



## Subject card

Subject name and code	Electric power economics, PG_00057425						
Field of study	Power Engineering						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2023/2024		
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	dr inż. Izabela Prażuch dr hab. inż. Paweł Bućko					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	15.0	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		8.0		12.0	50
Subject objectives	Brief knowledge of electrical load changes analyses in the power system. Calculate of power and energy losses in transmission systems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W07] knows the environmental effects of energy technologies used; is familiar with the issues of effective energy management and use of renewable energy sources, has a broad and well-established knowledge of the processes of energy production and use	The student is able to solve problems of effective selection and use of power equipment. Can plan the operation of the transmission system in terms of reducing energy losses.	[SW3] Assessment of knowledge contained in written work and projects
	[K7_W04] has advanced, ordered and theoretically grounded knowledge in the field of operation and selection of electrical machines, power transmission systems and power electronic devices, classical and forward-looking power technologies and their receivers, knows the principles of selection of power equipment and installations and their receivers and their operation	The student knows the rules for the selection of power equipment.	[SW2] Assessment of knowledge contained in presentation
	[K7_U07] is able to use basic and advanced knowledge of power equipment operation to assess the technical condition of the power system	The student is able to analyze power and energy losses in power transmission systems.	[SU1] Assessment of task fulfilment
	[K7_U01] is able to acquire information from literature, databases and other sources, has the ability of self-education in order to improve his/her professional competence (also in English), is able to prepare a simple scientific paper and its summary in English, as well as an oral presentation	The student is able to analyze databases on power loads.	[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task
Subject contents	Periodic changes of demand in power systems. Typical daily, monthly and yearly demand curves. Demand coefficients and ratios. Economic implication of demand changes in the system. Losses in power system. Active and reactive power losses in power system elements. Energy losses. Methods for losses calculation. Costs of the losses. Losses minimization. Costs calculation in energy sector.		
Prerequisites and co-requisites	Brief knowledge of electrical engineering and power system		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	50.0%	60.0%
	Seminar presentation	50.0%	40.0%
Recommended reading	Basic literature	Poradnik inżyniera elektryka pr. zbiorowa, WNT. Warszawa, 2000. Paska J.: Ekonomika energetyki. PW, Warszawa, 2007.	
	Supplementary literature	Warnecke H.J., Bullinger H.J., Hichert R., Voegelé A.: Rachunek kosztów dla inżynierów. WNT. Warszawa 1993.	
	eResources addresses	Adresy na platformie eNauczanie: Gospodarka elektroenergetyczna [EE][II][2023/24] - Moodle ID: 36980 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36980">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36980</a>	
Example issues/ example questions/ tasks being completed	analysis of coefficient for daily load changes in power system		
Work placement	Not applicable		