UNIVERSITY OF ŽILINA IN ŽILINA
Faculty of Mechanical Engineering

FACULTY OF MECHANICAL ENGINEERING

DOCTORAL DEGREE STUDY

CONTACT

University of Žilina in Žilina
Faculty of Mechanical Engineering
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 10
e-mail: viera.muntagova@fstroj.uniza.sk

Coordinator for work with students with special needs:
doc. Mgr. Branislav Ftorek, PhD.
Tel.: 041/513 25 19, 49 5010
e-mail: branislav.ftorek@fstroj.uniza.sk

ACCREDITED STUDY PROGRAMMES OFFERED FOR THE ACADEMIC YEAR 2021/2022

DOCTORAL DEGREE STUDY PROGRAMMES	
FULL-TIME STUDY LENGTH OF STUDY 3 YEARS	**PART-TIME STUDY **** LENGTH OF STUDY 4 YEARS
Automated Production Systems *	Automated Production Systems *
Mechanical Engineering Technologies *	Mechanical Engineering Technologies *
Technical Materials *	Technical Materials *
Machine Parts and Mechanisms *	Machine Parts and Mechanisms *
Computer Modelling and Machine Mechanics *	Computer Modelling and Machine Mechanics *
Energy Machines and Equipment *	Energy Machines and Equipment *
Rail Vehicles *	Rail Vehicles *
Industrial Engineering *	Industrial Engineering *
** study programme is also accredited in the English language* *** standard tuition fee for part-time study programmes is € 1.000 for an academic year*	

Detailed information about particular study programmes:
- 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	3	1
Mechanical Engineering Technologies / Mechanical Engineering	6	4
Technical Materials / Mechanical Engineering	3	1
Machine Parts and Mechanisms / Mechanical Engineering	3	2
Computer Modelling and Machine Mechanics / Mechanical Engineering	3	1
Energy Machines and Equipment / Mechanical Engineering	3	2
Rail Vehicles / Mechanical Engineering	3	1
Industrial Engineering / Mechanical Engineering	5	3
TOTAL	29	15

In case of a low number of applicants for full-time and part-time study, the Faculty retains the right not to open a study programme and to offer applicants another study programme.

TERMS AND CONDITIONS OF ADMISSION

Basic condition of admission

The basic condition for admission to doctoral degree study (study programme of the third degree) is the full completion of the second degree of university study (Higher Education Act, no. 131/2002 Coll.) in the same or related field of study. In case of a foreign applicant or a student who has completed his / her study abroad, he / she shall submit along with the application form (no later than the date of enrolment) a decision on the recognition of the certificate of completion of the second degree of higher education recognized by a relevant institution in the Slovak Republic or he / she shall ask UNIZA for the recognition of the certificate of education.

Other conditions of admission

1. **No entrance exams**
   All applicants have to attend the selection procedure.

2. **Selection procedure**
   Selection procedure for the doctoral degree study is carried out in a form of an interview with each of the applicants individually in front of the admission committee.

Rules of selection procedure

The interview consists of two parts: the first part maps the overview of the applicant in the professional field related to the selected topic of doctoral study; the second part is focused on the verification of knowledge of foreign languages and prerequisites for independent scientific work. The order of the applicants is drawn up by the admission committee in a secret ballot.

ADMISSION OF FOREIGN STUDENTS

The basic and other 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 and published for the respective academic year on the university website. Foreign students who study in the Slovak language do not have to pay the tuition fee. Applicants from the Czech Republic who want to apply and study at UNIZA can use the application form valid in the Czech Republic. Applicants who do not actively speak Slovak or Czech are required to attend the language training (it is possible to attend the Slovak language courses at UNIZA). For foreign applicants who were accepted on the basis of intergovernmental agreements, bilateral agreements or Slovak government grants, terms and conditions stated in respective documents are applicable.

APPLICATION FORM

Application forms are to be submitted for individual study programmes.
In case the applicant is interested in more study programmes, 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/.
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 of the Faculty of Mechanical Engineering UNIZA within the stipulated deadlines.
Incomplete application form or application form sent after the deadline will not be accepted.
In case of non-participation in the admission procedure or a failure in the admission procedure, the Faculty does not refund the admission procedure fee. If the applicant wants to take part in entrance exams at several faculties of UNIZA, the application forms must be submitted separately to each faculty and the respective admission procedure fees paid separately to each faculty.

