



Subject card

Subject name and code	CAD, CAM, CAE systems, PG_00057113						
Field of study	Transport and Logistics						
Date of commencement of studies	February 2024		Academic year of realisation of subject		2023/2024		
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		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						
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_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		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[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_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		

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

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