



## DESCRIPTION OF THE STUDY PROGRAMME

**Name of faculty:** Faculty of Electrical Engineering and Information Technology

**Name of the study programme:** Electrical Technologies and Materials **Degree of study:** 3.

**Date of approval of the creation or last modification of the study programme by the UNIZA Accreditation Board:** 31.8.2022

**Date of the last corrections to the DESCRIPTION of the study programme:** 26.4.2023

1. Basic information about the study programme				
a	Name of the study programme	Electrical Engineering and Materials	Number according to the SP register	4060
b	Undergraduate degree	3.	ISCED_F grade code education	864
c	Location(s) of study	Žilina		
d	Name of the field of study	Electrical Engineering	Number of the field of study according to the SP register	2675V00
			ISCED_F code of the field(s) <sup>1</sup>	0788
e	Type of study program	Academically oriented		
f	Academic degree awarded	PhD.		
g	Form of study	Daily		
h	Cooperating universities and definitions	-		
i	Language of the study programme	English		
j	Standard length of study	3 years		
k	Capacity of the study programme (planned number of students)	Listed in the documents "Principles and Rules of the FEIT Admission Procedure" available: <a href="https://feit.uniza.sk/studenti/doktorandske-studium/">https://feit.uniza.sk/studenti/doktorandske-studium/</a> a "FEIT Annual Reports" for each year, available: <a href="https://feit.uniza.sk/fakulta/uradna-tabula/">https://feit.uniza.sk/fakulta/uradna-tabula/</a>		
	Actual number of applicants	Listed in the documents "Report on the evaluation of the quality of education at the FEIT faculty level" for individual academic years <a href="https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101">https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101</a> a "FEIT Annual Reports" for each year, available: <a href="https://feit.uniza.sk/fakulta/uradna-tabula/">https://feit.uniza.sk/fakulta/uradna-tabula/</a>		
	Number of students	Listed in the documents "Report on the evaluation of the quality of education at the FEIT faculty level" for individual academic years		

<sup>1</sup> According to <https://ciselniky.portalvs.sk/classifier/show/basic/4>

		<p><a href="https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101">https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101</a></p> <p>a</p> <p>"FEIT Annual Reports" for each year, available:  <a href="https://feit.uniza.sk/fakulta/uradna-tabula/">https://feit.uniza.sk/fakulta/uradna-tabula/</a></p>
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2.	<b>Graduate profile and learning objectives</b>	
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a	<p><b>Objectives of Study Programme Education as Student's Abilities at the Time of Completion of the Study Programme and Main Learning Outcomes</b></p>	<p><b>Educational goals:</b></p> <p>A graduate of the doctoral study in the field of Electrical Technologies and Materials is proficient in scientific methods of evaluation of material structures and systems in terms of processing technology, structure, durability, reliability, interoperative and output diagnostics and control, as well as in terms of determining the basic physical properties of substrate materials and final structures. The comprehensive knowledge acquired in this way will enable the graduate to use them in a wide range of production technologies in electronics and photonics, both in their design and in the organization and optimization of individual technological procedures. The graduate will acquire the ability to predict changes in the properties of materials in various conditions of use, as well as in terms of the use of various technological procedures for the production of electrical elements, structures, systems and equipment.</p> <p>[CV1] has extensive knowledge of theories, sophisticated methods and procedures of science at a level corresponding to international criteria in the field of electrical engineering.</p> <p>[CV2] masters the methods of analysis and synthesis, can apply them in the implementation of basic and applied research in the selected field of study.</p> <p>[CV3] has a systematic, comprehensive and comprehensive set of knowledge in several areas of the field of study, which serve as a basis for conducting research and development and creating new knowledge in the field of electrotechnology and materials and photonics and measurement technology.</p> <p>[CV4] has an in-depth theoretical and methodological knowledge of technologies and materials used in photonics, in the electrical and electronics industries, of the properties of materials and of the processes taking place in them, which are the object of scientific research or development, at the level of the current state of research in the world,</p> <p>[CV5] is able to lead small and large teams of scientific, research and development staff, lead large projects and take responsibility for complex solutions to scientific and research problems,</p> <p>[CV6] will master the principles of individual and team scientific work, scientific research, scientific formulation of problems, design of an experiment with a time schedule,</p> <p>[CV7] will be able to follow the latest scientific and research trends in their own field and complement and update their knowledge in the form of lifelong learning;</p> <p>[CV8] Specify knowledge of physical processes taking place in different types of materials, has knowledge of methodologies and diagnostic potential in terms of material analysis.</p> <p>[CV9] He has the ability to design and solve research projects, construct and design technological practice equipment.</p> <p>[CV10] is able to apply the legal, social, moral, ethical, economic and environmental aspects of their profession in their work.</p>
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		<p><b>Main learning outcomes :</b></p> <p>The study programme of the 3rd level of Electrotechnology and Materials leads students to be able to master scientific methods of evaluating material structures and systems in terms of processing technology, structure, service life, reliability, interoperable and output diagnostics and control, as well as in terms of determining the basic physical properties of substrate materials and final structures. The comprehensive knowledge gained in this way will enable their use in a wide range of production technologies in electronics and photonics, both in their design and in the organization and optimization of individual technological processes. Materials are the basis of all devices and systems, and their development and correct diagnostics of modern research. In addition to the above-mentioned theoretical knowledge, a graduate of the third degree of university studies in the field of electrical technology and materials will acquire the following additional knowledge, abilities and skills:</p> <p>[VV1] is able to actively acquire new knowledge and information, critically analyze and re-evaluate it, and use it in the design of theories as well as in practical applications for the development of the field of study</p> <p>[R&amp;D2] has innovative thinking, can creatively formulate information about the progress and results of solving tasks and is ready to professionally present the results of research and development in front of the professional community.</p> <p>[R&amp;D3] is able to follow the latest scientific and research trends in his/her own field and to supplement and update his/her knowledge in the form of lifelong learning,</p> <p>[VV4] is able to perform survey, analysis, measurement, data collection and processing, is able to use advanced methods and tools for computer modeling and process simulations.</p> <p>[R&amp;D5] is able to creatively apply the acquired knowledge in practice, acquires the ability to develop his/her own scientific discipline, finds professional employment in various branches of science, research, industry and services in the public and private sectors.</p> <p>[VV6] is able to analyse and solve complex and non-standard tasks in the Electrical Engineering and Materials SP and bring new, original solutions, He/she is able to formulate engineering-physical-technological problems and bring their solutions to practical implementation,</p> <p>[R&amp;D7] has qualified skills to independently solve scientific projects, determine the focus of research and coordinate the implementation team of experts, applies his/her own findings of his/her theoretical analysis and his/her complex scientific research in solving problems, and is able to design, verify and implement new research and work procedures based on his/her outputs and findings.</p>
b	<p><b>Indicated professions for which the graduate is prepared at the time of graduation and the potential of the study programme from the point of view of the employment of graduates</b></p>	<p>He knows not only the principles but also the basic properties of materials for modern electronics, optics and photonics. He has a deep knowledge of geometric optics, electronics and technology and can apply them to photonic elements and systems on a chip and on optical fiber. The graduate can design, modify and diagnose laser devices and components for telecommunications, medicine as well as measurement. It uses and improves the quality and design of fiber optic technology. It can introduce new optical or photonic prototypes and devices into various areas of technology. Optimize optical designs by performing design/analysis with extensive use of lighting tools and empirical data as needed. He has knowledge of electro-optical and sensory systems.</p>

		<p>He/she is able to work with instruments and materials used in basic and applied research, according to the focus of the study program. The graduate has experience in the use of hi-tech laboratory instruments for surface and material analysis such as electron microscope, steaming, thin film sputtering and atomic power microscope.</p> <p>List of some indicated professions:  <a href="#">Specialist Electrical Engineer Technologist</a>  <a href="#">Materials Technologist in Electrical Engineering</a>  <a href="#">Designer of Non-Standard Measurement Systems</a>  <a href="#">Specialist in the field of science development, research and innovation</a></p>
c	<p><b>Relevant external stakeholders who have provided an opinion or a favourable opinion on the compliance of the obtained qualification with sector-specific professional requirements</b></p>	<p>The study programme does not prepare for a profession requiring an opinion on the conformity of the acquired qualification</p>

