



Subject card

Subject name and code	Contemporary Problems in Ship Construction and Technology, PG_00064903						
Field of study	Współczesne zagadnienia konstrukcji i technologii okrętu						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Specialty 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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Karol Niklas				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	30.0	0.0	75
	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	75		12.0		38.0	125
Subject objectives	The purpose of the course is to learn about selected issues in the design and construction of modern ship structures and other offshore structures, such as offshore oil platforms, offshore wind turbines.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_U04] creatively designs or modifies, either entirely or in part, a shipborne or offshore system or process according to a given specification, considering both technical and non-technical aspects, estimating costs and adopting design techniques representative for the field	The student is acquainted with engineering issues related to the process of construction of marine transportation means.	[SU1] Ocena realizacji zadania
	[K7_W04] demonstrates knowledge encompassing selected issues in the field of advanced knowledge, particularly in the scope of methods, techniques, tools, and algorithms specific to Naval Architecture and Ocean Engineering	The student learns selected engineering issues from the field of shipbuilding and offshore.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
	[K7_U01] applies acquired analytical, simulation, and experimental methods, as well as mathematical models for analysis and evaluation of shipborne and offshore systems and processes	The student learns selected engineering issues from the field of shipbuilding and offshore.	[SU4] Ocena umiejętności korzystania z metod i narzędzi
	[K7_U02] formulates and tests hypotheses concerning problems related to shipborne and offshore systems/processes, as well as simple research problems	The student is acquainted with engineering issues related to the process of construction of marine transportation means.	[SU4] Ocena umiejętności korzystania z metod i narzędzi
	[K7_W01] explains and describes, based on general knowledge in the field of scientific disciplines forming the theoretical foundations of Naval Architecture and Ocean Engineering, the construction and principles of operation of marine systems, processes and their components, as well as methods and means of their design and operation	The student is acquainted with engineering issues related to the process of construction of marine transportation means.	[SW2] Ocena wiedzy zawartej w prezentacji
	[K7_U13] evaluates the feasibility and potential for utilizing new technical and technological achievements in accomplishing tasks characteristic for the field of study	The student learns selected engineering issues from the field of shipbuilding and offshore.	[SU2] Ocena umiejętności analizy informacji
Subject contents	Course content – lecture Lecture: Advanced materials in shipbuilding. Automation and digitization in ship design. Structural integrity and fatigue analysis. Safety regulations and compliance. Innovations in hull design. Innovations in the design of selected offshore structures. Supply chain challenges in shipbuilding Environmental sustainability in shipbuilding.		
	Course content – laboratory Laboratory: Selected issues in the area of design and construction of marine structures.		
	Course content – project Project: Execution of the design of a selected offshore structure in a defined scope (e.g. helipad deck; monopile of an offshore wind turbine, hull plating of a new type, etc.).		

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	50.0%	30.0%
	Project	50.0%	30.0%
	Lecture	50.0%	40.0%
Recommended reading	Basic literature	Bruce G., Eyres D. - Ship Construction 7th Edition, Butterworth-Heinemann, ISBN-13: 978-0080972398, 2012 A.D.F. Quinn, <i>Design and Construction of Ports and Marine Structures</i>. N.F. Cornick, <i>Dock and Harbour Engineering</i>. R. Srinivasan, <i>Harbour Dock and Tunnel Engineering</i> Keith Smith, <i>Advances in Marine Structures</i> MARSTRUCT 2021, <i>Developments in the Analysis and Design of Marine Structures</i> DNV-RP-C102 STRUCTURAL DESIGN OF OFFSHORE SHIPS Doerffer Jerzy Technologia budowy kadłubów okrętowych, Wydawnictwo Morskie, 1971. Doerffer J.: Technologia remontów kadłubów okrętowych. WM Gdynia 1966. Przepisy i publikacje PRS https://prs.pl/publikacje/publikacje-do-pobrania/ DNV Rules for Ships https://www.dnv.com	

	Supplementary literature	E.C. Tupper i K.J. Rawson, <i>Basic Ship Theory</i> Volker Bertram i H. Schneekluth, <i>Ship Design for Efficiency and Economy</i> W. Muckle, <i>Naval Architecture for Marine Engineers</i> Adrian Biran i Ruben Lopez Pulido, <i>Ship Hydrostatics and Stability</i> Carlos Guedes Soares i P.K. Das, <i>Analysis and Design of Marine Structures</i> MARSTRUCT 2021, <i>Developments in the Analysis and Design of Marine Structures</i> DNV-RP-C102 STRUCTURAL DESIGN OF OFFSHORE SHIPS Doerffer Jerzy Technologia budowy kadłubów okrętowych, Wydawnictwo Morskie, 1971. Doerffer J.: Technologia remontów kadłubów okrętowych. WM Gdynia 1966. Palasik Lucjan Monter kadłubowy, Wydawnictwo Morskie, 1969 Więckiewicz Wojciech Budowa kadłubów statków morskich, Akademia Morska w Gdyni, ISBN 83-87875-55-4, 2003
	eResources addresses	
Example issues/ example questions/ tasks being completed	Advanced materials in shipbuilding. Automation and digitization in ship design. Structural integrity and fatigue analysis. Safety regulations and compliance. Innovations in hull design. Innovations in the design of selected offshore structures. Supply chain challenges in shipbuilding Environmental sustainability in shipbuilding.	
Practical activities within the subject	Not applicable	

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