



UNIVERSITY OF ŽILINA

Faculty of Mechanical Engineering

FACULTY OF MECHANICAL ENGINEERING

DOCTORAL DEGREE STUDY

CONTACT

Faculty of Mechanical Engineering / Strojnícka fakulta

Univerzitná 8215/1, 010 26 Žilina

Tel.: 041/513 25 01

e-mail: dsjf@stroj.uniza.sk

<http://fstroj.uniza.sk>

All the questions concerning your studies will be attended at the Department of Studies:

Tel.: 041/513 25 07, 25 08

Coordinator for work with students with special needs:

doc. Ing. Martin Krajčovič, PhD.

tel.: 041/513 27 18

e-mail: martin.krajcovic@fstroj.uniza.sk

ACCREDITED STUDY PROGRAMS FOR THE ACADEMIC YEAR 2017/2018

DOCTORAL DEGREE STUDY PROGRAMS

FULL-TIME LENGTH OF STUDY 3 YEARS	PART-TIME ** LENGTH OF STUDY 4 YEARS
Automated Production Systems *	Automated Production Systems *
Mechanical Engineering Technologies *	Mechanical Engineering Technologies *
Industrial Materials *	Industrial Materials *
Machine Parts and Mechanisms *	Machine Parts and Mechanisms *
Computer Aided Design and Machine Mechanics *	Computer Modelling /Aided Design and Machine Mechanics *
Energy Machines and Equipment *	Energy Machines and Equipment *
Rail Vehicles *	Rail Vehicles *
Industrial Engineering and Management *	Industrial Engineering and Management *

** study program is also accredited in the English language*
*** the standard tuition fee for part-time study is 1.000 € for an academic year*

Detailed information on particular study programs

- syllabus,
- course information sheets

can be found at <http://vzdelavanie.uniza.sk/vzdelavanie/plany.php>.



EXPECTED NUMBER OF ACCEPTED APPLICANTS TO THE FIRST YEAR: DOCTORAL DEGREE STUDY		
STUDY PROGRAM / FIELD OF STUDY	PLANNED CAPACITY	
	FULL-TIME	PART-TIME
Automated Production Systems / Mechanical Engineering Technologies and Materials	2	1
Mechanical Engineering Technologies / Mechanical Engineering Technologies and Materials	6	4
Industrial Materials / Mechanical Engineering Technologies and Materials	2	1
Machine Parts and Mechanisms / Machine Parts and Mechanisms	3	2
Computer Modelling / Aided Design and Machine Mechanics / Machine Parts and Machinery	3	1
Energy Machines and Equipment / Energy Machines and Equipment	3	2
Rail Vehicles / Motor Vehicles, Rail Vehicles, Ships, Aircrafts	2	1
Industrial Engineering and Management / Industrial Engineering	3	3
Total number	24	15



TERMS AND CONDITIONS OF ADMISSION

1. **The fundamental prerequisite** of being accepted to the post-graduate study program (third degree) is full completion of the graduate study of the second degree (Higher Education Act, n.131/2002 Coll.).
2. **Health capability** – the faculty does not require any confirmations of health status and accepts all the applications without any health certificates for all degrees of the university studies.



FORMS OF ADMISSION

1. No entrance exams

- all the applicants have to pass the selection procedure.

2. Selection Procedure

- selection procedure for the doctoral degree is carried out in a form of an interview with each of the applicants individually in front of the selection committee.

Rules of Selection Procedure

- the interview consists of two parts: the first part maps the applicants' knowledge of the professional field associated with the selected theme of their doctoral studies; in the second part the applicants' knowledge of foreign languages and their assumptions for independent scientific work are being verified. The order of the applicants is drawn up by the selection committee in secret ballot.



ADMISSION OF FOREIGN STUDENTS

The same terms and conditions of admission are applicable as for the applicants from abroad as for the applicants from Slovakia.

Foreign students who study in a foreign language (i.e. not Slovak), pay the tuition fee as stated in § 92 Subsection 8 (Higher Education Act). The tuition fee is specified by the UNIZA directive for the respective academic year, which can be found on the university website.

Students from abroad who study in the Slovak language do not have to pay the tuition fee. The applicants from the Czech Republic who want to apply and study in Žilina can use the application form available in the Czech Republic. The applicants who do not actively speak Slovak or Czech are required to attend the language training. (It is possible to attend the Slovak for Foreigners courses at UNIZA).

For foreign applicants who were accepted on the basis of international agreements or Slovak government grants, terms and conditions stated in respective agreements are applicable.



HOW TO APPLY

Application forms are to be submitted for individual study programmes.

In case the applicant is interested in more study programs, it is necessary to apply for each one individually, including payment of the respective admission procedure fees.

Applicants have to fill in the form *Prihláška na vysokoškolské štúdium - 3. Stupeň* or they can also use an electronic application form that can be found on the university website: <https://vzdelavanie.uniza.sk/prijimacky/index.php> or on the education portal: [https:// prihlaskavs.sk/sk/](https://prihlaskavs.sk/sk/).

