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WP2 – DEVELOPMENT OF THE NEW BSc PROGRAM

Vilnius Gediminas Technical University

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Requirements for the study program

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Study program (Uzbek, English)	MECHATRONICS AND ROBOTICS
Program State Code	
Field of study	Technological sciences
Field of study	Manufacturing Engineering
Type of study program	University
Degree of study	Bachelor
Form of studies (duration in years)	Continual studies (4 years)
Volume of the study program in credits	240
Minimum education of the entrant	Secondary education
Degree and / or professional qualification to be awarded	Bachelor‘s degree of Engineering Sciences
Language of execution of the program	Uzbek, English

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EXECUTION OF THE STUDY PROGRAM

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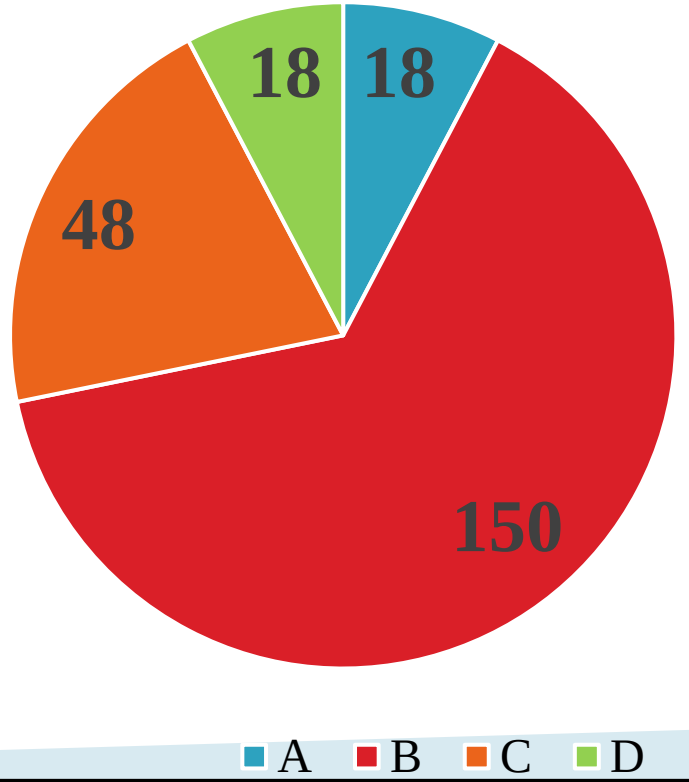
Area if disciplines

A – General studies

B – Part of the subject of the study field

C – Part of the subject specialization

D - Preparation, formalization and defense of the final work (project)



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Ability to research

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- Implementing achievements and methods of mathematics and nature sciences to solve problems of engineering.
- Understand newest engineering technologies, recognize and analyze implementation and utilization possibilities.
- Interpretation results, sort data by its importance in order to perform design, control, production and technical maintenance of mechatronic and robotic systems.
- Abilities to understand advantages and disadvantages of chosen materials, processes and technologies. Ability to apply experimental methods.

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Engineering Analysis

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- Adjusting theory and practical skills; performing laboratory and experimental research.
- Analyzing problematic situations and finding alternative ways of such task solution, understanding consequences of solution to environment and society welfare.
- Ability to perform analysis of separate, complex and parenthetic mechatronic systems and evaluation of parameters.
- Ability to analyze, diagnose and forecast damages, compound and parenthetic robotic systems.
- Ability to analyze various methods of construction joints, used and estimated to use construction materials.

