



Subject card

Subject name and code	CAD, CAM, CAE systems, PG_00057113						
Field of study	Transport and Logistics						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group			Obligatory subject group in the field of study 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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Institute of Ocean Engineering and Ship Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Aleksander Kniat				
	Teachers		mgr inż. Jacek Frost dr inż. Aleksander Kniat				
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						
	Systemy CAD, CAM, CAE W/L TiL st.II, sem.01, letni 2022/2023 - Moodle ID: 29716 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29716						
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	9.0		46.0		100
Subject objectives	The aim of the subject is to prepare students for applying CAD programs in design and modelling of transportation objects and systems						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_K01] The student understands the need for lifelong learning, is able to critically assess the content, knows the importance of knowledge in solving cognitive and practical problems	Student understands and correctly interprets information from professional literature sources			[SK2] Assessment of progress of work		
	[K7_W04] The student has basic knowledge of IT and telecommunication systems in transport and in the area of control in transport systems	Student understands how to use CAD CAM CAE program to enhance design process			[SW1] Assessment of factual knowledge		
	[K7_U03] The student is able to make a detailed analysis of the results obtained, and to develop them in the form of a technical report or presentation, also in English	Student can use CAD program for design or modelling of transportation objects or systems			[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment		

Subject contents	<p>Preparation of 2D documentation - CAD program interface.</p> <p>Preparation of a 3D model and CAD program interface: ribbon bars, features tree, changing features parameters.</p> <p>3D objects: sketches, curves, surfaces, solids.</p> <p>Part creation: solid creation methods (extrusion, lofted extrusion, revolution), cutouts and holes, curve and surface definition, projection, intersection.</p> <p>Parameterization: constraints and dimensions, driving and driven dimensions, parts" family.</p> <p>Assembly creation: loading parts and subassemblies, positioning parts and subassemblies relations, dimensions" control, part modification from assembly.</p> <p>Motion simulation and preparation for numeric calculations.</p> <p>Drawings and documentation: loading views and projections, cross-sections, dimensioning, drawing modification</p>								
Prerequisites and co-requisites	<p>Proficiency in using PC computer.</p> <p>Completed course of Mathematics for mechanical engineers.</p>								
Assessment methods and criteria	<table border="1"> <thead> <tr> <th data-bbox="459 600 786 633">Subject passing criteria</th> <th data-bbox="802 600 1137 633">Passing threshold</th> <th data-bbox="1153 600 1481 633">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="459 640 786 667">exercises completion</td> <td data-bbox="802 640 1137 667">60.0%</td> <td data-bbox="1153 640 1481 667">100.0%</td> </tr> </tbody> </table>	Subject passing criteria	Passing threshold	Percentage of the final grade	exercises completion	60.0%	100.0%		
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Recommended reading	<p>Basic literature</p>	<p>Farin G., Hoschek J., Kim M., Handbook of computer aided geometric design, Elsevier</p> <p>Lee K., Principles of CAD/CAM/CAE systems, Addison-Wesley Longman</p>							
	<p>Supplementary literature</p>	<p>electronic documentation for AutoCAD, Solid Edge and NX</p>							
Example issues/ example questions/ tasks being completed	<p>technical drawings of a controllable pitch propeller parts</p> <p>3D model of a controllable pitch propeller assembly</p>								
Work placement	<p>Not applicable</p>								