Even in case of electronic application form, it is required to print it, sign it, enclose other required documents including the proof of payment of the fee and send it to the address Sjf UNIZA within the stipulated deadlines.

Incomplete study application or application sent after the deadline will not be accepted.

In the absence of or failure of entrance exams, the faculty does not refund the admission fee.

If an applicant wants to take part in entrance exams at more faculties of UNIZA, the application forms have to be sent separately to each faculty and the respective admission procedure fees paid separately to each faculty.

Enclosures for the doctoral degree programs (to be sent with application forms):

- Curriculum Vitae,
- Payment confirmation statement,
- copies of the Diplomas.

Admission fee:

Send 20 € to:

Žilinská univerzita, Univerzitná 1, 010 26 Žilina

Bank: Štátna pokladnica

IBAN: SK34 8180 0000 0070 0026 9861

constant symbol: 0308

variable symbol: 10233 - doktorandské štúdium

Payment method:

payment can be paid by bank transfer or postal order to the account above.

Payment confirmation statement:

is to be sent to the Faculty with the application form.

With payment of the admission fee from the EU member states, the EES countries, territories that are considered a part of the EU (Treaty of Rome, Section 299) and SEPA countries, it is necessary to use BIC: **SPRSKBAXXX**, IBAN: **SK34 8180 0000 0070 0026 9861**.

Tuition fees - in accordance with the Higher Education Act, information about the amount of tuition for the respective academic year will be announced on the website of the University of Žilina.



USEFUL DATES

Open Day	Deadline for application form submission	Entrance exams
November, 22, 2016 February, 8, 2017	until May, 30, 2017	June, 28, 2017



ACCOMMODATION

Accommodation facilities of the University of Žilina offer accommodation according to their capacity, taking the distance between the student's residence and the main location of the university into account. **Monthly fees for accommodation: 41€ - 51€.**



BOARD

Students can use services of catering facilities at the University of Žilina. **The prices vary from 0,80 € to 2,30 €.**



SCHOLARSHIPS

Full time students of the doctoral degree study programs are granted a scholarship pursuant to Higher Education Act, n. 131/2002 Coll. (On universities and on amendments to certain laws), §54 Subsection 18.



GRADUATE PROSPECTS

DOCTORAL DEGREE STUDY PROGRAMS

AUTOMATED PRODUCTION SYSTEMS

(Field of study 5.2.7 Mechanical Engineering Technologies and Materials)

The graduates in the third degree study programme acquire knowledge and skills necessary for research and development of automation in mechanical engineering. They receive theoretical knowledge of technological processes and possibilities of their application in engineering enterprises, taking quality, technical, economic and environmental aspects into account. They are competent to tackle the most demanding technical tasks. The graduates of doctoral degree studies are

employable in research and development departments of production companies, at top managerial positions, in managing production departments with sophisticated production technology, at Slovak Academy of Sciences and technical universities. They are able to join consultancy companies and organisations that require technical education of the third degree. The graduates are capable of independent scientific work and are qualified to creatively develop and deepen knowledge in the field.

MECHANICAL ENGINEERING TECHNOLOGIES

(Field of study 5.2.7 Mechanical Engineering Technologies and Materials)

The graduates in the third degree study programme are competent to tackle difficult research and development tasks in the field of mechanical engineering technologies. They obtain knowledge of selected scientific methods and approaches and the necessary skills for utilisation of support information technologies and are able to apply standard as well as specific methods of engineering technology in practice. They are able to lead research teams, projects and work systematically to achieve set research, development and business objectives.

The graduates' scientific preparation system allows their integration into a wide range of research activities. After graduation they find application areas at universities, in research institutions, in businesses and their research and development departments and in production engineering practice at positions of chief executives.

INDUSTRIAL MATERIALS

(Field of study 5.2.7 Mechanical Engineering Technologies and Materials)

Mechanical Engineering Technologies and Materials are an essential part of the production of machines and their equipment operating in all sectors of the economy of the developed countries. For the currently required high reliability features and quality of components of machines, tools, equipment, consumer goods, etc., the choice of material, its metallurgical preparation and processing technology into products with a final geometric shape, dimensions, and properties, is of vital importance. For advanced economies it is therefore necessary to dispose of professionals who have knowledge of relations between the composition, structure and properties of construction materials.

The graduates in the third degree study programme Industrial Materials master methods of development and evaluation of metallic and non-metallic materials used in mechanical engineering (e.g. nanomaterials, materials for high-temperature, materials for long-term load in radiation or corrosive environments, materials for high-speed machining, ultra-light materials, etc.), they understand connections between their composition, structure and properties; have knowledge of new materials and their production and processing technologies and evaluation methods, as well as methods of influencing of their manufacture qualities; they deepen and broaden theoretical knowledge of technological disciplines in the field of metallurgy, advanced technologies of chip and chipless metal processing, automation of technological processes and possibilities of their application in mechanical engineering enterprises, taking quality, technical, economic and environmental aspects into account.

