

STUDY PROGRAMME TITLE	ELECTRONIC ENGINEERING
National code	653H61002
Type of study programme	Higher education college studies
Study cycle	First
Study area	Technological sciences
Study field	Electronic engineering
Minimum access requirements	Secondary education
Mode of studies (duration in years)	Full-time studies (3 years) Part-time studies (4 years)
Scope in credits	180 credits
DEGREE AND (OR) PROFESSIONAL QUALIFICATION AWARDED	PROFESSIONAL BACHELOR IN ENGINEERING
GRADUATION DOCUMENTS	PROFESSIONAL BACHELOR DIPLOMA AND DIPLOMA SUPPLEMENT
Study programme aim	<ul style="list-style-type: none"> • To train specialists who would acquire necessary knowledge and skills to design, install, adjust, maintain, and control electronic devices and systems; • To train specialists who would know the standards and guideline particularities of the electronic device and system manufacturing and maintenance; • To train specialists who would be capable to organize and manage the business in Electronics field.
Reasons to choose the study programme	<p>Electronics is one of the most rapidly developing branch of engineering industry. We encounter various electronic products and sophisticated electronic systems everywhere. It makes a person's life easier and ensures more comfort and safety in our environment. Electronics itself includes the management of manufacturing as well as processes; without which we cannot imagine telecommunications, energy, various transport (land, air and water), medical equipment, military industry etc.</p> <p>The main reasons for choosing this study program could be the following:</p> <ul style="list-style-type: none"> • Studies are focused on theoretical and especially practical activities because its contents are based on the real needs necessary for the engineer qualification; • Studies are organized in concentrated and intensive way, the skills are formed at modern laboratories; • Lecturers are experts in their fields; every subject is taught by the ones who have specific practical knowledge in the given area; • Native and foreign lecturers from this industry share their "know how" with program students and staff to improve their skills; • There is a possibility to gain international experience participating in Erasmus+ program; • There is a possibility to acquire double degree by learning one year in the University of Applied Sciences Schmalkalden (Germany).

SUBJECTS

SEMESTERS

I	II	III	IV	V	VI
GENERAL SUBJECTS OF COLLEGE STUDIES					
Foreign language, Physical training 1	Foreign language, Physical training 2	Philosophy/ sociology, Physical training 3	Physical training 4	Law	1. Business economics and management, 2. Project management, 3. Environment and human safety, 4. Business ethics/ Professional communication
CORE AND COMPULSORY SUBJECTS					
1. Mathematics 1, 2. Physics, 3. Information technologies, 4. Mechanics, 5. Electronic and electrical assembly practice, 6. Electrical materials and electronic components	1. Mathematics 2, 2. Electrical engineering, 3. Basics of measurements and metrology, 4. Engineering graphics and computer-aided drawing, 5. Logical circuits	1. Programming of computer equipment, 2. Mechatronics, 3. Design of electronics technique and production technologies	1. Professional practice, 2. Semester work (ET), 3. Microprocessors, 4. Power sources	1. Technological practice, 2. Professional bachelor graduation theses 1	1. Final practice, 2. Professional bachelor graduation theses 2, 3. Communications of electronic systems

SPECIALIZATION SUBJECTS

Specialization I: DESIGN AND MANUFACTURING OF ELECTRONIC EQUIPMENT

			Design of printed circuit boards	<ol style="list-style-type: none"> 1. Embedded systems, 2. Programmable logic devices, 3. Digital TV and mobile technologies 	
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Specialization II: MAINTENANCE OF BUILDING AUTOMATION SYSTEMS

			Automation of audio and video systems	<ol style="list-style-type: none"> 1. Visualization and control, 2. Automation of building engineering systems, 3. Security and fire protection systems 	
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Specialization III: AUTOMATED SYSTEMS AND ROBOTICS

			Robotics 1	<ol style="list-style-type: none"> 1. Electrical machines and drivers 2. Programmable controllers 3. Robotics 2 	
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IV specialization: TELECOMMUNICATIONS

			Signal transmission and reception	<ol style="list-style-type: none"> 1. Data transmission networks and services, 2. Wireless and mobile networks, 3. Optical communications 	
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Specialization electives in the study field (branch)

		<p>Analogue circuits, Power electronics devices, Internet of Things (IoT), Security of telecommunications networks and data</p>			
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OPTIONAL SUBJECTS

