



Subject card

Subject name and code	, PG_00056284						
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	3		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Theory and Ship Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Cezary Żrodowski				
	Teachers		dr inż. Cezary Żrodowski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	0.0	45
	E-learning hours included: 0.0						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=7432						
	Additional information: The lecture can be provided in remote mode in case of necessity.						
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		6.0		49.0	100
Subject objectives	Familiarization with modern CAD/CAM/CAE software used in maritime industry and achieving of basic usage skills, presented on selected exemplary problems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W08] has knowledge of the principles of sustainable development		The student is able to use CAD tools supporting sustainable design		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W05] has an organized knowledge on design, construction and operation of ocean technology objects and systems		The student colorfully selects CAD / CAE tools to the technical problems posed in the field of ocean engineering.		[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	[K6_U03] can use computer-aided design, production and operation tools for ocean technology objects and systems		The student is able to make a simple project in the field of 3D model and 2D drawing.		[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		
Subject contents	1. CAD/CAM/CAE software for maritime industry, functionality, requirements, comparison of available programs. 2. Modeling of parametric hull shape and propeller 3. Modeling of hull compartmentation 4. Calculation of ship hydrostatics and stability 5. Hydrodynamic resistance simulation (CFD) 6. Strength simulations (MES) 7. Optimization of parametric shape with MDO software 8. Generating od 2D documentation on the basis of 3D model.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Presentation of selected subject		50.0%		30.0%		
	Realsation of ongoing exercises		50.0%		70.0%		

Recommended reading	Basic literature	<p>Manuals for selected programs:</p> <ol style="list-style-type: none"> 1. Inventor 2. SolidWorks 3. Siemens NX 4. AVEVA Marine 5. Maat Hydro 6. Star-CCM+ 7. PolyCAD 8. Delft Ship 9. NAPA 10. FORAN 11. Maxsurf <p>Carl Machover: "C4"</p>
	Supplementary literature	<ol style="list-style-type: none"> 1. CAD Forum (https://cad.pl/) 2. Machine Design (https://www.machinedesign.com/)
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Komputerowe wspomaganie projektowania okrętu W, P, Budowa okrętów, sem.03, zimowy 23/24 - Moodle ID: 32549 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=32549</p>
Example issues/ example questions/ tasks being completed	<ul style="list-style-type: none"> • Parametric model of hull form. • Associative model of hull assembly. • CFD simulation of propeller • FEA simulation of simple structure.. 	
Work placement	Not applicable	

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