The graduates in the third degree study programme are qualified to work in research and development departments of manufacturing companies and companies operating in the field of technical materials, their technological processing to semi-finished goods and final products as well as in quality control, purchase and sale, service and maintenance. They can occupy top managerial positions; cooperate in production management departments with sophisticated production technology, at Slovak Academy of Sciences, technical universities and technical colleges. They can also apply to consultancy firms and organisations that require technical education of the doctoral degree study.

MACHINE PARTS AND MACHINERY

(Field of study 5.2.5 Machine Parts and Machinery)

The graduates in the study programme Machine Parts and Machinery obtain during their master's degree study necessary professional knowledge and skills in vocational subjects such as Solid Mechanics, Fluid Mechanics, Thermodynamics, Construction II – Machine Parts, Strength and Strain, Methodology of Design, CAD systems, Simultaneous Constructing and Optimisation, Finite Element Method, Bionics and Technical Systems Innovations, etc., that together with other constructional and technologically oriented subjects create theoretical and practical basis for further education in the study programme " **Design of Machinery and Equipment** " and other related fields.

Building on this base, the graduates in the third degree study enhance their knowledge of applied sciences focused on the design, construction, modelling and optimisation of machine parts and mechanisms. During the doctoral studies the attention is paid to the research, development and innovation, as well as to further development of methods and technologies currently used in research, development, innovation and design of machine parts and mechanisms and their prototypes. The students have the possibility based on the choice of offered optional subjects for further enhancement of their knowledge and specialisation in the field of research, aiming at developing methods, procedures and knowledge of 3D modelling and creation of virtual models, simulations, optimisation and analysis utilising finite element method,

innovations, rapid technology prototyping and methods of calculation and simulation for structural and dynamic analysis and optimisation of machine parts and mechanisms.

COMPUTER AIDED DESIGN AND MACHINE MECHANICS

(Field of study 5.2.5 Machine Parts and Machinery)

The full- and part-time graduates in the third degree study programme Computer Aided Design and Machine Mechanics are aware of the current state of development of the field of study, they are able to control and creatively develop scientific methods of calculation, simulation and verification of model solutions and to create software of new applications in various fields of engineering practice and interdisciplinary engineering. They are ready to develop methods of computer-based engineering and calculation and apply them in the design of mechanical systems in mechanical engineering, in civil engineering, in industry and in electrical engineering. The graduates are able to formulate mathematical and physical models of mechanical fields and their interactions in classical and new technological materials such as composites, smart materials, piezoelectric materials, and so on. They are able to develop experimental methods of mechanics and apply them along with methods of calculation in identification and analysis of mechanical components and systems, as well as in determining their reliability and durability.

ENERGY MACHINES AND EQUIPMENT

(Field of study 5.2.6 Energy Machines and Equipment)

The graduates in the third degree study programme are after its successful completion able to demonstrate the ability to move forward in the field of theoretical knowledge and are ready for independent creative performance. They are able to solve new challenges generated by the practice at high theoretical and practical level. The graduates are able to communicate in one of the world languages and so to start career as an independent creative constructor or a designer, or a scientific researcher or a teacher at the university not only at home but also abroad. The core of knowledge of the PhD. graduates is formed by the foundations of Thermal Technology, Hydraulic Engineering, basic knowledge and orientation towards the use of alternative energy sources, basic knowledge of fuels and their efficient use in the production of energy, knowledge of waste and the possibilities of their energetic utilisation, knowledge of production technology and transformation of energy, knowledge of the design and construction of energy machinery and equipment, knowledge of the physical and chemical properties of construction materials, knowledge of distribution and effective use of thermal energy, basic knowledge of the legal context and basic knowledge of management and marketing context required for the creation and application of production technologies and in communication with customers.

RAILWAY VEHICLES

(Field of study 5.2.4 Motor Vehicles, Rail Vehicles, Ships and Aeroplanes)

The graduates in the third degree study programme Railway Vehicles in the field of study 5.2.4 Motor Vehicles, Rail Vehicles, Ships and Aeroplanes master scientific methods of research and development of transport means with focus on rail vehicles.

The graduates in the third degree study programme Railway Vehicles acquire knowledge and skills required for research and development of rail vehicles, rationalisation and improvement of the quality and project management of rail vehicles' maintenance as well as knowledge of increase of their operating efficiency respecting environmental requirements. The graduates are capable of independent scientific work and are ready to creatively develop and deepen knowledge in the field.

INDUSTRIAL ENGINEERING AND MANAGEMENT

(Field of study 5.2.52 Industrial Engineering)

The graduates in the third degree study programme are competent to tackle difficult research and development tasks in the field of industrial engineering. They acquire knowledge of selected scientific methods and approaches and the necessary skills for utilisation of information technology support tools and are able to apply standard and specific methods of industrial engineering in practice. They are able to lead research teams, projects and work systematically to achieve set research, development and business objectives.

The graduates' scientific preparation system allows their integration into a wide range of research activities. After graduation they find application areas at universities, in research institutions, in business development departments and after self-adapting process at positions in the top management of organisations.