



Subject card

Subject name and code	Engineering Graphics, PG_00072612						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
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	1		Language of instruction		English		
Semester of study	1		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Jacek Łubiński				
	Teachers		mgr inż. Bartosz Bastian				
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 addresses: Moodle ID: 8856 Engineering Graphics 2026/27 (PG_00072612) https://enauczanie.pg.edu.pl/2025/course/view.php?id=8856						
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 classes is to develop the spacial imagination, recognition of the projection methods, preparation of the working drawings based on the current norms of the technical drawing						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U03] is able to identify, formulate, and develop documentation for design or technological tasks, and communicate the results using appropriate tools and presentation techniques		The student represents spatial elements using parallel projection. The student explains the principles of representing objects in engineering design documentation; records and interprets the geometrical forms of three-dimensional mechanical components; specifies their surface characteristics; dimensions machine components; and prepares detail drawings of machine components in accordance with mechanical engineering drawing standards.		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[K6_W03] possesses structured and theoretically grounded knowledge of design, manufacturing technologies, metrology, quality control, and operation of machine components and mechanical systems, including technical documentation and the life cycle of engineering objects		The student represents spatial elements using parallel projection. The student explains the principles of representing objects in engineering design documentation; records and interprets the geometrical forms of three-dimensional mechanical components; specifies their surface characteristics; dimensions machine components; and prepares detail drawings of machine components in accordance with mechanical engineering drawing standards.		[SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture		
	The role of graphics in engineering practice. Introduction to the independent preparation of graphical representations of technical objects. Orthographic and axonometric projections. Orthographic projections of points, lines, planes, polyhedra, and solids. True sizes of geometrical elements. Incidence relationships between geometrical elements. Intersections of geometrical forms. Representation of solids intersected by planes in orthographic projection. Geometrical shaping of technical forms using polyhedra, solids, and surfaces. Views, sectional views, and revolved sections of machine components. Dimensioning of lengths, diameters, angles, etc. Dimensional tolerancing and fits. Indication of the surface properties of machine components. Types of engineering drawings. Positioning of objects in drawings. Principles of preparing detail and assembly drawings. Standardisation in engineering design documentation. Principles of assembly and general arrangement drawings. Permanent machine joints (welded, adhesive-bonded, and riveted joints). Detachable machine joints (threaded joints and shaft–hub connections). Representation of standardised machine components (bearings, gears, couplings, shafts, and axles). Representation of elastic components and seals. Engineering drawings and design documentation in electronics and electrical engineering. Pneumatic and hydraulic diagrams.		
	Course content – project		
	Principles of projecting three-dimensional solids onto a plane Monge's system of projection planes Intersections of solids Simplifications used in technical orthographic drawings Representation of machine parts in orthographic drawings Principles of assembly and general arrangement drawings Permanent machine joints (welded, adhesive-bonded, and riveted joints) Detachable machine joints (threaded joints and shaft–hub connections) Representation of standardised machine components (bearings, gears, couplings, shafts, and axles) Representation of elastic components and seals Engineering drawings and design documentation in electronics and electrical engineering Pneumatic and hydraulic diagrams		
Prerequisites and co-requisites	Basic knowledge of planar and spacial geometry, metrology, and machine design.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Class projects	60.0%	40.0%
	Final test	60.0%	60.0%
Recommended reading	Basic literature	Dobrzański T.: Rysunek techniczny i maszynowy. WNT, Warszawa, 2017.	
		Rigall A., Sadaj J.: Zapis konstrukcji Geometria wykreślna, Wydawnictwo Politechniki Gdańskiej, 2003.	
		Hawk C, Schaum's outline of theory and problems of descriptive geometry, 1962	
	Supplementary literature	Kurmaz L.W.: Projektowanie węzłów i części maszyn, Wydawnictwo Politechniki Świętokrzyskiej, 2007.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Create a working drawing of an element on the picture Draw a solid cut by multiple planes Fill the missing projections of the element		

Practical activities within the subject	Not applicable
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