



### MODULE SPECIFICATION

Module code	
Module title in Polish	Pomiary realizacyjne i powykonawcze tras energetycznych, komunikacyjnych i mediów
Module title in English	Construction-Site and As-Built Surveys of Power Routes, Communication Lines and Media
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	Engineering Surveys (graduation path)
Organisational unit responsible for module delivery	The Department of Geotechnical Engineering, Geomatics and Waste Management
Module co-ordinator	Prof. Bogdan Wolski, PhD hab., 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 6
Semester in the academic year in which the module is taught	summer semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination required	no (Yes/No)
ECTS credits	1

\* 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				



### C. LEARNING OUTCOMES AND ASSESSMENT METHODS

<b>Module aims</b>	The aim of the module is to familiarise students with basic knowledge on legal and technological fundamentals concerning surveys of communication, energy, and media routes. Additionally, students are acquainted with basic notions, definitions, methods, and techniques.
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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 obtains basic knowledge on legal and technological fundamentals of taking topographic surveys in order to realise routes.	l	GiK_W09	T1A_W03
W_02	A student knows the methods of preparing surveying observations which are necessary for setting out routes.	l	GiK_W03	T1A_W01, T1A_W04, T1A_W07
W_03	A student can design a measurement control network; measure it, interpret measurement results and draw the necessary conclusions.	l	GiK_W13	T1A_W03, T1A_W04
W_04	A student can plan and take surveys in order to realise routes.	l	GiK_W21	T1A_W03, T1A_W07
U_01	A student is able to plan and take surveys; interpret results and draw conclusions.	l	GiK_U14	T1A_U08
U_02	A student can make a surveying project study.	l	GiK_U23	T1A_U15, T1A_U16
K_01	A student understands the necessity and knows the possibilities of continuous education as well as raising his/her professional competences which result from the changes in regulations as well as technology changes applied in topographic measurements.	l	GiK_K01	T1A_K01
K_02	A student is aware of the necessity of self-betterment as well as acting in a professional and responsible manner according to the principles of professional ethics.	l	GiK_K02	T1A_K01, T1A_K02, T1A_K05, T1A_K07

#### Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1-2	Route types (their characteristics from the point of view of surveying measurements).	W_01, W_02, K_01, K_02
3-4	Measurements taken during particular stages of road construction (together with structural elements associated with it).	W_01, W_02, W_03, U_01, U_02, K_02
5	Surveying service during the realisation of energy routes.	W_04 U_01, U_02
6	Surveying service during land development.	W_04 U_01, U_02
7-8	The locators of underground devices.	W_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, W_04, U_01, U_02	A test
K_01, K_02	A discussion during obtaining a credit and during the lectures.

### D. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	<b>15</b>
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	<b>2</b>
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	<b>Number of contact hours</b>	<b>17</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>0.68</b>
11	Private study hours: background reading for lectures	<b>4</b>
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	<b>4</b>
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	
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	<b>Number of private study hours</b>	<b>8</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>0.32</b>



22	<b>Total study time</b>	<b>25</b>
23	<b>Total ECTS credits for the module</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>1</b>
24	<b>Number of practice-based hours</b> <i>Total practice-based hours</i>	<b>0</b>
25	<b>Number of ECTS credits for practice-based hours</b> <i>(1 ECTS credit =25-30 hours of study time)</i>	<b>0</b>

### E. READING LIST

References	1. <a href="#">Russell C. Brinker</a> <i>The Surveying Handbook</i> , Technology & Engineering 2013
	2. Reports on Geodesy. Warsaw University of Technology.
	3. Geomatics and Environmental Engineering. AGH University of Science and Technology
Module website	1. <a href="http://www.spar3d.com">http://www.spar3d.com</a> . <a href="#">Jan van Sickle</a> . <i>The Engineering Surveying Manual</i> , 2015
	2. W. Schofield. <i>Engineering surveying</i> (5 <sup>th</sup> edition), free download