GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Adjustment Systems, PG_00050054		
Field of study	Electrical Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	second-cycle studies	Subject group	Optional 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. Piotr Szczeciński	
	Teachers	dr inż. Seweryn Szultka dr inż. Piotr Szczeciński	

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	The student has extensive knowledge and knows the principles of operation of selected devices that are part of the power system. The student recognizes the control algorithms and develops the concept of the control system of the selected device.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
K7_U10	The student is able to determine the parameters of the control system depending on the selected control system dedicated to the selected device. The student is able to indicate external phenomena affecting the operation of the control system, states causing the introduction of disturbances from the power system to the control system.	[SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task
K7_W09	The student has in-depth knowledge of programmable controller programming, which allows the construction of the indicated control system. The student has knowledge of visualization enabling the handling of the developed control system along with data archiving and editing.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

<table>
<tr><td>Subject contents</td><td>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.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Ability to program PLC controllers. Subject "Programmable controllers"</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td></td><td>50.0%</td><td>40.0%</td></tr>
<tr><td></td><td>50.0%</td><td>60.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>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.</td></tr>
<tr><td>Supplementary literature</td><td>1. Osowski S.: Modelowanie układów dynamicznych z zastosowaniem języka SIMULINK, Oficyna Wyd. Politechniki Warszawskiej, Warszawa, 1997.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>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.Explain the concepts of quantization, sampling, discretization

3.Convert the transmittance shown. Please present the individual stages of transformation graphically</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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