

## MODULE SPECIFICATION

Module code	
Module title in Polish	<b>Geodezja 2</b>
Module title in English	<b>Surveying Engineering 2</b>
Module running from the academic year	<b>2016/2017</b>

### A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	<b>Civil Engineering</b>
Level of qualification	<b>First cycle</b> <i>(first cycle, second cycle)</i>
Studies profile	<b>Academic</b> <i>(academic/practical)</i>
Mode of study	<b>Full-time</b> <i>(full-time / part-time)</i>
Specialism	
Organisational unit responsible for module delivery	The Department of Geomatics, Surveying and Cartography
Module co-ordinator	Maciej Hajdukiewicz, PhD, Eng.
Approved by	<b>Marek Iwański, Professor</b>

### B. MODULE OVERVIEW

Module type	<b>Core module</b> <i>(core/programme-specific/elective HES*)</i>
Module status	<b>Compulsory module</b> <i>(compulsory / non-compulsory)</i>
Language of module delivery	<b>English</b>
Semester in the programme of study in which the module is taught	<b>Semester 2</b>
Semester in the academic year in which the module is taught	<b>Summer semester</b> <i>(winter / summer)</i>
Pre-requisites	<b>None</b> <i>(module code/module title, where appropriate)</i>
Examination required	<b>Yes</b> <i>(yes / no)</i>
ECTS credits	<b>4</b>

Mode of instruction	lectures	classes	laboratories	project	others
<b>Total hours per semester</b>	<b>15</b>		<b>30</b>		

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

### C. LEARNING OUTCOMES AND ASSESSMENT METHODS

<b>Module aims</b>	The aim of the module is to prepare students to co-operate with surveying services (having been familiarised with basic issues of surveying and photogrammetry with the application of new techniques and technologies of surveying processing).
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Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student knows the process of creating maps with the traditional and computer methods. In addition, a student knows what surveying works have to be completed at particular stages of the investment process.	l/l	B_W04 B_W05	T1A_W02 T1A_W04 T1A_W01 T1A_W02 T1A_W07
W_02	A student knows the notions of realisation and inventory as regards a building structure. A student knows realisation and inventory surveys.	l/l	B_W04	T1A_W02 T1A_W04
W_03	A student knows basic photogrammetric studies and the possibilities of applying them in investment planning.	l/l	B_W04	T1A_W02 T1A_W04
U_01	A student is able to read surveying maps. In addition, a student can calculate surface area with various methods.	l	B_U05 B_U06	T1A_U03 T1A_U07 T1A_U15 T1A_U05 T1A_U14 T1A_U16
U_02	A student can independently make basic surveys with the use of a tape measure, range finder, theodolite, a tacheometer, a leveller, and GPS. In addition, a student can calculate point coordinates on the basis of the conducted surveys.	l	B_U05 B_U06	T1A_U03 T1A_U08 T1A_U14 T1A_U07 T1A_U15
U_03	A student can calculate surveying data to set out a building structure in a terrain as part of the prepared realisation plan.	l	B_U05 B_U07	T1A_U03 T1A_U08 T1A_U14 T1A_U05 T1A_U15 T1A_U16
U_04	A student can plot a topographic map on the basis of his/her own surveys.	l	B_U06 B_U07	T1A_U03 T1A_U07 T1A_U15 T1A_U05 T1A_U14 T1A_U16
K_01	A student can work independently and in a team. Moreover, a student can organise the work of a team which will realise a given task. Furthermore, a student can divide labour among team members into tasks according to their competences.	l	B_K01	T1A_K03
K_02	A student is responsible for the reliability of the obtained results. Furthermore, a student can assess survey results and formulate appropriate results.	l	B_K02 B_K04	T1A_K02 T1A_K05 T1A_K07 T1A_K01

**Module content:**

## 1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1.	Discussing the syllabus of the lectures. Cartographic study of survey results. The process of creating maps (traditional – by hand). The process of creating a numerical map with the use of appropriate programs.	W_01 U_04
2.	Calculating surface. Analytical and graphical methods. Measuring surface area on rasters.	W_01 U_01
3.	Realisation and inventory surveys. The stages of surveying service as regards the investment process.	W_02 K_01 U_03
4.	The elements of photogrammetry and teledetection.	W_03

## 2. Topics to be covered in the classes

## 3. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1.	Familiarising students with laboratory classes. Familiarising students with the catalogue of conventional signs applied on maps according to the K-1 technical instruction. Reading maps.	W_01 U_02
2.	Setting out straight lines and measuring lengths.	U_02 K_01
3.	Theodolite.	U_02
4.	Measuring a horizontal angle.	U_02 K_01 K_02
5.	Measuring situational details in the terrain.	U_02 K_01 K_02
6.	Coordinate calculus.	U_02 K_02
7.	A leveller.	U_02
8.	Geometrical levelling.	U_02 K_01 K_02
9.	Tacheometry.	U_02 K_01 K_02
10.	Mapping.	W_01 U_04 K_02
11.	Calculating surface area.	W_02
12.	Realisation surveys.	W_01 W_02 W_03 U_03
13.	Inventory.	W_01 W_02 W_03 U_03
14.	Photogrammetry and remote sensing.	W_03

## 4. Topics to be covered in the projects

## 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	An examination
W_02	An examination
W_03	An examination
U_01	A test and a report
U_02	A test and a report
U_03	A test, a report, and an examination
U_04	A test, a report, and an examination
K_01	A report
K_02	A report

## C. 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	30
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	2
8		
9	<b>Number of contact hours</b>	<b>50</b> <i>(total)</i>
10	<b>Number of ECTS credits for contact hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>2</b>
11	Private study hours: background reading for lectures	6
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	9
14	Private study hours: preparation for laboratories	5
15	Private study hours: writing reports	5
16	Private study hours: preparation for a final test in laboratories	5
17	Private study hours: preparation of a project/a design specification	10
18	Private study hours: preparation for an examination	10
19		
20	<b>Number of private study hours</b>	<b>50</b> <i>(total)</i>
21	<b>Number of ECTS credits for private study hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>2</b>
22	<b>Total study time</b>	<b>100</b>
23	<b>Total ECTS credits for the module</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>4</b>
24	<b>Number of practice-based hours</b> <i>Total practice-based hours</i>	<b>53</b>

25	<b>Number of ECTS credits for practice-based hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>2.1</b>
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