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Engineering Skills

- Ability to combine theory and practice elements in solving engineering problems
- Ability to assess the situation and take right engineering solutions
- Ability to evaluate shape of mechatronic system by performing diagnostic and troubleshooting
- Ability to control existing robotic systems, to choose right components, to prepare them for manufacturing by programming and combining reciprocity of mechanisms
- To evaluate and choose correct materials for equipment and products

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Benefits of the Study Program

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- The university gathers a larger number of students
- The prestige of the university is rising
- The competence of teachers is rising
- International scientific activity is emerging
- There is an additional attraction for international students

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- Studies in English and Uzbek
- Opportunity to learn from the best experts in the field
- Ability to work with the latest high-tech equipment
- Dating with students and teachers from all over the world

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Perspectives of Study Program

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- A team of high-level teachers
- Carefully prepared study program
- Excellent material preparation
- The methodological provision of the study program has been prepared
- Popular and attractive study program content
- Job opportunities in Europe and the world

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Perspectives of Study Program

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- Opportunity to interact with an international team of teachers and gain the latest knowledge in the field of mechatronics
- The advantages of studying in English are the abundance of literature, the opportunity to communicate in English as a *lingua franca*
- Communication and acquaintances, work in joint projects, possibility of master's and doctoral studies

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Implementation of WP2

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- Similar study programs in European higher education institutions are reviewed
- A curriculum for the program has been developed

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WP 2 still needs to be implemented

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- Adjustment of the study program description according to the requirements of the Ministry of Education of Uzbekistan
- Training courses for professor from Uzbekistan in Lithuania and Portugal
- Accreditation of study program in Uzbekistan according national rules

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CURRICULUM

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Semester	Course Title	ECTS Credits	Hours/semester
1	Chemistry	6	45
	Physics 1	6	60
	Programming C	3	45
	Mathematics 1	6	60
	Introduction to Mechatronics and Robotics	3	30
	Human's Safety and Environmental Protection	3	45
	Law	3	30

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CURRICULUM

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Semester	Course Title	ECTS Credits	Hours/semester
2	General Engineering Graphics	6	60
	Physics 2	3	45
	Materials Science 1	3	45
	Mathematics 2	6	60
	Engineering Mechanics	6	60
	Management	3	45
	Cognitive Practice	3	15

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Semester	Course Title	ECTS Credits	Hours/semester
3	Fluid Mechanics and Thermodynamics	3	45
	Applied Engineering Graphics	3	45
	Materials Science 2	3	45
	Mathematics 3	6	60
	Theory of Mechanisms and Machines (with course project)	9	90
	Foreign Language	3	30
	Ethics/Formal Language *(free choice)*	3	30

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Semester	Course Title	ECTS Credits	Hours/semester
4	Electrical Engineering	3	45
	C++ Programming Language	6	60
	Machine Elements (with course project)	6	60
	Elements of Mechatronics	3	45
	Mechanics of Materials	6	60
	Speciality Foreign Language	3	30
	Free choice	3	30

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Semester	Course Title	ECTS Credits	Hours/semester
5	Electronics	3	45
	Automatic Control Systems (with course project)	6	60
	Electric Drives	3	45
	Theory and Practice of Measurements (with course project)	6	60
	Robotics	6	60
	Mechatronic Systems 1	3	45
	Philosophy of Technology/Politics and Technology (*Free choice*	3	30

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Semester	Course Title	ECTS Credits	Hours/semester
6	Materials in Mechatronics	3	45
	CAD/CAM/CAE	6	60
	Mechatronic Systems 2	6	60
	Robotical Technology	6	60
	Fundamentals of Economics (with course work)	6	45
	Free choice obligatory course	3	45

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Semester	Course Title	ECTS Credits	Hours/semester
7	Digital Automatics (with course project)	6	50
	Specific Purpose Language Culture	3	30
	Career Internship	12	0
	Bachelor Graduation Thesis 1	3	0
	Design of Mechatronic and CAD/CAM Systems. Integrated Project	6	30

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Semester	Course Title	ECTS Credits	Hours/semester
8	Industrial Logical Controllers	3	36
	Design of Mechatronic and Robotic Systems (with course project)	6	48
	Quality and Certification in the Automated Industry	6	48
	Bachelor Graduation Thesis 2	6	0
	Bachelor Graduation Thesis 3	9	0

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QUESTIONS

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