UNIVERSITY OF ŽILINA
Faculty of Mechanical Engineering

MASTER´S DEGREE STUDY

CONTACT

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ACCREDITED STUDY PROGRAMMES OFFERED FOR THE ACADEMIC YEAR 2027/2028

MASTER´S DEGREE STUDY PROGRAMMES	
FULL-TIME STUDY LENGTH OF STUDY 2 YEARS	**PART-TIME STUDY *** LENGTH OF STUDY 2 YEARS
Automated Production Systems	-
Computer Modelling and Simulations in Mechanical Engineering	-
Mechanical Engineering Technologies	-
Technical Materials	-
Industrial Engineering	-
Environment Technology	-
Vehicles and Engines	-
-	Mechanical Engineering

** tuition fee for part-time study programmes is € 900 for an academic year*

Detailed information about the study programmes:
- curriculum,
- course information sheets

EXPECTED NUMBER OF ACCEPTED APPLICANTS TO THE FIRST YEAR

MASTER´S DEGREE STUDY		
STUDY PROGRAMME / FIELD OF STUDY	PLANNED CAPACITY	
	FULL-TIME	PART-TIME
Computer Design and Simulation / Mechanical Engineering	15	-
Mechanical Engineering Technologies / Mechanical Engineering	50	-
Energy and Environmental Technology / Mechanical Engineering	15	-
Industrial Engineering / Mechanical Engineering	15	-
Vehicles and Engines / Mechanical Engineering	15	-
Automation and Digitization of Production / Mechanical Engineering	30	
Mechanical Engineering / Mechanical Engineering		30
TOTAL	155	30

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 master's (engineering) degree study (study programme of the second degree) is the full completion of the first degree of higher education (Act No. 300/2025 Coll. on Higher Education Institutions and amending certain Acts; hereinafter referred to as the 'Higher Education Act'). 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 first 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

The additional admission requirements for applicants to the bachelor's degree programmes offered by the Faculty of Mechanical Engineering (SjF) of the University of Žilina (UNIZA) are established in accordance with the Higher Education Act. The admission procedure will take the form of a selection process designed to ensure that applicants with the necessary abilities and aptitude are admitted to the programmes. Applicants should possess fundamental knowledge in the field of MECHANICAL ENGINEERING at the level of synthesis, including knowledge of the key areas of mechanical engineering, namely: engineering materials and the technologies used in their production and processing; the mechanical interactions between machine components and their effects on mechanical elements and systems; design and technical diagnostics; the manufacture, construction and operation of manufacturing, transport, energy, agricultural and forestry machinery, systems and equipment; information and control systems; and the management of socio-technical systems. The required knowledge should correspond to the focus of the selected study programme.

Selection procedure

All applicants undergo a selection procedure. The rules of the selection procedure are published on the Faculty's website https://www.fstroj.uniza.sk/index.php/uchadzaci/moznosti-studia/prijimacie-konanie (Principles and rules of the admission procedure for the 2nd degree of higher education at the Faculty of Mechanical Engineering UNIZA).

Language competence

To study at the faculty, written and oral command of Slovak or Czech at an appropriate level (equivalent to at least level B1) is required, which the foreign applicant must prove with a certified document; otherwise, verification of the language level will be part of the entrance exam. Knowledge of at least one foreign language (English, German, Spanish, French) is expected

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 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. Students interested in more than one study programme must submit a separate application for each programme and pay the relevant fee.
Applicants fill in the application form Prihláška na vysokoškolské štúdium – 2. stupeň (*Application form for the second 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 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 master's degree application form:

- curriculum vitae,
- proof of payment of the admission fee,
- certified copy of the university diploma (in case of applicants who did not study at the Faculty of Mechanical Engineering UNIZA),
- list of completed exams in the bachelor's degree study (in case of applicants who did not study at the Faculty of Mechanical Engineering UNIZA).

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 – inžinierske 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.	

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**.

Tuition fees – are set 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.

