



Subject card

Subject name and code	Stability of electric power system, PG_00042320						
Field of study	STABILNOŚĆ SYSTEMU ELEKTROENERGETYCZNEGO						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group				
Mode of study	Part-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
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		prof. dr hab. inż. Ryszard Zajczyk				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	10.0	0.0	0.0	20
	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	20		6.0		49.0	75
Subject objectives	Familiarize students with the problems of stability of the power system.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_W05] has detailed knowledge of the regulatory processes in the electricity system electricity system, electricity safety and electricity safety automation		knows the principles of regulation of synchronous generators, power transformers and turbines and uses them to implement the issues discussed in class		[SW1] Ocena wiedzy faktograficznej		
	[K7_U02] is able to prepare and deliver a short oral presentation on a selected technical topic		prepares and presents a multimedia presentation on a given topic		[SU4] Ocena umiejętności korzystania z metod i narzędzi		
	[K7_U03] is able to obtain information from literature, databases and other sources, also in English, draw conclusions, formulate and fully justify opinions. substantiate opinions; is able to identify directions for further learning and implement the process of self-education		takes part in laboratory classes and prepares a report on the exercises carried out		[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU5] Ocena umiejętności zaprezentowania wyników realizacji zadania		
	[K7_W02] has an in-depth and structured knowledge of electrical measurements electrical measurements, the methods and equipment used for electrical measurements of non-electrical quantities, he/she knows the principles of testing operation tests of electrical equipment, has a structured knowledge of electricity quality issues		posiada wiedzę z zakresu elektrotechniki zgodnie z efektem kształcenia		[SW1] Ocena wiedzy faktograficznej		

Subject contents	Course content – lecture Faults in the power system and their impact on its stability. The stability of local, global and voltage of the power system. The calculation method of stability. Measures to improve the stability of employed in power systems. The role of the automation system in the process of loss of stability, preparations for the defense subsystems and islands and restoration of the power system. Computer simulation of system failures. L: Study of local and global stability of a fragment of the power system using the PowerFactory simulator.		
Prerequisites and co-requisites	Knowledge of electrical Power engineering, Power systems, automation of security operations and control.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	colloquium of the lecture part	60.0%	60.0%
	assessment of laboratory	60.0%	40.0%
Recommended reading	Basic literature	1. Machowski J., Bernas S.: Stany nieustalone i stabilność systemu elektroenergetycznego. Warszawa WNT 1989. 2. Machowski J.: Regulacja i stabilność systemu elektroenergetycznego. Oficyna Wydawnicza Politechniki Warszawskiej. Warszawa 2007.	
	Supplementary literature	1. Kundur P.: Power System Stability and Control. McGraw-Hill, Inc. 1994.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Examples of questions and issues to develop served during the lectures. 1. Types of power system stability. 2. Methods for determining the stability limit of the global energy system.		
Practical activities within the subject	Not applicable		

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