



## Subject card

Subject name and code	Voltage Regulation of the Power System, PG_00019418						
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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		2.0		
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	15.0	0.0	15.0	15.0	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		2.0		3.0	50
Subject objectives	Student recognizes the processes of voltage regulation of the Power system, becomes acquainted with voltage regulation devices and circuits.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_W02		He can use the acquired knowledge to implement design and technical issues		[SW1] Assessment of factual knowledge		
	K7_W01		He can use the acquired knowledge to implement design and technical issues		[SW3] Assessment of knowledge contained in written work and projects		
	K7_U03		He can use the acquired knowledge to implement design and technical issues		[SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject		
	K7_U02		He can use the acquired knowledge to implement design and technical issues		[SU1] Assessment of task fulfilment		
Subject contents	The criteria and limitations of voltage regulations. Technical limitations, standards. Criteria of regulations.Algorithms and structure of loop control. Algorithms of territorial regulation. Rational/ reasonable loop control structure of voltage levels and distribution of reactive power. Regulators of individual devices: generators, transformers, capacitor banks. Constructions, algorithms, research, starting. integrated control of ARNE and ARST. Superior regulators/integrated controls. Determining the set values for integrated controls.						
Prerequisites and co-requisites	electrical power engineering, electrical power engineering systems						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Practical exercise		60.0%		50.0%		
	Midterm colloquium		60.0%		50.0%		
Recommended reading	Basic literature		Hellmann W., Szczerba Z.: Regulacja częstotliwości i napięcia w systemie elektroenergetycznym. WNT, Warszawa, 1978 r.				
	Supplementary literature		Kujaszczyk Sz. i inni. Elektroenergetyczne sieci rozdzielcze. Tom 1 i 2. Wydawnictwo Naukowe PŁON. Warszawa 1994 r.				
	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> <p>1 Source voltage in the power system</p> <p>2. Sources of reactive power in the power system</p>
Work placement	Not applicable