UNIVERSITY OF ŽILINA
Faculty of Mechanical Engineering

DOCTORAL DEGREE STUDY

CONTACT

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ACCREDITED STUDY PROGRAMMES OFFERED FOR THE ACADEMIC YEAR 2023/2024

DOCTORAL DEGREE STUDY PROGRAMMES	
FULL-TIME STUDY	**PART-TIME STUDY ****
LENGTH OF STUDY 3 YEARS	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 *
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*
*** tuition fee for part-time study programmes is € 1, 000 for an academic year*

Detailed information on the particular study programmes:

- curriculum,
- course information sheets

EXPECTED NUMBER OF ACCEPTED APPLICANTS TO THE FIRST YEAR

DOCTORAL DEGREE STUDY		
STUDY PROGRAMME / FIELD OF STUDY	**PLANNED CAPACITY**	
	FULL-TIME	**PART-TIME**
Automated Production Systems / Mechanical Engineering	5	3
Mechanical Engineering Technologies / Mechanical Engineering	3	2
Technical Materials / Mechanical Engineering	3	1
Machine Parts and Mechanisms / Mechanical Engineering	5	3
Energy Machines and Equipment / Mechanical Engineering	3	2
Rail Vehicles / Mechanical Engineering	2	1
Industrial Engineering / Mechanical Engineering	3	3
TOTAL	24	15

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

TERMS AND CONDITIONS OF ADMISSION

Basic condition of admission

The basic condition for admission to the doctoral degree study (study programme of the third degree) is the full completion of the second degree of higher education (Higher Education Act, No.131/2002 Coll. as amended). 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 on 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 examination.

All applicants undergo a 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 the 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 the doctoral degree 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 for applicants from abroad as well as for applicants from Slovakia.

Foreign students who study in a foreign language (i.e. not Slovak), pay the tuition fee as stated in Section 92 (8) of the 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 can use the form valid in the Czech Republic to submit their application for study. Applicants who do not actively speak Slovak or Czech are required to successfully complete their language training (it is possible to attend the Slovak language courses at UNIZA). For foreign applicants who were admitted on the basis of intergovernmental agreements, bilateral agreements or Slovak government grants, terms and conditions stated in the respective documents are applicable.

APPLICATION FORM

Application forms shall be submitted for the individual study programmes.
If the applicant wants to apply for more than one study programme, it is necessary to submit individual application forms for each study programme separately whereas the payment of the respective admission fee is required.
Applicants fill in the application form Prihláška na vysokoškolské štúdium – 3. stupeň (*Application form for the third degree of the university study*) or they can also use an electronic application form. The electronic application form can be filled via the UNIZA website: https://vzdelavanie.uniza.sk/prijimacky/index.php or on the Portal VS (University Portal): https://prihlaskavs.sk/sk/.
Even in the 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 them to the address of the Faculty of Mechanical Engineering UNIZA **within the stipulated deadlines**.
An incomplete application form or application form sent after the deadline will not be accepted.
In the event 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 the admission procedure at several faculties of UNIZA, the application forms must be submitted separately to each Faculty with the payment of the relevant fee.

Attachments to the doctoral degree application form:
- curriculum vitae,
- proof of payment of the admission fee,
- copies of the 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:	10233 – doktorandské štúdium
Payment method:	payment can be made by bank transfer or postal order to the above account.	
Proof of payment:	proof of payment is to be sent to the Faculty address with the application form.	

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

With payment of the admission fee from the EU member states, the EES countries, territories that are considered 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
25 October 2022 and 26 January 2023	until 31 May 2023	28 June – 30 June 2023

ACCOMMODATION

The accommodation facilities of the University of 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. **Monthly accommodation fee: € 41 – € 61**.

CATERING

Students can use the services of the catering facility of the University of Žilina. **Price for food: € 1.60 – € 4.20**.

SCHOLARSHIPS

Full time students of the doctoral degree study programmes are granted a scholarship pursuant to the Higher Education Act, No. 131/2002 Coll. (On higher education institutions and on amendments to certain acts), Section 54 (18).

GRADUATE PROSPECTS

DOCTORAL DEGREE STUDY PROGRAMMES

AUTOMATED PRODUCTION SYSTEMS
(Field of study 2381 Mechanical Engineering)
The graduate of the third degree study programme has acquired the knowledge and skills necessary for research and development of automation of mechanical engineering production. He/she has 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. He/she is ready to solve the most demanding tasks of technical practice. The graduate of the doctoral degree study is 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 at technical universities. He/she is also employable in consultancy companies and organisations where higher degree of technical education is required. The graduate is capable of independent scientific work and is ready to creatively develop and deepen the knowledge in the field.

MECHANICAL ENGINEERING TECHNOLOGIES
(Field of study 2381 Mechanical Engineering)
The graduate of the third degree study programme is ready to solve challenging research and development tasks in the field of mechanical engineering technologies. He/she has knowledge of selected scientific methods and approaches and the necessary skills for the use of supporting information technologies and is able to apply standard as well as specific methods of engineering technology in practice. He/she is able to lead the research teams, projects and work systematically to achieve scientific, development and business objectives. The system of his/her scientific training allows him/her to be involved in a wide range of research activities. After completing the study, he/she is employable at higher education institutions/ universities, in research workplaces, in corporate development workplaces and in production mechanical engineering practice as a chief executive.

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. The graduate of the study programme Technical Materials masters 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.). He/she understands connections between their composition, structure and properties. He/she has knowledge of new materials, technologies of their production and processing as well as methods of evaluation and influencing of performance. He/she deepens and expands 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.

The graduates of the doctoral degree 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, at 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)

The graduate of the study programme Machine Parts and Mechanisms acquired during his/her 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 study programmes.

Following this basis, the graduate in the third degree of study has deepened the 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.

ENERGY MACHINES AND EQUIPMENT

(Field of study 2381 Mechanical Engineering)

After graduation, the graduate of the doctoral degree 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 high theoretical and practical levels. The graduate 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 higher education institution/university. The core of the doctoral graduate‘s knowledge consists of the basics of thermal engineering, hydrotechnics, the basic knowledge and orientation towards the use of alternative energy sources, the basic knowledge of fuels and their efficient use in energy production, the knowledge of waste and the possibility of its energy use, the knowledge of technologies of production and transformation of energy, the knowledge of the design and construction of energy machinery and equipment, the knowledge of physical-chemical properties of construction materials, the knowledge of distribution and efficient use of thermal energy, the basic knowledge of legal context and the 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)

The graduate of the third degree study programme Rail Vehicles masters the scientific methods of research and development of means of transport with a focus on the field of rail vehicles. The graduate of the third degree study programme Rail Vehicles (RV) has acquired the knowledge and skills necessary for research and development of rail vehicles, rationalisation

and improvement of quality and project management of RV maintenance, as well as the knowledge to increase the efficiency of their operation while respecting the environmental requirements. The graduate is capable of independent scientific work and is ready to creatively develop and deepen the knowledge in the field.

INDUSTRIAL ENGINEERING

(Field of study 2381 Mechanical Engineering)

The graduate of the third degree of higher education is prepared to solve challenging research and development tasks in the field of industrial engineering. He/she has knowledge of selected scientific methods and approaches, has the necessary skills for the use of supporting information technologies and is able to apply standard as well as specific methods of industrial engineering in practice. He/she is able to lead research teams, projects and work systematically to achieve scientific, development and business objectives. The system of his/her scientific training allows him/her to be involved in a wide range of research activities. After graduation he/she is employable at higher education institutions/universities, research workplaces, corporate development workplaces and after the adaptation process in top management of organisations.