GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Engineering Graphics, PG_00059217						
Field of study	Materials Engineering, Materials Engineering, Materials Engineering						
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	5.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Division of Machine Design and Medical Engineering -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Katarzyna Zasińska				
	Teachers						
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	The aim of the course is to shape the 3D imagination, to learn the principles of projection and definingdrawings in accordance with the applicable standards and rules of technical drawing, to learn the principlesof presenting connections and components of drive systems in a technical drawing. Introduction to basicCAD systems. Fundamentals of 2D computer sketching of machine components. Principles and methods ofcreating 3D models of machine components in virtual space.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_W05	A student draws space elements based on orthographic projection. He presents the rules of presentation elements in engineering drawing. He draws and reads structural forms of threedimensional mechanical elements. He describes surface attributes of elements. He draws of machine elements dimensions and creates working drawings of machine elements according to machine technical drawing standards. He creates working and assembly drawings of machine elements. He reads information about machine elements based on presented elements and units drawings. He draws and reads structural forms of three-dimensional mechanical elements and mechanical units. He reads diagrams of complex mechanical systems.	[SW1] Assessment of factual knowledge
K6_U03	A student draws space elements based on orthographic projection. He presents the rules of presentation elements in engineering drawing. He draws and reads structural forms of threedimensional mechanical elements. He describes surface attributes of elements. He draws of machine elements dimensions and creates working drawings of machine elements according to machine technical drawing standards. He creates working and assembly drawings of machine elements. He reads information about machine elements based on presented elements and units drawings. He draws and reads structural forms of three-dimensional mechanical elements and mechanical units. He reads diagrams of complex mechanical systems.	[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment
K6_K01	The student understands the importance of Engineering Graphics in the process of implementing design tasks. The student applies the rules set out in the standards for the presentation of technical objects on the drawings.	[SK2] Assessment of progress of work
K6_U01	The student understands the importance of Engineering Graphics in the process of implementing design tasks. The student applies the rules set out in the standards for the presentation of technical objects on the drawings.	[SU1] Assessment of task fulfilment

Subject contents	LECTURE Ways of describing the geometric elements and objects. Reference system. Main and additional projecting plane. Axouometric and perpendicular projections. The methods of the machine systems drawing presentation, assembly and working drawings. Standarization of machine parts - selesction and specificationof standard elements. Dimensioning of lengths, diameters, angles. Determination of tolerances and fits of parts on drawings. Determination of surface condition of parts. Location of elements on a drawing. Drawing rules of working andassembly drawings. Standarization in engineering graphics. Drawing of detachable connections e.g. threaded, screen connection. Drawing inseparable connections (welds connections in the drawings and dimensioning them). Drawing shafts. PROJECT Perpendicular projections of the geometric figures and tree-dimensionalobjects. Section of figures and 3d objects. Presentation of the objects in typical projectivns. Working out theassembly and working drawings. Drawing the connections and elements of drives. Introduction to basic CAD systems AutoCAD, Inventor, etc. Overview of engineering calculation ssoftware used in analyses of stress, pressure, velocity, temperature and other field distribution problems. Fundamentals of 2D computer sketching of machine components: scale, size, layers, colours, line types, dimensioning, printoutpreparation. Principles and methods of creating 3D models of machine components invirtual space.
Prerequisites and co-requisites	Knowledge of the subjects: "Mathematics" and "Machine constructions". Understanding of the fundamentals of descriptive geometry. Basic competence in mechanicaltechnicaldrawing. Basic competence in the principles of the creation and completion of technicaldocumentation inpaper form. The capability to understand and interpret technical drawings.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Colloquium at the end of semester	56.0%	50.0%
Projects	56.0%	50.0%

Recommended reading

Basic literature	1) Dobrzański T.: Rysunek techniczny maszynowy. WydawnictwoNaukowo-Techniczne, Warszawa 2006. 2) Rigall A., Sadaj J.: Zapis konstrukcji Geometria wykreślna,Wydawnictwo Politechniki Gdańskiej, 2003. 3) Kurmaz L.W.: Projektowanie węzłów i części maszyn, WydawnictwoPolitechniki Świętokrzyskiej, 2007. 4) Bajkowski J.: Podstawy zapisu konstrukcji. Oficyna WydawniczaPolitechniki Warszawskiej, Warszawa, 2014. 5) Burcan J.: Podstawy rysunku technicznego. Wydawnictwo WNT,Warszawa, 2016.
Supplementary literature	1) Lewandowski Z., Pikoń A.: AutoCAD 2002. Pierwsze kroki. Gliwice:Wydawnictwo HELION, 2002. 2) Pikoń A.: AutoCAD 2002. Gliwice: Wydawnictwo HELION, 2002.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. Sectional views. 2. Add missing projected views. 3. Make a working drawing of the element shown in the drawing. 4. Make an assembly drawing of screenconnection. 5. Make an assembly drowing of welded connection.
Work placement	Not applicable

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