

关。GDAŃSK UNIVERSITY 创 OF TECHNOLOGY

Subject card

Subject name and code	Electric Energy Market, PG_00042193							
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			1.0		
Learning profile	general academic profile		Assessment form			assessment		
Conducting unit	Department of Electrical Power Engi		neering -> Faculty of Electrical and C			ontrol Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor dr hab. inż. Paweł Bućko							
	Teachers dr hab. inż. Paweł Bućko							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
of instruction	Number of study hours	15.0	0.0 0.0 0.0		0.0		0.0	15
	E-learning hours included: 0.0							
Learning activity and number of study hours	Learning activity	Participation ir classes includ plan	n didactic ed in study	Participation in consultation hours		Self-study		SUM
	Number of study 15 hours			2.0		8.0		25
Subject objectives	Rules of electrical market operation. Knowleges of customers, producers and turnovers roles on energy market.							
Learning outcomes	Course outcome		Subject outcome			Method of verification		
	K6_U05		The student is able to create energy budgets for facilities. Can calculate energy delivery costs based on tariffs. He can choose the appropriate variant of tariff settlements for the recipient.			[SU1] Assessment of task fulfilment		
	K6_W07		The student knows the principles of operation of the energy market. He can distinguish between types of transactions on the wholesale energy market. He knows the basic principles of creating purchase portfolios.			[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Costs and prices calculation in energy sectors brief rules. Structure of electrical energy market. Market participants. Natural monopoly. Liberalization on energy markets. The Polish energy low regulation. Energy policy. Role of Regulation Office on energy markets. Brief classification of different markets segments. Electrical energy tariffs. Rules of tariffs construction. Rates in tariffs for final consumers. Tariffs of distribution companies. Minimization of electricity purchase cost by consumers. System operator and his role on energy market. The operators tariff. Purchase of electricity by distribution companies. The Polish Power Exchange rules of electricity turnover, position on energy market, energy prices, binding rules. The Balancing Market role of the Balancing Market, rules of energy turnover, energy prices, influence on other energy markets. Competitive energy markets. The transmissions services market. The TPA (Third Party Access) rule in Europe. The transmissions tariffs construction cost calculation (marginal costs versus bounded costs). Ancillary services on energy market. The power exercises. Ancillary services up on the purchase by operator. Problems of ancillary services cost allocation.							
Prerequisites and co-requisites	Brief knowledge of power system structure and operation							
Assessment methods and criteria	Subject passing criteria Midterm colloquium		Passing threshold 50.0%			Percentage of the final grade 100.0%		
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Recommended reading	Basic literature	Mielczarski : Rynki energii elektrycznej. ARE, Warszawa - Wrocław 2001. Weron, Weron : Giełda energii strategie zarządzania ryzykiem. CIRE, Wrocław 2000. Gładyś, Matla : Praca elektrowni w systemie elektroenergetycznym. WNT, Warszawa 1990.				
	Supplementary literature	Toczyłowski : Optymalizacja procesów rynkowych przy ograniczeniac WPW, Warszawa 2004. Kalinowski, Malko, Szalbierz, Wilczyński : Efektywność międzynarodowego handlu energią elektryczną. Kaprint Lublin 1999.				
	eResources addresses	Adresy na platformie eNauczanie:				
		RYNEK ENERGII ELEKTRYCZNEJ [EE][2022/23] - Moodle ID: 2860 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28608				
Example issues/ example questions/ tasks being completed	Calculation of the Balancing Market participation costs.					
	Price calculation basing on Energy Exchange offerts.					
	Calculation of tariffs payments.					
Work placement	Not applicable					