GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Transfer of Electric Energy, PG_00042072		
Field of study	Power Engineering, Power Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	English
Semester of study	5	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		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	0.0	0.0	0.0	45

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	45	7.0	23.0	75

Subject objectives

Knowledge about the transmission of electricity. Understanding the operation principles of the power system. Calculation of the of voltage levels, power losses, short-circuit currents.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W08] has basic knowledge in the field of intellectual property protection and patent law, knows and understands the basic processes of energy production and use, knows and understands the principles of modern heating and power systems		
[K6_W05] has structured knowledge in the field of electrical engineering and electronics, necessary to understand the basics of operation and selection of electrical machines, electricity transmission systems and power electronic devices	Student interprets equivalent circuits of line, transformer and generator. Student analyses radial and interconnected networks in normal conditions. Student analyses networks during faults. Student differences active and reactive power sources. The student performs the calculation of the initial short-circuit current, the power losses and voltage drops in the networks.	[SW1] Assessment of factual knowledge

Subject contents

Power system structure. Devices for generation, transmission and distributon of electric energy. Generation of active and reactive power in power system. Sources of power and its characteristics. Electrical network - structure, parameters and purposes. HVDC systems. Equivalent circuits for power system elements. Power flow calculation in radial and interconnected networks. Short-circuits - reasons and effects. Balanced short-circuits calculation.

Prerequisites and co-requisites

Electric circuits theory

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final test	50.0%	30.0%
Midterm colloquium	50.0%	70.0%

Recommended reading	Basic literature	Turan Gonen, Electrical Power Transmission System Engineering: Analysis and Design, Third Edition, CRC Press, 2014 J. D. Glover, M. S. Sarma , T.J. Overbye, Power System Analysis & Design, Cengage Learning, 2011
	Supplementary literature	Acta Energetica – kwartalnik naukowy energetyków www.actaenergetica.org
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Calculate the value of the initial short-circuit current in the network of a given structure. Calculate the active power losses in the power line of given data parameters and load. Determine distribution of currents in the double-sided supplied network.	
Work placement	Not applicable	

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