



MODULE SPECIFICATION

Module code	
Module title in Polish	Geodezja 3
Module title in English	Surveying 3
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Surveying and Cartography
Level of qualification	first cycle (first cycle, second cycle)
Programme type	academic (academic/practical)
Mode of study	full-time (full-time/part-time)
Specialism	all
Organisational unit responsible for module delivery	The Department of Geotechnical Engineering, Geomatics and Waste Management
Module co-ordinator	Igor Romaniszyn, PhD, Eng.
Approved by:	Ryszard Florek-Paszowski, PhD, Eng.

B. MODULE OVERVIEW

Module type	core module (core/programme-specific/elective HES*)
Module status	compulsory module (compulsory/optional)
Language of module delivery	English
Semester in the programme of study in which the module is taught	semester 3
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	5

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

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per	30		30		



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semester					
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C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to prepare students (both theoretically and practically) for future professional work as regards surveyors' activity in surveying enterprises.
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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 has knowledge on detailed measurements as regards correct design of surveying works.	l/l	GiK_W01 GiK_W04 GiK_W13	T1A_W01 T1A_W03 T1A_W07
W_02	A student knows the principles of taking surveying measurements and calculating control networks and particular surveying tasks as regards surveying detailed measurements.	l/l	GiK_W01 GiK_W03 GiK_W04 GiK_W27	T1A_W03 T1A_W07
W_03	A student has knowledge on completing detailed analyses of surveying tasks at the stage of designing surveying as well as graphical and analytical preparation of the results.	l/l	GiK_W01 GiK_W03 GiK_W13 GiK_W27	T1A_W03 T1A_W04 T1A_W07
U_01	A student is familiar with the methods of searching and utilising information on the measurements and preparing results as regards geodetic control networks. In addition, a student can assess the essence and possibilities of the application of materials.	l	GiK_U01	T1A_U01,
U_02	A student can consciously use and utilise computer software in surveying computations and result analysis.	l	GiK_U02	T1A_U01
U_03	A student can prepare surveying technical documentation, an engineering project as regards surveying.	l	GiK_U07	T1A_U03
U_04	A student can make surveying calculations in diverse coordinate systems and the analysis of calculation results.	l/l	GiK_U10 GiK_U16	T1A_U07 T1A_U08
K_01	A student is aware of the responsibility for the realisation of teamwork as regards surveying measurements and calculations.	l	GiK_K06	T1A_K03
K_02	A student can co-operate and work in a team on common realisation of surveying tasks.	l	GiK_K07	T1A_K03

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1	Surveying detailed measurements as a base to realise surveying tasks. Geodetic control network (its significance, division, and classification).	W_01 K_01
2	The principles of designing measurement and preparing measurement results of detailed control networks.	W_01 W_02 W_03
3	Initial preparation of measurement results. The analysis of angular measurement accuracy in various measurement results.	W_01



4	Improving control networks with the indent method as well as accuracy analysis of determining coordinates with approximate and specific analytical methods. Graphical methods of accuracy analysis.	W_02
5	The transformation of coordinates in various systems and transformation types with approximate and specific methods. Transformation coefficients and the methods of calculating them. Selectin application points.	W_02 W_03
6	Measurements at eccentric stands. The eccentric of a stand and target. Reducing directions and distances. Intermediate method of determining eccentric elements. The analysis of improvements accuracy for measurements at eccentric stands.	W_02
7	Reducing distances measured with the rangefinder. Projection correction in the 2000 System.	W_02
8	Transferring the coordinates of control network points onto measurement feasible points. The analysis of coordinate accuracy with the specific and approximate method.	W_01 W_02 W_03

2. Topics to be covered in the classes

No.	Topics	Module outcome code
1 – 2	Measuring angles with the direction and horizon fill method.	U_01 K_01 K_02
3 – 4	The analysis of accuracy as regards determining single points in indent construction and point couples for densifying a surveying control networks.	U_01 U_02 U_04
5 – 6	Coordinate transformations. Transformation coefficients. The methods of determining coefficients. Calculating transformations in various versions.	U_01 U_02 U_04
7 – 8	Eccentric measurements. Determining the coefficients of transformation and calculating coordinates. Calculating eccentric elements the indirect method.	U_04
9 – 10	Transferring coordinates. Calculating the coordinates of the transferred point together with accuracy analysis of point position.	U_02 U_04
11 – 12	Initial accuracy analysis of the designed control network with the specific method. A project of third-class detailed control network.	U_02 U_03
13 – 14	A detailed analysis of the accuracy of coordinates as regards the designed control network.	U_02

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 W_02 W_03	A final oral and written examination
U_01 U_02 U_03 U_04	Assessing a student's involvement during laboratory classes
K_01 K_02	Assessing a student's involvement during teamwork



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D. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	30
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)	5
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	5
8		
9	Number of contact hours	70 <i>(sum)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	2.8
11	Private study hours: background reading for lectures	10
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	10
14	Private study hours: preparation for laboratories	10
15	Private study hours: writing reports	10
16	Private study hours: preparation for a final test in laboratories	10
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	5
19		
20	Number of private study hours	55 <i>(sum)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	2.2
22	Total study time	125
23	Total ECTS credits for the module <i>(1 ECTS credit = 25-30 hours of study time)</i>	5
24	Number of practice-based hours <i>Total practice-based hours</i>	50
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	2.0

E. READING LIST

References	
Module website	