

MODULE SPECIFICATION

Module code	
Module title in Polish	Utrzymanie dróg
Module title in English	Road Maintenance
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	Anna Chomicz-Kowalska, PhD, 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 7
Semester in the academic year in which the module is taught	Winter semester <i>(winter / summer)</i>
Pre-requisites	None <i>(module code/module title, where appropriate)</i>
Examination required	No <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 basic information as regards the system of road maintenance and modernisation.
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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 knowledgeable about the causes of the occurrence road surface damages as well as Surface Quality Assessment System.	l/p	B_W08 B_W12	T1A_W03 T1A_W07 T1A_W08
W_02	A student has basic knowledge on the technology of works connected with making cold deep recycling.	l/l/p	B_W12	T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W07
W_03	A student has knowledge concerning materials applied in road construction in the MCE (mineral-cement-emulsion) technology.	l/l/p	B_W18	T1A_W02 T1A_W03 T1A_W04 T1A_W05 T1A_W07 T1A_W08
U_01	A student can apply material meeting appropriate properties (aggregate, cement, rubble, and emulsion) for the designed MCE (mineral-cement-emulsion).	l/l/p	B_U24	T1A_U03 T1A_U05 T1A_U08 T1A_U09 T1A_U13 T1A_U14 T1A_U15 T1A_U16
U_02	A student can design a MCE (mineral-cement-emulsion) mix (select appropriate amount of a binder and bonding agent).	l/l	B_U24	T1A_U03 T1A_U05 T1A_U08 T1A_U09 T1A_U13 T1A_U14 T1A_U15 T1A_U16
U_03	A student can conduct basic tests in order to identify or assess construction materials for road maintenance, identify damages and classify them.	l/l/p	B_U23	T1A_U01 T1A_U05 T1A_U03 T1A_U08 T1A_U09 T1A_U15
K_01	A student can work individually.	l/p	B_K01	T1A_K01 T1A_K03 T1A_K04
K_02	A student is aware of and responsible for the reliability of the obtained test results.	l/p	B_K02	T1A_K02 T1A_K05 T1A_K07
K_03	A student can formulate conclusions and describe the results of the conducted tests.	l/p	B_K04	T1A_K01 T1A_K07

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module
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		outcome code
1	Flexible and semi-rigid surface damages as well as the reasons of their occurrence.	W_01 U_01
2-3	Surface Quality Assessment System (its assumptions and general characteristics).	W_01
4-6	The recycling of the road surface structure (its characteristics and classification). The types of surface and deep recycling.	W_03 U_01 U_03
7	The principles of designing, rebuilding and renovating road surfaces.	W_01 W_02 W_03
8-10	The technology of repairing surface cracks (longitudinal, cross, and grid cracks; grain or binder losses).	W_01 W_02 W_03 U_02 U_03
11	Special road repair technologies (Whittetoping, PA - porous asphalt, etc.).	W_01 W_02 U_02
12	The role of green areas in shaping road surface.	W_01
13	Active and passive prevention of road traffic noise.	W_01 W_02
14	Winter road maintenance.	W_01 U_01
15	Safety devices concerning road traffic.	W_01 W-02

2. Topics to be covered in the classes

3. Topics to be covered in the laboratories

No.	Topics	Module outcome code
1	OHS principles in the Material Technology and Road Surface Laboratory. Familiarising students with the principles of conducting works in the laboratory. Discussing the MCE (mineral-cement-emulsion) technology of deep and cold recycling. Selecting particle-size distribution curves as well as selecting traffic category.	W_02 W_03
2	Testing mineral materials for the recycling technology (aggregates, asphalt or concrete rubble, cement, or asphalt emulsion).	W_02 U_01 U_03
3	A project of the recycled mineral mix in the cold deep MCE (mineral-cement-emulsion) recycling technology. Selecting the amount of asphalt, cement, and mineral components according to the particle-size distribution curve.	W_01 W_02 U_01 U_02 K_01
4-5	Making sample batches of the MCE (mineral-cement-emulsion) mix.	W_02 W_03 U_01 K_01
6-7	Determining physicochemical properties of the designed recycled MCE (mineral-cement-emulsion) mixes.	W_02 K_01 K_02 K_03

4. Topics to be covered in the projects

No.	Topics	Module outcome code
1-3	Assessing the condition of street surface with the Surface Quality Assessment System.	W_01 U_03 K_01 K_02
4	Analysing surface damages.	W_01 U_03 K_01
5-7	A project of repair technology as regards road surfaces.	W_01 U_01 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	A test and a project
W_02	A test, a project, and a report
W_03	A test, a project, and a report
U_01	A test, a project, and a report
U_02	A test and a report
U_03	A test, a project, 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	15
4	Contact hours: attendance at office hours (2-3 appointments per semester)	2
5	Contact hours: participation in project-based classes	15
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	2
8		
9	Number of contact hours	64 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2.6
11	Private study hours: background reading for lectures	3
12	Private study hours: preparation for classes	

13	Private study hours: preparation for tests	5
14	Private study hours: preparation for laboratories	6
15	Private study hours: writing reports	
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	10
19		
20	Number of private study hours	36 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit =25-30 hours of study time)</i>	1.4
22	Total study time	100
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>	50
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit =25-30 hours of study time)</i>	2