GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Engineer Graphics, PG_00048554		
Field of study	Chemical Technology		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
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 Szymon Dudziak dr inż. Robert Aranowski	

Lesson types and methods of instruction							
	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=14921 Adresy na platformie eNauczanie:						

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	30	2.0	18.0	50

Subject objectives	The aim of the course is to provide the student knowledge on the basics of descriptive geometry and construction (technical drawing). Students should get familiar with CAD systems, and the knowledge acquired should allow to read a technical drawing of the systems and technological diagrams. Student should be able to make technical drawings.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	K6_K05	The student understands and is able to assess the effects of engineering activities, including its impact on the environment, has the ability to search for information about the latest scientific achievements and the ability to issue opinions about them, which can be described and conveyed in an accessible way.	[SK5] Assessment of ability to solve problems that arise in practice
	K6_W06	Student after completing the Engineering Graphics course should know the computer aided design software, be able to make technical drawings (eg machine, process diagrams) of installations used in chemical technology). The ultimate effect of education is the skill for practical reading and drawing of technical drawings using CAD software.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation
	K6_U04	Student performing design drawings has the knowledge and skills necessary to design the chemical industry equipment that is safe for human and the environment. After completing the course in Engineering Graphics, the student understands the idea of computer aided design. Has knowledge in the field of designing devices and processes in the chemical industry as well as geometrics needed to prepare and read technical documentation.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools

Subject contents

Inventor 2021, creating your own templates, ISO-PL idw drawing template, Part model template, assembly model template; Introduction to user interface, activating an existing project, toolbars and tools, objects views; Introduction to parts design: parametric, mathematical model of the solids, geometric model of the solids, parameters and decision variables, 3D objects, 3D objects in 2D modeling; Concepts related to derivative model technique, typical part design process, part modeling; Editing of documentation; Modification of the design from the level of a model or drawing; 2D parametric modeling, sketches and sketch planes, parametric sketch planes, define sketch planes; Parametric 2D modeling operations; Modeling methods, standard modeling tools and techniques, elements of classic dialog boxes, elements of new type dialog boxes; Tool work process (Workflow); Input geometry; Modeling operation parameters; Modeling method; Advanced properties; Profile definition algorithm; Sketch sharing; Sharing of construction elements; Extruding with a profile (Extrude); Base element; Other pull-out elements; To Next Extrude; To (To) Extrude; Between Extrude; Through draw; Profile rotation (Revolve); Rotation by angle (Angle); To Next; Full rotation; Reorder modeling operations; Sweep; Unbending surfaces (Loft); Ribs (Rib); Inline elements; Holes: types and types of holes, methods of determining the location of holes; Thread and hole definition files; Hole definition algorithm: Concentric method, Linear method, From Sketch method;

Editing and editing of 2D part documentation; drawing file types, preliminary steps; creating a drawing file; drawing application options; document settings; drawing templates; fixed drawing elements edition of the sheet layout; i-properties editing; style of objects in the drawing file - drawing standard; general standard settings; standard styles available; default values of objects; main and dependent styles; layers; text style; dimension style; management of standard elements (styles); additional interface elements; creating a new style as standard - exercises; export and import of standard elements - exercises; basics of creating projections; creating a base view of the model; creating basic linked views.

Prerequisites and co-requisites

Knowledge of basic computer skills, MS Windows operating system, ability to use pointing tools (mouse, tablet)

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Test 2D	60.0%	50.0%
Test 3D	60.0%	50.0%

Recommended reading

Basic literature	A. Jaskulski "AutoCAD 2018/LT2018/306+" PWN A. Jaskulski "Autodesk Inventor Professional 2018PL/2018+/Fusion 360", PWN A. Jaskulski, Autodesk Inventor Professional 2021 PL / 2021+ / Fusion 360. Metodyka projektowania

	Supplementary literature	ISO standards for technical drawings
	eResources addresses	
Example issues/ example questions/ tasks being completed	basic geometric constructions, drawing orthogonal projections, isometric projections, developing project documentation, 3D constructions of mechanical elements, using libraries of materials and elements	
Work placement	Not applicable	