



Subject card

Subject name and code	Ship Theory 2, PG_00051267						
Field of study	Ocean Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Institute of Naval Architecture -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Przemysław Krata				
	Teachers		mgr inż. Filip Zarzycki dr hab. inż. Przemysław Krata				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	15.0	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 objectives are to outline the general background of hydrostatic calculations applicable to ships, yachts and other floating structures. The introduced stability principles are to constitute the basis for future stability calculations performed during the ship design process.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W03] has a basic 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		The student has a structured knowledge of the static conditions of the ship and the basics of its stability.		[SW1] Assessment of factual knowledge		
	[K6_U05] can formulate a simple engineering task and its specification within the range of design, construction and operation of ocean technology objects and systems		The student is able to identify problems related to buoyancy and stability of the ship and is able to outline correctly the area of engineering search for solutions to these problems.		[SU1] Assessment of task fulfilment		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		The student is able to use the knowledge in the field of ship stability to perform calculations verifying the stability at the initial stage of designing a floating structures.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	Basics of determining hydrostatic curves.		
	Initial stability of the ship.		
	Calculation of the drafts at perpendiculars.		
	Stability at large angles of heel. The static stability curve and its interpretation.		
	Determination of the static angle of heel of the ship.		
	Fundamentals of dynamic stability of a ship.		
Prerequisites and co-requisites	Basic knowledge of physics and technical mechanics. Ability to use selected computational tools.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	assigned task evaluation	50.0%	100.0%
Recommended reading	Basic literature	Derret, Stability for mates and masters	
	Supplementary literature	Kobyliński L., Kastner S., 2003. Stability and safety of ships, Volume I, Regulation and Operation, Elsevier Ocean Engineering Book Series, volume 9.	
	eResources addresses	Podstawowe https://www.azoresuperyachtservices.pt/images/downloads/SHIP%20STABILITY/Ship%20Stability%20(Masters%20and%20Mates)%20-%20Bryan%20Barrass%20and%20D.R%20Derrett.pdf - The book Stability for mates and masters Adresy na platformie eNauczanie: Teoria Okrętu II sem. letni 2023/2024 - Moodle ID: 37630 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=37630	
Example issues/ example questions/ tasks being completed	Computation of of the Bonjean scale and the hydrostatic curves.		
	Determining the displacement and coordinates of the center of gravity.		
	Determination of the ship's stability characteristics for small and large angles of heel.		
	Determination of small and large static angle of heel of a ship subjected to external heeling moment.		
	Determination of the dynamic angle of heel of the ship.		
Work placement	Not applicable		

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