

§ GDAŃSK UNIVERSITY § OF TECHNOLOGY

Subject card

Subject name and code	Electrical Power Engineering, PG_00038404							
Field of study	Electrical Engineering							
Date of commencement of studies	October 2021		Academic year of realisation of subject			2022/2023		
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	Part-time studies		Mode of delivery			at the university		
Year of study	2		Language of instruction			Polish		
Semester of study	4		ECTS credits			4.0		
Learning profile	general academic profile		Assessment form			exam		
Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering							
Name and surname	Subject supervisor		dr hab. inż. Robert Małkowski					
of lecturer (lecturers)	Teachers		dr hab. inż. Robert Małkowski					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	t	Seminar	SUM
	Number of study hours	20.0	0.0	10.0	0.0		0.0	30
	E-learning hours inclu	ided: 0.0						
Learning activity and number of study hours	Learning activity Participation in or classes included plan		n didactic led in study	Participation in consultation hours		Self-study SUM		SUM
	Number of study hours	lumber of study 30 ours			7.0		63.0 100	
Subject objectives	Mastering basic know circuit.	ledge of power	r system functio	oning. Perform	ing simp	ole calcu	ulations load flo	ow and short
Learning outcomes	Course out	Subject outcome			Method of verification			
	K6_K01		Students can name present and past advantages and disadvantages of technical solutions analyzing them for certain devices.			[SK2] Assessment of progress of work		
	K6_U04		During the course, students prepare laboratory reports of the analysis of work of power system.			[SU3] Assessment of ability to use knowledge gained from the subject		
	K6_W09		On the base of the basic mathematical relations students can describe fundamental elements of power system . Student can also estimate the influence of some selected figures on the working stats of power system.			[SW1] Assessment of factual knowledge		
Subject contents	LECTURES Basic knowledge about structure of power grid, main devices used for electrical power generation, distribution and transmission. Replacement schemes for generators, transformers, power lines, and loads. Calculating : current and power dispersion, and voltage levels in power grid. Calculating basic parameters of short circuit current. Symetrical short circuits. CLASSES Coupling parameters of simple power grid model elements(generators, transformers, power lines) to conduct research including various load level in modelled power grid. Calculating load flow. Characterizating dependencies of voltage and/or transformer tap controllers on voltage levels and load flow in analised grid.							
Prerequisites and co-requisites	Knowledge of basics of electroenergetics Knowledge of basics of Electrical Machinery							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade			
	Project		50.0%		40.0%			
	Written exam		50.0%			60.0%		

Recommended reading	Basic literature	 Kremens Z., Sobierajski M.: Analiza systemów elektroenergetycznych. WNT Warszawa 1996 Kacejko P., Machowski J.: Zwarcia w sieciach elektroenergetycznych WNT Warszawa 1993 			
	Supplementary literature	1. J. Machowski, J. Bialek, J. Bumby : "Power System Dynamics and Stability". John Wiley & Sons, Chichester, New York, 1997.			
	eResources addresses	Adresy na platformie eNauczanie:			
Example issues/ example questions/ tasks being completed	 Which parameters of the overhead line equivalent circuit does the weather affect? Justify your answer. Derive the relationship on reactive power for serial model load 				
	3. Calculate parameters of model of the 3-winding transformer				
	4. Calculate voltage in the node, usi	ng the indicated method			
Work placement	Not applicable				