GDAŃSK UNIVERSITY OF TECHNOLOGY

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 2025	Academic year of realisation of subject	2025/2026
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 -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jacek Klucznik	
	Teachers		

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	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_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		
[K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics		
[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		

Subject contents

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 theis 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.

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. 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	Adresy na platformie eNauczanie:
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.	
Work placement	Not applicable	

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