



Subject card

Subject name and code	Electric Energy Markets and Law of Renewable Energy Sources , PG_00042160						
Field of study	Power Engineering, Power Engineering, Power Engineering, Power Engineering, Power Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
Education level	first-cycle studies		Subject group		Optional subject group 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		Polish		
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. Izabela Prażuch				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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		3.0		17.0	50
Subject objectives	Principles of organization and functioning of the Electricity Market.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_U05		The student is able to solve problems in the field of electricity market.		[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W10		The student knows the principles of the functioning of the energy market. Can distinguish types of transactions on the wholesale energy market. He knows the basic principles of creating purchase portfolios.		[SW1] Assessment of factual knowledge		
Subject contents	Costs of generation, transmission and distribution of energy. Cost characteristics. Cost-price relationships. Tariff settlements in the power industry. Electricity tariffs in settlements between consumers and distribution companies. Components of charges in electricity bills for consumers. Principles of tariff selection by the recipient. Differentiation of tariff charges in time zones. Wholesale tariff for settlements between producers and distribution companies. Wholesale market segments. Preferential markets for renewable energy sources and cogeneration. Principles of operation of the electricity exchange. Spot contracts market (DAM). Futures market. Electricity balancing market. Bidding process. Billing rules. System services markets. System services in the field of active power regulation. Ranges of primary and secondary regulation in domestic power plants. System services in the field of reactive power regulation. Billing rules for system services. transmission services. The principle of free access by third parties to the transmission network. Billing rules for transit services used around the world. Valuation of transit services using the embedded cost method. Valuation of transit services using the marginal (marginal) cost method.						
Prerequisites and co-requisites	Basic knowledge of the power system						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	test		60.0%		100.0%		
Recommended reading	Basic literature		Mielczarski : Rynki energii elektrycznej. ARE, Warszawa - Wrocław 2001. Weron, Weron : Giełda energii strategię zarządzania ryzykiem. CIRE, Wrocław 2000. Gładys, Matla : Praca elektrowni w systemie elektroenergetycznym. WNT, Warszawa 1990.				

	Supplementary literature	Toczyłowski : Optymalizacja procesow rynkowych przy ograniczeniach. WPW, Warszawa 2004. Kalinowski, Malko, Szalbierz, Wilczynski : Efektywnosc miedzynarodowego handlu energia elektryczna. KAPRINT, Lublin 1999.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Tariff settlements.Evaluation of the economic efficiency of RES.RES support instruments on the energy market.	
Work placement	Not applicable	