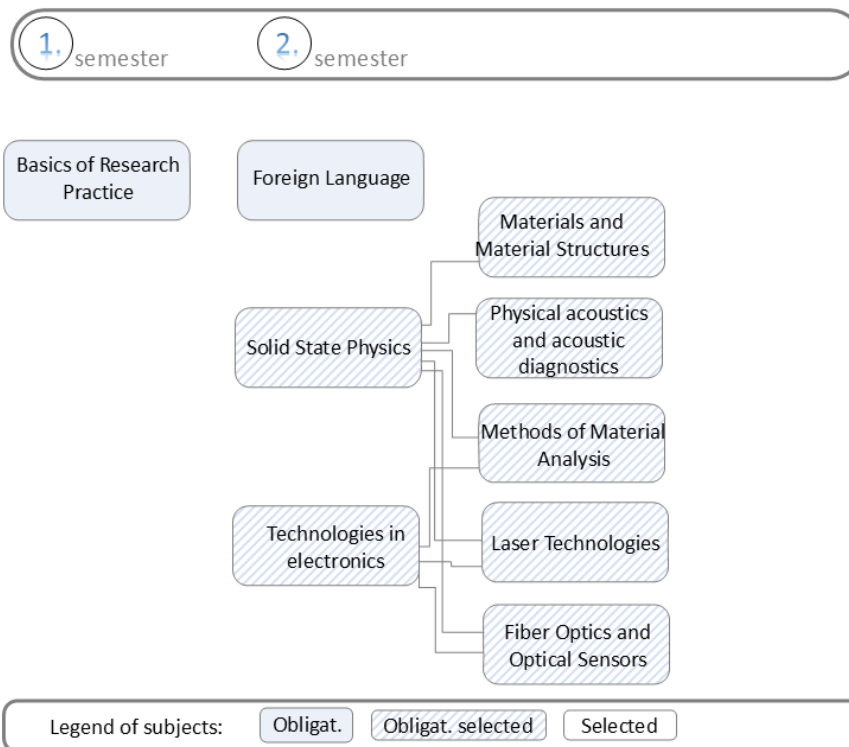
<p><b>3. Applicability</b></p>		
a	<p><b>Assessment of the employability of graduates of the study programme</b></p>	<p>A graduate of the doctoral study program Electrical Technologies and Materials will acquire a broad spectrum of knowledge, the trajectory of which ranges from the acquired basic knowledge in the field of knowledge of materials for electronics and photonics, as well as technologies and diagnostic methods. It can analyze signal propagation in optical lines, solve the design of light sources at the smallest level and manages the use of cutting-edge simulation tools for modeling photonic phenomena in structures and materials. The graduate understands and can implement the acquired skills and habits in various technical areas, e.g. in the field of IT technologies in photonics. Graduates of the study programme find employment in the labour market in all relevant sectors of the economy – in the private, public and state sectors, especially in positions focused on development in the field of technology, diagnostics and use in industry and technicians in various types of optical and automotive companies or even in independent activities.</p>
b	<p><b>Successful graduates of the study programme</b></p>	<p>During its short existence, the study program has trained a number of top doctoral students, who today successfully work in R&amp;D positions in renowned companies with a base of materials, or at universities in the positions of assistant professors. Graduates from the given state program have been leaving for companies in the last more than 5 years. Most of them ended up in university positions as assistant professors and scientific researchers, and some graduates were placed in top companies. Graduates return to the faculty and at joint meetings evaluate their life in their new places of work as very successful, and the high demand for a graduate of this program on the labor market constantly resonates from their words. Especially in Europe, a high-quality technology graduate in electronics and photonics is in high demand as a response to the integration of optical elements and principles into almost all industries, not only industry, but also healthcare. Most of the graduates found employment in Slovakia, or in nearby companies in the Czech Republic.</p>

c	<b>Evaluation of the quality of the study programme by employers</b>	<p>The survey among employers is part of the monitoring of the quality of the study programme and its implementation is planned at an interval of 3 years.</p> <p>The success of graduates in companies is also evidenced by the fact that their work in the given companies accelerated cooperation at the level of science as well as the education of new young photonics, e.g. at the level of assignments of final theses and joint development projects and internships. Most graduates have experienced internships abroad at top universities, or internships or joint development projects in companies. The creation of such graduates confirms that the quality of the graduate matters and is a benefit for the scientific society in Slovakia as well as abroad and is the engine of the development of strong companies in the field of electronics and photonics.</p>
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4.	<b>Structure and content of the study programme</b>	
a	<b>Rules for the creation of study plans in the study programme</b>	
	<p>They are listed in Directive No. 204 - Rules for the creation, modification, approval and cancellation of study programmes at UNIZA:  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p>	
b	<b>Recommended study plans for each study trip</b>	
	<p>For example:</p>	

Trajectories of study program of 3rd degree in \_\_\_\_\_

## Electrotechnologies and materials



c	<p><b>Study plan of the program</b></p> <p>The study plan of the given SP is listed in e-education based on the choice of faculty, form of study and the name of the SP: <a href="https://vzdelavanie.uniza.sk/vzdelavanie/plany.php">https://vzdelavanie.uniza.sk/vzdelavanie/plany.php</a></p>
d	<p><b>Number of credits, the achievement of which is a condition for the proper completion of studies</b></p> <p>180</p>
e	<p><b>Other conditions that the student must meet during the study of the study programme and for its proper completion, including the conditions of state examinations, the rules for repeating studies and the rules for extension, interruption of studies.</b></p> <p><b>Conditions during the study:</b>            Continuous and final evaluation in individual subjects is part of the course information sheets, which can be found after the selection of the faculty, the form of study and the study programme itself under the name of the course at: <a href="https://vzdelavanie.uniza.sk/vzdelavanie/plany.php">https://vzdelavanie.uniza.sk/vzdelavanie/plany.php</a></p> <p><b>Conditions for the course and proper completion of studies:</b>            The study plan of a doctoral student consists of a study part, which ends with a dissertation exam, a scientific part and a dissertation defense. The number of credits for individual activities is determined by the EaM study plan and approved by the working group of the Field Committee and the FEIT Scientific Council.            The study part represents 50 credits from the scope of the study plan. It focuses on acquiring deep theoretical knowledge in the field of basics of materials with an emphasis on the multidisciplinary area and mastering the methodological apparatus supported by knowledge of selected mathematical, physical and professional disciplines. It consists of the study of two compulsory and two compulsory elective subjects and the compulsory subject Written Work for the Dissertation Exam and Defense of the Written Thesis for the Dissertation Exam. Compulsory subjects are Basics of Scientific Work and World Language. The choice of two compulsory elective courses depends on the topic of the dissertation. Each subject of the study part is assigned 10 credits. All subjects of the study part are subjects of the state examination.</p>

The scientific part represents at least 130 credits from the scope of the study plan. It is carried out in Dissertation Projects I to IV and through individual and team scientific and research work, including the elaboration and defense of the dissertation. Dissertation projects I-IV represent comprehensive parts (stages) of the dissertation and 10 credits are assigned to each. The evaluated activities within individual and team scientific work are: publications in journals and conference proceedings, chapters in monographs/university textbooks, protection of intellectual property (patent, utility model), citations registered in the SCI citation index and active presentation of results at conferences. The allocation of credits for individual activities within individual and team scientific work is determined by the relevant regulations listed above.

Among the obligations of full-time doctoral students, which arise from the Act on Higher Education Institutions and on the Amendment of Certain Acts No. 300/2025 Coll., is also pedagogical activity.

The basic part of the study is the year in which the student is expected to obtain an average of 60 credits.

Full-time study is divided into years as follows:

1. year - the student will receive at least 40 credits,
2. year - the student will receive at least 60 credits (or a total of at least 100 credits for the 1st and 2nd year),
3. Year - the student will receive so many credits to achieve a minimum of 180 credits for the entire study.

