GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Aided Design of the Hull, PG_00060542		
Field of study	Design and Construction of Yachts, Naval Architecture and Offshore Structures		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2026/2027
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	4	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute Of Naval Architecture -> Faculty Of Mechanical Engineering And Ship Technology -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Cezary Żrodowski	
	Teachers		

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

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	50.0	100

Subject objectives

Getting to know the characteristics of the available CADCAM/CAE computer-aided design software for the maritime industry and mastering the skills of its use on selected examples of hull design.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U02] can work individually and in a team, communicate through various techniques in professional environment and also record, analyse, and present the results of work, can estimate the time needed to complete a given task	The student demonstrates knowledge of individual and team work techniques built into modern CAD software	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K6_W04] has knowledge in the field of computer science, electronics, electrical engineering, automation and control, information technology, computer graphics, useful for understanding the possibilities of their use in ocean engineering	141 / 5,000 Translation results Translation result The student correctly selects CAD tools for various design problems, taking into account the advantages and disadvantages of mesh and parametric geometry.	[SW3] Assessment of knowledge contained in written work and projects
[K6_K03] is aware of the impact of non-technical aspects on the engineer's work and the impact of engineering activities on the natural environment	The student is able to use functionalities of CAD tools, supporting sustainable design	[SK2] Assessment of progress of work

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	Basic computer skills.

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	Carl Machover: "C4" User's 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
	Supplementary literature	e-learning course o eNauczanie platform
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. Parametric model of hull form. 2. Associative model of hull assembly. 3. CFD simulation of propeller. 4. FEA simulation of simple structure.
Work placement	Not applicable

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