management
- System Engineering and Informatics

Follow-up Master's studies (2 years)**:**
- Economic Policy and Administration
- Economics and Management
- System Engineering and Informatics

Doctoral studies (4 years)**:**
- Economics and Management
- System Engineering and Informatics
- Business Economics and Management

International students can select numerous subjects from the Course Catalogue of Subjects Taught in English.

STUDIES AT THE FACULTY

The combination of compulsory and optional subject modules enables students to focus on the fields of economics that interest them. The main framework includes the teaching of business administration and accounting, management, marketing and trade, logistics, quality management, the social responsibility of the company, etc. These courses are supplemented by standard economics disciplines, such as macroeconomics, microeconomics, statistics, business geography and mathematics. The Faculty management consider its strong points to be a responsive approach to students, in-company work placement for undergraduates, a wide range of study stays at universities abroad and the innovation and introduction of new subjects according to the demands of the labour market.

During their studies in Liberec students are taught to work both independently and in a team by developing their presentation skills, working on independent tasks and other methods. The faculty also caters for working applicants with an interest in supplementing their education, who can take advantage of the opportunity to study part-time. Regular lectures at the faculty by professionals from the world of work are also worthy of attention.

The faculty works closely with dozens of companies, several of which have become partners according to the Model of Partnership for Cooperation between the Faculty and the outside world. Thanks to the international contacts, every year a lot of students study with the help of the Erasmus+ programme for one or more semesters at leading European universities, such as St. Gallen in Switzerland, Wrexham in Britain, Verona in Italy, Nice in France and others all over Europe. There is also an independent project of student mobility related to the joint programme with English University of Huddersfield Business school.

SCIENCE AND RESEARCH

Scientific research activity is an integral part of the life of the faculty. Its scope is ever growing, leading to a broadening of the resources that the Faculty uses to finance its activities. Faculty members actively use grants from the Czech Grant Agency, Czech Technological Agency, Ministry of Regional Development and Ministry of Education and from European sources e.g. ECOP. Scientific research projects are developed at international, national and regional levels.

In science and research it is the strategic aim of the Faculty to be a major player in basic and applied research in business and regional economic disciplines for providers of targeted support at a national, regional and international level (especially within the framework of the Euroregion Nisa). The aim is for research results to contribute to the increased recognition of the region and companies operating in it and to upgrade the content of the educational activity of the faculty. Substantial scientific results of the Faculty are regularly presented at international conferences and published in scientific publications. Every year the faculty organizes a range of international scientific conferences and seminars, for example, the biannual international Liberec Economic Forum. The Faculty of Economics is also the seat of the editorial office of the prestigious impact-factor scientific magazine E+M Economics and Management included in the Journal Citation Reports of Thompson Reuters.

One of the most significant outcomes of projects is the catalogue and database of brownfield sites in the Liberec Region, which has been provided to the Czech Ministry for Local Development, and to the regional and municipal authorities. The methodology of evaluating the dynamics of business development of towns and villages, certified by the Institute for Land Development, was also created at the faculty. At the Faculty website one can access the methodology which connects databases of towns and villages in the Czech Republic containing an overview of the state of basic parameters of the socio-economic environment of towns in the Czech Republic. Faculty researchers also participated in the creation of land-analysis of foundations in the evaluation of economic pillars for the municipalities with extended powers of Liberec, Mladá Boleslav and Železný Brod.

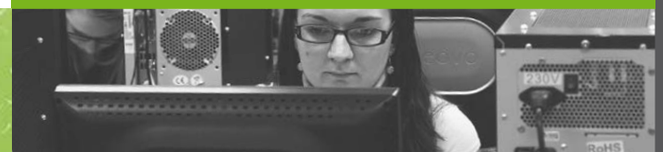
The Faculty experts took part in various other projects focusing on the themes of development of economic theory within the context of economic integration and globalization, dealing with economic disparities, helping University students obtain work placements and bringing practical experience into teaching, development of communication skills in science using the NANO Model Pilot Project, managing financing and auditing of R&D projects in an international context, etc.

DEPARTMENTS

- **Department of Business Administration and Management**
- **Department of Economic Statistics**
- **Department of Economics**
- **Department of Finance and Accounting**
- **Department of Foreign Languages**
- **Department of Informatics**
- **Department of Marketing and Trade**

GRADUATE PROFILE

Faculty graduates have a wide range of opportunities in the economic sector with a broad spectrum of entrepreneurial and non-profit institutions, especially in company economics, banking and financial services, public administration and informatics and information management. Besides knowledge of banking, financial products and services, they reach a proficiency in soft skills, namely communicativeness, openness and assertiveness. The faculty website has its own database of graduates, accessible to all students in its 20-year history, where they can enter the fields, companies and positions they have worked in.



NOTABLE CURRENT AND FORMER FACULTY MEMBERS

Prof. Ing. Lubomír Cyhelský, DrSc.
He devoted his professional life to statistics, writing a range of textbooks and publications mostly for elementary statistics courses. For many years he worked at the University of Economics in Prague. From 1968 he was Professor of Economic Statistics and from 1979 a member of the International Statistics Institute. In 1994 he started to work at the TUL raising the level of statistics teaching.

Prof. Ing. Jan Ehleman, CSc., Dr.h.c.
He was a noted specialist in economic informatics. In the post-1989 period he assisted with forming new trends in economic education in his role as the Deputy chairman of the accreditation commission, Vice-rector at Prague University of Economics and the Dean at the Faculty in Liberec (1996 – 2002). He won numerous awards and the Ministry of Education medal for development of university education.

