



Subject card

Subject name and code	, PG_00055304						
Field of study	Ocean Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
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						
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		5.0		50.0	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_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		[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	[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		

Subject contents	<p>1. Introduction and basic concepts</p> <p>2. Classification of control systems</p> <p>3. Modeling of dynamic systems and description of elements of automatic control systems</p> <p>4. Types of mathematical models of dynamic systems: differential equation, transmittance, block diagram, linearization</p> <p>5. Transition function and time characteristics</p> <p>6. Feedback</p> <p>7. Analysis of time-domain and frequency-domain control systems</p> <p>8. Stability of linear control systems</p> <p>9. Controls</p>											
Prerequisites and co-requisites	<p>Pre-requisite subjects:</p> <p>1. Mathematics</p> <p>2. Physics</p>											
Assessment methods and criteria	<table border="1" data-bbox="451 1059 1487 1182"> <thead> <tr> <th data-bbox="451 1059 794 1093">Subject passing criteria</th> <th data-bbox="794 1059 1137 1093">Passing threshold</th> <th data-bbox="1137 1059 1487 1093">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 1093 794 1126">Colloquium for credit from lecture</td> <td data-bbox="794 1093 1137 1126">50.0%</td> <td data-bbox="1137 1093 1487 1126">60.0%</td> </tr> <tr> <td data-bbox="451 1126 794 1182">Colloquium for credit from exercises</td> <td data-bbox="794 1126 1137 1182">50.0%</td> <td data-bbox="1137 1126 1487 1182">40.0%</td> </tr> </tbody> </table>			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%
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Recommended reading	<p>Basic literature</p> <p>Supplementary literature</p> <p>eResources addresses</p>	<p>1. Raven, F. H., Automatic control engineering, McGraw Hill Co., 1986.</p> <p>2. Nise N. S., Control system engineering, John Wiley & Sons Inc., 2000.</p> <p>3. Friedland B., Control System Design, McGraw Hill Co., 1986.</p> <p>. Ogata K., Modern Control Engineering, 4th edition, Prentice Hall, 2002.</p>										
Example issues/ example questions/ tasks being completed												
Work placement	Not applicable											