



MODULE SPECIFICATION

Module code	
Module title in Polish	Rysunek techniczny i geometria wykreślna
Module title in English	Technical drawing and descriptive geometry
Module running from the academic year	2017/2018

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Environmental Engineering
Level of qualification	first cycle (first cycle, second cycle)
Programme type	academic (academic/practical)
Mode of study	full-time (full-time/part-time)
Specialism	
Organisational unit responsible for module delivery	The Department of Architecture and Town Planning
Module co-ordinator	Piotr Dobosz, PhD, Eng.
Approved by:	Lucjan Kamionka, PhD, hab., Eng., arch.

B. MODULE OVERVIEW

Module type	core module (core/programme-specific/elective HES*)
Module status	compulsory module (compulsory/optional)
Language of module delivery	Polish, English
Semester in the programme of study in which the module is taught	semester 1
Semester in the academic year in which the module is taught	winter semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination required	No (Yes/No)
ECTS credits	2

* elective HES – elective modules in the Humanities and Economic and Social Sciences



Politechnika Świętokrzyska

WYDZIAŁ INŻYNIERII ŚRODOWISKA, GEOMATYKI I ENERGETYKI

Mode of instruction	lectures	classes	laboratories	Project	others
Total hours per semester	15		15		



C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aims of the module are as follows: developing spatial imagination which facilitates presenting an engineering thought in the form of a technical drawing; familiarising students with the methods of presenting 3D space on a plane of a drawing; familiarising students with the methods of geometrical solutions concerning constructional issues; acquiring the ability of making, reading, and utilising technical drawings.
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Module outcome code	Module learning outcomes	Mode of instruction (l/lab/p/ others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student knows the principles of descriptive geometry and technical drawing which concern creating and reading construction, installation, and surveying drawings.	l/lab	IŚ_W02	T1A_W02 T1A_W07
W_02	A student knows basic elements of a building; a student also understands its tasks and role.	l/lab	IŚ_W03	T1A_W02
U_01	A student is able to work individually and in a team; moreover, a student can prepare and realise the schedule of work as regards the realised task.	lab	IŚ_U03	T1A_U02 T1A_U07 T1A_U08
U_02	A student can prepare technical documentation which concerns the realisation of an engineering task.	lab	IŚ_U04	T1A_U03 T1A_U08 T1A_U09
U_03	A student is able to prepare and give a short presentation of a determined engineering task.	lab	IŚ_U05	T1A_U03 T1A_U04
U_04	A student can read constructional, installation, and surveying drawings; in addition, a student can prepare graphical documentation, interpret it and draw the necessary conclusions.	lab	IŚ_U10	T1A_U02 T1A_U03 T1A_U05 T1A_U07 T1A_U15
K_01	A student can work individually and co-operate in a team on the assigned task.	lab	IŚ_K01 IŚ_K05	T1A_K03 T1A_K04
K_02	A student is responsible for the reliability of the obtained results of his/her work as well as its interpretation.	lab	IŚ_K02	T1A_K02 T1A_K05
K_03	A student formulates conclusions and described the results of his/her work. A student is communicative as regards media presentations.	lab	IŚ_K07	T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1.	A parallel projection. Invariants and the division of a parallel projection. Axonometric projection. The definition and types of oblique axonometry, curtail angles. The sections of polyhedrons with a plane.	W_01
2.	Projection methods. The Monge methods in analytical approach (a global coordinate system). The projection of basic elements of space in rectangular projections; the projections of a point, section, a polygon, and a polyhedron.	W_01
3.	The significance and role of standardisation in recording technical information. The division of a technical drawing. General principles of making	W_01



	technical drawings. Drawing scales. The formats and graphical elements of drawing sheets. The types of drawing lines. Drawing tables. Folding drawing sheets. Technical drawing.	
4.	Basic structures in Monge projections (the structures of appurtenant and parallel elements). Compressed low-position and high-position axonometry. Intermediate axonometry (local coordinate system).	W_01
5.	Rectangular projection according to European and American methods. General dimensioning systems. Sections and revolved sections. Architectural and constructional drawing. Graphical signs.	W_01 W_02
6.	Basic structures in Monge projections (particular cases of constructing common elements). Practical application of polyhedron interpenetration. Second-order curves and surfaces. Surface applications in an engineering practice.	W_01
7.	Projection with elevations (projecting a point, a straight line, and a plane). Intersection edge of two planes. Projecting terrain surface. Terrain sections and profiles. The application of a projection with elevations in ground works.	W_01

