



Subject card

Subject name and code	Markets of Energy, PG_00042083						
Field of study	Power Engineering, Power Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject				2023/2024	
Education level	first-cycle studies	Subject group				Obligatory subject group in the field of study Subject group related to scientific research in the field of study	
Mode of study	Full-time studies	Mode of delivery				at the university	
Year of study	3	Language of instruction				English	
Semester of study	6	ECTS credits				2.0	
Learning profile	general academic profile	Assessment form				assessment	
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marcin Jaskólski					
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30	5.0		15.0		50
Subject objectives	The aim of the course is to introduce students to the most important economic issues related to the creation and effective functioning of electricity markets and the challenges associated with the decarbonisation of the energy sector and recent innovations.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K6_W08] has basic knowledge in the field of intellectual property protection and patent law, knows and understands the basic processes of energy production and use, knows and understands the principles of modern heating and power systems	The student is able to analyze energy technologies using various evaluation criteria.			[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W07] knows the basics of economic calculus in the energy sector; knows the legal, organizational and economic principles of the functioning of energy markets, knows the basic principles of management and running a business	The student is able to apply the elements of calculus in the evaluation process of investments in the energy sector.			[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Basic informations about the National Power System. Daily characteristics of the demand for electric energy. Centralized energy sources. Electricity production. Renewable energy in Europe and in the world. Tasks and requirements for centralized and regional energy supply systems. Choosing a route and running power grids. Ways of laying networks. The history of the energy market, its current state and prospects. Operators of the distribution network market in Poland. The next day market. Futures contracts.						
Prerequisites and co-requisites	Basic knowledge of physics (basic physical laws, physical quantities, their units and titres, mechanics, electrical engineering, thermodynamics, heat transfer). Knowledge of the properties of energy transformation: the efficiency of transformation and the cycle of transformations and thermodynamic cycles. Basic knowledge in mathematics: algebra, geometry and trigonometry, differential and integral calculus.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Report		60.0%		100.0%		

Recommended reading	Basic literature	Energy Markets, W. Mielczarski et. al., Proceedings of Energy Market Conference, 2018 The Efficient Use of Energy and Environment, W. Kamrat, M. Jaskolski, PG 2019 (unpublished)
	Supplementary literature	Dilemmas Facing Investors on the Energy Market J. Popczyk, Polish Power Plants 2005, TGPE Warsaw 2005 What Does the Electric Energy Industry Community Expect, W. Nikodem, Polish Power Plants 2005, TGPE Warsaw 2005
	eResources addresses	
Example issues/ example questions/ tasks being completed	Development of energy markets, Modern technologies, efficiency analysis, Outlays and costs, Local markets for heat and gas	
Work placement	Not applicable	