By 31 August for the relevant academic year at the latest, the supervisor submits to the Dean an annual evaluation of the fulfilment of the doctoral student's study programme, stating whether or not he/she recommends his/her continuation in his/her studies. The supervisor evaluates the status and level of fulfilment of the doctoral student's study programme, compliance with deadlines, awards credits and, if necessary, submits a proposal for modification of his/her individual study programme.

A doctoral student in the full-time form of doctoral studies applies for the dissertation examination no later than 18 months from the date of enrolment in doctoral studies. A doctoral student is obliged to submit a written work prepared for the dissertation examination together with the application for the dissertation examination. Failure to meet the conditions of a doctoral student to apply for the dissertation examination, or failure to submit a written work for the dissertation examination within the set deadline without the prior consent of the head of the training institute, is a reason for his/her expulsion from study.

The written work for the dissertation exam consists of a dissertation project containing an overview of the current state of knowledge on the topic, an outline of the theoretical foundations of its future solution and an analysis of the methodological approach to solving the issue. For the written work for the dissertation examination, the opinion is prepared by one opponent appointed by the dean.

The dissertation examination consists of a part consisting of a debate on the written work for the dissertation examination and a part in which the doctoral student is to demonstrate theoretical knowledge in the specified subjects of the dissertation examination. The dissertation examination takes place before an examination committee, whose chairman and members are appointed by the dean and on the basis of a proposal by the chairman of the trade union committee. The committee has at least four members, at least one of whom is not from the workplace where the doctoral student works. The overall result of the dissertation examination is evaluated by the examination committee comprehensively by the expression "passed" or "failed". A record of the dissertation examination is drawn up, where the committee states its recommendation at the end, or a proposal to modify the title of the dissertation. The dissertation exam is one of the state exams.

#### Conditions for proper completion of studies

The study ends with the defense of the dissertation, which is one of the state exams. After preparing and accepting the dissertation and defending it, the doctoral student will receive 30 credits (for the dissertation and its defence). With the dissertation, a student of the 3rd degree of university study in the SP EaM demonstrates the ability and readiness for independent scientific and creative activity in the field of research. The thesis presents the results of his scientific research and the application of research results in practice. The result of the dissertation should be the acquisition of new knowledge in the given issue. The student must demonstrate a deep systematic understanding of the field of study, demonstrate skills in research work, and correctly apply scientific research methods. The student should prove that he or she has carried out a substantial part of the research as part of the dissertation, that he or she has outlined, constructed, implemented, optimized, and all this in an ethically pure manner.

#### Other conditions:

They are listed in:

Directive No. 110 Study Regulations for the 3rd Level of Higher Education at the University of Žilina

[https://uniza.sk/index.php?option=com\\_content&view=article&id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&catid=2](https://uniza.sk/index.php?option=com_content&view=article&id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&catid=2)

f	<b>Conditions for the completion of individual parts of the study programme and the progress of the student in the study programme in the structure</b>					
	<i>Completion of studies = standard length of study Completion of part of the study = 1 academic year</i>	<b>For the entire study</b>	<b>For part of the study</b>			
			1.r	2.r	3.r	4.r

	number of credits for compulsory courses required for proper completion of studies	30	20	10	0	0
	number of credits for compulsory elective courses required for proper completion of studies	20	10	10	0	0
	number of credits for elective courses required for proper completion of studies	0	0	0	0	0
	the number of credits for the final thesis and the defense of the final thesis required for the proper completion of the study	30	0	0	30	0
	the number of credits for professional experience required for the proper completion of studies	0	0	0	0	0
	Number of credits required for proper completion of studies for project work with an indication of relevant subjects in engineering study programmes	40	0	20	20	0
	the number of credits required for the proper completion of studies for artistic performances other than the final thesis in art study programmes	0	0	0	0	0
<b>g</b>	<b>Rules for the verification of learning outcomes and student assessment and the possibility of correcting this assessment</b>					
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 110 Study Regulations for the 3rd Degree of Higher Education at the University of Žilina and Directive No. 216 Quality Assurance of Doctoral Studies at UNIZA  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, these are the following documents:  Dean's Decision on the Organization and Administrative Support of the 3rd Degree of Study  <a href="https://feit.uniza.sk/oznamy-pre-doktorandov/">https://feit.uniza.sk/oznamy-pre-doktorandov/</a>  a  Guide to Doctoral Studies at FEIT  <a href="https://feit.uniza.sk/doktorandske-studium-sprievodca/">https://feit.uniza.sk/doktorandske-studium-sprievodca/</a></p>					
<b>h</b>	<b>Conditions for the recognition of studies or parts of studies</b>					
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 110 Study Regulations for the 3rd level of higher education at the University of Žilina and Directive No. 216 Quality Assurance of Doctoral Studies at UNIZA. In the case of foreign mobilities and internships, the processes, procedures and structures of the conditions for the recognition of studies are defined by Directive No. 219 – Mobility of students and employees of the University of Žilina abroad.  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, these are the following documents:  Dean's Decision on the Organization and Administrative Support of the 3rd Degree of Study  <a href="https://feit.uniza.sk/oznamy-pre-doktorandov/">https://feit.uniza.sk/oznamy-pre-doktorandov/</a>  a  Guide to Doctoral Studies at FEIT  <a href="https://feit.uniza.sk/doktorandske-studium-sprievodca/">https://feit.uniza.sk/doktorandske-studium-sprievodca/</a></p>					
<b>i</b>	<b>Topics of final theses of the study programme</b>					

	<p><i>Maniaková Petra: Microstructures for sensing applications in photonics and plasmonics, Školiteľ práce: Dušan Pudiš, Oponent: Jozef Novák, Ivan Martinček, Jaroslav Kováč, 2021</i></p> <p><i>Mizera Tomáš: 3D fotonické prvky pre aplikácie na čipe, Školiteľ práce: Dušan Pudiš, Oponent: Martin Weis, Daniel Káčik, Jaroslav Kováč, 2022</i></p> <p><i>Miček Patrik: Návrh, simulácia a realizácia metamateriálových štruktúr pre plazmoniku, Školiteľ práce: Dušan Pudiš, Oponent: Jozef Novák, Ivan Martinček, Jaroslav Kováč, 2023</i></p>
j	<p><b>Rules for the assignment, processing, opposition, defence and evaluation of final theses in the study programme</b></p> <p>At the university level, the processes, procedures and structures are defined by Directive No. 215 – Directive on Final, Rigorous and Habilitation Theses in the Conditions of the University of Žilina, Directive No. 110 Study Regulations for the 3rd Level of Higher Education at the University of Žilina and Directive No. 216 Quality Assurance of Doctoral Studies at UNIZA.  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, the current Dean's Decision on the organization and administrative provision of the 3rd level of study at FEIT UNIZA in the given academic year applies and specific information for students:  <a href="https://feit.uniza.sk/oznamy-pre-doktorandov/">https://feit.uniza.sk/oznamy-pre-doktorandov/</a> and <a href="https://feit.uniza.sk/studenti/doktorandske-studium/">https://feit.uniza.sk/studenti/doktorandske-studium/</a></p> <p>Proposals for dissertation topics on the proposal of supervisors are approved by the Dean, who will announce them no later than two months before the last day for submitting applications for doctoral studies that can be applied for in the admission procedure. For each topic announced, the name of the study programme, the name of the supervisor, the form of study (full-time, part-time), the deadline for submitting applications and the date of the admission procedure are stated. Proposals for dissertation topics are announced and published on the official board of the faculty website, which also publishes the method and dates of student application for study. The date of publication of dissertation topics is determined by the academic calendar of the training workplace.</p> <p>The entrance examination takes place in front of an admissions committee that has at least four members. The admissions committee consists of its chairman and at least two members appointed by the dean. Another member of the committee is the supervisor for the announced topic. The admissions committee evaluates the result of the entrance examination at a closed session with the conclusion "passed" or "failed". If several applicants have applied for one topic, their order will be determined by the success of the entrance examination. When determining the ranking, the committee also takes into account the scope and quality of the applicant's previous professional publishing activity and the results of his other professional activities. Based on the results of the entrance examination, the Dean will decide on the admission of the applicant within 30 days from the date of the entrance examination.</p> <p>During the implementation of the study programme, the facts related to the fulfilment of the content of the individual study plan of the doctoral student are evaluated. The evaluation is carried out once a year at the end of the academic year by the supervisor and approved by the guarantor of the study programme and subsequently by the dean. The decisive facts are the dissertation exam and the defence of the dissertation. A doctoral student who has not fulfilled all the obligations arising from the individual study plan and does not have enough credits cannot apply for the dissertation exam or apply for permission to defend the dissertation.</p> <p>Within the deadline set for the submission of the thesis, the author of the thesis personally uploads its electronic version identical to the bound version in the form of .pdf in one file with the possibility of converting it to plain text into the system of the Register of Final Theses (hereinafter referred to as EZP). Access to the EZP is via the website: <a href="http://kniznica.uniza.sk/ezp">http://kniznica.uniza.sk/ezp</a> . UNIZA sends the thesis in electronic form to the Central Register of Final, Rigorous and Habilitation Theses (CRZP), where the degree of originality of the submitted thesis is verified. A doctoral student submits an application to the Dean for permission to defend his or her dissertation in accordance with the study schedule if he or she has obtained the prescribed number of credits. Together with the dissertation thesis, the relevant opinions of opponents, supervisors, supervisors of final theses or rigorous theses, reviewers or other persons are also sent in electronic form, and these opinions are stored in the Central Register of Final, Rigorous and Habilitation Theses together with the relevant thesis for the period of its storage. Further details are regulated by Directive No. 215 – Directive on Final, Rigorous and Habilitation Theses in the Conditions of the University of Žilina.</p> <p>After receiving all the reviews from the opponents, the Dean forwards the doctoral student's application for permission to defend the dissertation together with all the requisites, including the opponents' opinions, to the chairman of the defence committee and the chair proposes to the dean the time and place of the defence of the dissertation. The dissertation together with its defense form one subject. The defence of the dissertation is a state examination and in the standard length of study, the doctoral student must complete it no later than in the last month of the last academic year of his/her standard length of study. The defence of the dissertation takes place in the form of a scientific debate. The defence may take place only in the presence of at least two-thirds of the number of members of the defence committee entitled to vote, including at least two opponents, while at least one member of the committee must be from a workplace outside UNIZA.</p>

