



Subject card

Subject name and code	Safety of Electrical Power Engineering System, PG_00003478						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2026	Academic year of realisation of subject				2027/2028	
Education level	second-cycle studies	Subject group				Specialty subject group Subject group related to scientific research in the field of study	
Mode of study	Part-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	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	0.0	0.0	0.0	10
	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	10	2.0		13.0	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_W05] has detailed knowledge of the regulatory processes in the electricity system electricity system, electricity safety and electricity safety automation	Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system.			[SW3] Assessment of knowledge contained in written work and projects		
	[K7_W03] has an extended and deepened knowledge of the field related to electrical power systems and electrical equipment	Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system.			[SW2] Assessment of knowledge contained in presentation		
	[K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics	Student recognizes the basic issues as regards safety of the power system, explains basic processes occurring in the power system during emergency states as well as interprets occurrences and processes occurring in the power system.			[SU1] Assessment of task fulfilment		
Subject contents	<p>Course content – lecture</p> <p>The security of the Power system in time horizons. The existent structures of generating and transmitting electric energy, international connections, organisational and financial connections, emergency automation and restitution procedures and their influence on power security. Methodology of forecasts/ prognoses demands for electric energy. The scope and results of privatization of electrical power engineering sector. The influence of market economy and international commitments. The impact of dispersed/ distributed generation on the power system. The importance of security automation and system automation in the process of stability loss, subsystems and islands? defence arrangements and restitution of the power system. Computer simulations of the system breakdowns.</p>						

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., Bernas S.: Stany nieustalone i stabilność systemu elektroenergetycznego. Warszawa WNT 1989.	
	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.		
Practical activities within the subject	Not applicable		

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