GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Descriptive geometry, PG_00061504
Field of study	Architecture

Date of commencement of studies	October 2025	Academic year of realisation of subject	2025/2026
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	assessment

Conducting unit	Department of Visual Arts -> Faculty of Architecture

Name and surname of lecturer (lecturers)	Subject supervisor	mgr inż. arch. Michał Malewczyk
	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	15.0	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	8.0	47.0	100

Subject objectives	Development of the ability of spatial manipulation in two dimensional drawing. Acquiring skills in using axonometric drawing.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U04] is able to use analytical methods to formulate and solve project tasks	He can use various methods of space mapping to solve simple spatial problems. He can present the effects of work in an attractive way. Has manual skills in the precise execution of linear drawings.	[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	[K6_W01] knows and understands construction problems, building and engineering issues related to building design; principles, solutions, constructions and building materials used in simple engineering tasks in the field of architectural and urban design	He knows various methods of mapping space. Correctly constructs and reads spatial objects in various types of projections, also with the use of popular digital programs.	[SW1] Assessment of factual knowledge

Subject contents	Descriptive Geometry, lecture:
	1 Introduction to the subject, historical outline, importance of the subject, projection
	2 Rectangular and diagonal axonometry, principles of formation, construction of shortenings
	3 Projections Mongea rules, specific position of elements, transformation
	4 Belonging, parallelism, perpendicularity
	5 Insertion points, interference of planes, interference of projection planes, viewports, oblique planes, interference of planes with viewports, interference of oblique planes
	6 Cross-sections of solids, cross-sections with projecting planes, viewports, using plane traces, intentional transformation, alignment and affinity relationships
	7 Interference of polyhedra: interference of two cuboids, pyramids, a cuboid with a pyramid
	8 Shadows: own shadows, on the viewport, mutual shadows
	9 Gauge projection, introduction to the method, basic issues, insertion points, interpenetration of planes
	10 Roof geometry - traditional roofs, sunken roofs, floors, chimneys and towers, edge, linear and point drainage
	11 Cross-sections and views of roofs
	12 Design of hardening in the projection of features.
	13 Terrain transformations in the projection of features
	14 Field reservoirs in the feature plan.
	15 Material summary
	exercise:
	1 Introduction to classes
	2 Sheet 1 oblique axonometry and rectangular structure of the polyhedron
	3 4 Sheet 2 rectangular axonometry, construction of a polyhedron using the construction of contractions, Mongea transformations
	5 Sheet 3 axonometrics - affiliation, parallel task using lateral projections
	6 Sheet 4 axonometry, Mongea projections, penetration, construction of the penetration of two planes
	7 Test 1 construction of polyhedra, transformations, affiliation, parallelism, perpendicularity, puncture points
	8 9 Sheet 5 axonometry, Mongea projections, cross-sections, checking by purposeful transformation and alignment or affinity

	10 11 Sheet 6 axonometrics penetration of solids task using side projections
	12 13 14 Sheet 7 axonometry, projections Mongea shadows solution of the task using two methods
	15 Test 2 cross-sections and interpenetration of polyhedra, shadows

Prerequisites and co-requisites	

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Quality of drawings from Descriptive Geometry	100.0%	50.0%
Aquiring minimum points form Descriptive Geometry reviews	51.0%	50.0%

Recommended reading

Basic literature	Błach A., *Inżynierska geometria wykreślna,* Gliwice 2002
	Górska R., *Geometria wykreślna,* Kraków 2015
Supplementary literature	Grochowski B., *Geometria wykreślna z perspektywą stosowaną,* PWN 2018
	Otto F.E., *Geometria wykreślna, PWN* 1977
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

1. Construct the intersection of polyherdra and plane

2. Construct the line of intersection of two given polyhedra

3. In axonometry defined by axes *x, y, z* contruct a polyhedron and its own shadow and the shadow cast on the planes of projection

Work placement

Not applicable

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