	<p>After the end of the defence, a closed meeting of the commission is held, which is attended by its members, including opponents and the supervisor. At a closed session, the course and result of the defence and the possibility of using the results of the dissertation in practice will be evaluated. At the same time, the commission and the opponents will decide in a secret ballot whether the commission will propose to award the doctoral student with an academic degree. Subsequently, the committee evaluates the defence of the dissertation with a grade, while the classification is carried out according to the classification scale specified in Directive No. 110 Study Regulations for the 3rd level of higher education at the University of Žilina. The proposal for awarding or not awarding an academic degree to a doctoral student together with the minutes and file material of the doctoral student is submitted by the chairman of the defence committee to the dean. After a positive assessment of the proposal of the dissertation defence committee for awarding or not awarding the academic title "Doctor" to a doctoral graduate, the Dean submits to the Rector documents on the completion of the study. The academic title "doctor" ("philosophiae doctor", abbreviated as "PhD.") is awarded by UNIZA with effect from the date of the successful defence of the dissertation.</p> <p><a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>Documents on the completion of the EaM doctoral study programme in the field of electrical engineering are a university diploma, a state examination certificate and a diploma supplement. Documents on completion of studies are usually handed over to the doctoral student by the dean at the graduation ceremony, organized according to the traditions and customs of UNIZA.</p>
k	<p><b>Opportunities and procedures for participation in student mobility</b></p>
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 219 – Mobility of students and employees of the University of Žilina abroad.</p> <p><a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, student mobility within doctoral studies is highly supported, and it is recommended to implement it after passing the dissertation exam (after about 18 months from the start of study). For the implementation of mobility, the student can obtain additional credits according to the rules set out in the Guide to Doctoral Studies at FEIT and also in the Dean's Decision on the Organization and Administrative Support of the 3rd Level of Study at FEIT UNIZA.</p> <p><a href="https://feit.uniza.sk/doktorandske-studium-sprievodca/">https://feit.uniza.sk/doktorandske-studium-sprievodca/</a>  <a href="https://feit.uniza.sk/studenti/studium-v-zahranici/">https://feit.uniza.sk/studenti/studium-v-zahranici/</a>  <a href="https://feit.uniza.sk/oznamy-pre-doktorandov/">https://feit.uniza.sk/oznamy-pre-doktorandov/</a></p>
l	<p><b>Rules for adherence to academic ethics and drawing consequences</b></p>
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 207 – Code of Ethics of the University of Žilina and Directive No. 201 – Disciplinary Code for Students of the University of Žilina.</p> <p><a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>A Disciplinary Committee has been established at the faculty level, which discusses specific suggestions and misdemeanours of students in accordance with Directive No. 201.</p> <p><a href="https://feit.uniza.sk/disciplinarna-komisia/">https://feit.uniza.sk/disciplinarna-komisia/</a></p>
m	<p><b>Procedures applicable to students with special needs</b></p>
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 198 – Support for Applicants and Students with Special Needs at the University of Žilina and Directive No. 110 Study Regulations for the 3rd Level of Higher Education at the University of Žilina.</p> <p><a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>Detailed information for students can be found on the website:  <a href="https://www.uniza.sk/index.php/studenti/vseobecne-informacie/studenti-so-specifickymi-potrebami">https://www.uniza.sk/index.php/studenti/vseobecne-informacie/studenti-so-specifickymi-potrebami</a></p> <p>At the faculty level, the coordinators and contact persons are:  doc. Ing. Mariana Beňová, PhD. (Vice-Dean for Education), <a href="mailto:mariana.benova@uniza.sk">mariana.benova@uniza.sk</a>  Bc. Emília Pekarová, (Education Officer), <a href="mailto:emilia.pekarova@uniza.sk">emilia.pekarova@uniza.sk</a></p>
n	<p><b>Procedures for filing complaints and appeals by the student</b></p>

	<p>At the university level, the processes, procedures and structures are defined by Directive No. 110 Study Regulations for the 3rd level of higher education at the University of Žilina.  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, through the published e-mail contacts of the responsible persons, through students represented in the student part of the FEIT Academic Senate and via the link We will advise you: <a href="https://feit.uniza.sk/studenti/poradime-vam/">https://feit.uniza.sk/studenti/poradime-vam/</a> or Link for the Dean: <a href="https://odkaz.feit.uniza.sk/">https://odkaz.feit.uniza.sk/</a></p>
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<b>5.</b>	<b>Study Programme Subject Information Sheets (in the structure according to Decree No. 614/2002 Coll.)</b>
	ILPs can be found in the e-learning system after selecting the faculty, form of study and the study program itself under the name of the subject at: <a href="https://vzdelavanie.uniza.sk/vzdelavanie/plany.php">https://vzdelavanie.uniza.sk/vzdelavanie/plany.php</a>

<b>6.</b>	<b>Current academic year schedule and current schedule</b>	
	Academic calendar	<a href="https://feit.uniza.sk/akademicky-kalendar-pre-doktorandov-feit/">https://feit.uniza.sk/akademicky-kalendar-pre-doktorandov-feit/</a>
	Current schedule	<a href="https://vzdelavanie.uniza.sk/vzdelavanie/rozvrh2.php">https://vzdelavanie.uniza.sk/vzdelavanie/rozvrh2.php</a>

