GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Vessel Architecture & Design, PG_00070353		
Field of study	Naval Architecture and Offshore Structures		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2026/2027
Education level	second-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	1	Language of instruction	English
Semester of study	1	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Hydromechanics and Ship Design -> 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. sztuki Paweł Gełesz	
	Teachers	mgr inż. Michał Struk dr hab. sztuki Paweł Gełesz	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	45.0	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	5.0	20.0	100

Subject objectives	To familiarize students with the most important aspects of ship architecture design. The course covers the following topics: - ship shape and structural design, - ship architectural designuser-centered, - incorporating the technical and local cultural context into the design process (particularly in the area of small and inland vessels serving as public transportation).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_U03] identifies and formulates task specifications in the scope of shipborne and offshore systems/ processes design, including non-standard problems also accounting for their non-technical aspects	An awareness of the impact of non-technical factors on an engineer's work and the impact of engineering activities on the natural environment.	[SU2] Assessment of ability to analyse information
[K7_W03] demonstrates structured and theory supported knowledge encompassing key issues in the field of Naval Architecture and Ocean Engineering, enabling developement and synthesis of shipborne and offshore systems, devices, and processes	Knowledge of technology in the broadest sense and the ability to apply it to solving design problems.	[SW3] Assessment of knowledge contained in written work and projects
[K7_K82] is equipped to participate actively in lectures, seminars and laboratory classes conducted in foreign language	Active participation in seminars conducted in English. Leading discussions, moderating, and summarizing.	[SK4] Assessment of communication skills, including language correctness [SK1] Assessment of group work skills
[K7_W12] identifies and interprets the main developmental trends and significant new achievements in the field of engineering and technical sciences and disciplines relevant to the course of study Naval Architecture and Offshore Structures	An understanding of the current state of the art, scientific achievements, and leading implementations in the field	[SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture
An introduction to the broad field of ship architecture design, illustrated by examples of:

- small autonomous vessels,
- inland waterway vessels as components of public transportation systems,
- the ship architecture design process (research-based and participatory approaches),
- user-centered design methods (ships bridge)
- aesthetic contexts related to the perception of ship architecture

Course content – project
Design of a ships midship cross-section in accordance with CSR requirements:

Review of requirements
Impact of design guidelines and requirements.
Impact of the ships operating conditions.
Impact of construction and operating costs.

Preparation of simplified stability information and a ship loading plan:
Impact of the ships strength on the loading method and maximum ship capacity.
Change in ship stability during loading operations.
Importance of loading sequence for safety.
Design of a wheelhouse layout in accordance with requirements:
Overview of requirements
Impact of ergonomic guidelines and requirements

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
design works	50.0%	100.0%

Recommended reading

Basic literature

Ship design: methodologies of preliminary design, Apostolos Papanikolaou, Springer ISBN: 978-94-017-8751-2

Building on the sea : form and meaning in modern ship architecture, Peter Quatermaine, ISBN 9781854904461

	Supplementary literature	DESIGN METHODOLOGY FOR SMALL PASSENGER SHIPS ON THE EXAMPLE OF THE FERRYBOAT MOTŁAWA 2 DRIVEN BY HYBRID PROPULSION SYSTEM, Paweł Gełesz, Artur Karczewski, Janusz Kozak, Wojciech Litwin, Łukasz Piątek, POLISH MARITIME RESEARCH Special Issue 2017 S1 (93) 2017 Vol. 24
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activites within the subject	Not applicable	

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