GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056295		
Field of study	Ocean Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	
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	3.0
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	dr inż. Maciej Reichel dr inż. Michał Krężelewski	

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	0.0	45
	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	45	5.0	25.0	75

Subject objectives

The student identifies ship propellers and explains the basics of their operation. He explains the operation ofpropellers and their cooperation with the ship's hull. Is able to carry out research on the propeller at thestage of the initial ship design.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U06] in compliance with a formulated specification and with the aid of appropriate tools and methods, is able to complete a simple engineering task within the range of design, construction and operation of ocean technology objects and systems	student makes an independent design for the initial selection of a propeller for an existing ship	[SU4] Assessment of ability to use methods and tools
[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 has a basic knowledge of engineering methods and tools for the selection of serial ship propellers	[SW1] Assessment of factual knowledge
[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems	has a systematic basic knowledge of ship propulsors	[SW1] Assessment of factual knowledge
[K6_K03] understands non-technical aspects and effects of operation as an engineer, its influence on the environment and is aware of the responsibilities for the decisions taken	understands the non-technical aspects and consequences of poor ship propeller selection, its impact on the marine environment and is aware of the responsibility for his decisions	[SK5] Assessment of ability to solve problems that arise in practice

<table>
<tr><td>Subject contents</td><td>The basic propulsion problem of the ship. Resistance of displacement ships: division, determination methodsand model tests. Hydrodynamic characteristics of the airfoil. Ship propellers. The ideal propulsor theory.Geometric characteristics of the propeller. The elementary screw theory. Hydrodynamic characteristics ofthe propeller: determination methods and model tests. Cavitation phenomenon. Hull - propeller interaction.Overall propulsive efficiency. Propulsive and propeller characteristics. Selection of the serial propeller at thestage of the initial ship design.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>Ship Theory I</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>Laboratory</td><td>100.0%</td><td>50.0%</td></tr>
<tr><td>Lecture</td><td>60.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Dudziak Jan TEORIA OKRĘTU WYDAWNICTWO MORSKIE, GDAŃSK 1988
Krężelewski Mieczysław HYDROMECHANIKA OGÓLNA I OKRĘTOWA CZ.II SKRYPT PG GDAŃSK 1982
Wełnicki Wiesław MECHANIKA RUCHU OKRĘTU SKRYPT PG, GDAŃSK 1989</td></tr>
<tr><td>Supplementary literature</td><td>Wełnicki Wiesław STEROWNOŚĆ OKRĘTU PWN WARSZAWA 1966
Birk L. Fundamentals of Ship Hydrodynamics, John Wiley & Sons Ltd 2019
Molland A.F. The Maritime Engineering Reference Book - a Guide ToShip Design, Construction And Operation, Butterworth-HeinemannOxford 2008</td></tr>
<tr><td>eResources addresses</td><td>Adresy na platformie eNauczanie:</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Basic propulsion task.Fundamentals of experiment
Ideal propeller theoryHull and propeller interaction.Basic geometrical parameters of a ship propeller.Hydrodynamic characteristics of the ship propeller</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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