GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Contemporary Problems in Ship Construction and Technology, PG_00065550						
Field of study	Współczesne zagadnienia konstrukcji i technologi 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	Part-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	18.0	0.0	9.0	18.0	0.0	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		10.0	70.0	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_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
[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_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_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_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_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

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
	Lecture	50.0%	40.0%
	Project	50.0%	30.0%
	Laboratory	50.0%	30.0%
Recommended reading	Basic literature	Bruce G., Eyres D. - Ship Construction 7th Edition, Butterworth-Heinemann, ISBN-13: 978-0080972398, 2012 A.D.F. Quinn, *Design and Construction of Ports and Marine Structures*. N.F. Cornick, *Dock and Harbour Engineering*. R. Srinivasan, *Harbour Dock and Tunnel Engineering* Keith Smith, *Advances in Marine Structures* MARSTRUCT 2021, *Developments in the Analysis and Design of Marine Structures* 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, *Basic Ship Theory* Volker Bertram i H. Schneekluth, *Ship Design for Efficiency and Economy* W. Muckle, *Naval Architecture for Marine Engineers* Adrian Biran i Ruben Lopez Pulido, *Ship Hydrostatics and Stability* Carlos Guedes Soares i P.K. Das, *Analysis and Design of Marine Structures* MARSTRUCT 2021, *Developments in the Analysis and Design of Marine Structures* 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 activites within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.