Subject card

Subject name and code	Computer Adjustment Systems, PG_00050054
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	Specialty subject group 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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	exam

Conducting unit	Department of Electrical Power Engineering -> Faculty of Electrical and Control Engineering

Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Seweryn Szultka
	Teachers	dr inż. Seweryn Szultka

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	4.0	51.0	75

Subject objectives	Discussion of: basic regulatory processes, methods of testing the basic parameters of the control system, issues related to the processes of visualization and data acquisition.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W08] has an extended knowledge of power supply systems power supply and control systems including the use of computer networks and design of these systems in industrial facilities industrial facilities	The student has an in-depth knowledge of of programming programmable controller, which allows for the construction of the indicated control system. The student has knowledge in the field of visualization allowing to operate of the developed control system along with data archiving and editing.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
	[K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics	The student is able to determine parameters of a control system depending on depending on the selected system regulation system dedicated to the selected device. Student is able to indicate the phenomena external phenomena affecting operation of the control system, states causing the introduction interference from the side of the power system power system to the control system regulation.	[SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task

Subject contents	LECTURE The system of regulation of their tasks and structure. Examples of creating block diagrams of selected control objects. Converting flowcharts. Digital control: control methods, digital measuring systems. Visualization and data archiving systems for the control object.
	LABORATORY Laboratory classes consist of two complementary parts. In the first, the indicated control system is implemented using the programmable controller. In the second part, a visualization application should be developed to support the developed control system as well as to archive and edit data.

Prerequisites and co-requisites	Ability to program PLC controllers. Subject "Programmable controllers"

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		50.0%	60.0%
		50.0%	40.0%

Recommended reading	Basic literature	1. Brzózka J.: Regulatory cyfrowe w automatyce, Wyd. MIKOM, 2002. 2. Brzózka J.: Regulatory i układy automatyki, Wyd. MIKOM, 2004. 3. Kaczorek T.: Teoria układów regulacji automatycznej, WNT, 1974.
	Supplementary literature	1. Osowski S.: Modelowanie układów dynamicznych z zastosowaniem języka SIMULINK, Oficyna Wyd. Politechniki Warszawskiej, Warszawa, 1997.
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. 1.Which measuring transducer should be used to obtain the accuracy of not less than 5% for the 4 ÷ 20A range? Assume that the range of the measured quantity has been correctly selected. 2. 2.Explain the concepts of quantization, sampling, discretization 3. 3.Convert the transmittance shown. Please present the individual stages of transformation graphically

Work placement	Not applicable

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