USEFUL DATES

Open Day	Deadline for submitting the application form	Entrance examination
21 October 2026 and 27 January 2027	until 31 March 2027	25 June 2027

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: € 66 – € 134**.

CATERING

Students can use the services of the catering facility of the University of Žilina. **Price for food: € 1.10 – € 4.70**.

SCHOLARSHIPS

Students of all study programmes can obtain motivational scholarships (for excellent results or exceptional achievements) in accordance with the stated criteria. **Students of all study programmes can obtain motivational departmental scholarships in accordance with the stated criteria**.

FOLLOW-UP STUDY AFTER COMPLETION OF MASTER´S DEGREE STUDY

There is a possibility of extended studies within follow-up doctoral degree study programmes at the Faculty of Mechanical Engineering UNIZA in the academic year 2027/2028 in study programmes: Automated Production Systems, Mechanical Engineering Technologies, Materials Engineering, Mechanics and Machine Construction, Energy Machines and Equipment, Rail Vehicles, Industrial Engineering (the respective information on particular study programmes can be found on the university website). After completing the master's (engineering) degree, it is necessary to verify the current offer of study programmes in a particular academic year.

GRADUATE PROSPECTS

MASTER´S DEGREE STUDY PROGRAMMES – full-time study

AUTOMATED PRODUCTION SYSTEMS
(Field of study 2381 Mechanical Engineering)
The study programme Automated Production Systems is focused on the issues of automation and computer support in production technologies, in particular flexible production systems in mechanical engineering, computer support in pre-production stages, design in automated mechanical production, numerically controlled production machines, robotics, application of microelectronics and computing technology in production technologies, creation of control systems for automated machinery. The basis of the acquired knowledge of the graduates of this study programme will be in the field of production technologies for mechanical engineering, technological processes of production of semi-finished products,

technology of production and assembly of components, technical preparation of production, design of production processes and systems, handling, transport and storage of components in the context of the rationalisation of mechanical production, economics and management of mechanical engineering production, automation and computer support.
The graduate is able to systematically and comprehensively solve material, technological and organizational issues in production technologies with the use of automated tools and approaches as well as computer support in pre-production, production and post-production stages of component implementation based on methods of mathematical modelling, simulation and optimisation. The skills are integrated with the knowledge of an economic nature. Students will be prepared to study a programme of the third degree in a related field of study. The graduates will find employment as members of the middle management level of production, in departments of technical production, especially in the field of technological design with computer support, in the field of design and management of flexible production systems, in research and development of technological processes and systems and implementation of automation in mechanical engineering production.

COMPUTER AIDED DESIGN AND SIMULATIONS

(Field of study 2381 Mechanical Engineering)

The graduates of the master´s (engineering) degree study programme Computer Aided Design and Simulations are able to creatively use the methods of calculation, simulation and verification of model solutions in the design of mechanical systems and constructions. The main emphasis is put on their readiness and ability to independently develop, elaborate and practically use engineering approaches when solving technical problems in the field of linear and nonlinear response of constructions. The graduate is able to perform static, kinematic and dynamic analysis of mechanisms and constructions and to assess lifetime and reliability of the examined objects. He/she can analyse thermal stress, solve technical problems of flow, thermodynamics, heat and mass transfer.
The graduate has adequate knowledge of information technology, foreign languages and economic as well as legal aspects of the field of study. He/she is able to properly formulate technical problems; to analyse and solve them. He/she has an overview of general and scientific approaches and methods. He/she is able to comprehensively assess and recognize what is essential in the design and diagnostics of mechanical systems and structure not only in relation to the problem, but also to the environment. He/she masters modern numerical methods of computational mechanics in order to identify and analyse fields such as methods of finite and infinite elements and strips, boundary elements and others. He/she is employable in the field of optimal design of machines structures, building constructions and industrial products, technological units and equipment. In his/her work the graduate is able to use software engineering tools such as: AutoCAD, Inventor, Pro/Engineer, Mechanical Desktop, Solid Edge, Ideas, Catia, Matlab, Mathematica, MathCAD, Maple, Ansys, Adina, Marc, Nexis, Sysweld, Adams, and others. The graduate is able to model, simulate and analyse different types of fields separately or in interaction as a bound problem in macro-mechanical systems as well as in the micro-and nanostructures. He/she is able to program the formulated technical problem into a computer program and transform it into a design solution. He/she acquired basic knowledge in the field of experimental mechanics. The graduate is mainly employable in the field of design, evaluation and innovation of machine construction and technological equipment.