Assoc. Prof. Ing. Jaroslav Jágr
Assoc. Prof. Jágr was the founding Dean of the Faculty, an economist with a wealth of experience from the world of business and long years spent working in an industrial environment.

Prof. Dr. Norbert Reetz
Prof. Reetz is a significant German economist from the renowned Swiss University in St. Gallen, working in the development of economic theory at the university in Liberec. His personal enthusiasm for the faculty and university and professional erudition were rewarded by the rector with the title doctor honoris causa and a silver medal from the Dean.

Prof. Ing. Anděla Landorová, CSc.
Prof. Landorová lectured at Charles University and in 1993 she joined the academic staff at the Technical University of Liberec. Her lifelong professional interest is focused on central banking and international finance. Her professional development was accomplished through international positions at universities in Moscow, Riga, Glasgow, Birmingham, Oxford and Sheffield. She was involved in a long-term cooperation with the State bank of Czechoslovakia. She has published numerous professional publications, reviews and textbooks.

TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Arts and Architecture

Established: **1994**
(until 2007 the Faculty of Architecture)

Faculty of Arts and Architecture

"The right balance between theory and studio work."

STUDY PROGRAMMES

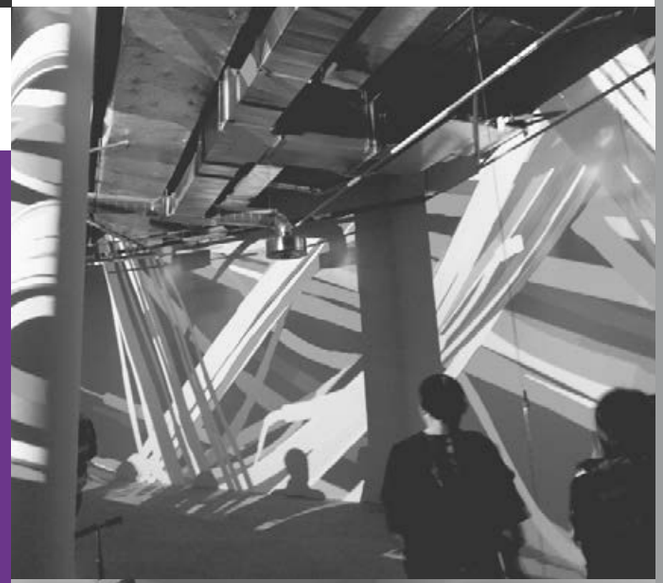
Bachelor's (3 years)
and follow-up Master's studies (2 years)**:**

- Architecture and Urbanism
- Creative Arts
- Design
- Architecture and Urban design

Doctoral studies (4 years)**:**

- Creative Arts

All study programmes can be studied in Czech and Architecture and Urban Design also in English.



STUDIES AT THE FACULTY

The Faculty of Arts and Architecture provides Bachelor's and Master's courses in the subjects of Creative Arts, Design and Architecture and Urbanism. Each of these subjects is unique for students and it depends only on their skills and gifts which one they choose. The Faculty is often regarded by experts as the best school of architecture in the country, which explains the high degree of interest in these courses.

The architecture programme bases its profile on individual work with each student and therefore it accepts only low numbers of applicants. Studio work is the fundamental element of the studies and its results are the main criteria for the success of students. Students are encouraged to find their own way without indoctrination. At the same time they are taught responsible consideration and respect for logical connections, which make an essential part of their future work.

The unique design and art studies, together with architecture studies, make up courses focused on acquiring scientific knowledge and using advanced technology to benefit artistic creation. The complexity of design tasks runs from basic creative values to issues of projects concerning the environmental design. In this sense the design course is unique in the Czech Republic. Visual communication and digital media are subjects in which new technology acts as the main creative (artistic) instrument, capitalizing on the latest findings in electronics, computing, technical cybernetics, robotics, etc. The establishment of artistic subjects of this kind depends not only on the artistic qualities of the participating teachers, but also on the high level of specialist technical facilities which only a technology-focused university can provide in contrast to traditional art schools.

STUDIO WORK, EXHIBITIONS AND PROJECTS

In contrast to other schools with a similar focus, qualified teachers at the Faculty are in direct contact with students, who can also develop their skills through studying their projects. While learning, students become acquainted with advanced technologies, especially in computer projection and digital communication, so that they can use these skills for their own creative artworks.

The studios also assess faculty-wide and inter-university student competitions. Experience in architecture studios and placements at universities abroad are also basic requirements of architecture studies. To further enhance the value of education provided, and to prepare for Ph.D. studies in particular, cooperation between the Faculty of Art and Architecture, other faculties of the Technical University of Liberec and other academic and scientific institutions in the Czech Republic and abroad are important. The Sint Lucas architecture school in Ghent, Faculty of Architecture in Ljubljana and the Czech Academy of Sciences are among the most significant partners.

Among the major achievements of the faculty are the good career paths that graduates have found and their teachers' presentations of their own professional projects. Such accomplishments guarantee the provision of international grants, for example, the European Union ECOP (Extension Committee on Organization and Policy) grant for 2012-2013 and German development bank grant for 2012-2014 for documenting modern architecture in the border areas of northern Bohemia, Lower Saxony and Silesia.

