



Subject card

Subject name and code	, PG_00056288						
Field of study	Ocean Engineering						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group					
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 Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Mohammad Ghaemi				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	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	The main aim of the subject is education of students in the range of 3 fundamentals of marine control systems: course and trajectory control, ship propulsion system control and roll stabilisation systems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems		The student has a structured knowledge of engineering design methods enabling the implementation of conceptual designs in the field of major ship control systems, including the course and trajectory control system, the propulsion control system, and the ship's roll stabilization system.		[SW1] Assessment of factual knowledge		
	[K6_W08] has knowledge of the principles of sustainable development		The student has knowledge of the principles of sustainable development in the field of ship automation; including basic knowledge in the field of analyzing and designing automation systems used in ship technology for guidance and control of ocean engineering facilities, taking into account motion stability, propulsion, marine and maneuvering features.		[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 a simple engineering task and its specification in the field of design and operation of three most important ship control systems, i.e. course and trajectory control systems, propulsion control system, and the ship's roll stabilization system.		[SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	1. The concept and introduction and principle definitions 2. Mathematical model of ship motion 3. Environmental disturbances: wind, wave and current 4. Ship manoeuvrability 5. Ship course control 6. Ship trajectory control 7. Ship roll control 8. Ship speed control 9. Ship motion model identification											
Prerequisites and co-requisites	Preceding subjects: 1. Fundamentals of ocean engineering 2. Mechanics I 3. Fundamentals of ship power plants, 2. Fundamentals of automatics.											
Assessment methods and criteria	<table border="1" data-bbox="451 423 1487 548"> <thead> <tr> <th data-bbox="451 423 798 456">Subject passing criteria</th> <th data-bbox="805 423 1141 456">Passing threshold</th> <th data-bbox="1149 423 1487 456">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 468 798 501">Presence and activity: 5 points</td> <td data-bbox="805 468 1141 501">0.0%</td> <td data-bbox="1149 468 1487 501">4.0%</td> </tr> <tr> <td data-bbox="451 512 798 548">1 colloquium, 100 points, duration: 1 hour</td> <td data-bbox="805 512 1141 548">56.0%</td> <td data-bbox="1149 512 1487 548">96.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Presence and activity: 5 points	0.0%	4.0%	1 colloquium, 100 points, duration: 1 hour	56.0%	96.0%
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Recommended reading	Basic literature	Basic literature 1. 2. Fossen T. I., Handbook of Marine Craft Hydrodynamics and Motion Control, John Wiley & Sons, 2011. 2. Thor I. Fosen: Marine Control Systems, Marine Cybernetics AS, 2002.										
	Supplementary literature	1. Thor I. Fossen: Guidance and Control of Ocean Vehicles. John Wiley and Sons, 1994.										
	eResources addresses	Adresy na platformie eNauczanie:										
Example issues/ example questions/ tasks being completed	.											
Work placement	Not applicable											