



Subject card

Subject name and code	Conventional and unconventional energy sources, PG_00057321						
Field of study	Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group		Optional subject group			
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jerzy Gluch					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	15.0	0.0	0.0	60
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	60		7.0		33.0	100
Subject objectives	Acquiring by students knowledge in the field of to conventional and non-conventional energy sources and their impact on the environment						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U03] has the necessary preparation to work in an industrial environment, is prepared to undertake third degree studies, applies the principles of safety and hygiene	The student is prepared to work with conventional and non-conventional energy sources.			[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W01] has extended and deepened knowledge of mathematics indispensable for describing phenomena related to processes of energy conversion and transfer; uses advanced information technologies	The student has expanded knowledge of conventional and non-conventional energy sources.			[SW1] Assessment of factual knowledge		
	[K7_K04] is able to react in emergency situations, health and life threatening when using power equipment	The student is aware of the risks associated with the exploitation of energy sources			[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	LECTURE Central and distributed sources of energy. Conventional and non-conventional sources. Separate and cogenerated production of electricity, heat and cold. The impact of energy sources on the environment. TUTORIALS Energy, exergy and environmental analysis of systems with conventional and non-conventional energy sources. LABORATORY Laboratory tests of selected conventional and non-conventional energy sources. Modeling of systems with energy sources using computer software.						
Prerequisites and co-requisites	Thermodynamics, fluid mechanics, heat transfer						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Written test	56.0%			50.0%		
	Laboratory reports	56.0%			20.0%		
	Calculation test	56.0%			30.0%		
Recommended reading	Basic literature	1. Chmielniak T., Technologie energetyczne. 2. Pawlik M., Strzelczyk F., Elektrownie. 3. Szargut J., Ziębik A., Podstawy energetyki cieplnej. 4. Lewandowski W., Proekologiczne odnawialne źródła energii					
	Supplementary literature	publications in scientific journals					
	eResources addresses						

Example issues/ example questions/ tasks being completed	Classify conventional and non-conventional methods of producing electricity, heat and cold. Determine the environmental impact of energy sources.
Work placement	Not applicable