



Subject card

Subject name and code	Engineering graphics - descriptive geometry, PG_00050215						
Field of study	Spatial Development						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2022/2023		
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			Polish		
Semester of study	1	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Visual Techniques -> Faculty of Architecture						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. arch. Małgorzata Rogińska-Niestuchowska					
	Teachers	mgr inż. arch. Joanna Kowalewska dr inż. arch. Małgorzata Rogińska-Niestuchowska					
Lesson types and methods of instruction	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		6.0		24.0	75
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 elementary knowledge in the field of mathematics and physics relating to issues related to space management, including the basic 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	<ul style="list-style-type: none"> • 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. • 14. Geometry of roofs. • 15. Roofs tangent to adjacent objects. 		
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	<p>H. Pottmann, A. Asperl, M. Hofer, A. Kilian, Architectural geometry, Bentley Institute Press 2007</p> <p>Przyłucka K., Helenowska-Peschke M. Wykłady z geometrii wykresnej ; http://www.pg.gda.pl/~mhelen/w1/index.html</p> <p>Helenowska-Peschke M., Wanclaw A., Zadania z geometrii wykresnej. http://pbc.gda.pl/dlibra/doccontent?id=2597</p> <p>Helenowska-Peschke M., Wanclaw A., Konstrukcje cieni, http://pbc.gda.pl/dlibra/doccontent?id=2566</p>	
	Supplementary literature	<p>Błach A., Inżynierska geometria wykresna, Wydawnictwo Politechniki Śląskiej, Gliwice 2006</p> <p>Górska R., Geometria wykresna: podstawowe metody odwzorowań stosowane w projektowaniu inżynierskim, Wyd. Politechniki Krakowskiej, Kraków 2015</p> <p>Grochowski B.: Elementy geometrii wykresnej, PWN, Warszawa 2002</p> <p>Jankowski W.: Geometria wykresna, PWN, Warszawa 1990</p> <p>Otto F.E., Geometria wykresna, PWN 1977</p>	
	eResources addresses	<p>Adresy na platformie eNauczanie:</p> <p>Grafika inżynierska - geometria wykresna 2022/23 - Moodle ID: 26013 https://enauzanie.pg.edu.pl/moodle/course/view.php?id=26013</p>	
Example issues/ example questions/ tasks being completed	<p>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.</p>		
Work placement	Not applicable		