GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Selected problems of Ship Structures, PG_00060549		
Field of study	Design and Construction of Yachts, Naval Architecture and Offshore Structures		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Optional 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	3	Language of instruction	Polish
Semester of study	6	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Mechaniki Konstrukcji Oceanotechnicznych -> Institute Of Naval Architecture -> Faculty Of Mechanical Engineering And Ship Technology -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Wołoszyk	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	45.0	0.0	0.0	45.0	0.0	90

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	90	9.0	51.0	150

Subject objectives

The aim of the subject is to acknowledge the students with some selected problems related to ship structures, e.g. structural problems related to particular ship types, problems of structural damages and methods of repair, etc. During project, students will verify the structural strength of designed ship hull in terms of various structural requirements according to guidelines of Classification Societies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] has knowledge in the field of technical mechanics, fluid mechanics, strength of materials, necessary to understand the basic physical phenomena occurring in ocean engineering	Student knows the selected problems related to strength of ship structures for particular ship types	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K6_K02] can work in a team, assuming various roles, can act in a rational and ethical way	Student is able to verify the strength of ship hull and propose the rational way of structural strengthening	[SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work
[K6_U04] has skills that allow for self-education and preparation for work in an industrial environment, including the application of occupational health and safety rules	Student is able to solve the constructional problem by finding the proper information	[SU2] Assessment of ability to analyse information [SU5] Assessment of ability to present the results of task [SU3] Assessment of ability to use knowledge gained from the subject

Subject contents

During lectures - acknowledgement with some selected problems related to ship structures, e.g. structural problems related to particular ship types, problems of structural damages and methods of repair, etc. During project, students will verify the structural strength of designed ship hull in terms of various structural requirements according to guidelines of Classification Societies.

Prerequisites and co-requisites

Knowledge from subjects: Technical Mechanics, Strength of Materials, Basics of Ship Design and Material Science

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Presentation of project work</td><td>50.0%</td><td>15.0%</td></tr>
<tr><td>Report from project work</td><td>50.0%</td><td>45.0%</td></tr>
<tr><td>Test from lectures</td><td>60.0%</td><td>40.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Mansour, A., Liu, D., Strength of Ships and Ocean Structures. The Society of Naval Architects and Marine Engineers, 2008

Polish Register of Shipping, Rules for classification and construction of sea-going ships, Part II Hull. 2019.

IACS, Guidelines for Surveys, Assessment and Repair of Hull Structure Bulk Carriers, 2007.

IACS, Common Structural Rules for Bulk Carriers and Oil Tankers, 2023.

DNV. Class Guideline DNVGL-CG-0127. Finite Element Analysis. 2015.</td></tr>
<tr><td>Supplementary literature</td><td>IACS, Guidelines for Surveys, Assessment and Repair of Hull Structure Container Ships, 2017.</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">Example problems:

1. Describe the structural problems in large container ships.

2. Describe the typical structural failures in ships and ways of their repair.

3. Desrbibe the phenomenon of ultimate strength of ship hull girder.

Example project tasks:

1. The analysis of stregth of PSM of midship section of hull of general cargo ship with the use of shell-beam FE model.

2. The analysis of buckling strength of selected structural members.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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