



MODULE SPECIFICATION

Module code	
Module title in Polish	Podstawy geotechniki i geologii
Module title in English	Fundamentals of Geotechnics and Geology
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 and Hydraulic Engineering
Module co-ordinator	Maciej Hajdukiewicz, PhD
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 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

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per	15		15		



semester				
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C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to: acquaint students with geological structure and properties of land (which is indispensable to estimate construction and economic targets); learn the methods of marking parameters which are decisive about its usefulness with respect to buildings; familiarise students with basic concepts used in geotechnical documentation; learn geological and anthropogenic processes which shape the surface of the Earth (together with their impact on the spatial planning).
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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 environmental engineering as well as other branches of science which is useful to formulate and solve basic issues connected with surveying and cartography.	II	GiK_W27 GiK_W14 GiK_W13 GiK_W12 GiK_W08 GiK_W06	T1A_W02; T1A_W03; T1A_W04; T1A_W05; T1A_W07; T1A_W08
U_01	A student knows the methods of searching information included in various bibliographical and the Internet sources; a student can also assess this information and use it in practice.	II	GiK_U08 GiK_U09 GiK_U12 GiK_U19 GiK_U25	T1A_U04 T1A_U06 T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U16
U_02	A student is capable of independent preparation for laboratory classes, tests, and examinations.	II	GiK_U01	T1A_U01
K_01	A student understands the necessity (and knows the possibilities) of continuous education (second- and third-degree studies, post-graduate studies) as well as raising his/her professional, personal, and social competences.	II	GiK_K02	T1A_K01 T1A_K02 T1A_K05 T1A_K07
K_02	A student is aware of the responsibility for the realisation of team tasks.	I	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	The fundamentals of geology: its division into branches, research methods, main processes, and basic concepts.	W_01 U_01 U_02
2	Historical geology in terms of shaping natural conditions, the impact on terrain shape and the properties of lands, the occurrence of resource deposits. The fundamentals of regional geology (geological units of Europe).	W_01 U_01 U_02
3	Processes shaping the surface of the Earth and land/soil properties in the Cenozoic era (drawing particular attention to orogenic movements and the activity of continental glaciers).	W_01 U_01 U_02
4	The elements of mineralogy, petrography, and sedimentology (basic notions); testing land – sedimentology, a review of methods applied in geotechnics, hydrogeology, and environmental engineering.	W_01 U_01 U_02
5	Soil in relation to land; basic properties of land; natural and anthropogenic processes taking place in land; soil-forming processes and their impact on the properties of land.	W_01 U_01 U_02



6	Pedology (the application of knowledge on pedology in spatial planning); the elements of hydrogeology (natural and anthropogenic changes of hydrographic conditions with respect to the properties of soil).	W_01 U_01 U_02
7	Soil dynamics: subsidence, mass movements, etc. Determining geotechnical conditions of building setting (government's order from 2012). The requirements concerning construction projects as regards geology the Mining Law (Act of Parliament from 2012).	W_01 U_01 U_02

2. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1	Utilising soil in construction - labelling the type of soil on the basis of the granulometric composition - the methods of labelling leading parameters for cohesive and cohesionless soil - the bearing capacity of the foundation soil on the basis of leading parameters	W_01 U_01 U_02 K_01 K_02
2	Macroscopic analysis of soil Practice with the use of soil. An individual report on the basis of the description of macroscopic properties of organic, cohesionless, and cohesion soil.	W_01 U_01 U_02 K_01 K_02
3	Geotechnical conditions of setting structures; familiarising students with geotechnical documentation.	W_01 U_01 U_02 K_01 K_02
4	Labelling rock-forming minerals with macroscopic methods and with the use of a microscope. Labelling mechanical properties (cleavage and fracture) as well as general features (a section and form). An individual report containing the description of three minerals. Recognising magma rocks. A report (four students per team) containing the description of six magma rocks with various genesis.	W_01 U_01 U_02 K_01 K_02
5	Recognising sedimentary rocks. A report (four students per team) containing the description of six sedimentary rocks with different origin. Recognising metamorphic rocks from regional metamorphism.	W_01 U_01 U_02 K_01 K_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	A test, reports during laboratory classes
U_01	A test during laboratory classes, reports during laboratory classes
U_02	Tests during laboratory classes
K_01	Tests during laboratory classes, reports during laboratory classes
K_02	Reports during laboratory classes

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	2
8		
9	Number of contact hours	35 <i>(sum)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1.4
11	Private study hours: background reading for lectures	3
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	4
16	Private study hours: preparation for a final test in laboratories	2
17	Private study hours: preparation of a project/a design specification	-
18	Private study hours: preparation for an examination	2
19		
20	Number of private study hours	15 <i>(sum)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	0.6
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>	25
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1

E. READING LIST

References	
Module website	