A STUDENT SELECTS OPTIONAL SUBJECTS FROM THE LIST, WHICH IS APPROVED EVERY ACADEMIC YEAR

Practices	<ul style="list-style-type: none"> • Electronics and Electrical Assembly - performed at the college; • Professional - performed at the college; • Technological - performed at the enterprises engaged in the activities of electronic area; • Final - performed at the enterprises engaged in the activities of electronic area
Learning outcomes	<p>Knowledge and abilities</p> <ul style="list-style-type: none"> • Be well-versed in the general patterns and laws of the natural sciences and mathematics required for the understanding of the fundamentals of electronic engineering; • Know the key concepts of electronic engineering and understand their content; • Possess the fundamental knowledge of electronic engineering of key importance in practical work; • Be acquainted with the context of the issues and solutions of the contiguous fields of science. <p>Engineering analysis</p> <ul style="list-style-type: none"> • Engineering through creative application of familiar methods • Be able to apply their subject matter knowledge and understanding for the solution of the problems of electronic engineering while creatively applying the mastered methods; • Be able to apply their knowledge and understanding when dealing with engineering challenges and select the appropriate methods, testing tools and manufacturing equipment; • Be able to apply analytical and modelling methods when dealing with the engineering problems in the field of electronics. <p>Design works</p> <ul style="list-style-type: none"> • Be able to apply knowledge and understanding of electronic engineering when outlining and implementing, design tasks within the framework of the outlined requirements; • Understand the methodology of the design of electronic equipment and apply it in practice. <p>Applied research</p> <ul style="list-style-type: none"> • Be able to find the required professional information by using databases and other sources of academic and engineering information; • Be able to conduct experiments required for solving engineering tasks of electronic engineering, process their results and present practical conclusions on the basis of the obtained results; • Possess skills of operating the technological equipment used in electronic engineering. <p>Engineering tasks</p> <ul style="list-style-type: none"> • Be able to suggest optimal engineering solutions and select the appropriate strategies and technological equipment required for the implementation of these solutions; • Be able to combine theoretical and applied knowledge when dealing with the issues of electronic engineering; • Understand the ethical, environmental and commercial aspects of the engineering activity; • Understand the principles of organizing engineering activity and be familiar with the fundamental requirements of work and fire safety. <p>Personal and social abilities</p> <ul style="list-style-type: none"> • Be able to deal with engineering issues independently and in a multi-profile group (team); • Be able to communicate with the engineering community and the entire society; • Realize the impact of engineering solutions for the society and the environment, adhere to professional ethics and the regulations of engineering activity, understand their responsibility for the outcomes of their engineering activity; • Be familiar with the key aspects of project implementation and management at the level of engineering activity; • Understand the importance of lifelong individual professional development and be ready for constant improvement
International mobility possibilities	<p>Students have a possibility to study</p> <p>1) according to Erasmus+ student mobility program at higher education institutions of Austria, Check Republic, Denmark, Estonia, Latvia, Poland, Germany, Hungary, Malta, Portugal and Turkey,</p> <p>2) under a double degree agreement at the University of Applied Sciences Schmalkalden (Germany), as well as to perform Erasmus+ practices at foreign companies</p>
Career possibilities	<p><i>Design and manufacturing of electronic equipment</i> – graduates can work as designers of electronic devices and systems and specialists at business enterprises. Necessary skills for understanding projects as well as “know how” to design simple and embedded schemes are provided. The graduate will be able to work at manufacturing company, organize its activities, apply technological processes and solve problems.</p> <p><i>Automated process control and robotics</i> – engineering specialists will be able to work as equipment technicians, install and operate manufacturing lines and other automation processes controlled by computer-aided systems. They will be able to work as machine, line operators and complex products assemblers.</p> <p><i>Maintenance of building automation systems</i> – graduates will be able to design, install and operate smart building control systems and computer-assisted systems. They will be able to design, install and operate fire protection, video watch and alarm systems. Skills are provided to work in the area of building engineering systems automation.</p> <p><i>Telecommunications</i> - graduates can work in ICT sector companies as telecommunication network designers, optical, wireless and mobile network equipment installers and operators, computer network administrators.</p> <p>Graduates can work as electronic systems installers, testers, designers, electronic systems project managers, electronics department heads, engineers in various electronics companies, or start their own businesses.</p>
Access to further studies	Graduates may continue studies at the university and acquire Master’s degree
Final assessment	Graduation thesis