GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Automation and robotics, PG_00023322		
Field of study	Medical and Mechanical Engineering, Mechanical and Medical Engineering		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2021/2022
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study 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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Mechanics and Mechatronics -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wiktor Sieklicki	
	Teachers	dr inż. Wiktor Sieklicki	

Lesson types and methods of instruction

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

E-learning hours included: 0.0

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7908
Adresy na platformie eNauczanie:
Automatyka i Robotyka I - W/Ć, IM-M, sem. 3, (PG_00023322) - Moodle ID: 18645
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18645

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	3.0	17.0	50

Subject objectives

To present automation systems and control algorithms in mechanical systems. Knowing the structure and components of a typical control system. Gaining general information about the methods of designing, analysis and study of the properties of typical control systems. Learning about methods of modeling, analysis and control ofautomation systems

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U05	Student is able to define standard occurrences in automatics systems and control.	[SU3] Assessment of ability to use knowledge gained from the subject
K6_W06	Student is able to propose a proper logic circuit	[SW3] Assessment of knowledge contained in written work and projects
K6_U04	Student is able to propose a proper automatics elements as in control theroy	[SU4] Assessment of ability to use methods and tools
K6_U07	Student is able to design simple automatics systems	[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

- number systems,
- design and analysis of logic control systems
- transfer function
- automatic control system components
- Laplace transformation
- standard signals in automatics
- standard control system elements
- block diagrams
- stability, stability conditions and criteria

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Mathematics in scope of algebra, matrices, derivative equations</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td></td><td>56.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. Węgrzyn S.: Podstawy automatyki. PWN Warszawa, 1980.
2. Perycz S.: Podstawy automatyki. Skrypt PG. Gdańsk 1983
3. Mostowski A. Algebry boolea i ich zastosowanie
4. Holejko D., Kościelny W.J.: Automatyka procesów ciągłych, Oficyna Wydawnicza Politechniki Warszawskiej, 2012
5. Barski M, Jędruch W. Układy cyfrowe i mikroprocesorowe zadania</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">1. Pełczewski W.: Teoria sterowania. Ciągłe stacjonarne układy liniowe. WT Warszawa 1980.
2. Kaczorek T.: Teoria sterowania, tom.1. PWN Warszawa 1977.</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Automatyka i Robotyka I - W/Ć, IM-M, sem. 3, (PG_00023322) - Moodle ID: 18645
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=18645</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Reduce a logic function to the simplest form and propose a logic circuit for realization of the function

Calculate La place function of a signal given as a plot

Define movement equations for a mechanical object</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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