Sustainable Energy

The aim of the Programme is to develop a new generation of specialists capable of analysing and evaluating energy resources, implementing renewable energy sources, developing and improving renewable energy technologies, analysing and reducing environmental pollution from energy systems, and continuing their studies in doctoral studies

Description of learning outcomes	Intended learning outcomes of the Programme	Study courses of the Programme
Knowledge and application	To define and critically evaluate energy exchange processes, energy use and saving technologies	Thermotechnological Processes in Energetics, Thermal Transformation Systems, Heat and Mass Transfer, Thermoengineering of Production Buildings
Ability to conduct studies	To study, analyze and evaluate renewable energy sources, energy conversion technologies and their environmental impact	Renewable Energy Sources, Integration of Renewable Energy to Energy Systems, Life Cycle Assessment of Renewable Energy, Hydropower, Wind energy, Biomass Production Engineering, Engineering of Biofuels and Biolubricants, Engineering of Solid Biofuels and Biogas, Sustainable Energy Economics and Policy
	To identify and formulate scientific problems; to plan and conduct applied experimental or theoretical research; assess and summarize the reliability of research results	Mathematical Statistics and Modelling, Research Methodology, Measurements in Biosystem Engineering, Reliability of Mechanical and Energy Systems, Sustainable Energy Economics and Policy, Research work, Final work
Specific skills	To carry out assessment of energy resources, feasibility studies for the implementation of renewable energy projects	Renewable Energy Sources, Integration of Renewable Energy to Energy Systems, Life Cycle Assessment of Renewable Energy, Energy Storage and Smart Grids
	To investigate energy exchange processes, evaluate their energy efficiency and sustainability	Thermal Transformation Systems, Heat and Mass Transfer, Life Cycle Assessment of Renewable Energy, Environmental Pollution Management, Methods for assessing environmental impacts
	To analyze and prepare scientific publications in, scientific reports, project presentations the area of energy engineering	Research Methodology, Research work, Final work
Social skills/personal abilities	To work independently in a professional or scientific environment of energy engineering, communicate and work effectively at national or international level	According to the specifics of the subject, provided in the study subjects

No.	Study subjects	Semester	Volume							Form of final assignment
			ECTS credits	Hours	Classroom work, hrs.				Individual work, hrs.	
					Total	Lectures	Laboratory works	Practice works		
1. STUDY SUBJECTS OF THE STUDY FIELD DEMANDING HIGH LEVEL OF PROBLEM-BASED AND INNOVATIVE SCIENTIFIC APPROACH (72 ECTS)										
1.1 Compulsory study subjects										
1.	Research Methodology	1	6	160	60	30	30	-	100	Exam
2.	Measurements in Biosystem Engineering	1	6	160	60	30	30	-	100	Exam
3.	Mathematical Statistics and Modelling	1	6	160	60	30	30	-	100	Exam
4.	Renewable Energy Sources	1	6	160	60	30	15	15	100	Exam
5.	Integration of Renewable Energy to Energy Systems	2	6	160	60	45	-	15	100	Exam
6.	Energy Storage and Smart Grids	2	6	160	60	30	15	15	100	Exam
7.	Reliability of Mechanical and Energy Systems	2	6	160	60	30	30	-	100	Exam
8.	Life Cycle Assessment of Renewable Energy	2	6	160	60	30	-	30	100	Exam
9	Thermotechnological Processes in Energetics	3	6	160	60	45	5	10	100	Exam
	TOTAL:		**54**	**1440**	-	-	-	-	-	-
1.2 Alternatively elective study subjects (3 study subjects, 18 ECTS in total)										
10.	Methods for assessing environmental impacts	3	6	160	60	30	30	-	100	Exam
11.	Environmental Pollution Management	3	6	160	60	30	30	-	100	Exam

12.	Thermal Transformation Systems	3	6	160	60	30	30		100	Exam
13.	Engineering of Biofuels and Biolubricants	3	6	160	60	30	30	-	100	Exam
14.	Biomass Production Engineering	3	6	160	60	30		30	100	Exam
15.	Thermoengineering of Production Buildings	3	6	160	60	30	30	-	100	Exam
16.	Engineering of Solid Biofuels and Biogas	3	6	160	60	30	30	-	100	Exam
17.	Heat and Mass Transfer	3	6	160	60	45	-	15	100	Exam
18.	Sustainable Energy Economics and Policy	3	6	160	60	30	-	30	100	Exam
19.	Hydrogen Energy	3	6	160	60	30	15	15	100	Exam
20.	Hydropower	3	6	160	60	30		30	100	Exam
21.	Wind Energetics	3	6	160	60	30	15	15	100	Exam
	Total:		**18**	**480**	-	-	-	-	-	
	TOTAL:		**72**	**1920**	-	-	-	-	-	
2. GROUPS OF STUDY SUBJECTS ESTABLISHED BY THE UNIVERSITY AND SELECTED BY THE STUDENT THAT ARE PREPARATORY FOR DOCTORAL STUDIES OR PRACTICAL ACTIVITY (18 cr.)										
2.1. Study subjects preparatory for doctoral studies										
18.	Research Work 1	1	6	160	4	-	-	-	156	
19.	Research Work 2	2	6	160	4	-	-	-	156	
20.	Research Work 3	3	6	160	4	-	-	-	156	
	Total:		**18**	**480**	-	-	-	-	-	
4. PREPARATION AND DEFENSE OF FINAL WORK (30 cr.)										
21.	Final Work	4	30	800	14	-	-	-	786	
	Total:		**30**	**800**	-	-	-	-	-	
TOTAL IN THE STUDY PROGRAMME:			**120**	**3200**	**-**	**-**	**-**	**-**	**-**	

Faculty of Engineering
Group of Fields of Study Engineering Sciences
Lenght of the Programme 2 years
ECTS credits 120
Name of the Qualification Master of Engineering Sciences

Contacts

Faculty of Engineering
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