New methods leading to independent studies using the most up-to-date multimedia technology including e-learning and making important parts of lectures available online are among the basic forms of studio work, in which students learn to solve the tasks assigned independently. The faculty library, one of the best stocked libraries of its kind with a unique book fund, is an example of the peerless equipment of the faculty. Excursions focusing on exhibitions and seeing works of art and architecture in situ both in the Czech Republic and abroad are an essential part of studying. Examples include the excursion to the International Biennial of Contemporary Art and Architecture in Venice, Documenta in Kassel, and excursions to see contemporary architecture in Italy, Germany, Switzerland and other countries in Europe and beyond. Recently the Faculty has been focusing on issues of architecture outside traditional centres as part of a two-year project funded by the European programme Education for Competitiveness.

The aim of the project "Architecture outside the Centre" was to connect and strengthen partnership between subjects that actively participate in creating architecture outside of traditional centres. The project emphasized the active connection of partners, cooperation with practice and international activities. Integral parts of the project are joint communication platforms, allowing the exchange of knowledge and experience and broadening of horizons.

DEPARTMENTS

- **Department of Architecture**
- **Department of Building Construction**
- **Department of Creative Arts**
- **Department of Environmental Design**
- **Department of Supporting Structure**
- **Department of Theory and History of Creative Arts and Architecture**
- **Department of Urban Planning**

GRADUATE PROFILE

A complex personality able to handle the cultural tasks of the 21st century. The quality of our graduates is proven by their record in finding good employment. The most gifted students were selected for the Jindřich Chalupecký Prize and Prize 333 at the National Gallery in Prague.

NOTABLE CURRENT AND FORMER FACULTY MEMBERS

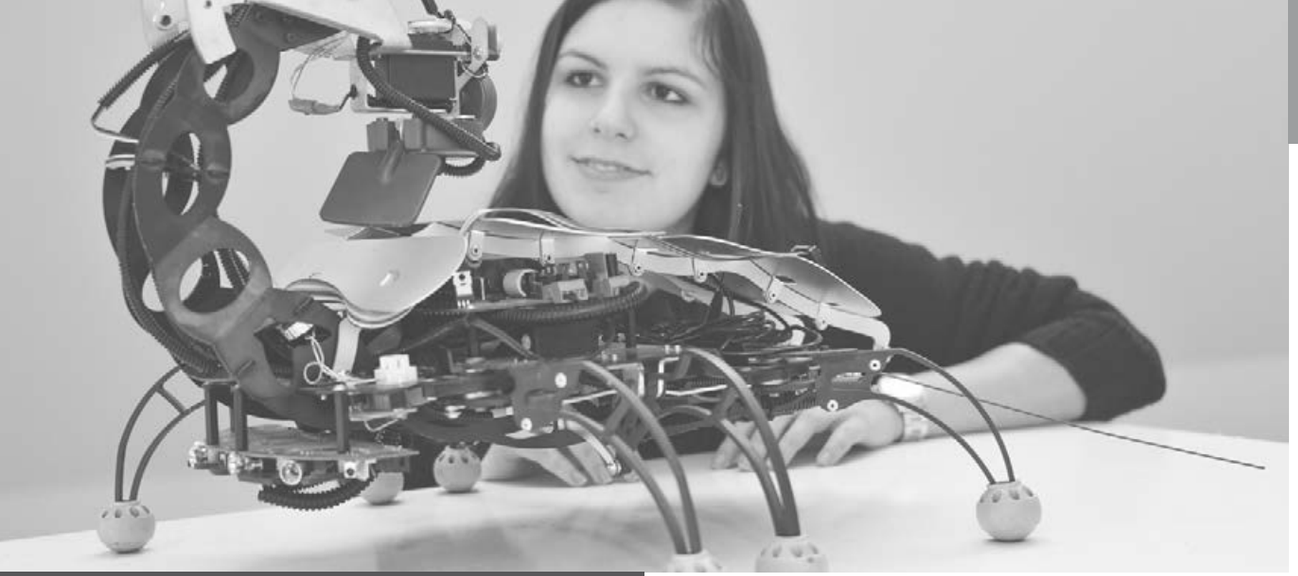
Prof. Ing. arch. Zdeněk Fránek
Professor Fránek is a major figure in contemporary Czech architecture. He studied at the Technical Academy in Brno and worked in Zdeněk Fránek Architects and Associates project office. He later lectured in architecture at the University of Ostrava, ARCHIP in Prague and abroad. Professor Zdeněk Fránek has been the Dean of the Faculty of Arts and Architecture at TUL since 2012. He has established himself in Czech and world architecture with distinctive buildings. Among his best known and most discussed works are buildings in China and churches in Dobřichovice and Litomyšl.

Prof. Ing. arch. akad. arch. Jiří Suchomel
He studied architecture at the Czech Technical University and the Academy of Creative Arts in Prague. Professor Suchomel grew up professionally in the Liberec studio Sial, which he took over from Karel Hubáček. He is one of the Czech pioneers of the energetically responsible architectural conception and the use of solar energy. His significant buildings include those in the former West Berlin and Malmö in Sweden. Jiří Suchomel has done, among other things, a range of proposals for the international competitions to which he has been repeatedly invited. He prepared the foundation of the Faculty in 1992 and acted as its first Dean.

Prof. Dr. Ing. arch. Bořek Šípek
Bořek Šípek was an architect and designer whose projects have earned him international renown. He was the Dean of the Faculty from 2005 to 2012. He died in February 2016. He studied furniture design at the Secondary School of Applied Arts in Prague. From 1968 he worked abroad, where he studied and taught architecture and design at universities in Hamburg, Stuttgart, Hanover, Delft and Essen. The works he made in his architecture and design studio in Amsterdam from 1983 to 1989 earned him international recognition. Upon his return to the Czech Republic he taught at the Academy of Applied Arts in Prague and was the architect at the Prague Castle. He was appointed Professor at the university in Vienna. He was awarded a lot of international prizes and he is represented in a number of Czech and world galleries.