MECHANICAL ENGINEERING TECHNOLOGIES

(Field of study 2381 Mechanical Engineering)

The professional profile of graduates of the study programme Mechanical Engineering Technologies is characterised by theoretical but mainly practical knowledge of constructology and mechanical engineering technologies, production facilities, quality, economics and production management, as well as habits and ability to skilfully apply this knowledge in practice. The graduate acquired theoretical and also mainly practical knowledge of the most widespread chipless technologies of mechanical engineering production and its management. He/she acquired habits and skills in technological activities with the use of modern technological tools. The graduates also have professional knowledge in the field of production, testing, technological processing, selection, exploitation and degradation of properties of the most commonly used types of technical materials. They are especially prepared to work in industrial 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 quality control, and assurance, purchase, sale, service and maintenance.
The graduates are qualified to work in the operation of industrial mechanical engineering companies, in railway and urban public transport, in all areas of mechanical engineering and in other organisations of administrative, production, operational or repair nature. They have sufficient practical experience and skills in laboratory work, and they have a good command of professional terminology in a foreign language.

MATERIALS ENGINEERING

(Field of study 2381 Mechanical Engineering)

The graduates of the master´s (engineering) degree study programme Materials Engineering masters the methods of calculation, simulation and verification of model solutions of projection, construction of machines and machinery systems; he/she has knowledge of new materials, theory and technologies of their production and processing, methods of their evaluation and influencing their performance; he/she masters the creation and management of technological and production processes of machinery; he/she has adequate knowledge of testing, operation and maintenance of machinery, he/she also demonstrates knowledge of selection of suitable materials and the impact of engineering operations on the environment.

The graduate is able to analyse, design, construct and maintain extensive technical solutions involving the area of general mechanical engineering with an emphasis on technical materials; he/she is able to conduct research with a high degree of creativity and independence. He/she has a deep knowledge in the field of general mechanical engineering that allows him/her to manage teams of workers in this field, to lead projects independently and to take responsibility for complex solutions. He/she is able to build a respectable scientific approach. During their studies, students gain experience in the formulation of hypotheses, experimental design, hypotheses verification and analysis of the acquired data; they are able to apply advanced methods and techniques of design and development of technical materials for the needs of mechanical engineering constructions.

INDUSTRIAL ENGINEERING

(Field of study 2381 Mechanical Engineering)

The graduates of the master´s (engineering) degree study programme Industrial Engineering is qualified to get involved in the solution of technical-organisational and development areas, primarily at the middle management level of the production organization. He/she is prepared to coordinate the solution of complex tasks in the field of logistics and management of supply chains, in-house logistics and optimisation of inventory and material flows, implementation of company-wide information systems, planning and production management, quality management, design of production processes and systems, management of innovations, implementation of industrial engineering methods to individual company units, computer modelling of company processes, project management, application of operational research methods, etc.

The graduates of the master´s (engineering) degree study programme Industrial Engineering is employable especially in the positions of middle management of production organisations and in departments of industrial engineering. He/she is prepared to occupy positions of a system engineer, quality engineer, productivity engineer, designer of production systems, production engineer, employee of technical preparation of production, industrial engineer, head of production planning and control, head of logistics department, head of maintenance department, staff member of a human resources department, and others. He/she is qualified to work also at the top management level.

