



Subject card

Subject name and code	Computer aided design, PG_00057704						
Field of study	Green Technologies						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
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.						
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 familiarize the student with the possibilities offered by the programs computer-aided design, with the principles of selecting software for the solution specific problem and design algorithms						
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 various factors and parameters technological impact on the environment, in including the economic environment, the natural environment, working environment. He can do it risk analysis and propose impact minimization method 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 knows how to properly use intellectual resources, knows how to protect property and how to make a choice appropriate source for the solution specific problem.		[SW1] Assessment of factual knowledge [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 knows how to do it correctly identify the factors and effects of chemical and biological processes on the environment and surroundings. He knows how to minimize these effects.		[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 elements spatial projections on the plane: projection as the basic form of spatial projections on plane, spatial projections in orthographic projections, adjacent and parallel elements in orthographic projection, perpendicularity of lines and planes. Cross-sections and penetration of flat objects i spatial. Spatial, assembly and manufacturing drawings. Technical Documentation. Analysis endurance, simulations. Simulations of technological processes, thermodynamic models, principles of simulation, analysis sensitivity, material and energy balances, optimization of technological processes		
Prerequisites and co-requisites	Computer skills, knowledge of the office package, geometry, dimensioning principles, basics thermodynamics, process engineering, chemical technology, technological principles, green principles chemistry, green engineering.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Graphic process presentation	60.0%	30.0%
	Additional tasks	60.0%	10.0%
	Chemical process simulation	60.0%	30.0%
	3D 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. Leigh J. R., Modelling and simulation, London, Peter Peregrinus, 1983. 5. Zeigler Bernard P., Teoria modelowania i symulacji, Warszawa, Państw. Wydaw. Naukowe, 1984. 6. Gierulski Wacław, Modelowanie i symulacja komputerowa :laboratorium : praca zbiorowa, Kielce, Politechnika. Świętokrzyska, 1996. 7. Fishman George S., Symulacja komputerowa :pojęcia i metody, Warszawa, Państw. Wydaw. Ekonomiczne, 1981.	
	Supplementary literature	1. Heermann Dieter W., Podstawy symulacji komputerowych w fizyce, Warszawa, Wydaw. Nauk.-Tech, 1997. 2. A. Jaskulski, Autodesk Inventor Professional 2018PL, PWN, 2017	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Graphical representation of the technological process, technological diagram, spatial design devices, simulation of the technological process, process optimization in terms of raw material consumption, waste emissions		
Work placement	Not applicable		

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