GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Computer aided design, PG_00057704		
Field of study	Green Technologies		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	first-cycle studies	Subject group	Obligatory subject group 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	3	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Process Engineering and Chemical Technology -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Iwona Cichowska-Kopczyńska	
	Teachers	dr inż. Iwona Cichowska-Kopczyńska	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	45.0	0.0	45

E-learning hours included: 0.0

Additional information:
Attendance at classes is mandatory. Absence is justified by a medical certificate. One unexcused absence is allowed. Absence does not release the student from the obligation to make up for missed work. You should study the material on your own before your first class after returning.

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	2.0	28.0	75

Subject objectives

The aim of the course is to present the possibilities offered by the computer aided design software, the principles of software, selection of the software to solve a particular problem and algorithms of the design processes.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U04] capable of formulating and solving design tasks in the field of environmental technology to recognize their non-technical aspects, including environmental, economic and legal. Is capable of applying the principles of occupational health and safety. Is able to make initial assessment of engineering solutions and actions	The student is able to assess the impact of various factors and technological parameters on the environment, including the economic environment, the natural environment, and the work environment. Is able to analyze risk and propose a method to minimize the impact of negative aspects.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
[K6_W07] has knowledge of basic terminology and principles of intellectual property protection necessary for proper interpretation and application in practice	The student is able to correctly use the terminology of the subject, is able to follow the rules of intellectual property and copyright, and is able to quote correctly sources	[SW3] Assessment of knowledge contained in written work and projects
[K6_W04] is aware of the importance of environmental protection and has a basic knowledge of chemical and biological threats to the environment, with particular emphasis on anthropogenic factors, has a basic knowledge of knowledge of the principles of sustainable development as well as national and European environmental management conditions.	The student is able to correctly identify the factors and effects and proposes a solution independently.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents	Graphical representation of technological processes, including graphical representation of spatial elements on a plane: projection as the basic form of spatial projections on a plane, spatial projections in orthographic projections, adjacent and parallel elements in orthographic projection, perpendicularity of straight lines and planes. Cross-sections and penetration of flat and spatial objects. Spatial, assembly and manufacturing drawings. Technical Documentation. Strength analysis, Simulations of technological processes, thermodynamic models, principles of simulation, sensitivity analysis, material and energy balances, optimization of technological processes. In the first part of the semester, the student learns software for computer-aided design, including the issues of graphic presentation of technological processes, 3D design of devices and simulations of technological processes. In the second part of the semester, the student solves a task using the CAD tools.
Prerequisites and co-requisites	Computer skills, knowledge of the office software, geometry, dimensioning principles, basics of thermodynamics, process engineering, chemical technology, technological principles, principles of green chemistry, green engineering, chemical processing equipment.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Simulations	60.0%	30.0%
Additional tasks	60.0%	10.0%
Graphic representation	60.0%	30.0%
Process design	60.0%	30.0%

Recommended reading

Basic literature	1. Pikoń J., AutoCAD 2002, Helion, Warszawa 2002. 2. Tarnowski Wojciech, Symulacja komputerowa procesów ciągłych, Koszalin, Wyższa Szkoła Inżynierska w Koszalinie 1996. 3. Perkowski Piotr, Technika symulacji cyfrowej, Warszawa, Wydaw. Nauk.-Tech, 1980. 4. A. Jaskulski, Autodesk Inventor Professional 2018PL, PWN, 2017
Supplementary literature	1. Leigh J. R., Modelling and simulation, London, Peter Peregrinus, 1983. 2. Zeigler Bernard P., Teoria modelowania i symulacji, Warszawa, Państ. Wydaw. Naukowe, 1984. 3. Gierulski Wacław, Modelowanie i symulacja komputerowa :laboratorium : praca zbiorowa, Kielce, Politechnika. Świętokrzyska, 1996. 4. Fishman George S., Symulacja komputerowa :pojęcia i metody, Warszawa, Państ. Wydaw. Ekonomiczne, 1981.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	Graphical representation of the technological process, technological diagram,3D design of the device, simulation of the technological process, process optimization in terms of raw material consumption, waste emissions
Work placement	Not applicable