GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Control and Monitoring of Processes, PG_00064519		
Field of study	Automatic Control, Cybernetics and Robotics		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2027/2028
Education level	second-cycle studies	Subject group	Optional subject group Specialty subject group Subject group related to scientific research in the field of study
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 Automatic Control -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Piotr Kaczmarek	
	Teachers	dr inż. Piotr Kaczmarek dr inż. Piotr Fiertek	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	15.0	0.0	30

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	30	4.0	16.0	50

Subject objectives

Introduction for automation of technological processes

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum	Student can analyze complex production processes.	[SW1] Assessment of factual knowledge
[K7_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of advanced technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment	The student can design IT systems supporting business and production processes	[SU1] Assessment of task fulfilment

Subject contents

Course content – lecture
1. Definition of mechanization and automation 2. Benefits of automation 3. Factors of automation 4. Automation in a machine-building industry 5. Production techniques in a machine-building industry 6. Components of manufacturing process 7. Automation of a simple manufacturing cycle 8. Automation of a machine feeding process 9. Automation of a workshop transport 10. Automation of a assembly process 11. Numerically controlled machine tools 12. Robots in automatic production processes 13. Quality control in automatic manufacturing systems 14. Computer aided design in automatic manufacturing systems 15. CRM/ MRP/ERP systems 16. CAD/CAM/CAE software 17. Automation in chemical industry 18. Control of heat and mass transfer processes 19. Design of control systems for chemical reactions 20. Automation of rectification and distillation processes

<table>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
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<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Seminar</td><td>51.0%</td><td>30.0%</td></tr>
<tr><td>Project</td><td>51.0%</td><td>40.0%</td></tr>
<tr><td>Written test</td><td>51.0%</td><td>30.0%</td></tr>
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</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>B. Roffel, B. Betlem "Process Dynamics and Control" Wiley 2006
M. Piekarski, M. Poniewski "Dynamika i sterowanie procesami wymiany ciepła i masy" Warszawa WNT, 1994</td></tr>
<tr><td>Supplementary literature</td><td>No requirements</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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