<b>7.</b>	<b>Staffing of the study programme</b>		
a	<b>Name, surname and titles of the person responsible for the implementation, development and quality of the study programme (guarantor).</b>		
	<p>Name, surname, titles: <b>prof. Ing. Dušan Pudiš, PhD.</b>          Function: Head of the Department of Physics          contact (mail, tel.): <a href="mailto:dusan.pudis@feit.uniza.sk">dusan.pudis@feit.uniza.sk</a>; 041/513 2300</p>		
b	<b>List of other persons responsible for the implementation, development and quality of the study programme (co-guarantors).</b>		
	<p><b>prof. Mgr. Ivan Martinček, PhD.,</b> KF FEIT UNIZA  <b>prof. RNDr. Jozef Kúdelčík, PhD.,</b> KF FEIT UNIZA  <b>doc. Ing. Daniel Káčik, PhD.,</b> KF FEIT UNIZA  <b>doc. Ing. Norbert Tarjányi, PhD.,</b> KF FEIT UNIZA</p>		
c	<b>List of all persons providing profile subjects of the study programme</b>		
	Name, surname and titles of the teacher in the position of associate professor or professor	Profile Subject	Additional information
	<a href="#">doc. Ing. Daniel Káčik, PhD.</a>	Fiber optics and optical sensors	3D0C009
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Solid State Physics	3D0C003
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Physical Acoustics and Acoustic Diagnostics	3D0C004
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Materials and material structures	3D0C006
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Materials Analysis Methods	3D0C007
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Technologies in electronics	3D0C008
	<a href="#">prof. Mgr. Ivan Martinček, PhD.</a>	Fiber optics and optical sensors	3D0C009
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Solid State Physics	3D0C003

	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Laser technologies	3D0C005	
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Materials Analysis Methods	3D0C007	
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Technologies in electronics	3D0C008	
	<a href="#">doc. Ing. Ľuboš Šušlik, PhD.</a>	Laser technologies	3D0C005	
	<a href="#">doc. Ing. Norbert Tarjányi, PhD.</a>	Laser technologies	3D0C005	
	<a href="#">doc. Ing. Norbert Tarjányi, PhD.</a>	Technologies in electronics	3D0C008	
<b>d</b>	<b>List of all teachers (including doctoral students) of the study programme</b>			
	Teacher's name, surname and titles	Subject of the study programme	Additional information	The organizational form that the university teacher provides (P,C,L,T)
	<a href="#">doc. Ing. Daniel Káčik, PhD.</a>	Fiber optics and optical sensors	3D0C009	Lectures, exercises
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Solid State Physics	3D0C003	Lectures, exercises
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Physical Acoustics and Acoustic Diagnostics	3D0C004	Lectures, exercises
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Materials and material structures	3D0C006	Lectures, exercises
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Materials Analysis Methods	3D0C007	Lectures, exercises
	<a href="#">prof. RNDr. Jozef Kúdelčík, PhD.</a>	Technologies in electronics	3D0C008	Lectures, exercises
	<a href="#">prof. Mgr. Ivan Martinček, PhD.</a>	Fiber optics and optical sensors	3D0C009	Lectures, exercises
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Solid State Physics	3D0C003	Lectures, exercises
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Laser technologies	3D0C005	Lectures, exercises
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Materials Analysis Methods	3D0C007	Lectures, exercises
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Technologies in electronics	3D0C008	Lectures, exercises
	<a href="#">prof. Ing. Dušan Pudiš, PhD.</a>	Basics of scientific work	3D0E0E1	Lectures, exercises
	<a href="#">doc. Ing. Ľuboš Šušlik, PhD.</a>	Laser technologies	3D0C005	Lectures, exercises
	<a href="#">doc. Ing. Norbert Tarjányi, PhD.</a>	Laser technologies	3D0C005	Lectures, exercises
	<a href="#">doc. Ing. Norbert Tarjányi, PhD.</a>	Technologies in electronics	3D0C008	Lectures, exercises
<b>e</b>	<b>Student representatives who represent the interests of students in the study program</b>			
	Student's name, surname and titles		Contact	
	Ing. Daniel Mrena, 3rd year student		SP Council: <a href="https://feit.uniza.sk/fakulta/organy-fakulty/">https://feit.uniza.sk/fakulta/organy-fakulty/</a>	
<b>f</b>	<b>Study Programme Advisor</b>			
	Name and surname: <b>RNDr. Jana Ďurišová, PhD.</b> Mail: <a href="mailto:jana.durisova@uniza.sk">jana.durisova@uniza.sk</a> Tel: 041/513 2312			
<b>g</b>	<b>Other support staff of the study programme (e.g. assigned study officer, career counsellor, administration, accommodation department, etc.)</b>			
	Area of responsibility / Competencies: <b>Department for Education</b> , study agenda. Name and surname: <b>Bc. Viera Beláková and Bc. Emília Pekarová</b> tel.: +421 41 513 2064, 2063 E-mail: <a href="mailto:studref@feit.uniza.sk">studref@feit.uniza.sk</a>  UNIZA Accommodations: <a href="https://www.uniza.sk/index.php/studenti/prakticke-informacie/ubytovanie">https://www.uniza.sk/index.php/studenti/prakticke-informacie/ubytovanie</a> Accommodation section, responsible person: <b>Renáta Šoková</b>			

tel.: +421 41 513 1471  
E-mail:

[renata.sokova@uniza.sk](mailto:renata.sokova@uniza.sk)

## 8. Spatial, material and technical provision of the study programme and support

### a **List and characteristics of the study programme classrooms and their technical equipment with assignment to the outcomes of education and subject** (laboratories, project and art studies, workshops, science and technology parks, technology incubators, school enterprises, practice centres, training schools, teaching and training facilities, sports halls, swimming pools, sports grounds)

At the university level, the processes and procedures are defined by Directive No. 218 on the collection of information: [https://uniza.sk/index.php?option=com\\_content&view=article&id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&catid=2](https://uniza.sk/index.php?option=com_content&view=article&id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&catid=2)

The material and technical provision is based on the long-term direction of the department and the needs of the study of photonics are sufficient. From the material and technical point of view, the study program Photonics is mainly provided by the members and infrastructure of the Department of Physics. Long-term research tasks in the field of photonics are being developed here, which is also related to the developed infrastructure in terms of technological and material equipment. For the purpose of introducing the Photonics study programme, the Department will provide technological and diagnostic laboratories mainly for individual forms of study in the final year. We currently have the Laboratory of Laser Technologies, the Laboratory of Optics, the Laboratory of Acoustics, the Laboratory of Partial Discharges, and the Laboratory of Microscopy. These laboratories are equipped with the latest technologies and diagnostics for photonics.

The laboratories include a unique interference lithography enabling the preparation of planar photonic structures with a period of up to 275 nm and different symmetry, near-field lithography for the preparation of planar photonic structures with various non-periodic predefined shapes with a resolution of up to 300 nm, direct laser beam marking lithography. In the laboratories there is a unique near-field microscope with a resolution of 300 nm for the characterization of extremely small optical fields. In addition to these techniques, optical microscopes with a CCD camera and a number of optical components through mirrors, dividers, stands and holders, filters are standard everywhere. Everything is placed on active optical tables. The laboratories include electronic devices such as DC voltage sources, signal generators, oscilloscopes, multimeters. From optical instruments, there are several dozen lasers from simple laser modules to high-end gas lasers with great coherence in the wavelength range from ultraviolet to infrared. We have several spectrometers and monochromators covering the area from 350 nm to 2100 nm. The workplace has an atomic power microscope and a confocal microscope. Part of the equipment consists of fiber radiation sources at 1310 and 1550 nm, Anritsu spectrum analyzer 600-1600nm. At the workplace, there are several micro- and nanoposition devices controlled electronically with a resolution of 5 nm with movement in multiple axes.

A special group of technologies is represented by devices in the University Science Park located in the Photonics Laboratory. Unique in Central Europe is laser 3D lithography with a resolution of 150 nm, which enables the shaping of 3D structures in polymers. In addition, the laboratory also includes an electron microscope with an ion beam for processing materials and electron lithography. There are also modern measuring optical spectrometers and detectors.

The material equipment also includes standard teaching laboratories with a focus on basic optics and new laboratories that were established as part of the project for the establishment of the Photonics study program, where there are standard instruments and equipment for the demonstration of optical and photonic tasks for students of bachelor's and master's studies. The laboratories are equipped with optical and electrical signal sources, detectors, optical fibers, fiber breaking kits, oscilloscopes, and small electronic and optical materials.

In addition to the Department of Physics, the Department of Telecommunications and Multimedia, the Department of Mechatronics and Electronics and the Aurel Stodola Institute in Liptovský Mikuláš participate in the implementation of the study program. These workplaces offer professionally equipped laboratories with image processing systems, Raman spectrometer, ellipsometer and equipment for network and fiber optic analysis for education.

