



Subject card

Subject name and code	Computer Aided Design (CAD), PG_00055390						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2022/2023		
Education level	first-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	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			5.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Michał Wasilczuk					
	Teachers	dr hab. inż. Waldemar Karaszewski dr inż. Jacek Czyżewicz mgr inż. Tomasz Żochowski dr hab. inż. Artur Olszewski dr hab. inż. Jacek Łubiński					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	30.0	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		60.0	125
Subject objectives	Acquisition of knowledge and design skills with the use of CAD systems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U03] is able to identify, formulate and develop the documentation of a simple design or technological task, including the description of the results of this task in Polish or in a foreign language and to present the results using computer software or other aiding tools	Student uses CAD tools that enable 3D design, creating 3D documentation, creating 2D documentation. Student uses engineering algorithms of various levels of advancement.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
	[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle	Student uses CAD software tools that use engineering algorithms of various advancement levels. Student uses program libraries and external databases.	[SW2] Assessment of knowledge contained in presentation
	[K6_U07] is able to design a typical construction of a mechanical device, component or a testing station using appropriate methods and tools, adhering to the set usage criteria	Student uses CAD software tools that enable 3D design. Student uses CAD tools that use the finite element method, kinematic analysis, dimensional analysis, etc.	[SU1] Assessment of task fulfilment [SU3] Assessment of ability to use knowledge gained from the subject
	[K6_W11] possesses knowledge on design, technology and manufacturing of machine parts, metrology, and quality control; knows and understands methods of measuring and calculating basic values describing the operation of mechanical systems, knows basic calculating methods applied to analyse the results of experiments	Student uses CAD tools that use the finite element method, kinematic analysis, dimensional analysis, evaluation of the technological efficiency of elements, etc.	[SW2] Assessment of knowledge contained in presentation
Subject contents	Familiarization with CAD software (Inventor or Solidworks or others) in the field of creating 2D and 3D technical documentation, FEM strength analysis, kinematic analysis, dimensional analysis, familiarization with available databases of machine elements (both from the program library and from external sources, e.g. database of suppliers of machine components). Getting acquainted with AutoCAD software in the field of creating flat technical documentation.		
Prerequisites and co-requisites	Engineering Drawing, Strength of Materials, Fundamentals of Machine Design, basics of using CAD programs		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam	60.0%	40.0%
	Task IV	60.0%	15.0%
	Task III	60.0%	15.0%
	Task I	60.0%	15.0%
	Task II	60.0%	15.0%
Recommended reading	Basic literature	Tutorials (help systems) for Inventor, Solidworks, AutoCad, etc.	
	Supplementary literature	Any literature for Inventor, Solidworks, AutoCad, etc.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	Design a system that converts rotary motion to reciprocating motion for specific assumptions using the CAD program. Perform a kinematic simulation of the proposed solution. Perform a strength analysis for selected elements from the first task using the CAD program. Design, using the CAD program, the schematic functional layout by selecting elements from the program library and external databases.
Work placement	Not applicable