



Subject card

Subject name and code	Safety of Electrical Power Engineering System, PG_00038489						
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	2		Language of instruction		Polish		
Semester of study	3		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. Jacek Klucznik				
	Teachers						
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	To provide students with the problems of security of the power system.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K04] correctly identifies and resolves dilemmas associated with the exercise of the profession, in particular relating to responsibility for his own safety and the safety of others		Correctly assesses the effects of technical and organisational decisions made in the power system.		[SK5] Assessment of ability to solve problems that arise in practice		
	[K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics		Recognises basic issues in the field of electrical power safety, explains basic processes occurring in the electrical power system in emergency situations, interprets phenomena and processes occurring in the electrical power system.		[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W05] has detailed knowledge of the regulatory processes in the electricity system electricity system, electricity safety and electricity safety automation, is familiar with technologies high voltage		Assesses and identifies phenomena and processes occurring in the power system related to the stability and safety of the system's operation.		[SW1] Assessment of factual knowledge		
Subject contents	Course content – lecture The security of the power system in time horizons. Existing structures for electricity generation and transmission, international connections, emergency automation and restoration procedures, and their impact on power security. Local and global stability. Angular and frequency stability. Critical short-circuit duration. Impact of distributed generation on the power system. The role of automation, protection, control systems and system automation in the process of stability loss, preparation for the defence of subsystems and islands, and restoration of the power system. Computer simulation of system failures.						
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		
	Midterm colloquium		60.0%		100.0%		

Recommended reading	Basic literature	1. Machowski J.: Regulacja i stabilność systemu elektroenergetycznego. Oficyna wydawnicza Politechniki Warszawskiej Warszawa 2007 2. Machowski, J., Lubośny, Z., Stabilność systemu elektroenergetycznego. Warszawa: Wydawnictwo Naukowe PWN 2018.
	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 stability of the power system.2. The concept of synchronising power of the synchronous generator.3. The oscillation of the rotors of the synchronous machines in the unstable states.4. Measures to improve the stability of the electricity system.	
Practical activities within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.