GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Voltage Regulation of the Power System, PG_00042319						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2023		Academic year of realisation of subject	2023/2024			
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	7.0	48.0	75

Subject objectives

Student recognizes the processes of voltage regulation of the Power system, becomes acquianted with voltege regulation devices and circuits.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K7_W02	The student knows the basics of automation and control theory	[SW1] Assessment of factual knowledge
K7_W01	The student carries out the Project of the power system with elements of voltage and reactive power regulation.	[SW3] Assessment of knowledge contained in written work and projects
K7_U02	Preparing a presentation	[SU1] Assessment of task fulfilment
K7_U03	the student is able to obtain information from widely available literature	[SU2] Assessment of ability to analyse information

Subject contents

The criteria and limitations of voltage regulations. Technical limitations, standards. Criteria of regulations.Algorythms and structure of loop control. Algorythms 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
Midterm colloquium	60.0%	50.0%
Practical exercise	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	Kujszczyk Sz. i inni. Elektroenergetyczne sieci rozdzielcze. Tom 1 i 2. Wydawnictwo Naukowe PLON. Warszawa 1994 r.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Examples of questions and issues to develop served during the lectures. 1 Source voltage in the power system 2. Sources of reactive power in the power system
Work placement	Not applicable