Out of a total of 58 university-wide classrooms, 13 are lecture classrooms with a capacity of 100 to 250 seats, 26 classrooms with a capacity of 40 to 90 seats. 52 classrooms are fully equipped with computer and didactic technology (data projectors, visualizers...) and connection to a computer network.

University-wide classrooms are registered at: <https://vzdelavanie.uniza.sk/vzdelavanie/rozvrh2.php>. These classrooms are provided by the scheduling department, which assigns them to individual study programmes and subjects according to the number of students and the requirements of the faculties/departments. The technical equipment of these classrooms is presented in the form of virtual tours. More information is available at: <https://fyzika.uniza.sk/>. All classrooms are suitable for physically disabled students.

FEIT also has virtual tours of laboratories with a description of material and technical equipment for:

<http://priestory.uniza.sk/feit/index.html>

Scientific laboratories:

	<p>This includes technological and diagnostic laboratories mainly for individual forms of study in the final year. We currently have</p> <p>Laboratory of Laser Technologies (BB406),  Laboratory of Optics (BB 421),  Laboratory of Acoustics (BB 422),  Laboratory of Partial Discharges (BB 422),  Laboratory of Microscopy (BB 426)  Photonics Laboratory (University Science Park)  Materials Laboratory (AB 109)</p> <p>These laboratories are equipped with the latest technologies and diagnostics for electro-optics. These are spacious laboratories in the premises of the Department of Physics. The capacity is for smaller groups of students (up to 10).</p> <p>Laboratories for laboratory exercises</p> <p>To ensure laboratory exercises, laboratories that have been built for a long time will also be included, where there are standard and latest instruments and equipment for demonstrating optical and photonic tasks for students of both engineering and bachelor's studies. One of these laboratories is located on the ground floor and the other in the new premises of the department. The laboratories are standardly equipped with separate workplaces with built-in tasks, a data projector and other didactic aids. It is also planned to partially use the existing physics laboratories (AB 104, AB 105, AB 107, AB 110, BJ 002), which are used by the department to provide physics teaching for bachelor's degree programs of students of the University of Žilina. These are equipped with separate workplaces and their own electrical wiring for each workplace. Also, each workplace has its own computer. The capacity of these premises is from 12 to 20 people.</p> <p>Laboratories for seminar and computational exercises.</p> <p>For seminar exercises and computational simulation exercises, a computer laboratory (AB 112) with 8 computers is available. In addition to these, for the purposes of seminar exercises, the above-mentioned common seminar premises of the university with a number of seminar classrooms are available.</p>
b	<p><b>Characteristics of the information provision of the study programme (access to study literature according to course information sheets), access to information databases and other information sources, information technologies, etc.</b></p>
	<p><b>At the university level, the processes, procedures and structures are defined by Directive No. 218 - Directive on the collection, processing, analysis and evaluation of information to support the management of study programmes:</b>  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>The basic information system supporting the process of education and teaching at the University of Žilina (ŽU) is the Academic Information and Education System (AIVS). AIVS is available to students from the university domain and from the Internet, while the university WiFi network supports EDUROAM.</p> <p>Currently, AIVS covers the entire life cycle of a student of a study program, from the submission of the application to the state exam and activities related to the completion of studies at the university. AIVS supports the management of the study agenda at faculties and other parts of the university at all levels, forms and types of higher education. Within each study programme, it is used to register applicants, students and graduates, to monitor study results, to support the credit system of study in accordance with Section 62 of Act 131/2002 Coll., to support the creation of a schedule, etc. It supports the generation of ECTS information packages (Section 20 (1) (e), activities related to the completion of studies (certificates, diplomas), as well as the processing of diploma supplements (Section 68 (1) (c).</p> <p>AIVS consists of several subsystems:</p> <p>a) Subsystem "Admission Procedure" – enables the processing of the application (electronic and classic), results and their evaluation, communication with the applicant (invitations, announcements and statements), processing of statistics for the Ministry of Education.</p> <p>(b) Education subsystem – consisting of the following modules:</p> <ul style="list-style-type: none"> <li>- Register of students;</li> <li>- study administration (study programmes, study plans, course information sheets),</li> <li>- enrolment in studies,</li> <li>- preparation of the teaching schedule and management of resources (classrooms, technical equipment),</li> <li>- administration of exams (announcing exam dates, registering for exams),</li> <li>- course of study - recording of study results, continuous evaluation of study results (Internal Directive No. 100 Rules for Continuous Evaluation of the Quality of Education Provided at the University of Žilina),</li> <li>- Study stays (mobility) - data are part of the Student Register and are exported to the Central Student Register</li> </ul>

	<p>c) Subsystem "Conclusion of Study" – consists of the modules "Final Theses" and "State Examinations".  The "Theses" module is aimed at supporting the following activities:</p> <ul style="list-style-type: none"> <li>- assignment of topics of final theses by the department or teacher,</li> <li>- selection of the topic of the final thesis by the student,</li> <li>- approval and confirmation of the topic and the student by the department,</li> <li>- export of basic data from AIVS to the local repository of the information system of final theses - EZAP (internal directive No. 103 on final theses),</li> <li>- handing over the finished thesis to the EZAP at the ŽU,</li> <li>- import of work status and compliance log data from EZAP.</li> </ul> <p>The "State Examinations" module allows:</p> <ul style="list-style-type: none"> <li>- the formation of state exam commissions by the department,</li> <li>- definition of state exam subjects,</li> <li>- enrolment in state exam subjects - graduating students,</li> <li>- distribution of students by days and commissions,</li> <li>- Record of exam results for individual state exam subjects, record of final thesis evaluation, on-line printing of the State Exam Record (to be signed by the State Exam Committee),</li> <li>- Diploma printing - carried out in study departments.</li> </ul> <p>For the preparation of the work, its submission to the EZAP and subsequent steps, the internal ŽU Directive No. 87 applies.</p> <p>The "UniApps" application allows you to access AIVS data and services from mobile devices with Android OS, in accordance with the university's concept of mobile technology deployment. The university encourages students to use their own mobile devices. UniApps provides access to information for full-time students at the 1st and 2nd level. The following functionalities are currently available:</p> <ul style="list-style-type: none"> <li>- schedule,</li> <li>- User profile,</li> <li>- exam dates,</li> <li>- registration for exams,</li> <li>- test results.</li> </ul> <p>E-learning:  At the university, e-Education is built on the basis of LMS Moodle. The organization of the courses is based on controlled study with the support of information and communication technologies in close connection with AIVS. E-learning has been used at the university since the academic year 2004/2005.</p>
c	<p><b>Characteristics and scope of distance learning applied in the study programme with assignment to subjects. Accesses, manuals of e-learning portals. Procedures for the transition from full-time to distance learning.</b></p>
	<p>Doctoral studies are carried out on an individual basis.</p>
d	<p><b>Partners of the submitter in the provision of educational activities of the study programme and the characteristics of their participation.</b></p>
	<p>Kvant s.r.o.  Sylex s.r.o.  ON Semiconductor Czech Republic, s. r. o.  Varroc Lighting Systems, s.r.o.  SEC Technologies s.r.o.</p> <p>Characteristics of participation: cooperation in scientific and research activities, participation in education – professional lectures, opportunities for professional practice and internships, topics of final theses for students, joint development activities on projects and student projects.</p> <p>Faculty-level partners: <a href="https://feit.uniza.sk/spolupraca-s-priemyslom/">https://feit.uniza.sk/spolupraca-s-priemyslom/</a></p> <p>University-level partners: <a href="https://uniza.sk/index.php#">https://uniza.sk/index.php#</a> in the "researchers and partners" tab.</p>
e	<p><b>Characteristics of the possibilities of social, sports, cultural, spiritual and social activities.</b></p>

