



## Subject card

Subject name and code	Mechanics of Ship Structures, PG_00045059						
Field of study	Ocean Engineering, Ocean Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2022/2023		
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		6.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Ocean Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Bogdan Rozmarynowski				
	Teachers		mgr inż. Paweł Bielski  dr inż. Wojciech Puch  dr hab. inż. Bogdan Rozmarynowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	15.0	0.0	0.0	75
	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	75		13.0		57.0	145
Subject objectives	Student analyses internal forces in different types of the ship structures: frames, discs, plates and shells.  Student defines state of stresses in these elements.  Student estimates stability of the structure elements.  Student describes types of the vibration of the ship 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		[SW3] Assessment of knowledge contained in written work and projects
	[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 analyses internal forces in different types of the ship structures: frames, discs, plates and shells.  Student defines state of stresses in these elements.  Student estimates stability of the structure elements.  Student describes types of the vibration of the ship structures.	[SU3] Assessment of ability to use knowledge gained from the subject
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		[SW3] Assessment of knowledge contained in written work and projects
Subject contents	Classification of the structure elements. Statics of frames. Theory of discs, plates and shells. Stability - buckling modes and critical stresses. Finite Element Method - statics, stability and dynamics. Free and enforced vibration of ships and its elements.		
Prerequisites and co-requisites	Knowledge of the mechanics basis. Mathematics - differential and integral calculus.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	tests	25.0%	40.0%
	reports	10.0%	20.0%
	Lecture test	25.0%	40.0%
Recommended reading	Basic literature	Timoshenko, Woinowsky, Theory of plates and shells, 1961,  Timoshenko, Gere, Theory of elastic stability, 1961,  Dyląg, Jakubowicz, Strength of Materials, WNT, 1983	
	Supplementary literature	Zienkiewicz, Taylor, Finite Element Method Elsevier, 2005.	
	eResources addresses	Adresy na platformie eNauczanie: Mechanika Konstrukcji Okrętu, I stop., Sdz, [W], [BR], 2022/2023, (O: 098210) - Moodle ID: 25443 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25443">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=25443</a>	
	Example issues/ example questions/ tasks being completed	Write the boundary conditions for simply supported plates.  What is the difference in terms of the internal forces state between plates and shells?	
Work placement	Not applicable		