GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056318		
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	3.0
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. Lech Rowiński	
	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	15.0	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	25.0	75

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 and its systems.

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 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
[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_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

Subject contents	1. Introduction, general objectives and scope of ship monitoring, basic concepts 2. Standards and requirements for ship monitoring 4. Sensors applied in ship monitoring systems 3. Ship tracking and monitoring systems, incl. AIS and VMS: • purpose and scope • system parameters and variables, • tools and equipment, • methods and existing layout. 4. Systems for monitoring the technical condition of the ship's hull and structure: • purpose and scope • system parameters and variables, • tools and equipment, • methods and existing layout. 5. Systems for monitoring the technical condition of the ship's propulsion system and power plant • purpose and scope • system parameters and variables, • tools andd equipment, • methods and existing layout. 6. Systems of data aquisation, managing and transfering
Prerequisites and co-requisites	• Fundamentals of automatics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final colloquium	56.0%	95.3%
Participation and activities	5.0%	4.7%

Recommended reading

Basic literature	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	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