	<p>At the university level, the possibilities of social, sporting, cultural, spiritual and social activities are described by Directive No. 217:  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>Information about the possibilities of social, sports, cultural and spiritual activities of UNIZA students:  <a href="https://uniza.sk/index.php#">https://uniza.sk/index.php#</a>  Especially in the "Students" tab</p> <p>Initial and summary information about all the basic facts necessary for a full-fledged academic life is provided to students in the form of an information manual (distributed on paper and electronically).  Students have the opportunity to participate in various interest or self-governing organizations at UNIZA – Gama Club, Council of Accommodated Students Veľký Diel, Council of Accommodated Students of Hlina, Internet Club, Student Television íTéčko, Club of Friends of Railways UNIZA, Dormitory Radios RAPEŠ and Radio X, Erasmus Student Network (ESN), University Club of Firefighting Sport UNIZA, OMNIA Choir, Folklore Ensemble STAVBÁR, University Pastoral Center at the University of Žilina.</p> <p>Sports activities are offered to students by the Institute of Physical Education - teaching the subject of physical education (23 sports), extracurricular sports activities, outdoor activities (rafting, cycling, skiing, windsurfing,...), organization of university competitions, regeneration (sauna). There are several sports facilities - FIT-CLUB HLINYV (Fitness center, aerobic hall, squash court, multipurpose field, regeneration complex, martial arts gym, climbing wall), FIT-CLUB VEĽKÝ DIEĽ (Fitness center, multipurpose hall, ricochet field, T18 gym Veľký Diel, gym Májová street, tennis courts, football grass field, athletic track). For those interested in performance sports, there are sections of the ACADEMIC UNIZA sports club. The Institute of Physical Education regularly organizes one-day and multi-day sports rafting courses (Soča, Salza, Váh, Hron, Belá), cycling stays associated with hiking, as well as winter ski courses (Low Tatras, Alps).</p> <p>The University Library provides a number of library services (lending services, interlibrary loan services, international lending services, bibliographic and information services, information consultancy, COPY centre, HandLab, 3D printing and others).</p> <p>The university operates EDIS – the UNIZA publishing house, offering the sale of study literature, promotional items, copying services, printing and binding of final theses, etc.</p> <p>Students obtain a student card, which entitles them to use several services such as an access system, catering system, external services outside the university (TRANSCARD – especially bus transport), university library, accommodation facility, LDAP account allowing access to information systems.</p> <p>On the university campus, within which the SP is provided, there are two accommodation facilities – Veľký Diel and Hliny, on the grounds of which there are sports, cultural, information and other interest facilities, associations and clubs and student organizations organized by or for students.</p> <p>Catering - students have the opportunity to use the services offered by the canteen, which provides meals in its 7 centers. Meals can be taken using a student card (student card).</p> <p>News about life at the university and especially at the faculty are provided to SP students through a special web portal FEIT City.</p> <p>As part of the Electrotechnology and Materials study program, the Photonics Day is organized annually for all students of Photonics with lectures and demonstrations of modern photonics and optics with the participation of graduates and industry and various other events in connection with the current situation.</p> <p>At the faculty level, there are other options, such as (in case of a favorable epidemic situation) FEIT Ball, FEIT Sports Day, Christmas Punch with the Dean, etc.</p>
f	<p><b>Possibilities and conditions for the participation of students in the study programme in mobilities and traineeships (with contact details), instructions for application, rules for the recognition of this education.</b></p>
	<p>At the university level, the processes, procedures and structures are defined by Directive No. 219 Mobility of Students and Staff of the University of Žilina Abroad.  <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>An Erasmus+ study stay or internship is already a natural part of studying at UNIZA. The priority of the UNIZA management is to send every student on Erasmus+ mobility, at least once during their university studies.</p> <p>Current and future FEIT students have the opportunity to study at approximately 70 higher education institutions with which the faculty has concluded a cooperation agreement, as well as to complete practical internships in companies and companies within the program countries.</p>

	<p>At the faculty level, detailed information for students is provided on the website:  <a href="https://feit.uniza.sk/studenti/mobilita-erasmus-2/">https://feit.uniza.sk/studenti/mobilita-erasmus-2/</a>          contact person: Mgr.Silvia Pirníková, e-mail: silvia.pirnikova@uniza.sk</p> <p>At the level of the EaM study programme, the coordinator is: doc. Ing. Daniel Káčik, PhD., e-mail: daniel.kacik@feit.uniza.sk</p>
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9.	Required Abilities and Prerequisites of the Applicant for the Study Programme
a	<p><b>Required abilities and prerequisites required for admission to study</b></p> <p><b>At the university level, the processes, procedures and structures are defined by Directive 206 – Principles and Rules of Admission to Study at UNIZA:</b> <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, the Academic Senate of the faculty has approved the Principles and Rules of Admission, which describes in detail all the required abilities and prerequisites necessary for admission to study of individual study programs at FEIT, including the study program Electrical Technology and Materials, and are available at:  <a href="https://feit.uniza.sk/studenti/doktorandske-studium/">https://feit.uniza.sk/studenti/doktorandske-studium/</a></p> <p>The application is submitted for a specific study programme and the applicant applies for a specific topic of the dissertation, which are published on the faculty website. If you are interested in more than one study programme, it is necessary to submit an application for each study programme separately with the payment of the relevant admission fee. Applicants fill in the electronic application form via the FEIT website (<a href="http://feit.uniza.sk/">http://feit.uniza.sk/</a> in the Applicants section) or the UNIZA <a href="https://vzdelavanie.uniza.sk/prijimacky/index.php">https://vzdelavanie.uniza.sk/prijimacky/index.php</a> website.</p> <p><b><i>Submission of a duly completed application within the set deadline and payment of the admission fee within the specified deadline are a condition for the inclusion of the applicant in the admission procedure.</i></b></p> <p>The basic condition for admission to study in the third level of higher education at the Faculty of Electrical Engineering and Information Technology of the University of Žilina in Žilina is the acquisition of a second-level university education (Higher Education Act No. 131/2002 Coll., as amended) in the same or related study programme.</p> <p>In the case of a foreign applicant or student who has completed his/her studies abroad, he/she shall submit to the application for higher education at the latest for enrolment in study, a decision on the recognition of the document on completion of second-level higher education by the relevant institution in the Slovak Republic, or apply to UNIZA for the recognition of the document on education.</p>
b	<p><b>Admission Procedures</b></p> <p><b>At the university level, the processes, procedures and structures are defined by Directive 206 – Principles and Rules of Admission to Study at UNIZA:</b> <a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>At the faculty level, the Academic Senate of the faculty has approved the Principles and Rules of Admission, which describes in detail all the required abilities and prerequisites necessary for admission to study of individual study programs at FEIT, including the study program Electrical Technology and Materials, and are available at:  <a href="https://feit.uniza.sk/studenti/doktorandske-studium/">https://feit.uniza.sk/studenti/doktorandske-studium/</a></p> <p>The application is submitted for a specific study programme and the applicant applies for a specific topic of the dissertation, which is published on the faculty website: <a href="https://feit.uniza.sk/studenti/doktorandske-studium/">https://feit.uniza.sk/studenti/doktorandske-studium/</a></p> <p>The selection of applicants will take place in the form of an entrance examination, in which the applicants will attend in person. Applicants are invited to the entrance examination in writing with information about its course. The applicant is obliged to present an identity card during the entrance examination. The entrance examination takes place orally in the form of a debate.</p> <p>At the request of an applicant with special needs and based on the evaluation of his/her specific needs, the Dean will determine the form of the entrance examination and the manner of its conduct taking into account his/her specific needs and in accordance with Directive No. 198 Support for Applicants for Studies and Students with Special Needs at the University of Žilina.</p> <p>During the entrance examination, the following are assessed:</p> <ol style="list-style-type: none"> <li>a) the results of previous studies,</li> <li>b) language maturity,</li> <li>c) the applicant's previous publication activity,</li> </ol>

