



Subject card

Subject name and code	Engineering graphics I, PG_00071567						
Field of study	Spatial Development						
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		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Visual Arts -> Faculty of Architecture -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. arch. Małgorzata Rogińska-Niesłuchowska				
	Teachers		mgr inż. arch. Barbara Chomicka				
			dr inż. arch. Małgorzata Rogińska-Niesłuchowska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	0.0	45
	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	45		5.0		50.0	100
Subject objectives	To develop skills in presenting space in a flat drawing to perform basic operations on elements of space. Acquiring the skill of efficient use of axonometric and construction drawing.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U01] has the ability to abstractly understand technical problems; applies basic mathematical and simulation methods in urban planning and spatial planning		He can use various methods of space mapping to solve simple spatial problems. He has skills in the precise execution of linear drawings. He can present the effects of work clearly.		[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	[K6_W03] has knowledge in the field of mathematics and physics relating to issues related to space management, including the mathematical methods used in urban design, as well as analytical and design methods using information technology used in planning processes of settlement structures		He knows various methods of mapping space. Correctly constructs and reads spatial objects in various types of projections, also using popular digital programs.		[SW1] Assessment of factual knowledge		

Subject contents	Course content – lecture 1. Introduction. Elements of three-dimensional space and projection methods. The orthogonal projection on two planes by the Monge's Method - representation of point, line and plane. 2. Transformations of the projection system. Affiliation of elements to the plane. 3. Parallelism and perpendicularity. 4. Common elements - points of intersection, piercing, edges. 5. Shadow as center or parallel projection. 6. Transformations targeted to the real size. 7. Constructing of polyhedrons, 8. Sections of polyhedrons and compounds of collineation. 9. Revolutions. Developments of polyhedrons. 10. Piercing points and intersection of polyhedrons. 11. Axonometric oblique projection - assumptions and basic constructions, shadows. 12. Orthogonal axonometry - assumptions, constructing due to Monge' projections, shadows. 13. Orthogonal axonometry - section by any plane, intersection of polyhedrons. Course content – exercises 1. Introduction. Elements of three-dimensional space and projection methods. The orthogonal projection on two planes by the Monge's Method - representation of point, line and plane. 2. Transformations of the projection system. Affiliation of elements to the plane. 3. Parallelism and perpendicularity. 4. Common elements - points of intersection, piercing, edges. 5. Shadow as center or parallel projection. 6. Transformations targeted to the real size. 7. Constructing of polyhedrons, 8. Sections of polyhedrons and compounds of collineation. 9. Revolutions. Developments of polyhedrons. 10. Piercing points and intersection of polyhedrons. 11. Axonometric oblique projection - assumptions and basic constructions, shadows. 12. Orthogonal axonometry - assumptions, constructing due to Monge' projections, shadows. 13. Orthogonal axonometry - section by any plane, intersection of polyhedrons.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Tests and Final exam	100.0%	50.0%
	Quality of drawings	100.0%	50.0%
Recommended reading	Basic literature	H. Pottmann, A. Asperl, M. Hofer, A. Kilian, Architectural geometry, Bentley Institute Press 2007 Przyłucka K., Helenowska-Peschke M. Wykłady z geometrii wykreślnej ; http://www.pg.gda.pl/~mhelen/w1/index.html Helenowska-Peschke M., Wanclaw A., Zadania z geometrii wykreślnej. http://pbc.gda.pl/dlibra/doccontent?id=2597 Helenowska-Peschke M., Wanclaw A., Konstrukcje cieni, http://pbc.gda.pl/dlibra/doccontent?id=2566	
	Supplementary literature	Błach A., Inżynierska geometria wykreślna, Wydawnictwo Politechniki Śląskiej, Gliwice 2006 Górska R., Geometria wykreślna: podstawowe metody odwzorowań stosowane w projektowaniu inżynierskim, Wyd. Politechniki Krakowskiej, Kraków 2015 Grochowski B.: Elementy geometrii wykreślnej, PWN, Warszawa 2002 Jankowski W.: Geometria wykreślna, PWN, Warszawa 1990 Otto F.E., Geometria wykreślna, PWN 1977	
	eResources addresses		

Example issues/ example questions/ tasks being completed	1) Polyhedra in Monge's projections - transformations of the projection system. Apply transformations of the projection system and complete the views of polyhedra in Monge's projections. 2) Based on Monge's projections, construct a geometric mesh of polyhedron (use rotation, rabatment or transformation of the projection system) 3) Construct a polyhedron cross-section in Monge's projections. Perform check with collineations or affinity. 4) Draw the axonometry of polyhedron based on Monge's projections. Determine the polyhedron cross-section with a given plane.
Practical activities within the subject	Not applicable

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