GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Automation, PG_00041780
Field of study	Ocean Engineering, Ocean 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	4	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment

Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology
Name and surname of lecturer (lecturers)	Subject supervisor — dr hab. inż. Marek Dzida
	Teachers — dr hab. inż. Marek Dzida; mgr inż. Anna Butterweck

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	15.0	0.0	0.0	0.0	45

E-learning hours included: 0.0

Adresy na platformie eNauczanie:

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	45	10.0	45.0	100

Subject objectives	The objective is to learn the fundamentals of control theory and the structures and elements of basic automation systems, as well as general information about control system design.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W04] has a basic knowledge in IT, electronics, automation and control, computer graphics useful to understand the possibilities of their application in ocean technology	The student is able to assess usefulness of typical methods and tools applied in engineering to select the proper method and tool for solving the simple problems in the range of control system	[SW1] Assessment of factual knowledge
[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	The student is able to formulate simple engineering problems and its specification in the range of automatics and robotics	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents	1. Introduction and basic concepts
	2. Classification of control systems
	3. Modeling of dynamic systems and description of elements of automatic control systems
	4. Types of mathematical models of dynamic systems: differential equation, transmittance, block diagram, linearization
	5. Transition function and time characteristics
	6.Feedback
	7.Analysis of time-domain and frequency-domain control systems
	8.Stability of linear control systems
	9. Controlls

Prerequisites and co-requisites	Pre-requisite subjects:
	1. Mathematics
	2. Physics

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Colloquium for credit from exercises	50.0%	60.0%
	Colloquium for credit from lecture	50.0%	40.0%

Recommended reading	Basic literature	1. Raven, F. H., Automatic control engineering, McGraw Hill Co., 1986.
		2. Nise N. S., Control system engineering, John Whiley & Sons Inc., 2000.
		3. Friedland B., Control System Design, McGraw Hill Co., 1986.
	Supplementary literature	
		1.. Ogata K., Modern Control Engineering, 4th edition, Prentice Hall, 2002.
	eResources addresses	

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable