GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00056284					
Field of study	Ocean Engineering					
Date of commencement of studies	October 2021		Academic year of realisation of subject	2022/2023		
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	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				
		dr inż. Tomasz Hinz				

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_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.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
	[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.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
	[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

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
	Realsation of ongoing exercises	50.0%	70.0%
	Presentation of selected subject	50.0%	30.0%

Recommended reading	Basic literature	Manuals for selected programs: 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 Carl Machover: "C4"
	Supplementary literature	1. CAD Forum (https://cad.pl/) 2. Machine Design (https://www.machinedesign.com/)
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	• Parametric model of hull form. • Associative model of hull assembly. • CFD simulation of propeller • FEA simulation of simple structure..	
Work placement	Not applicable	