

Faculty of CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES					
Study programme:	Civil engineering		Degree level: Bachelor's degree / Master's degree / Doctoral degree		
Specialization	Diploma path: Road engineering				
Module name:	MAINTENANCE and RECONSTRUCTION of ROADS				
Module type:	obligatory	Semester: 7	ECTS 4	Module ID: B37356	
No. of hrs in semester:	L - 15	C - 0	LC- 0	P- 30	SW- 0 S- 0
Prerequisites:	Complete with prerequisites or "-"		Design of roads, Technology of materials and road surfaces, Road surfaces		
Teaching methods:	lecture, project,	Assessment:	Evaluation must be relevant to the intended learning outcomes		
		e.g.: lecture - written exam, project - completion, presentation and discussion of the project, exam			
Aims and objectives:	To acquaint students with the assessment of the technical condition of the pavement and the principles of road maintenance. Discussion of problems related to the way of renovation and reconstruction of road surfaces. Teaching the design of road pavement reinforcement. To educate the skills of the proper choice of road surface repair actions.				
Module content:	Assessment of the technical condition of the surface. Planning and implementation of maintenance works. Methods of designing road pavement reinforcements. Classification of renovation treatments and strengthening of road surfaces. Technology of road repairs and reconstruction. Winter road maintenance.				
Learning outcomes	Write min. 4, max. 8 learning outcomes in the following order: knowledge - skills - competences. Each learning outcome must be verifiable.			Relevance to the programme learning outcomes	
LO1	identifies problems in the field of road maintenance			K_B1_W19, K_B1_W20	
LO2	distinguishes between the causes of pavement damage			K_B1_W18	
LO3	is able to choose the appropriate surface repair technology			K_B1_U13	
LO4	knows how to design pavement reinforcement			K_B1_U13, K_B1_U07	
LO5	prepares design documentation for road reconstruction			K_B1_U04, K_B1_U14, K_B1_U21, K_B1_K02	
ent workload	lecture attendance			15 x 1h =	15
	participation in classes, laboratory classes, etc.			15 x 2h =	30
	preparation for classes, laboratory classes, projects, seminars, etc.				15
	work on projects, reports, etc.				15
	participation in student-teacher sessions related to the class / seminar / project			5 x 1h =	5
	implementation of project tasks			10 x 1h =	10

stud	preparation for and participation in exams/tests		15
		TOTAL:	105
quantitative indicators	Student workload - activities that require direct teacher participation	52	ECTS 2
	Student workload - practical skills activities	75	3
basic references:	1. Katalog wzmocnień i remontów nawierzchni podatnych i półsztywnych. IBDiM, Warszawa 2001. 2. Rozporządzenie Ministra Infrastruktury z dnia 24 czerwca 2022 r. w sprawie przepisów techniczn1. Katalog wzmocnień i remontów nawierzchni podatnych i półsztywnych. IBDiM, Warszawa 2001. 2. Rozporządzenie Ministra Infrastruktury z dnia 24 czerwca 2022 r. w sprawie przepisów techniczno-budowlanych dotyczących dróg publicznych (Dz.U. 2022 poz. 1518). Diagnostyka Stanu Nawierzchni. GDDKiA 2019 4. System Oceny Stanu Nawierzchni SOSN. Wytyczne stosowania. GDDKiA, Warszawa 2016..		
supplementary references:	1. J. Król, J. Piłat, P. Radziszewski.: technologia materiałów i nawierzchni drogowych. PW, Warszawa, 2015. 2. Szydło A.: Nawierzchnie z betonu cementowego. Polski Cement. Kraków, 2004. 3. Drogownictwo. Miesięcznik Naukowo-techniczny SITK. 4. Road Materials and Pavments Desingn. Taylor&Francis Group. 5. Journal of transportation Engineering. American Society of Civil Engineers		
learning outcomes	<i>methods of assessing learning outcomes</i>	type of class (if more than one) where the outcomes are assessed	
LO1	evaluating the student's reports and preparation for the classes	L, P	
LO2	evaluating the student's reports and preparation for the classes , tests on lecture content	L, P	
LO3	evaluating the student's reports, tests on lecture content	L,P	
LO4	evaluating the student's reports an	P	
LO5	discussion of the student's reports, evaluation of the student's performance in classes	P	
LO6			
LO7			
LO8			
Department:	Deoartment of Road Engineering	Group instructors:	prof. dr hab.inż.Władysław Gardziejczyk, dr i
Date:	02.05.2019	Coordinator:	dr inż. Marta Wasilewska

L - lecture    C - class    LC - laboratory class    P-project  
SW - specialization workshop    S - seminar


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