Enclosures for the doctoral degree study programmes (to be sent with application form):
- Curriculum Vitae,
- proof of payment of the admission fee,
- copies of diplomas.

Admission fee:

Send **20 €** to:	Žilinská univerzita v Žiline, Univerzitná 1, 010 26 Žilina Bank: Štátna pokladnica IBAN: SK34 8180 0000 0070 0026 9861 const. symbol: 0308 variable symbol: 10232 – doktorandské štúdium
Payment method:	payment can be paid by bank transfer or postal order to the account above.
Proof of payment:	proof of payment is to be sent to the Faculty with the application form.

Tuition fees – in accordance with the Higher Education Act, information about the amount of tuition fee for the relevant academic year will be published on the website of the University of Žilina in Žilina within the stipulated deadlines.

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: **SPSRSKBAXXX**, IBAN: **SK34 8180 0000 0070 0026 9861**.

USEFUL DATES

Open Day	Deadline for submitting the application form	Entrance exams
October, 22, 2020 January, 26, 2021	until May, 31, 2021	June, 21 – 25, 2021

ACCOMMODATION

The accommodation facilities of the University of Žilina in Žilina provide accommodation according to the accommodation capacity, taking into account the distance between the student´s permanent residence and the seat of the University. **Accommodation fee: € 54 – € 61 / month**.

BOARD

Students can use the services of the catering facility of the University of Žilina in Žilina. **Price for food: € 1.10 – € 3.20**.

SCHOLARSHIPS

Full time students of the doctoral degree study programmes 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 STUDY PROGRAMMES

AUTOMATED PRODUCTION SYSTEMS
(Field of study 2381 Mechanical Engineering)
Graduates of the third degree study programme acquired the knowledge and skills necessary for research and development of automation of mechanical engineering production. They acquired theoretical knowledge of technological processes and the possibility of their applications in engineering enterprises, taking into account the qualitative, technical-economic and ecological aspects. They are ready to solve the most demanding tasks of technical practice. Graduates of doctoral degree study are employable in research and development departments of production companies, at top managerial positions, in managing production departments with sophisticated production technology, at institutes of the Slovak Academy of Sciences and technical universities. They are also employable in consultancy companies and organisations where higher degree of technical education is required. Graduates are capable of independent scientific work and are ready to creatively develop and deepen the knowledge in the field.

MECHANICAL ENGINEERING TECHNOLOGIES
(Field of study 2381 Mechanical Engineering)
Graduates of the third degree study programme are ready to solve challenging research and development tasks in the field of mechanical engineering technologies. They have knowledge of selected scientific methods and approaches and the necessary skills for the use of supporting information technologies and are able to apply standard and specific methods of engineering technology in practice. They are able to lead the research teams, projects and work systematically to achieve scientific, development and business objectives.
The system of their scientific training allows them to be involved in a wide range of research activities. After completing their study, they are employable at universities, in research workplaces, in corporate development workplaces and in production mechanical engineering practice as chief executives.

TECHNICAL MATERIALS
(Field of study 2381 Mechanical Engineering)
Mechanical engineering technologies and materials are an essential part of production of machines and machine equipment operating in all sectors of the economy of developed countries in the world. For the currently required high reliability of the function and quality of the component, 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 very important. It is therefore essential for advanced economies to have experts who know the connections between the composition, structure and properties of construction materials.
Graduates of the study programme Technical Materials master the methods of development and evaluation of metallic and non-metallic materials used in mechanical engineering (e.g. nanomaterials, materials for high-temperatures, materials for long-term load in radiation or corrosive environments, materials for high-speed machining, ultra-light materials, etc.). They know connections between their composition, structure and properties. They have knowledge of new materials, technologies of their production and processing and methods of evaluation and influencing of performance; they deepen and expand the theoretical knowledge from technological disciplines in the field of metallurgy, progressive technologies of cutting and non-cutting metalworking, automation of technological processes and the possibility of their applications in mechanical engineering companies, taking into account qualitative, technical-economic and ecological aspects.
Graduates of doctoral study are qualified to work in research and development departments of production companies and companies in the field of production of technical materials, their technological processing into semi-finished products and products, as well as in the field of their quality control, purchase and sale, service and maintenance. They can work in top managerial positions in managing production departments with sophisticated production technology, at institutes of the Slovak Academy of Sciences, in technical universities and technical higher education institutions. They are also employable in consultancy companies and organisations where higher degree of technical education is required.

