GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056312					
Field of study	Ocean Engineering					
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		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 dr inż. Mohammad Ghaemi			

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						

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	6.0	49.0	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_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	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	[SW3] Assessment of knowledge contained in written work and projects
	[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 has the knowledge of methods and tools applied for design 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	Able to formulate a simple task, and its specification engineering of automation of technological process	[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 lecture	50.0%	60.0%
	Colloquium for credit from exercises	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	Adresy na platformie eNauczanie: Teoria sterowania okrętowych ukł automatyki, PG_00056312 - Moodle ID: 25059 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25059

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