GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Ship Theory, PG_00060462		
Field of study	Mechanical and Naval Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	first-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	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	5.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Michał Krężelewski	
	Teachers	mgr inż. Olga Kazimierska dr inż. Michał Krężelewski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	18.0	18.0	0.0	0.0	0.0	36

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	36	8.0	81.0	125

Subject objectives

The introduction to the basic issues of the Ship Theory. Uses the laws and methods of Ship Theory and can apply them to practical problems.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W12] has a knowledge on hydromechanics, thermodynamics, machine construction, ecology, materials science and electronics necessary to understand the construction and operation principles of ocean technology objects and equipment	has a knowledge on hydromechanics to understand the construction and operation principles of ocean technology objects and equipment	[SW1] Assessment of factual knowledge
[K6_W13] has an organized knowledge on design, construction and operation of ocean technology objects and systems	has an organized knowledge on design, construction and operation of ocean technology objects and systems	[SW1] Assessment of factual knowledge
[K6_U12] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems	can formulate a simple engineering task and its specification within the range of design and operation of ocean technology objects and systems	[SU3] Assessment of ability to use knowledge gained from the subject

<table>
<tr><td>Subject contents</td><td>Lecture:
Basic propulsion task.
Fundamentals of experiment in shipbuilding.
Ship resistance: components of resistance, methods of determination.
Fundamentals of wing theory.
Ship propulsors. Ideal propeller theory. Geometry of the ship propeller. Hydrodynamic characteristics of the ship propeller.
Hull and propeller interaction.
Manoeuvring characteristics of a ship. Manoeuvring tests. Steering devices. Selection of the classical rudder.
Introduction to seakeeping.
Exercises:
Ship statics and stability: theory, regulations, practical examples and exercises.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></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>Lecture - test</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Tutorial - test</td><td>60.0%</td><td>50.0%</td></tr>
</table>
</td></tr>
<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Dudziak J. Teoria okrętu, Fundacja Promocji Przemysłu Okrętowego i Gospodarki Morskiej, Gdańsk 2008
Frąckowiak M. Statyka okrętu, skrypt PG, Gdańsk 1983
Wełnicki W. Mechanika ruchu okrętu, skrypt PG, Gdańsk 1989</td></tr>
<tr><td>Supplementary literature</td><td>Wilson P. A. Basic Naval Architecture: Ship Stability, Springer 2018
Rawson K.J. Tupper E.C. Basic Ship Theory, vol. 1 and 2, Butterworth-Heinemann Oxford 2001
Lee B.S. Hydrostatics and Stability of Marine Vehicles: Theory and Practice, Springer 2019
Molland A.F. The Maritime Engineering Reference Book - a Guide To Ship Design, Construction And Operation, Butterworth-Heinemann Oxford 2008</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Why do we design ship propellers to have the highest possible efficiency?
List the components of total ship resistance.
Why do we consider the theory of the ideal propeller?
Basic geometrical parameters of a ship propeller.
Hydrodynamic characteristics of the ship propeller.
Geometrical characteristics of the ship's rudder.
How is the influence of the ship's hull on the operation of the ship propeller taken into account?
List the manoeuvring tests whose parameters are standardised by IMO.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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