



Subject card

Subject name and code		Stability of electric power system, PG_00042320						
Field of study		Electrical Engineering						
Date of commencement of studies		October 2024	Academic year of realisation of subject			2024/2025		
Education level		second-cycle studies	Subject group					
Mode of study		Part-time studies	Mode of delivery			at the university		
Year of study		1	Language of instruction			Polish		
Semester of study		2	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	prof. dr hab. inż. Ryszard Zajczyk					
		Teachers						
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	10.0	0.0	10.0	0.0	0.0	20
		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	20	6.0		49.0		75
Subject objectives		Familiarize students with the problems of stability of the power system.						
Learning outcomes		Course outcome	Subject outcome			Method of verification		
		[K7_W02] has an in-depth and structured knowledge of electrical measurements electrical measurements, the methods and equipment used for electrical measurements of non-electrical quantities, he/she knows the principles of testing operation tests of electrical equipment, has a structured knowledge of electricity quality issues	posiada wiedzę z zakresu elektrotechniki zgodnie z efektem kształcenia			[SW1] Assessment of factual knowledge		
		[K7_U03] is able to obtain information from literature, databases and other sources, also in English, draw conclusions, formulate and fully justify opinions. substantiate opinions; is able to identify directions for further learning and implement the process of self-education	takes part in laboratory classes and prepares a report on the exercises carried out			[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools		
		[K7_U02] is able to prepare and deliver a short oral presentation on a selected technical topic	prepares and presents a multimedia presentation on a given topic			[SU4] Assessment of ability to use methods and tools		
		[K7_W05] has detailed knowledge of the regulatory processes in the electricity system electricity system, electricity safety and electricity safety automation	knows the principles of regulation of synchronous generators, power transformers and turbines and uses them to implement the issues discussed in class			[SW1] Assessment of factual knowledge		

Subject contents	<p>Faults in the power system and their impact on its stability. The stability of local, global and voltage of the power system. The calculation method of stability. Measures to improve the stability of employed in power systems. The role of the automation system in the process of loss of stability, preparations for the defense subsystems and islands and restoration of the power system. Computer simulation of system failures.</p> <p>L: Study of local and global stability of a fragment of the power system using the PowerFactory simulator.</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
	assessment of laboratory	60.0%	40.0%
	colloquium of the lecture part	60.0%	60.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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	<p>Examples of questions and issues to develop served during the lectures.</p> <ol style="list-style-type: none"> 1. Types of power system stability. 2. Methods for determining the stability limit of the global energy system. 		
Work placement	Not applicable		

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