GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer Aided Design, PG_00064130		
Field of study	Mechanical and Medical Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
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	4.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Division of Machine Design and Medical Engineering -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Grzegorz Rotta	
	Teachers	mgr inż. Bartosz Bastian dr inż. Grzegorz Rotta	

Lesson types

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

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=4892

Moodle ID: 4892 Komputerowe wspomaganie projektowania, IMM 2026 https://enauczanie.pg.edu.pl/2025/course/view.php?id=4892

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

Learn the basics of popular engineering software, such as CAD (Autodesk Inventor) and CAE (ANSYS Workbench). Emphasis will be placed on creating drawing documentation (CAD) and interpreting the results of strength analyses (CAE).

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U03] is able to use information and communication skills or research techniques to solve typical engineering tasks related to design, production and manufacturing of materials or machine components	Knows the culture of working with popular CAD/CAE environments and uses websites to search for substantive information, such as manufacturer catalogs, machine parts databases, information on material properties and manufacturing techniques in order to complete the project	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
[K6_W05] has knowledge in the areas of design, manufacturing, and operation of materials, machine parts, or technical devices, with a solid understanding of design principles and technical documentation preparation	Able to design simple and moderately complex devices based on current technical knowledge, including manufacturing techniques and operating principles. Able to prepare technical drawings.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U04] is able to utilize empirical, analytical, simulation, and computer-based methods to formulate and solve engineering tasks in the field of medical and mechanical engineering	Can use popular CAD/CAE environments to solve technical problems in the field of mechanical and medical engineering	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K6_W03] has knowledge in rigid body mechanics, biomechanics, modelling of mechanical system, vibration and strength analysis of mechanical structures or knowledge in the use of computer programs for analyzing and simulating mechanical systems, and the design process	Understands the theoretical foundations of various branches of mechanics and biomechanics. Can apply these principles to analytical strength calculations and design verification. Can perform FEM analysis in CAD software for ongoing or final structural analysis.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents

Course content – lecture
Lecture 1 - Introduction
Introduction to Inventor: "traditional" sketch, extrusion, hole (from extrusion and "hole"), "traveling" hole
Lecture 2 - Pulley, introduction to technical drawing, views, projections, cross-sections
Revolve, cut belt grooves, "mirror", circular pattern (from extrusion and "hole"), keyway
Lecture 3 - Technical drawing of a shaft + keyway, tube (swept shell), planes
Also
Creating production and assembly drawings, using shaft wizards, bolted connections wizards, truss structures wizards, and strength analyses, including those involving contact elements

Course content – project

Project 1 Training Actuator bracket (two lugs, 4 mounting screw holes)
Project 2 Pulley, circular array of elements (make a pulley with 4 belts, and the linear array will also be visible)
Project 3 Shaft (matched to the pulley), keyway, technical drawing, table modifications

Prerequisites and co-requisites

Knowledge of the basics of technical machine drawing, basics of mechanical engineering, basics of mechanics and strength of materials

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Assessment of laboratory projects	56.0%	60.0%
Assessment of exam	56.0%	40.0%

Recommended reading

Basic literature	Knowledge acquired in earlier stages of academic education in the field of mechanics, materials science, manufacturing techniques and technical drawing
Supplementary literature	as above
eResources addresses	

Example issues/ example questions/ tasks being completed

Practical activites within the subject	Not applicable

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