

DESCRIPTIVE GEOMETRY 1

General information	
<i>Subject</i>	Descriptive Geometry 1
<i>Faculty</i>	Faculty of Civil Engineering, Architecture and Environmental Engineering
<i>Course of study</i>	Architecture
<i>Profile</i>	General academic
<i>Type of study</i>	I level with the degree of Eng. Arch.
<i>Starting semester</i>	Winter semester

Information about the subject	
<i>Semester</i>	1
<i>Number of ECTS points</i>	4
<i>Subject type</i>	obligatory
<i>Language of instruction</i>	English
<i>Syllabus prepared by</i>	Alicja Maciejko PhD Eng. Arch.

Type of class					
<i>Course type</i>	<i>Number of classes per semester (full time studies)</i>	<i>Number of classes per week (full time studies)</i>	<i>Number of classes per semester (part time studies)</i>	<i>Number of classes per week (part time studies)</i>	<i>Credit type</i>
Lecture	15	1	-	-	Credit with a grade
Laboratory	30	2	-	-	Credit with a grade

Subject objective
<p>1. The objective is the acquisition of knowledge in the theoretical and practical aspects of the subject, including concepts and construction methods necessary to solve geometric problems.</p> <p>2. The objective in terms of skills is to develop spatial imagination, to acquire the ability to use an engineering drawing based on the theory of geometric projections and axonometric projections, the ability to present spatially complex structures and projections (skills necessary for the subsequent creation of technical drawings, projections, sections, construction details, etc.) and to acquire and develop skills of precise and unambiguous drawing and reading of flat and spatial drawings (the ability to help to create three-dimensional spatial concepts and to work in a digital environment).</p> <p>3. The objective in terms of personal and social competence is to prepare the student to present and defend their own design solution in a team.</p>

Initial requirements
Formal: None

Subject scope
<p>Lecture: The history of geometry, geometry in ancient Greece, Euclidean and non-Euclidean geometry, development of geometry from the Middle Ages to the present, application of geometry in contemporary architecture, modulus and golden division, definitions and tasks of descriptive geometry, theoretical explanations of practical issues carried out in class – as specified in the syllabus.</p> <p>Laboratory: Basic elements, the concept of a point, straight line, planes, relations between</p>

elementary elements, inappropriate elements, projection, projection types, axonometry: basic messages, rectangular axonometry (dimetria), diagonal axonometry (military, cavalier), axonometric rectangular projection, Monge projections, transformations: basic messages, types, reference system transformations, polyhedrons and rotational solids: types, cross-sections, interferences, polyhedron expansion, surfaces: types, cross-sections, permeation, surface penetration with polyhedrons, rotary surface cross-sections, shading.

Educational methods

Explanation methods: lectures – conventional including the problem of multimedia presentations, discussion of topics and correction of drawings, practical exercises related to implementation of drawings according to methods and procedures.

Research methods: exercises - solving tasks independently or with the teacher, independent search for solution methods, creation of individual flat and spatial forms based on general guidelines, discussion of results

Education results and verification methods

<i>Description</i>	<i>Symbol</i>	<i>Verification method</i>	<i>Type of class</i>
The student has knowledge of the theoretical and practical aspect of the subject, including the concepts and construction methods necessary to solve geometric problems and plot the perspectives of complex structures and architectural elements	K_W01	– evaluation of participation in the classes, – test	Lecture
The student can use an engineering drawing based on the theory of axonometric projections and a descriptive perspective. The student has and develops the skill of precise and unambiguous drawing and reading flat and spatial drawings (an ability helpful for creating three-dimensional spatial concepts and work in a digital environment)	K_U03	– observation and evaluation of the student's practical skills, – test	Laboratory
The student is prepared to present and defend their own solution to a graphical geometric task in a team.	K_K02	– observation and evaluation of participation in the classes,	Lecture, laboratory

Requirements to obtain a credit

The condition for a credit is a positive grade for the final test, attendance at 75 % of the classes and a positive grade for 75 % of the exercises.

Student's work

<i>Student's work</i>	<i>Full time study (h)</i>
Interaction with the teacher (classes; consultations; exam, etc.)	75
Student's individual work (preparation for the classes, test exam; literature research preparation of: written paper, project, presentation, report, speech; etc.)	25
<i>Total</i>	100
<i>ECTS points</i>	<i>Full time study</i>
Work with a teacher	3
Work without a teacher	1
<i>Total</i>	4

Basic literature

1. Bogaczyk T, Romaszkiwicz-Białas T., *13 wykładów z geometrii wykreślnej*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2000.
2. Korynek A., Mroczkowski J., Romaszkiwicz-Białas T., *GEOMETRIA wykreślna: wybrane zagadnienia dla architektów*, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2007.
3. OTTO F., E.: *Podręcznik geometrii wykreślnej*, PWN, Warszawa 1980.

Complementary literature

1. Grochowski B., *Geometria wykreślna z perspektywą stosowaną*, PWN, Warszawa, 1988.
2. 4. Koczyk H., *Geometria wykreślna. Metoda Monge'a i aksonometria*, PWN, Warszawa, 1986.
3. Ślusarczyk B.: *Geometria rzutowa i wykreślna w zakresie krzywych i powierzchni stopnia drugiego*, Warszawa 1976.
4. Witruwiusz; *O architekturze ksiąg dziesięć*.

Notes