Assoc. Prof. Stanislav Zippe
Stanislav Zippe studied at the stone masonry school in Hořice. He got into Czech creative arts in the 1960s as part of the neo-constructivist movement. He became a significant representative of kineticism, focused on motion, space and light. His light installations signified a new approach to the geometric construction of creative sensibility and imagination. In 1990 he qualified at the Prague Academy of Fine Arts, where he taught and later participated in the establishment of the TUL Faculty, where he still heads the Creative Arts department. In recent decades he has been considered a key figure in Czech arts in the use of creative evaluation of computer- generated and - transmitted images.

Prof. PhDr. Tomáš Vlček, CSc.
Prof. Vlček is a significant figure in the Czech culture whose works integrate research, creation, presentation and teaching arts. He studied history of art and worked as the director of the Institute of Art History at the Czech Academy of Sciences, Vice rector at the Central European University and director of the Collection of Modern and Contemporary Art at the National Gallery. Today he is a member of the advisory committee for Ph.D. studies at several Czech universities. Professor Vlček was awarded as the co-author and curator of the best exhibition and catalogue in the world in 1992, he has won several Czech Academy of Sciences awards and his land-art installations and their photography are noted expressions of their kind.



TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Mechatronics, Informatics and Interdisciplinary Studies

Established: **1995**
(until 2008 the Faculty of Mechatronics and Interdisciplinary Engineering Studies)

Faculty of Mechatronics, Informatics and Interdisciplinary Studies

"The faculty that combines information technology with science."

STUDY PROGRAMMES

Bachelor's studies (3 years)**:**
- Electrical Engineering and Informatics / Electronic Information and Control Systems
- Electrical Engineering and Informatics / Information and Logistics
- Information Technology / Information Technology
- Nanotechnology / Nanomaterials
- Applied Sciences in Engineering / Applied Sciences in Engineering

Follow-up Master's studies (2 years)**:**
- Electrical Engineering and Informatics / Automatic Control and Computer Engineering
- Electrical Engineering and Informatics / Information Technology
- Electrical Engineering and Informatics / Mechatronics (taught in English)
- Nanotechnology / Nanomaterials
- Applied Sciences in Engineering / Applied Sciences in Engineering

Doctoral studies (4 years)**:**
- Electrical Engineering and Informatics / Technical Cybernetics
- Applied Sciences in Engineering / Applied Sciences in Engineering

Electrical Engineering and Informatics can be studied in English and all other study programmes in Czech.

STUDIES AT THE FACULTY

Studies at the faculty focus on information systems and electrotechnics/electronics with a significant interdisciplinary overlap into applied science in engineering and nanotechnology. The main aim of the teaching method is to lead students to an independent approach towards solving technical problems. Students can acquire knowledge from teachers as well as specialized lectures by experts from abroad, practitioners or during specialist excursions. The faculty is also involved in a lecture streaming project whereby students can return to the material taught online, and is taking steps to further improve the quality of teaching.

It is the aim of the faculty to strengthen mutual cooperation between teachers and students and to boost the interest of students in the field. Our goal is to maintain the quality and prestige that attracts capable and gifted students. The main benefits of studying at the Faculty are the synergistic environment in which students and teachers mutually inspire each other, the high level of expertise of the teachers, and the well-equipped research laboratories. The faculty strives to transfer findings from informatics, electronics, control and interdisciplinary subjects in particular. The technical focus is constantly expanding into applied science subjects or new interdisciplinary subjects like nanotechnology or remediation technology. At present the faculty is getting involved with European educational structures, especially into international student exchanges and joint international study programmes. The subjects of Information Technology, Nanotechnology, and Electronic Information and Control Systems attract most interest from applicants.

SCIENCE AND RESEARCH

Scientific research activities reflect the interdisciplinary nature the faculty bears in its name. Faculty staff work as coordinators, solvers, co-solvers or researchers of national and international projects and at research centres, in both basic and applied research. The main research activities are focused especially on:

- analysis, recognition and synthesis of speech, identification and verification of the speaker, voice dialogue systems, processing multimedia data;
- study of the properties of piezoelectric and ferroelectric materials, design and implementation of intelligent sensors, actuators and resonators;
- advanced remediation technologies and processes - the study of natural processes in the biosphere, the impact of targeted interventions in this environment to change its behaviour and control of remediation processes including economic evaluation;
- advanced technologies and systems for power - development and implementation of algorithms for direct and feedback control, behaviour-driven optimization of networks, the theory of hybrid logic-dynamic systems, theory of time delay systems, visualization, control status, etc.;
- methods for the design and development of electrical and electronic components of mechatronic systems (including textile machinery) including their control units;
- study of protocols and computer network services, Semantic Web ontology integration, design of database systems, etc.
- solving issues of the evaluation of reliability, safety, risk management, including the assessment of their economic impacts.

The research activities of the faculty are very closely linked with the newly built Technical University of Liberec Institute for Nanomaterials, Advanced Technologies and Innovation. Within the TUL framework, the faculty boasts the best-developed cooperation between individual institutes and industry and connections with significant scientific research projects. This fact has a highly beneficial impact on teachers and students, especially those studying for a Ph.D. degree, who actively engage in this cooperation, thereby raising interest in the subject in question. The aim is to continuously increase the proportion of student projects in all study fields and cooperation with industrial companies through excursions, lectures by practitioners, etc. The most up-to-date multimedia technology and advanced forms of e-learning with streamed lectures available online are used for the successful management of studies at the faculty.

