



Subject card

Subject name and code	Economics and Management in Electrical Power Engineering, PG_00038482						
Field of study	Electrical Engineering						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		1.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Paweł Bućko				
	Teachers		dr hab. inż. Paweł Bućko				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	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 in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	15		2.0		8.0	25
Subject objectives	Basic knowleges of technical-economics problems in power systems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U11] is able to analyse the variability of electricity loads, calculate power and energy losses, can carry out cost accounting		can analyze the variability of electrical power loads; knows the characteristics of load variability and typical cycles; calculates power and energy losses in electrical power transmission systems;		[SU1] Assessment of task fulfilment		
	[K7_W03] has an extended and deepened knowledge of the field related to electrical power systems and electrical equipment		He knows the principles of designing and operating transmission systems in terms of reducing energy losses		[SW3] Assessment of knowledge contained in written work and projects		
	[K7_W08] has an extended knowledge of power supply systems power supply and control systems including the use of computer networks and design of these systems in industrial facilities industrial facilities		is able to analyze power supply systems in terms of loss magnitude; knows the operating principles of transmission systems with regard to minimizing losses;		[SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Course content – lecture 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. Discount rate. Brief rules of costs discounting. Investments processes. Costs of capital. Amortization possible ways of calculation. Annual costs calculation. Fixed and production related costs. Costs minimization selected, typical problems related to energy sectors. Selected management problems in power 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		
	Midterm colloquium		50.0%		100.0%		

Recommended reading	Basic literature	1. Górzyński J.: Audyting energetyczny. Fundacja Poszanowania Energii, Warszawa 1999. 2. Poradnik inżyniera elektryka pr. zbiorowa, WNT. Warszawa, 2000. 3. Paska J.: Ekonomia energetyki. PW, Warszawa, 2007. 4. Kamrat W.: Gospodarka energetyczna. PWN, Warszawa, 2023.
	Supplementary literature	1. Warnecke H.J., Bullinger H.J., Hichert R., Voegele A.: Rachunek kosztów dla inżynierów. WNT. Warszawa 1993. 2. Siegel J.G., Shim J.K., Hartman S. W.: Przewodnik po finansach. Wydawnictwo Naukowe PWN, Warszawa 1995.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Calculation of power losses in the transmission grid. 2. Analyse of daily load change. 3. Calculation of energy losses in the chosen transmission grid element.	
Practical activities within the subject	Not applicable	

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