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 2026	Academic year of realisation of subject	2026/2027
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Seweryn Szultka	
	Teachers	dr inż. Seweryn Szultka	

Lesson types

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

The aim of the course is for students to master regulatory processes, methods of testing basic parameters of the regulation system, issues related to visualization processes 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	Defines the operating principles of selected devices included in the power system. Recognizes control algorithms and develops a concept for the control system of the selected device	[SW1] Assessment of factual knowledge
[K7_U10] is able to calculate short-circuit currents, select substation equipment including power system automation protection automatics	Determines the parameters of the control system depending on the control system. It implements external phenomena that affect the operation of the control system, introduces disturbances from the power system side.	[SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment

<table>
<tr><td>Subject contents</td><td>Course content – lecture

LECTURE Control system, their tasks and structure. Examples of creating block diagrams of selected control objects. Transforming block diagrams. Digital control: control methods, digital measurement systems. Visualization and archiving systems of control object data. Controllers

Course content – laboratory
LABORATORY Programming a programmable controller based on the indicated control system. Visualization of received signal courses over time.</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>60.0%</td></tr>
<tr><td></td><td>50.0%</td><td>40.0%</td></tr>
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</td></tr>
<tr><td rowspan="3">Recommended reading</td><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. 4. Findeisen W.: Struktury sterowania dla złożonych procesów. Oficyna Wydawnicza Politechniki Warszawskiej, 1997 5. Grega W.: Metody i algorytmy sterowania cyfrowego w układach scentralizowanych i rozproszonych, Wydawnictwo AGH, 2004</td></tr>
<tr><td>Supplementary literature</td><td>1. Osowski S.: Modelowanie układów dynamicznych z zastosowaniem języka SIMULINK, Oficyna Wyd. Politechniki Warszawskiej, Warszawa, 1997. 2. Liu J.: Networked and Distributed Predictive Control: Methods and Nonlinear Process Network Applications, Univeristy of California, Los Angeles, 2011</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. 1.Which measuring transducer should be used to obtain the accuracy of not less than 5% for the 4 ÷ 20 mA 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>Practical activites within the subject</td><td>Not applicable</td></tr>
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