GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Engineering graphics - descriptive geometry, PG_00050215		
Field of study	Spatial Development		
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 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-Niesłuchowska	
	Teachers	dr inż. arch. Małgorzata Rogińska-Niesłuchowska mgr inż. arch. Joanna Kowalewska	

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

Address on the e-learning platform: https://enauczanie.pg.edu.pl/moodle/course/index.php?categoryid=667

Adresy na platformie eNauczanie:

Engineering graphics - descriptive geometry - Moodle ID: 8332
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=8332

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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_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
[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

Subject contents	• 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
Quality of drawings	100.0%	50.0%
Tests and Final exam	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., Wancław A., Zadania z geometrii wykreślnej. http://pbc.gda.pl/dlibra/doccontent?id=2597 Helenowska-Peschke M., Wancław 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	Engineering graphics - descriptive geometry - Moodle ID: 8332 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=8332 Engineering graphics - descriptive geometry - Moodle ID: 8332 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=8332

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.
Work placement	Not applicable