	<p>d) other activities of the applicant in the given field (ŠVOS, practice, professional internships,...),</p> <p>e) prerequisites for independent scientific work of the applicant in the field of the study programme in the form of a debate on the selected topic.</p> <p>The language maturity of the applicant and the applicant's overview in the given area of focus of the dissertation are evaluated by the qualification level A – excellent to FX – insufficiently. If an applicant obtains an FX rating in at least one of these evaluated areas – insufficiently, he or she has failed the entrance exam.</p> <p>Based on the results from all the assessed areas, the admissions committee compiles a ranking of successful applicants, which is recorded in the Minutes of the Admissions Procedure, which is archived at the Study Department of the Faculty.</p> <p>The final decision on admission/non-admission to doctoral studies in a given study programme is issued by the Dean of the Faculty on the basis of the results of the admission procedure, taking into account the order determined by the admissions committee and the capacity possibilities of the relevant study programme.</p>
<b>C</b>	<b>Results of the admission procedure for the last period</b>
	<p>Listed in the documents "Report on the evaluation of the quality of education at the FEIT faculty level" for individual academic years</p> <p><a href="https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101">https://www.uniza.sk/index.php/component/content/article/4273-sprava-o-hodnoteni-kvality-vzdelavania-na-urovni-fakulty-feit?catid=2:uncategorised&amp;Itemid=101</a></p> <p>a</p> <p>"FEIT Annual Reports" for each year, available:</p> <p><a href="https://feit.uniza.sk/fakulta/uradna-tabula/">https://feit.uniza.sk/fakulta/uradna-tabula/</a></p>

<b>10.</b>	<b>Feedback on the quality of education provided</b>
<b>a</b>	<b>Procedures for monitoring and evaluating students' opinions on the quality of the study programme.</b>
	<p>Regulated by Directive No. 223 Monitoring and periodic evaluation of study programmes:</p> <p><a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a></p> <p>Each academic year, the student has the right to comment on the quality of teaching, through <i>a questionnaire on the quality of the provided subject and on the quality of the teacher</i> (for subjects in the winter and summer semesters), through <i>a questionnaire on the quality of the study programme (at each level of study)</i>, through <i>a questionnaire for students with special needs</i>, through <i>a questionnaire on the quality of the admission procedure</i>.</p> <p>All the above surveys, as well as data collection, are carried out in the form of IS e-learning.</p> <p>The process of monitoring and periodic evaluation of study programmes is carried out at UNIZA at three levels:</p> <p>a) at the level of the Study Programme Council;</p> <p>b) at the level of faculties and institutes of UNIZA;</p> <p>c) at the level of the UNIZA Accreditation Board.</p> <p>Monitoring of the study programme in the conditions of UNIZA includes continuous monitoring and review of the learning process in the relevant study programme, implementation of planned activities aimed at improving the quality of education, achieving learning outcomes and goals, compliance with relevant legislation and other legal regulations and guidelines.</p> <p>The following are involved in the monitoring and periodic evaluation of the study programme:</p> <p>(a) internal stakeholders:</p> <p>i. UNIZA students through feedback at subject level and at the level of study programmes implemented on an annual basis;</p> <p>ii. teachers through regular annual evaluation of subjects and feedback mapping their perception of the teaching process on a three-year basis;</p> <p>(b) external stakeholders:</p> <p>i. UNIZA graduates through feedback mapping their entry into the labour market and adaptation in employment carried out on a three-year basis;</p> <p>ii. employers through feedback mapping the readiness of SP graduates for practice carried out on a three-year basis.</p> <p><b>Feedback from students:</b></p>

	<p>1. Feedback on the admission procedure and the process of adaptation to higher education is obtained through an anonymous questionnaire intended for all first-year students at all levels of study.</p> <p>2. Feedback on individual subjects is obtained through a regular semester anonymous questionnaire intended for all students of all levels of education. It maps the educational process to the teacher/subject level, the teacher's approach, the possibility of achieving learning outcomes and their connection with teaching and assessment methods, the specifics of the subject. In the case of several teachers providing a subject (e.g. lecture, exercise, etc.), one questionnaire is constructed per subject with a separate evaluation of individual teachers.</p> <p>3. Feedback at the level of the study programme is obtained through a regular anonymous questionnaire intended for students of the final years of all levels of education. It is used to map the entire study program, including the content of education, the organization of education, and access to counseling and other services during study.</p> <p>Students are invited to fill in questionnaires in the Feedback on the Admission Procedure and Feedback on Individual Subjects or professional guarantors of the study programme in the Feedback at the level of the study programme. The application for completion shall include information on the place of publication of the previous results of the monitoring and periodic evaluation.</p> <p>The results of the feedback on the education provided and the identified opportunities for improvement are subsequently analysed, evaluated and are the basis for the creation of the Study Programme Evaluation Report within the periodic evaluation of the study programme by the Study Programme Council.</p> <p><b>Alumni feedback:</b> Feedback from graduates of study programmes maps the effect and impact of completed higher education at the relevant level. The anonymous questionnaire is intended for all graduates who have completed their studies in a given study programme in the last three years.</p> <p>The general set of questions consists of items organized at least into topics:</p> <ul style="list-style-type: none"> <li>a) Sphere of application;</li> <li>(b) Transition to employment;</li> <li>c) Relevance of the study in relation to employment, subject composition, comparison of knowledge, skills and competences acquired during the study and required by practice;</li> <li>d) The need for further education.</li> </ul> <p>Graduates are asked to fill out a questionnaire through the Study Programme Council in cooperation with the Dean of the Faculty. The application shall include information on the place of publication of previous monitoring and periodic evaluation results.</p> <p>The guarantor of the study programme analyses the data from the feedback obtained, identifies possibilities and suggestions for strengthening strengths, eliminating identified weaknesses and possible threats.</p> <p>The results of the feedback on the implemented education and the identified opportunities for improvement are subsequently analysed, evaluated by the Study Programme Council and are the basis for the creation of the Study Programme Evaluation Report within the periodic evaluation of the study programme by the Study Programme Board.</p>
b	<p><b>Results of student feedback and related measures to improve the quality of the study programme</b></p>
	<p>The results of student feedback are evaluated through the indicators of the UNIZA Internal Quality Assurance System:</p> <ul style="list-style-type: none"> <li>Uscl10 - Student Satisfaction Rate with Subject Teaching – Comprehensive</li> <li>Uscl11 – Student Satisfaction Rate with Teaching Quality (Teaching Methods and Assessment Methods)</li> <li>Uscl12 - Student Satisfaction Rate with Teacher Quality (Access, Preparation)</li> <li>USCL13 – Student Satisfaction Rate with Specific Needs</li> <li>USCL16 - Availability of Resources Planned in Course Fact Sheets</li> <li>Uvzdal 2 - Degree of satisfaction with adaptation to university studies</li> <li>UVZDEL9 - Academic Fraud Prevention Rate</li> <li>Uscl17 - Degree of satisfaction with the preparation and course of the internship/internship</li> <li>Uscl20 - Degree of satisfaction of students in their final years with the quality of the study program</li> <li>Uscl21 - Degree of Consistency and Impact of Education</li> <li>Output 2 - Degree of readiness of graduates for practice in terms of competences (Indicator evaluated from the Alumni Survey, which takes place every 3 years)</li> </ul>

	<p>Output 1- Employability rate of graduates of the study programme (Indicator evaluated by the Ministry of Education, Science, Research and Sport for the calendar year in which AR started)</p> <p>Output 3 - Employers' satisfaction with the educational outcomes of the study programme (Indicator evaluated from a survey among employers every 3 years)</p> <p>These indicators are evaluated in annual evaluation reports at degree programme, faculty and university level. Individual evaluation reports are discussed and in the case of significant deficiencies, consequences are drawn at the level of the Study Programme Board, at the level of the Dean's College and at the level of the UNIZA Accreditation Council.</p> <p><a href="https://www.uniza.sk/index.php/hodnotiace-spravy">https://www.uniza.sk/index.php/hodnotiace-spravy</a></p>
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<b>11.</b>	<b>Links to other relevant internal regulations and information related to the study or the student of the study programme (e.g. study guide, accommodation rules, fees directive, student loan guidelines, etc.).</b>	
	<b>Prescription Name</b>	<b>Link</b>
	Relevant internal regulations of UNIZA	<a href="https://www.uniza.sk/index.php/univerzita/vseobecne-informacie/uradna-tabula">https://www.uniza.sk/index.php/univerzita/vseobecne-informacie/uradna-tabula</a>
	Internal regulations of VSK UNIZA	<a href="https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2">https://uniza.sk/index.php?option=com_content&amp;view=article&amp;id=4131:smernice-pre-vnutorny-system-kvality-uniza-2&amp;catid=2</a>