GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Design of Ship Machinery and Equipment, PG_00064901		
Field of study	Naval Architecture and Offshore Structures		
Date of commencement of studies	February 2026	Academic year of realisation of subject	2026/2027
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	Division of Marine Auxiliary Machinery -> Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Wojciech Litwin	
	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	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	12.0	38.0	125

Subject objectives	Students should have basic knowledge of ship auxiliary equipment and structures. Students should have basic ship design skills.

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	Gaining knowledge about ship equipment.	[SU1] Assessment of task fulfilment
	[K7_U02] formulates and tests hypotheses concerning problems related to shipborne and offshore systems/processes, as well as simple research problems	Acquiring knowledge and skills in designing ship equipment.	[SU3] Assessment of ability to use knowledge gained from the subject
	[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	Gaining knowledge regarding the ship's equipment.	[SU3] Assessment of ability to use knowledge gained from the subject
	[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	Gaining knowledge about ship equipment.	[SW1] Assessment of factual knowledge
	[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	Gaining knowledge about ship equipment.	[SW1] Assessment of factual knowledge
	[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 has the skills to design selected ship equipment.	[SU1] Assessment of task fulfilment

Subject contents	1. Pipelines, valves and pumps 2. Ballast and bilge systems. 3. Rescue equipment 4. Tanker and gas carrier systems 5. Auxiliary power 6. Power transfer. The propeller shaft, bearings and sealings 7. Steering gears 8. Bow thrusters, stabilizers 9. Refrigeration 10. Heating, ventilation and air conditioning 368 11. Deck machinery (anchoring, mooring, other) 12. Other cargo and processing machinery (fishing ships etc.)
Prerequisites and co-requisites	Knowledge of machine design, strength of materials and metallurgy. Ability to use specialized CAD software during design classes.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
lecture - exam	50.0%	50.0%
design	50.0%	50.0%

Recommended reading

Basic literature	Online database, avialble from university network, knowell.com Marine Auxiliary Machinery, 7th Edition, 1998, H D MCGEORGE, ISBN: 9780750643986
Supplementary literature	Introduction to Marine Engineering D. A. Taylor ISBN 0750625309 Mechanical Design Engineering Handbook, 1st Edition 2013, Peter Childs, ISBN: 9780081013069 Reeds Marine Engineering and Technology Volume 11: Engineering Drawing 9781472987495
eResources addresses	

Example issues/ example questions/ tasks being completed	Please sketch a diagram of the mooring system of a large cargo ship. Please sketch the oil-lubricated bearing system and the ship's propeller shaft seal. Please sketch a schematic diagram of the ballast system of a small ship. Please sketch a diagram of the refrigeration system and name the important components.
Work placement	Not applicable

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