MACHINE PARTS AND MECHANISMS
(Field of study 2381 Mechanical Engineering)
Graduates of the study programme Machine Parts and Mechanisms acquired during their master´s (engineering) degree study the necessary knowledge from vocational subjects such as Solid Mechanics, Fluid Mechanics, Thermomechanics,

Construction II – Machine Parts, Strength and Strain, Methodology of Design, CAD systems, Simultaneous Constructing and Optimisation, Finite Element Method, Bionics and Innovations of Technical Systems, etc., that together with other structurally and technologically oriented subjects create a theoretical and professional basis for study within the study programme „Machines and Equipment Design“ and other similar programmes.
Following this basis, graduates in the third degree of study deepened their knowledge of applied scientific disciplines focused on the design, construction, modelling and optimisation of machine parts and mechanisms. Within the doctoral degree study, attention is also paid to research, development and innovation, as well as further development of methods and technologies currently used in research, development, innovation and construction of machine parts and mechanisms and their prototypes. Based on the selection from optional subjects offered, students have the opportunity to further enhance their professional orientation on the area of research focused on the development of methods, procedures and knowledge of 3D modelling and creation of virtual models, simulation, optimisation and analysis with the use of finite element method, innovations, creation of prototypes using rapid technology and calculation and simulation methods for structural and dynamic analysis and optimisation of machine parts and mechanisms.

COMPUTER MODELLING AND MACHINE MECHANICS
(Field of study 2381 Mechanical Engineering)
Graduates of the full-time and part-time doctoral degree study programme Computer Modelling and Machine Mechanics know the current state of development of the field of study, master and creatively develop scientific methods of calculation, simulation and verification of model solutions and create software for new applications in various fields of technical practice and interdisciplinary engineering. They develop computer-oriented and engineering calculation methods and apply them in the design of mechanical systems in mechanical engineering, civil engineering, industry and electrical engineering. Graduates formulate mathematical-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 develop experimental methods of mechanics and apply them in connection with calculation methods in the identification and analysis of mechanical elements and systems, as well as in determining their reliability and durability.

ENERGY MACHINES AND EQUIPMENT
(Field of study 2381 Mechanical Engineering)
After graduation, graduates of the doctoral study should demonstrate the ability to advance theoretical knowledge in the field and readiness for independent creative activity, to solve new problems brought by practice at a high theoretical and practical level. Graduates should be able to communicate in one of the world languages and thus find employment not only at home but also abroad as an independent creative designer or consultant, scientific or research worker or as a teacher at a university. The core of the doctoral graduate‘s knowledge consists of the basics of thermal engineering, hydrotechnics, basic knowledge and orientation towards the use of alternative energy sources, basic knowledge of fuels and their efficient use in energy production, knowledge of waste and the possibility of its energy use, knowledge of technologies of production and transformation of energy, knowledge of the design and construction of energy machinery and equipment, knowledge of physical-chemical properties of construction materials, knowledge of distribution and efficient use of thermal energy, basic knowledge of legal context and basic knowledge of managerial and marketing context required for creation and application of technologies in production and communication with customers.

RAIL VEHICLES
(Field of study 2381 Mechanical Engineering)
Graduates of the third degree study programme Rail Vehicles in the field of study 5.2.4 Motor Vehicles, Rail Vehicles, Ships and Aircraft master the scientific methods of research and development of means of transport with a focus on the field of rail vehicles. They acquired the knowledge and skills necessary for research and development of rail vehicles, rationalisation and improvement of quality and project management of rail vehicles maintenance, as well as knowledge to increase the efficiency of their operation while respecting environmental requirements. Graduates are capable of independent scientific work and are ready to creatively develop and deepen the knowledge in the field.

INDUSTRIAL ENGINEERING
(Field of study 2381 Mechanical Engineering)
Graduates of the third level of higher education are prepared to solve challenging research and development tasks in the field of industrial engineering. They have knowledge of selected scientific methods and approaches, have the necessary skills for the use of supporting information technologies 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 scientific, development and business objectives. The system of their scientific preparation allows them to be involved in a wide range of research activities. After graduation they are employable at universities, research workplaces, corporate development workplaces and after the adaptation process in top management of organisations.