



Subject card

Subject name and code	, PG_00056295						
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				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. Michał Krężelewski mgr inż. Hanna Pruszeko				
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 of propellers and their cooperation with the ship's hull. Is able to carry out research on the propeller at the stage of the initial ship design.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[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		
	[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_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_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		

Subject contents	<p>The basic propulsion problem of the ship. Resistance of displacement ships: division, determination methods and model tests. Hydrodynamic characteristics of the airfoil. Ship propellers. The ideal propulsor theory. Geometric characteristics of the propeller. The elementary screw theory. Hydrodynamic characteristics of the propeller: determination methods and model tests. Cavitation phenomenon. Hull - propeller interaction. Overall propulsive efficiency. Propulsive and propeller characteristics. Selection of the serial propeller at the stage of the initial ship design.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	100.0%	50.0%
	Lecture	60.0%	50.0%
Recommended reading	Basic literature	<p>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</p>	
	Supplementary literature	<p>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 To Ship Design, Construction And Operation, Butterworth-Heinemann Oxford 2008</p>	
	eResources addresses	<p>Adresy na platformie eNauczenie: Mechanika Ruchu Okrętu I (W/L), BOiJ, sem. 5, zimowy, 2023/24 - Moodle ID: 33560 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=33560</p>	
Example issues/ example questions/ tasks being completed	<p>Basic propulsion task. Fundamentals of experiment Ideal propeller theory. Hull and propeller interaction. Basic geometrical parameters of a ship propeller. Hydrodynamic characteristics of the ship propeller</p>		
Work placement	Not applicable		

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