



Subject card

Subject name and code	Computer-Aided Design in Electrical Engineering, PG_00062601						
Field of study	Electrical Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Electrical Engineering of Transport -> Faculty of Electrical and Control Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Andrzej Wilk				
	Teachers		dr hab. inż. Michał Michna dr inż. Aleksander Jakubowski dr hab. inż. Andrzej Wilk				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		5.0		35.0	100
Subject objectives	<p>The aim of this course is to learn the basics of computer-aided design in electrical engineering.</p> <p>The scope of this subject: 2D graphic modeling techniques; 3D modeling techniques: extrude, loft and sweep. Boolean logic on solids; Creating assemblies and subassemblies from part files; Developing engineering animations; Modern methods of preparing technical documentation; Basics of modal analysis of solid objects in electrical engineering; Computer-aided engineering calculations (CAE); 3D modeling of wire and cable harnesses. Introduction to Multi Body Dynamics module.</p>						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K05		The student is able to respond in emergency and life-threatening situations when using electrical devices.		[SK3] Assessment of ability to organize work		
	K6_K01		The student is aware of the need for continuous education in the field of electrical engineering.		[SK5] Assessment of ability to solve problems that arise in practice		
	K6_W10		The student knows the basics of processing, use and rational use of electricity.		[SW3] Assessment of knowledge contained in written work and projects		
	K6_U09		The student is able to select power equipment for various load conditions.		[SU1] Assessment of task fulfilment		
Subject contents	1. 2D graphic modeling techniques: modifications, transformations and bonds in 2D.2. 3D modeling techniques3. Creating assemblies based on part files.4. Developing engineering animations.5. Modern methods of preparing technical documentation.6. Basics of modal analysis of solid objects in electrical engineering.7. Selected analyzes of computer-aided engineering calculations.8. 3D modeling of wire and cable harnesses.						
Prerequisites and co-requisites	No requirements						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Lecture 40%, Laboratory 60%		60.0%		100.0%		

Recommended reading	Basic literature	Jaskulski A.: Autodesk Inventor Professional 2024 PL / 2024+ / Fusion 360. Metodyka efektywnego projektowania, wydawnictwo HELION
	Supplementary literature	Bordino A.: Autodesk Inventor 2023 Cookbook. A guide to gaining advanced modeling and automation skills for design engineers through actionable recipes, eBook
	eResources addresses	Adresy na platformie eNauczanie: Techniki CAD w pracy inżyniera [EL][23/24] - Moodle ID: 36593 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36593
Example issues/ example questions/ tasks being completed	1. What are the tools for creating assemblies or subassemblies from parts of files? 2. What are adaptive sketches and parts?	
Work placement	Not applicable	