DEPARTMENTS

- **Institute of Information Technology and Electronics**
- **Institute of Mechatronics and Computer Engineering**
- **Institute of Novel Technologies and Applied Informatics**

GRADUATE PROFILE

Graduates have no trouble finding jobs and they represent the Faculty both at home and abroad. They work in technical management positions in industrial companies and solve applied research and development issues. They are employed in a broad range of fields from design of information, database and internet applications, through control of modern operational technology to product quality control and system reliability. Upon graduating students also get into technical work in light industry (development and production) and IT (development of SW applications).

NOTABLE CURRENT AND FORMER FACULTY MEMBERS

Prof. Ing. Jiří Zelenka, DrSc.
Professor Jiří Zelenka is a world-renowned expert in the field of piezoelectric elements (resonators, filters, transducers, sensors and actuators), author of several papers in this field, the founder of the faculty and its first dean.

Prof. Ing. Bořivoj Hanuš, DrSc.
Bořivoj Hanuš is a recognized expert and teacher in the field of automatic control and regulation, especially in the area of thermal-technical systems, an author and co-author of many patents, textbooks, professional books and articles, winner of two ministerial and two state awards.

Prof. Ing. Jan Nouza, CSc.
Professor Jan Nouza is an important pioneer in voice communication between humans and computers, the founder of the highly successful Laboratory of Computer Speech Processing at the Faculty, a winner of the Minister of Education Prize for Research and TUL rector memorial medal. Jan Nouza is not just known as a scientist but also as the author of a book about watchtowers in the Czech Republic.

Prof. Ing. Vojtěch Konopa, CSc.
Prof. Konopa has served at the Technical University of Liberec as the head of the department, Dean, Vice-Rector and Rector (2003-2010). He was among the founders of the Faculty of Mechatronics, Informatics and Interdisciplinary Studies. Prof. Konopa is engaged in the optimal control of electric drives and robots, digital control, dynamic analysis of mechanisms and modelling and simulation systems. His lecturing and publishing activities are focused on the theory of optimal automatic control and differential games.

Prof. Ing. Jaroslav Nosek, CSc.
Apart from assignments in industry, Prof. Nosek has lectured at the Université des Sciences et de la Technologie, Institut de Physique, Algiers, Algeria (1984-1987) and at the TUL. He has organized and chaired numerous conferences or workshops both in the Czech Republic and in France. He has been a member of various international scientific organisations. He has published numerous papers and patents in the field of electromechanical systems. Among the research projects Prof. Nosek has participated in, there was also a project dealing with solar cells and their applications in the Sahara desert.

TECHNICAL UNIVERSITY OF LIBEREC
Faculty of Health Studies

Established: **2004**

Faculty of Health Studies

"A high level of education for the future of our healthcare."

STUDY PROGRAMMES

Bachelor's studies (3 years)**:**
- Nursing
- Biomedical Technology
- Specialization in Health Service

Follow-up Master's studies (2 years)**:**
- Biomedical Engineering

SCIENCE AND RESEARCH

The first area of research at the faculty is immobilization (anchoring) of various biomolecules, such as antibiotics, enzymes, peptides and disinfecting agents on silica nanofibres. This material is intended for the treatment of hard-to-heal wounds, burns and for the removal of necrotic tissue. The preparation of nanofibres is protected by the Czech, EU and the USA patents.

The second area of research at the faculty is the preparation of antibacterial nanolayers prepared by the sol-gel method, intended for an application on various materials (glass, plastic, textile and metal). They are designed primarily for hospitals to eliminate bacteria (in particular the causative agents of nosocomial infections), viruses and fungi. One of the advantages of the nanolayers is their long-term effectiveness. The preparation of the antibacterial sol is protected by the Czech, EU and the USA patents.

Every year the faculty successfully competes for university developmental projects. Currently, these projects are focused mainly on modern approaches to teaching, whether in the form of the development of new interactive laboratories with a camera system to simulate emergency conditions for teaching degree courses Health Rescuer and General Nurse, or in streamed video lectures which are available to students online, or in study support materials available for part-time students of the General Nurse specialization. The faculty holds an annual conference for healthcare specialists.

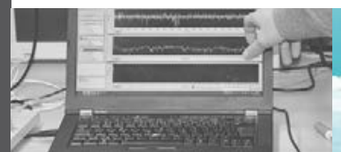
STUDIES AT THE FACULTY

The study programme Nursing, specialization General Nurse offers studies in fulltime and part-time forms of study, which is appreciated in particular by students who combine studies and work. The study programme Specialization in Health Service with a degree course Health Rescuer prepares future graduates for jobs not only with emergency medical services, but also in intensive care wards, fire brigades, or mountain rescue services. The study programmes Biomedical Technology and Biomedical Engineering with specializations of the same names are new fields of study, which are now of great interest for students who are seeking a compromise in decision-making about their future occupation between the health-oriented professions and technology. Graduates from these fields are highly employable in the labour market, particularly in manufacture, maintenance, development and sale of medical equipment.

High-quality education is our priority. Therefore, we offer our future students a series of lectures conducted by professionals with a global reputation in modern lecture halls and laboratories with cutting-edge facilities and instruments. Students are divided into smaller groups, ensuring an individual approach to each one of them. Teaching is usually divided into theoretical and practical segments.

