



Subject card

Subject name and code	Monitoring of Ship, PG_00045081						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject				2022/2023	
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 inż. Mohammad Ghaemi				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	45.0	0.0	0.0	0.0	15.0	60
	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	60		7.5		32.5	100
Subject objectives	The aim of the course is to develop students' skills and knowledge of the principles of functioning and operation of systems for tracking the position of floating objects and monitoring the technical condition of the ship.						
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 structured knowledge about: - the purposes of monitoring the position and technical condition of the ship and its systems,, - ship parameters and variables to be monitored, - devices and methods of monitoring the selected vessel variables and its systems, - essential ship monitoring requirements and related standards.			[SW2] Assessment of knowledge contained in presentation	
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		The student has structured knowledge in respect to conceptual design and operation of systems and devices used for monitoring the position of vessels, as well as the technical condition of ship systems.			[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 systems and devices for monitoring the position of floating objects and the technical condition of ship systems used on shipboard.			[SU2] Assessment of ability to analyse information	

Subject contents	<p>1. Introduction, general objectives and scope of ship monitoring, basic concepts 2. Standards and requirements for ship monitoring 3. Ship tracking and monitoring systems, incl. AIS and VMS:</p> <ul style="list-style-type: none"> • purpose and scope • system parameters and variables, • tools and equipment, • methods and existing layout. <p>4. Systems for monitoring the technical condition of the ship's hull and structure:</p> <ul style="list-style-type: none"> • purpose and scope • system parameters and variables, • tools and equipment, • methods and existing layout. <p>5. Systems for monitoring the technical condition of the ship's propulsion system and power plant</p> <ul style="list-style-type: none"> • purpose and scope • system parameters and variables, • tools and equipment, • methods and existing layout. <p>6. Systems of data acquisition, managing and transferring</p>											
Prerequisites and co-requisites	<ul style="list-style-type: none"> • Fundamentals of automatics 											
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Subject passing criteria</th> <th style="width: 33%;">Passing threshold</th> <th style="width: 33%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Final colloquium</td> <td>56.0%</td> <td>95.3%</td> </tr> <tr> <td>Participation and activities</td> <td>5.0%</td> <td>4.7%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Final colloquium	56.0%	95.3%	Participation and activities	5.0%	4.7%
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Final colloquium	56.0%	95.3%										
Participation and activities	5.0%	4.7%										
Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Ship and Mobile Offshore Unit Automation: A Practical Guide, Henryk Peplinski, Elsevier Science & Technology, 2019. 2. Dokumenty projektu "Stałe monitorowanie bezpieczeństwa statków na morzu" (Detection of safety critical cracks and corrosion in ships using novel sensors and systems based on ultrasonic linear phased array technology) - SHIP INSPECTOR (https://cordis.europa.eu/article/id/92405-continuous-monitoring-of-ship-safety-at-sea/pl) 3. Dokumenty projektu INCASS: Ship Sensors Data Collection & Analysis for Condition Monitoring of Ship Structures & Machinery Systems, January 2016, DOI: 10.3940/rina.sst.2016.13, At: London, UK, (INCASS) 4. Iraklis Lazakis, Konstantinos Dikis, Anna Lito Michala, Gerasimos Theotokatos, Advanced Ship Systems Condition Monitoring for Enhanced Inspection, Maintenance and Decision Making in Ship Operations, Transportation Research Procedia, Volume 14, 2016, Pages 1679-1688, ISSN 2352-1465, https://doi.org/10.1016/j.trpro.2016.05.133 (https://www.sciencedirect.com/science/article/pii/S235214651630134X) 										
	Supplementary literature	<ol style="list-style-type: none"> 1. IMO, International Safety Management (ISM) code, Resolution A.741, 1993 2. BS/ISO 13379-1, Condition monitoring and diagnostics of machines - Data interpretation and diagnostics techniques Part 1: General guidelines, BSI Standards Publication, 2012 3. EC 2009. Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 (Common Rules and Standards for Ship Inspection and Survey Organisations), Official Journal of the European Union. 4. PINTELON, L. & PARODI-HERZ, A., Maintenance: An Evolutionary Perspective. Complex System Maintenance Handbook, 2008 										
	eResources addresses	Adresy na platformie eNauczanie:										
Example issues/ example questions/ tasks being completed	.											
Work placement	Not applicable											