



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 2024	Academic year of realisation of subject			2025/2026		
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						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Cezary Źrodowski				
	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 CAD/CAM/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_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		
	[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_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		[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	<p>1. CAD/CAM/CAE software for maritime industry, functionality, requirements, comparison of available programs.</p> <p>2. Modeling of parametric hull shape and propeller</p> <p>3. Modeling of hull compartmentation</p> <p>4. Calculation of ship hydrostatics and stability</p> <p>5. Hydrodynamic resistance simulation (CFD)</p> <p>6. Strength simulations (MES)</p> <p>7. Optimization of parametric shape with MDO software</p> <p>8. Generating od 2D documentation on the basis of 3D model.</p>											
Prerequisites and co-requisites	Basic computer skills.											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="456 810 794 842">Subject passing criteria</th> <th data-bbox="801 810 1139 842">Passing threshold</th> <th data-bbox="1145 810 1482 842">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 842 794 873">Realsation of ongoing exercises</td> <td data-bbox="801 842 1139 873">50.0%</td> <td data-bbox="1145 842 1482 873">70.0%</td> </tr> <tr> <td data-bbox="456 873 794 904">Presentation of selected subject</td> <td data-bbox="801 873 1139 904">50.0%</td> <td data-bbox="1145 873 1482 904">30.0%</td> </tr> </tbody> </table>			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%
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Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"><li>1. Parametric model of hull form.</li><li>2. Associative model of hull assembly.</li><li>3. CFD simulation of propeller.</li><li>4. FEA simulation of simple structure.</li></ol>
Work placement	Not applicable

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