The applied system of teaching supports the linking of theoretical knowledge to practice, not only through the teachers' connection with practice, but also due to the availability of modern equipment in the laboratories, which perfectly simulates a real hospital environment. Students have the opportunity to test their theoretical knowledge and practical skills before entering into practice not only by working with the facilities, simulators for training nursing care, but also on simulators SimMan 3G and Laerdal Nursing Baby Basic designed for practicing rescue techniques. This training takes place in the laboratories of clinical nursing courses, nursing procedures, functional diagnostics, first aid, intensive care, emergency medicine, physiology, pathological physiology or medical microbiology. An emphasis is placed on self-study and work with Czech and foreign literature. For these purposes, students can use the university library and a study room of the faculty. Students also have access to a database of video recordings of lectures, electronic books, journals and electronic databases.

Practical training guides students in all of our study disciplines throughout the course of study. Close cooperation has been established with the Regional Hospital Liberec, the Hospital in Jablonec nad Nisou, the Institute for Clinical and Experimental Medicine in Prague, Na Homolce Hospital, Central Military Hospital - Military University Hospital Prague, the Medical Rescue Service of the Liberec Region, Czech Fire Brigade, Police of the Czech Republic, Water Rescue Services, Air Rescue Services, Mountain Rescue Services and the 31st Brigade of Radiation, Chemical and Biological Protection in Liberec.

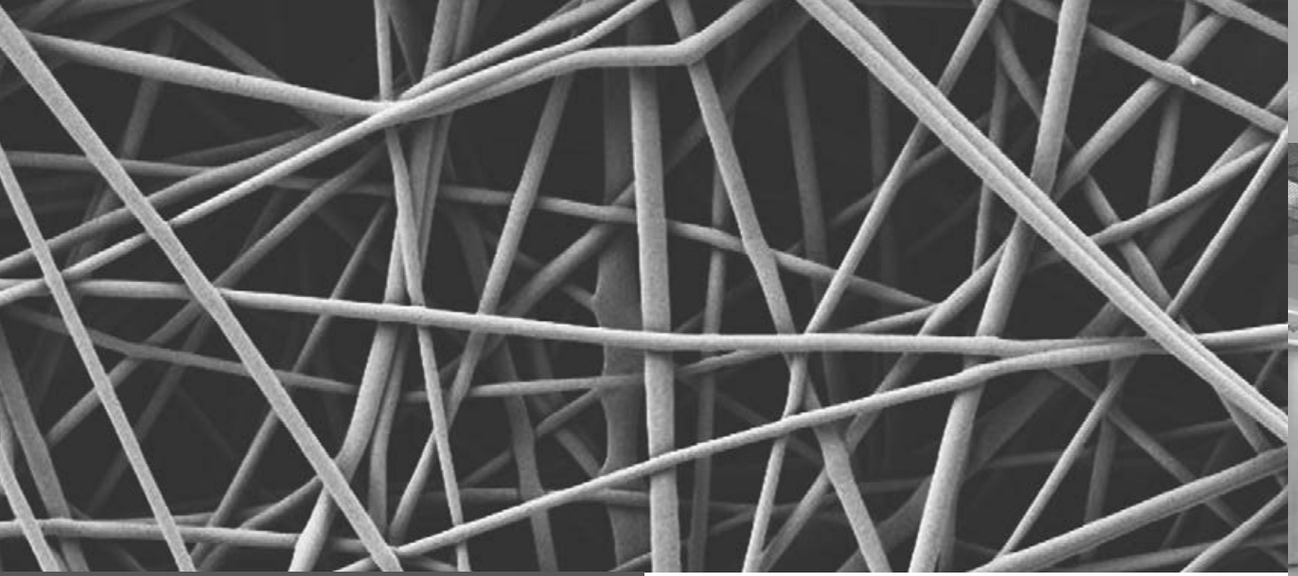


DEPARTMENTS

- **Clinical Disciplines Department**
- **Nursing Department**
- **Nursing Department – Mentors**

GRADUATE PROFILE

Graduates from the faculty of Health Studies find a broad range of careers in medical practice. Graduates from the General Nurse Bachelor study programme work for all types of medical services, then also in facilities providing social care or in private nursing care. Graduates from the Bachelor study programme Health Rescuer are employed by medical rescue services (Mountain, Mines and Water Rescue Services), inpatient acute care (intensive care wards) in the emergency care wards and in other types of emergency services related to the provision of specialized medical first aid. Graduates from the Bachelor study programme Biomedical Technology and the follow-up Master study programme in the field of Biomedical Engineering find employment in all professions related to the development, production, operation and maintenance of medical equipment, including types of work connected with computer and software operation. The best employment opportunities for them are above all in healthcare facilities. Yet, our graduates also succeed in working for business organizations focused on medical equipment, rehabilitation equipment, and prosthetic devices.

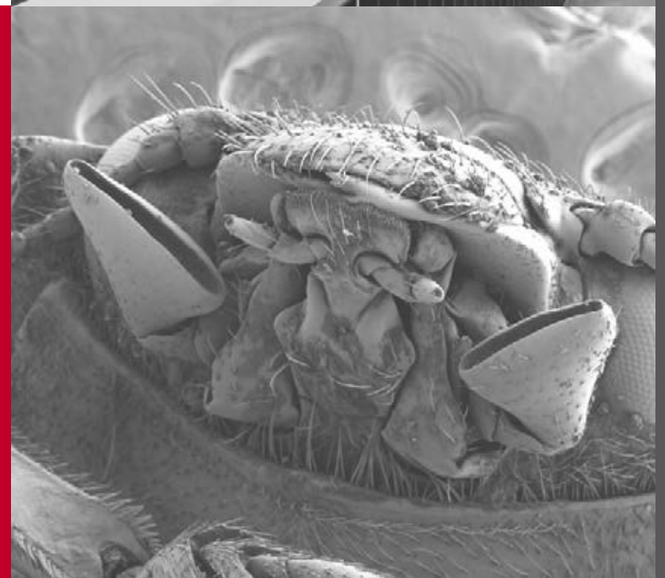


TECHNICAL UNIVERSITY OF LIBEREC
Institute for Nanomaterials, Advanced Technologies and Innovation

