



Subject card

Subject name and code	Electric power economics, PG_00064740						
Field of study	Power Engineering						
Date of commencement of studies	February 2025	Academic year of realisation of subject			2024/2025		
Education level	second-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	1	Language of instruction			Polish		
Semester of study	1	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 hab. inż. Paweł Bućko				
	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		5.0		15.0	50
Subject objectives	Gaining knowledge to analyze the variability of loads in the power system. Calculation of power and energy losses in power supply systems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W11] interprets social, economic, legal (including industrial and intellectual property laws), and other non-technical aspects of engineering activities, and includes them into engineering practice		interprets the economic consequences of load variability and is able to analyze the costs of losses in transmission systems		[SW1] Assessment of factual knowledge		
	[K7_U15] evaluates the feasibility of advanced methods and tools for solving complex engineering tasks of a practical nature, characteristic of the field of study, and selects and applies appropriate methods and tools for this purpose		is able to select and use calculation methods and tools for load and loss analysis in power transmission systems		[SU1] Assessment of task fulfilment		
	[K7_W02] demonstrates structured and theory supported knowledge encompassing key issues in the field of Power Engineering, enabling modeling and analysis of energy systems, machines and devices, transmission grids and internal installations		can model and analyze power transmission networks in order to reduce transmission losses		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_K13] is ready for responsible performance of professional roles, considering ever-changing need of the society, including self development and supporting and fulfilling work ethics		is ready to perform professional roles responsibly, taking into account changing social needs		[SK5] Assessment of ability to solve problems that arise in practice		
Subject contents	Variability of power system loads - daily, weekly, monthly and yearly. Indicators and load grades. Calendar, ordered, and integral charts. Economic consequences variability of power system loads. Load forecasting. Power losses in systems Electricity. Load-dependent loss-dependency. Idle and load losses. Efficiency power transmission. Minimization of losses in power systems. Energy losses in power systems. Models of variability of active and reactive loads. Calculation of active and reactive energy losses .						

Prerequisites and co-requisites	basic knowledge of electrical engineering, power systems		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	seminar presentation	50.0%	40.0%
	colloquium - written exam	50.0%	60.0%
Recommended reading	Basic literature	Kit Oung: Energy Management. Gower Publishing Ltd., 2013. Vesma V.: Energy Management Principles and Practise. British Standards Institution, London 2011.	
	Supplementary literature	Hunt S., Shuttleworth G.: Competition and Choice in Electricity. John Willey and Sons, 1997	
	eResources addresses	Adresy na platformie eNauzanie:	
Example issues/ example questions/ tasks being completed	Indicator analysis of daily variability of loads. Calculation of transformer losses at a given load. Calculation of losses in a transmission line at a given load.		
Work placement	Not applicable		

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