2. Topics to be covered in the classes

3. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1.	Orientation class. Basic structures as regards elementary geometry (at the level of secondary education). A parallel projection, projecting space elements, invariants of a parallel projection (a presentation). Military axonometry of a polyhedron section with a plane.	W_01 U_01 K_01
2.	A drawing file, an exercise book, and technical drawing. Preparing a drawing sheet. Folding drawing sheets. Drawing lines.	W_01 U_01 K_01 K_02
3.	Three main Monge projections (of a point, sections, polygon, and a polyhedron on the basis of models). The restitution of a point, section, and a polygon. Global and local reference system.	W_01 U_01 K_01
4.	Monge projections of polyhedrons on the basis of models. Drawing military axonometry of polyhedrons on the basis of Monge projections.	W_01 U_01 U_03 K_01 K_02 K_03
5.	The structures of appurtenant and parallel elements (together with particular cases of constructing common elements). A detached house in three main Monge projections as well as in military axonometry.	W_01 W_02 U_01 U_02 K_01 K_02 K_03
6.	Rectangular projection according to the European method of a concave polyhedron. Dimensioning a concave polyhedron (necessary and sufficient projections). The sections of a concave polyhedron.	W_01 U_01 U_02 U_03 K_01 K_02 K_03
7.	A projection and sections of a building according to conventional graphical signs. Ground works in a projection with elevations.	W_01 W_02 U_01 U_02 U_03 U_04



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Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	A test; correct completion of laboratory class assignments
W_02	A test; correct completion of laboratory class assignments
U_01	A test; correct completion of laboratory class assignments
U_02	A test; correct completion of laboratory class assignments
U_03	A test; correct completion of laboratory class assignments
U_04	A test; correct completion of laboratory class assignments
K_01	A test; correct completion of laboratory class assignments
K_02	A test; correct completion of laboratory class assignments
K_03	A test; correct completion of laboratory class assignments

D. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	15
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	15
4	Contact hours: attendance at office hours (2-3 appointments per semester)	3
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	
8		
9	Number of contact hours	33 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1.32
11	Private study hours: background reading for lectures	2
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	2
14	Private study hours: preparation for laboratories	2
15	Private study hours: writing reports	11
16	Private study hours: preparation for a final test in laboratories	
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	



19		
20	Number of private study hours	17 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	0.68
22	Total study time	50
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	2
24	Number of practice-based hours <i>Total practice-based hours</i>	28
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	1.12

E. READING LIST

References	<ol style="list-style-type: none">1. Górka R.: Descriptive geometry, Freshman Level Course Addressed to the Engineering Students, Wyd. PK, Kraków 20132. Grochowski B.: Geometria wykreślna. PWN. Warszawa 19953. Koczyk H.: Geometria wykreślna. PWN. Warszawa 19954. Lewandowski Zb.: Geometria wykreślna. PWN. Warszawa 19845. Mirski J.: Zastosowania geometrii w budownictwie. Wyd. PŚk. Kielce 20036. Ochoński St., Rola H., Dobosz P.: Materiały pomocnicze z geometrii wykreślnej. Wyd. PŚk. 20017. Otto F. i E.: Podręcznik geometrii wykreślnej. PWN. Warszawa 19828. Miśniakiewicz E, Skowroński W.: Rysunek techniczny budowlany. Arkady.20049. Samujło H&J.: Rysunek techniczny i odręczny w budownictwie. Arkady10. Wojciechowski L.: Zawodowy rysunek budowlany. WSiP11. Normy „Rysunek techniczny
Module website	