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 2023	Academic year of realisation of subject	2023/2024
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		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Ryszard Zajczyk	
	Teachers	prof. dr hab. inż. Ryszard Zajczyk	

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_U10	The student recognizes basic issues in the field of electrical power security.	[SU1] Assessment of task fulfilment
K7_W05	The student interprets the phenomena and processes taking place in the power system	[SW1] Assessment of factual knowledge
K7_K04	There is no relation to this item.	[SK5] Assessment of ability to solve problems that arise in practice
K7_W03	The student explains the basic processes occurring in the power system in an emergency	[SW2] Assessment of knowledge contained in presentation

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: Bezpieczeństwo systemu elektroenergetycznego [2023/24] - s. ST - Moodle ID: 35759 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35759
Example issues/ example questions/ tasks being completed	Examples of questions and issues to develop served during the lectures. 1. Types of power system stability.	
Work placement	Not applicable	