Established: **2009**

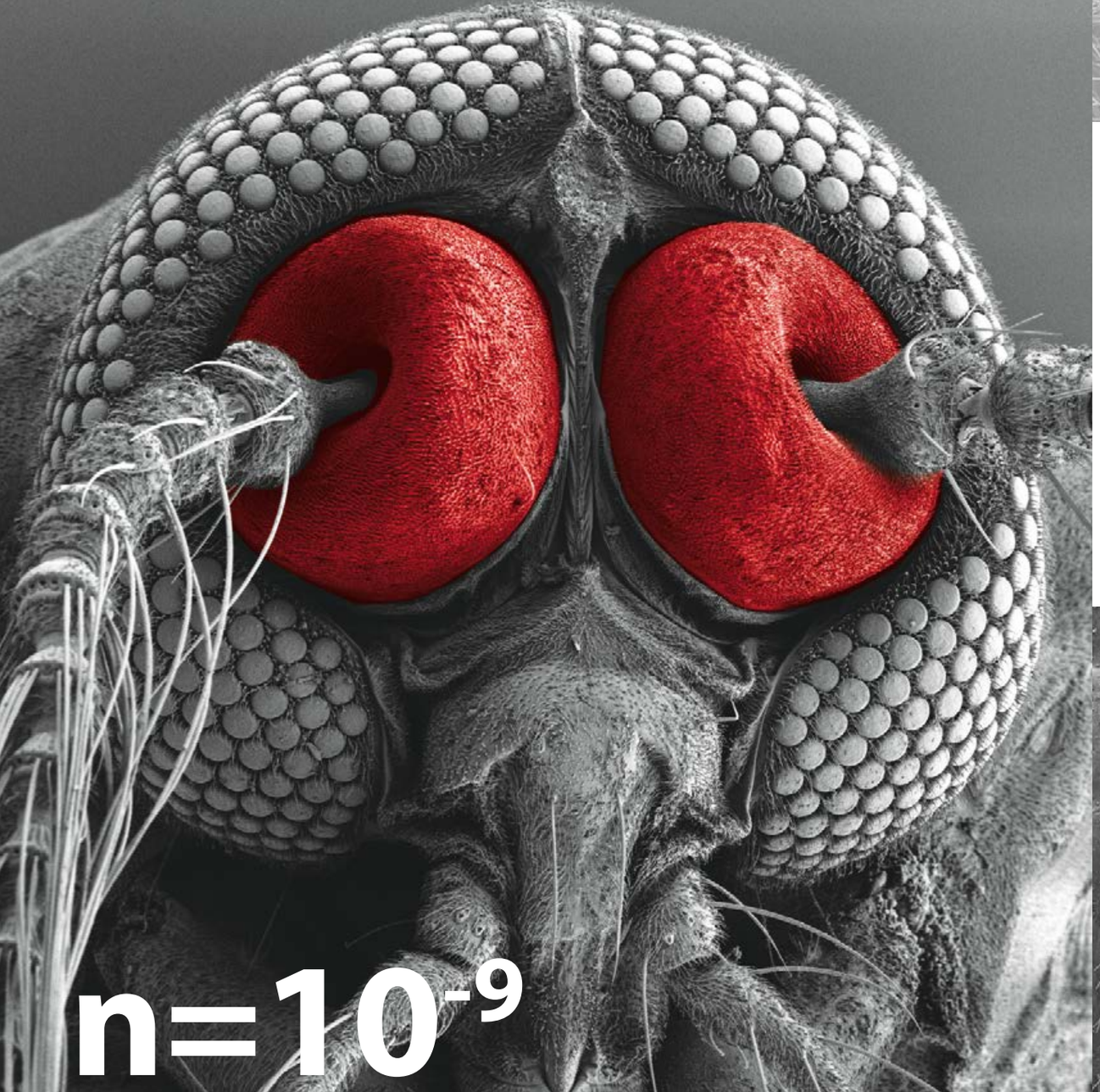
The Institute for Nanomaterials, Advanced Technologies and Innovation

"Pure science and applied research. "



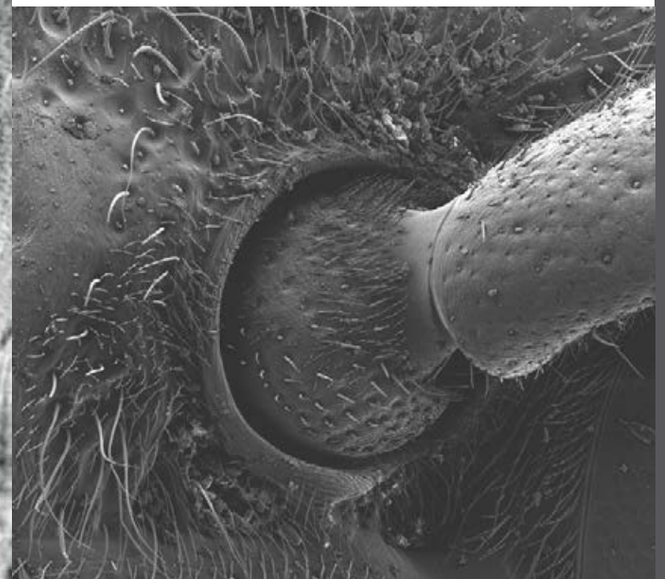
The Institute (abbreviated as CxI) is a research centre of the Technical University of Liberec. Its aim is to expand the existing research and infrastructure and to contribute to the development of the region, which is traditionally oriented toward technical industries. The Institute connects the laboratories of the technical disciplines at the TUL and cooperation with major players in industry so that sustainable growth is ensured in the following areas:

