



Subject card

Subject name and code	, PG_00056330						
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		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	3		Language of instruction		Polish		
Semester of study	6		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. Jerzy Kowalski				
	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 familiarize students with the concept of ship operability by combining ship manoeuvrability and sea-keeping analysis in the context of ship safety as an overall system, reliable and, if possible, optimal operation of all ship subsystems, taking into account interactions between these subsystems, as well as interactions between the ship and its subsystems with the ship's environment, and also the safety and comfort of the crew and passengers, and the cargo safety.						
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 has a structured basic knowledge of the integrated ocean engineering systems in terms of safety, reliability, and comfort by considering ship's subsystems interactions and environmental conditions.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
	[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 the engineering methods needed for the general analysis of the maneuvering and sea-keeping characteristics of a ship as an integrated system containing interacted subsystems.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
	[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 the ship operability indexes.		[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_W08] has knowledge of the principles of sustainable development		knows the principles of sustainable development		[SW1] Assessment of factual knowledge		

Subject contents	1. Basic concepts: system, subsystem, integrated system, subsystem interactions, ship operability 2. Modeling of the ship's motion and its subsystems 3. Review of the maneuvering characteristics of the ship and the applied criteria in this regard 4. Review of the ship's sea-keeping criteria and analysis of environmental impacts 5. Ship's operability criteria and indexes 6. Analysis of the ship's operability and its tools		
Prerequisites and co-requisites	- Marine hydromechanics - Systems theory (basic level)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presentation	50.0%	25.0%
	Colloquium	50.0%	75.0%
Recommended reading	Basic literature	Lloyd, A.R.J.M. (1998). Seakeeping: Ship Behaviour in Rough Weather, Revised ed. Gosport, England: A.R.J.M. Lloyd publisher. Lewandowski, Edward M (2004). The Dynamics of Marine Craft: Maneuvering and Seakeeping. New Jersey: World Scientific.	
	Supplementary literature	Mohammad Hossein, Olszewski, Henryk. (2017). TOTAL SHIP OPERABILITY REVIEW, CONCEPT AND CRITERIA. Polish Maritime Research, 24(SI (93)), 74-81. https://doi.org/10.1515/pomr-2017-0014 .	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	They will be available on the GUT e-Learning platform (e-Nauczania) on a page devoted to this this course.		
Work placement	Not applicable		