GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056310		
Field of study	Ocean Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
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	5	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Zakład Mechaniki Konstrukcji Oceanotechnicznych -> Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Krzysztof Wołoszyk	
	Teachers	dr inż. Wojciech Puch dr inż. Krzysztof Wołoszyk	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

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	30	3.0	17.0	50

Subject objectives

To give students basic information on ships hull structures and offshore structures; in particular: - requirements of international conventions and classification rules; - arrangement of basic types of ships hulls and offshore structures - loads on ship hulls and offshore structures; - stressess in ship hull structures, offshore structures and criteria of strength; - materials for ship hulls and offshore structures; - welded connections; - design of particular ship hull structure regions (bottom, sides, decks, bulkheads, fore and aft parts) and basic types of offshore structures.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W06] has an organized knowledge on engineering methods and design tools allowing the conducting of projects within the construction and operation of ocean technology objects and systems	Student knows structures of typical floating objects and understands restrictions indicating from criteria to be fulfilled (stability, strength, technoligical aspects) and knows basic methods of strength analysis.	[SW1] Assessment of factual knowledge
[K6_W08] has knowledge of the principles of sustainable development	Student understand the impact of international conventions and norm as well as rules of classification societies regarding the stability, strength of ship or marine structures and properties of used materials on safety of ships or marine structures (crew, passengers and cargo) and protection of marine environment.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

Problems discussed during the lectures: - requirements of international conventions, classification rules and international standards for offshore systems; - basic definitions and terms concerning ship hulland offshore systems; - basic properties of ship hull structure and offshore structures; - arrangement of basic types of ships hulls and offshore systems; - loads on ship hulls and offshore structures; - stressess in ship hull structures and offshore structures; - criteria of strength (sterss level, buckling, fatigue); - materials for ship hullsand offshore structures; - protection of structures against corrosion and corrosion additions; - welded connections between structures items; - design of particular ship hull structure regions (bottom, sides, decks, bulkheads, fore and aft parts) and offshore systems

Prerequisites and co-requisites

Student should have some knowledge on theory of ships, technical mechanics, design materials and technical drawings.

<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>test (written form)</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>1. M.Bogdaniuk, Lectures on Offshore Structures (in polish language only). 2. Robert Taggart(Editor), Ship Design and Construction, The soc. Of Nav. Arch. And Marine Eng., New York,1980. 3. Polski Rejestr Stratków, Publication 105/P Marine Units. Fixed Offshore Platforms and Equipment Rules for the Construction and Survey, 2018. 4. Polski Rejestr Statków, Rules for classification and building of seagoing ships, Part II Hull, Gdańsk, 2019. 5. Mohamed A. El-Reedy, Offshore Structures design, Construction and Maintenance, Elsevier, 2012.</td></tr>
<tr><td>Supplementary literature</td><td>1. IACS, Common Structural Rules for Bulk Carriers and Oil Tankers, 2018.</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">1. What is the influence of international conventions requirements on ship hull structure? 2. What is the scope of classification societies activities? 3. Show arrangement of the hull of a bulker, tanker, container ship or Ro-Ro ship. 4. Show arrangement of a typical self-elevating or semisubmersible platform. 5. Describe loads on ship huli or offshore structures. 6. Describe the methods applied to analyse longitudinal, local or zone strength of ship hull structure/ offshore structure. 7. What methods are used to prevent ship structures/offshore structures from fatigue cracking?</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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