- provision of high quality research and development (R&D) services and research and development results based on the demands of the application sphere (industrial sector, research organizations and other institutions),
- education of highly qualified graduates of Ph.D. and Master degree courses with application in both the public and private research sectors,
- strengthening cooperation with industry, not only in the use of R&D results and services, but also for lifelong learning of employees.



The Institute is the most ambitious and expensive project in the history of the Technical University of Liberec. It focuses on two research programmes: Material Research (in particular nanomaterials), and Competitive Engineering (development and use of advanced engineering constructions and technology, especially mechatronic systems, propulsion units, etc.). One of its priorities is the application of the results of research and their applicability in practice.

The Institute for Nanomaterials, Advanced Technologies and Innovation possesses cutting-edge technology, which meets the strictest criteria of the current requirements for research and serves as demanded support for commercial and other entities, in the form of contractual research. During the long-term cooperation with partners from the industry, the members of research teams have accumulated experience and developed professional approach.



Upon specific orders from industry, the Institute experts provide solutions to manufacturing companies by using unique instrumentation and equipment, such as 3D scanner acquisition of data, 3D printing from plastics and metals, scanning electron microscopy with microanalysis or Powertrain test bed and many others.

In cooperation with distinguished partners of the CxI, the researchers from the Institute have recently focused on the following areas:

- development of test equipment for research of reproducible preparation of coaxial nanowires with a core-shell structure,
- identification, modelling, and measurements of materials used in automotive industry,
- comprehensive monitoring of thermo – hydro – mechanical-chemical phenomena in the rock massive,
- systems for regulation of temperature fields in the production line,
- stiffness measurements and an analysis of the control system,
- surface modification of zero-valent iron nanoparticles for in-situ treatment of contaminated groundwater,
- production of prototype parts on a 3D printer.

COOPERATION WITH PARTNERS FROM ABROAD

The Technical University of Liberec has signed numerous agreements with international partners, mainly for exchanges, study stays and internships for students within the Erasmus+ programme. The international students who come for a semester or two can select from a wide choice of subjects taught in their specialisation and spend quality time in Liberec.

ESN BUDDIES LOOK AFTER INTERNATIONAL STUDENTS

The ESN Club of students at the Technical University of Liberec runs the system of Buddies, students of the TUL who support their friends from abroad and help them with adaptation to life in their host institution. They organise a lot of events which help the students from abroad to get familiar with the Czech way of life and to learn as much as possible about the culture of the Czech Republic in the shortest possible time. Exchange students from abroad sign up on the register and the administrators match them with a Czech counterpart who will help them.

CATERING FACILITIES

Within the campus of the Technical University of Liberec and in the Halls of Residence students can use three dining halls, snack bar, café and vending machines. The dining hall self-service selection offers several main dishes complemented by cold meals, sandwiches and desserts. Prices of the meals for students are subsidized. In the nearest vicinity of the campus and Halls of Residence there are numerous restaurants and bars serving food and offering various types of discounts for students.

FOOD FOR THOUGHT

The University Library enables students to work with textbooks, reference books, a large collection of specialised literature, professional databases and electronic sources. The library closely cooperates with the Municipal Library and the library of the Regional Hospital in Liberec. The three institutions jointly enable students to work with a very comprehensive collection of professional resources and also novels in several languages.

HALLS OF RESIDENCE

Accommodation in the modern University Halls of Residence is guaranteed for each student interested in obtaining it. The access to sports facilities is also very easy as the University runs the Academic Sports Centre with a very wide choice of equipment and facilities for numerous sport disciplines.

HEALTH CARE

Health care facilities are available directly on campus and in the Halls of Residence, where general practitioners and dentists can be contacted. The Regional Hospital is close to the campus and is fully equipped to provide any health care necessary.

TECHNICAL UNIVERSITY OF LIBEREC
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Opportunities for Sports

The ideal position of Liberec in a valley surrounded by mountains on all sides provides unique opportunities for sports in all seasons. Without any exaggeration we can say that there is an open air gym available for hiking, skating, Nordic walking, cycling, skiing, swimming, playing ball games, etc. For people interested in indoor sports, there are numerous courts, gyms and halls for sports. The Technical University of Liberec is proud of its own excellent facilities. The Academic Sports Centre is located next to the Halls of Residence and is close to the local dam and surrounding woods. The active ways of relaxation can thus be combined both indoors and outdoors. Apart from the wide choice of activities from bodybuilding, sauna and tennis to bosu, climbing and volleyball, to name just few, the students can take part in courses of skiing and yachting.

Alongside of providing classes and courses in sports, the experts also participate in research and diagnostic activities of the Centre for Sports Medicine. They provide accurate diagnosis, physiotherapy or any non-surgical treatment and prevention of any sporting injury or medical condition affected by or related to sport or movement activity.

TECHNOLOGY, AND MUCH MORE!

WWW.TUL.CZ

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