ENVIRONMENT TECHNOLOGY

(Field of study 2381 Mechanical Engineering)

Following the first degree of study, in the second degree of their professional study the graduates acquired good theoretical and methodological professional basis and practical experience from applied scientific disciplines, necessary to solve a wide range of problems related to the design, projecting and operation of heating, ventilation and air conditioning systems and other equipment that are applied in heating, ventilation and gas systems, using modern calculation methods. The study programme Environment Technology deals also with the comfort of the environment in the interior of buildings (residential, office, and industrial halls) and energy installations with the help of which it is possible to create and influence the environment with the use of various energy sources.

The graduates are employable in the fields of designing, projecting and operation of heating, air conditioning and gas systems, as well as in areas solving the problems of reduction of energy performance of technological processes, more efficient use of thermal energy (both in industry and in municipal construction) and the use of renewable energy sources.

VEHICLES AND ENGINES

(Field of study 2381 Mechanical Engineering)

The graduates of the master´s (engineering) degree study programme Vehicles and Engines are able to analyse, design, construct, operate and maintain extensive technical systems of vehicles, especially in the field of vehicles and their propulsion subsystems. They are able to use solutions with a high degree of creativity, complexity, independence and responsibility. They have a thorough knowledge in the field of basic theoretical disciplines of mechanical engineering (engineering mathematics, vehicle mechanics, elasticity and plasticity) as well as in the field of construction and design of vehicles and their subsystems.

They have a general overview of mechanical engineering production and its management, expert knowledge of the theory of road and rail vehicles and combustion engines. Their education is complemented by knowledge of urban public transport, technical means of combined transport and maintenance technologies. Deepened and extended knowledge of theoretical and professional subjects allows the graduates of the master´s (engineering) degree study programme Vehicles and Engines to find and present their own solutions to problems in research, development, design and construction of transport means, especially vehicles and their systems. The graduates creatively apply the acquired knowledge in practice, critically analyse and apply a variety of concepts, principles and practices of the field in the context of freely defined problems, while demonstrating effective decision-making in connection with the selection and use of methods, techniques and tools. They are able to implement complex technical solutions, use modern methods and means in order to solve problems. The graduates of the master´s (engineering) degree study programme Vehicles and Engines are able to work effectively as individuals, as team members or team leaders, cooperate with superiors, continually upgrade their qualification, including the development of technical and managerial skills, keep in touch with the latest developments in their discipline, follow appropriate practices in accordance with the rules and professional, legal and ethical frameworks of the field.

The graduates are able to design and structurally solve parts of vehicles and their subsystems utilising modern advanced computer-aided technologies inherent in modern construction. They are able to find work in the operation of vehicles, especially rail vehicles, road vehicles, internal combustion engines, hydraulic and pneumatic machines and equipment, in their diagnostics, maintenance and repairs. The graduates meet conditions for further education in the third (doctoral) degree study, especially in the study programme Rail Vehicles.

MASTER´S DEGREE STUDY PROGRAMMES – part-time study

MECHANICAL ENGINEERING TECHNOLOGIES

(Field of study 2381 Mechanical Engineering)

The professional profile of graduates of the study programme Mechanical Engineering Technologies is characterised by theoretical but mainly practical knowledge of constructology and mechanical engineering technologies, production facilities, quality, economics and production management, as well as habits and ability to skilfully apply this knowledge in practice. The graduate acquired theoretical and also mainly practical knowledge of the most widespread chipless technologies of mechanical engineering production and its management. He/she acquired habits and skills in technological activities with the use of modern technological tools. The graduates also have professional knowledge in the field of production, testing, technological processing, selection, exploitation and degradation of properties of the most commonly used types of technical materials. They are especially prepared to work in industrial 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 quality control, and assurance, purchase, sale, service and maintenance. The graduates are qualified to work in the operation of industrial mechanical engineering companies, in railway and urban public transport, in all areas of mechanical engineering and in other organisations of administrative, production, operational or repair nature. They have sufficient practical experience and skills in laboratory work and they have a good command of professional terminology in a foreign language.