

MODULE SPECIFICATION

Module code	
Module title in Polish	Technologia budowy dróg
Module title in English	Technology of Road Construction
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Civil Engineering
Level of qualification	First cycle <i>(first cycle, second cycle)</i>
Studies profile	Academic <i>(academic/practical)</i>
Mode of study	Full-time <i>(full-time / part-time)</i>
Specialism	Road Construction
Organisational unit responsible for module delivery	The Department of Transport Engineering
Module co-ordinator	Grzegorz Mazurek, MSc, Eng.
Approved by	Marek Iwański, Professor

B. MODULE OVERVIEW

Module type	Core module <i>(core/programme-specific/elective HES*)</i>
Module status	Compulsory module <i>(compulsory / non-compulsory)</i>
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 <i>(winter / summer)</i>
Pre-requisites	None <i>(module code/module title, where appropriate)</i>
Examination required	Yes <i>(yes / no)</i>
ECTS credits	4

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per semester	30		15	15	

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

C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to familiarise students with particular road building technologies.
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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 is familiar with the classification of road surfaces as well as the requirements concerning them.	l	B_W09	T1A_W03 T1A_W07
W_02	A student knows appropriate materials in road building.	l/l/p	B_W08 B_W18	T1A_W03 T1A_W07 T1A_W08 T1A_W02 T1A_W04 T1A_W05
W_03	A student is familiar with the technology of completing particular layers of a road surface (foundation, binder course, and wearing course).	l/l	B_W12 B_W13	T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W06 T1A_W07 T1A_W08
U_01	A student can use basic norms and guidelines connected with road building.	l/l/p	B_U13	T1A_U05 T1A_U07 T1A_U11 T1A_U15 T1A_U16
U_02	A student can design particular layers of a road surface.	l/l/p	B_U14	T1A_U03 T1A_U04 T1A_U05 T1A_U14 T1A_U16
U_03	A student can conduct basic tests in order to identify soils as well as aggregates used in bituminous mixes.	l	B_U23	T1A_U01 T1A_U05 T1A_U03 T1A_U08 T1A_U09 T1A_U15
K_01	A student can work individually and co-operate in a team on the assigned task.	l/p	B_K01	T1A_K03 T1A_K01 T1A_K04
K_02	A student is responsible for the reliability of the obtained results.	l/p	B_K02	T1A_K02 T1A_K05 T1A_K07
K_03	A student formulated conclusions and describes the results of his/her work.	l/p	B_K04	T1A_K01 T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1	The causes of damaging the structures of road surfaces. The classification of road surfaces.	W_01
2-3	The classification of soil in terms of the material of road foundation and the material of constructional layers.	W_02 U_01
4	The classification of aggregate for road works.	W_02 U_01
5-7	Subgrade (its classification and manufacturing technique).	W_02 W_03 U_01 U_02
8	Geosynthetic materials for constructional layers.	W_02 U_01
9-11	Road binders. Asphalt modifiers and stabilisers as well as bituminous mix.	W_02 U_01
12-14	Bituminous mixes. The principles of designing and realisation. The characteristics of asphaltic concrete, stone mastic asphalt, cast and sand asphalt.	W_02 W_03 U_01 U_02
15	Requirements concerning road surfaces.	W_01

2. Topics to be covered in the classes

3. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1	Testing material usefulness to make soil stabilisation (with calcium or cement) depending on soil properties.	W_02 U_01 U_03 K_01
2	The project of soil-cement recipe with determining the amount of the necessary components.	U_02 K_02
3	Completing sample batches together with maintenance of samples.	W_03 U_01 K_01
4	Testing soil-cement/calcium mix with determining its usefulness and purpose for constructional layer in terms of their mechanical parameters.	U_01 K_02 K_03
5		W_02 U_01

	Tests concerning the usefulness of aggregate for mineral and bituminous mixes. A project of mineral mixes.	U_02 U_03 K_01 K_02
6	Making the bituminous mix for asphalt surface: asphaltic concrete, stone mastic asphalt. Completing samples. Marshall stability test.	W_03 U_01 K_01
7	Marking basic physicochemical properties of the designed materials.	U_01 K_02 K_03

4. Topics to be covered in the projects

Project number	Topics	Module outcome code
1-2	The methods of optimising the composition of a bituminous mix.	W_02 U_01 U_02 K_01 K_02
3-5	A project of reinforcing slope embankment with geosynthetic material. The Fellenius method.	W_02 U_01 K_01 K_02
6-7	A project of complex mechanisations of works.	K_01 K_02 K_03

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, a test, and project
W_02	An examination, a test, a project, and a report
W_03	An examination, a test, a project, and a report
U_01	A test, a project, and a report
U_02	A test, a project, and a report
U_03	A test and a report
K_01	A test, a project, and a report
K_02	A test, a project, and a report
K_03	A test, a project, and a report

C. 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	Contact hours: participation in project-based classes	15
6	Contact hours: meetings with a project module leader	3
7	Contact hours: attendance at an examination	2
8		
9	Number of contact hours	80 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	3.2
11	Private study hours: background reading for lectures	5
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	3
14	Private study hours: preparation for laboratories	6
15	Private study hours: writing reports	6
16	Private study hours: preparation for a final test in laboratories	6
17	Private study hours: preparation of a project/a design specification	6
18	Private study hours: preparation for an examination	8
19		
20	Number of private study hours	40 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	1.8
22	Total study time	120
23	Total ECTS credits for the module <i>(1 ECTS credit =25-30 hours of study time)</i>	4
24	Number of practice-based hours <i>Total practice-based hours</i>	66
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.2