GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Auxiliary Machinery and Equipment of Ships, PG_00070361		
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 English
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Wojciech Litwin	
	Teachers	dr inż. Jacek Nakielski prof. dr hab. inż. Wojciech Litwin	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	15.0	30.0	0.0	105

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=8570

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	105	5.0	15.0	125

Subject objectives

Familiarizing students with the systems and equipment installed on the ship.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[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 is able to discuss the operating principles and construction of marine machinery and systems.	[SW1] Assessment of factual knowledge
[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 is able to perform calculations and select auxiliary machinery for ship systems.	[SU4] Assessment of ability to use methods and tools
[K7_U02] formulates and tests hypotheses concerning problems related to shipborne and offshore systems/processes, as well as simple research problems	The student is able to solve technical problems related to auxiliary machinery and ship systems.	[SU1] Assessment of task fulfilment
[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 understands the operating principles and is able to carry out design work related to ship auxiliary equipment.	[SW1] Assessment of factual knowledge

<table>
<tr><td>Subject contents</td><td>Course content – lecture

Ship piping systems and their components (bilge, ballast, cargo heating, and others). Power transmission from the reduction gear to the propeller (shaft line). Anchoring and mooring equipment. Sources of electric and hydraulic power on board. Ship electrical systems. Steering gear. Thrusters. Fire protection. Refrigeration and ventilation.

Course content – exercises

Ship piping systems and their components (bilge, ballast, cargo heating, and others). Power transmission from the reduction gear to the propeller (shaft line). Anchoring and mooring equipment. Sources of electric and hydraulic power on board. Ship electrical systems. Steering gear. Thrusters. Fire protection. Refrigeration and ventilation.

Course content – laboratory

Ship piping systems and their components (bilge, ballast, cargo heating, and others). Power transmission from the reduction gear to the propeller (shaft line). Anchoring and mooring equipment. Sources of electric and hydraulic power on board. Ship electrical systems.

Course content – project

Ship piping systems and their components (bilge, ballast, cargo heating, and others). Power transmission from the reduction gear to the propeller (shaft line). Anchoring and mooring equipment. Sources of electric and hydraulic power on board. Ship electrical systems. Steering gear. Thrusters. Fire protection. Refrigeration and ventilation.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Engineering knowledge and skills in performing calculations and preparing documentation within the discipline of mechanical engineering.</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Exercises</td><td>50.0%</td><td>25.0%</td></tr>
<tr><td>Lecture</td><td>50.0%</td><td>25.0%</td></tr>
<tr><td>Project work</td><td>50.0%</td><td>25.0%</td></tr>
<tr><td>Laboratory</td><td>50.0%</td><td>25.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>https://prs.pl/publikacje/publikacje-do-pobrania/
https://www.dnv.com/
https://ww2.eagle.org/en.html (American Bureau of Shipping (ABS))</td></tr>
<tr><td>Supplementary literature</td><td>Knowell database</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table>
</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Sketch and describe the ship's bilge and ballast system. Sketch and describe the propulsion transmission system (engine to propeller). Describe the propeller shaft assembly. Describe the ship's anchoring and mooring system. Electrical power on board a ship. Ship steering gear – basic types and operating principles. Fire protection on board a ship.</td></tr>
<tr><td>Practical activites within the subject</td><td>Field exercises</td></tr>
</table>

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