MODULE SPECIFICATION

Module code	
Module title in Polish	**Ochrona środowiska**
Module title in English	**Environmental Protection**
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	**Ryszard Florek-Paszkowski, PhD, Eng.**
Approved by:	**Ryszard Florek-Paszkowski, 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 5
Semester in the academic year in which the module is taught	winter semester (winter semester/summer semester)
Pre-requisites	No requirements (module code/module title, where appropriate)
Examination required	yes (Yes/No)
ECTS credits	2

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

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

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to obtain knowledge on environmental protection (including legal regulations concerning the protection). A student becomes familiarised with terrain transformation types under natural and technogenic factors. Furthermore, a student obtains detailed knowledge on reclamation methods concerning the transformed terrain as well as in terms of the impact of environmental changes on the methodology of making surveying observations.

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 is familiarised with basic knowledge in environmental protection (including legal protection aspects).	l	GiK_W01 GiK_W05	T1 A_W01 T1 A_W02 T1 A_W03
W_02	A student obtains practical knowledge on anthropogenic and natural terrain transformations.	l	GiK_W01 GiK_W05	T1 A_W01 T1 A_W02 T1 A_W03
W_03	A student obtains knowledge on the methods of reclaiming and revitalization of the transformed terrain.	l	GiK _W01	T1 A_W01
W_04	A student is capable of associating the movements of land surface as well as orogen (together with natural and technological changes); a student can also interpret the distribution of these motions.	l	GiK _W03	T1 A_W01 T1 A_W04 T1 A_W07
U_01	A student can illustrate the problem concerning environmental protection in the form of a thematic and sozological maps.	l	GiK _U09	T1A_U07
U_02	A student is able to communicate with the use of various techniques connected with environmental protection scientists.	l	GiK _U05	T1A_U02
K_01	A student understands non-technical aspects and effects of a man (including its influence on the economy).	l	GiK _K05 GiK _K06	T1A_K02 T1A_K04
K_02	A student can co-operate and work in a team during the realisation of engineering projects (together with specialists from other disciplines).	l	GiK _K06 GiK _K07	T1A_K03

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1 – 3.	Legal fundamentals and the methods of environmental protection. Sources, their features, and exhaustability.	W_01 K_01
4 – 6.	Medium effects of the activity of a man (large deformations – their characteristics and reasons of occurrence).	W_02 K_01
7 – 9.	Natural causes of terrain surface deformations (landslide phenomena, flow creep, karst phenomena, and tectonic movements).	W_02
10 – 12.	Reclamation and rehabilitation of transformed terrains. Legal reclamation aspects. Deposit toxicity. The role of a surveyor in the reclamation process.	W_01 W_03 U_02 K_02
13 –	Survey and remote sensing observations of rock mass and terrain surface	W_04

15.	motions (their objectives and observation possibilities, the applied survey technologies, processing results, the applied survey technologies, inference concerning the deformation phenomenon on the basis of survey results). Assessing the impact of movements concerning surface motions on the elements of geodetic control networks. Sozological and thematic maps concerning environmental protection.	U_01 U_02 K_02

Assessment methods

Module outcome code	**Assessment methods** *(Method of assessment; for module skills − reference to specific project, laboratory and similar tasks)*
W_01	A test and a discussion during the lecture
W_02	A test and a discussion during the lecture
W_03	A test and a discussion during the lecture
W_04	A test and a discussion during the lecture
U_01	A test and a discussion during the lecture
U_02	A test and a discussion during the lecture
K_01	A test and a discussion during tutorials and obtaining a credit
K_02	A discussion during tutorials and obtaining a credit

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	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	**2**
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	**3**
8		
9	**Number of contact hours**	**35** *(total)*
10	**Number of ECTS credits for contact hours** *(1 ECTS credit =25-30 hours of study time)*	**1.4**
11	Private study hours: background reading for lectures	**5**
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	**5**
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	**5**
19		
20	**Number of private study hours**	**15***(total)*
21	**Number of ECTS credits for private study hours** *(1 ECTS credit =25-30 hours of study time)*	**0.6**
22	**Total study time**	**50**
23	**Total ECTS credits for the module** *(1 ECTS credit =25-30 hours of study time)*	**2**
24	**Number of practice-based hours** *Total practice-based hours*	**0**
25	**Number of ECTS credits for practice-based hours** *(1 ECTS credit =25-30 hours of study time)*	**0**

E. READING LIST

References	
Module website	