GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Dynamic Systems, PG_00038130		
Field of study	Automation, Robotics and Control Systems		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Optional 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	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Faculty of Electrical and Control Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Robert Piotrowski	
	Teachers	dr hab. inż. Robert Piotrowski Tomasz Ujazdowski	

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

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

Presentation of the currently used forms of description of dynamic systems and methods of their analysis. Different categories of systems, methods of their description and methods of study of their properties will be presented.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W10	The student can analyze dynamic systems.	[SW3] Assessment of knowledge contained in written work and projects
K6_U07	The student is able to build and analyze models of dynamic systems.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents

1. Signals and Systems.
2. Outputs of the system.
3. Controllability and availability of the system.
4. Observability and detectability of the system.
5. Decomposition of the system.
6. Stability of the system.

Prerequisites and co-requisites

There are no requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written exam	50.0%	70.0%
Exercises	50.0%	30.0%

Recommended reading	Basic literature	1. Byrski, W. (2007). Obserwacja i sterowanie w systemach dynamicznych. Uczelniane Wydawnictwa Naukowo Dydaktyczne Akademii Górniczo Hutniczej w Krakowie. 2. Oppenheim, A. V., and A. S. Willsky, with S. H. Nawab. (1997). Signals and Systems. 2nd ed. New Jersey: Prentice-Hall.
	Supplementary literature	Roffel, B., Betlem, B. (2006). Process Dynamic and Control. Modelling for Control and Prediction. John Wiley & Sons, Ltd.
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. Find a description of the state space (the equation of state and the output equation) and draw a diagram using the iterative method. 2. Check analytically whether the system satisfies the condition of additivity.	
Work placement	Not applicable	

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