



COURSE SPECIFICATION

Course code	B2-3-BD-303
Course title in Polish	Modernizacja i technologia odnowy nawierzchni drogowych
Course title in English	Modernization and rehabilitation of road pavements
Valid from academic year	2019/2020

CURRICULAR ALIGNMENT

Programme	CIVIL ENGINEERING
Level	second-cycle
Programme profile	academic
Mode of attendance	full-time
Specialism	Highway Engineering
Academic unit responsible for the course	Department of Transport Engineering
Course coordinator	Prof. dr hab. inż. Marek Iwański
Approved by	prof. dr hab. inż. Marek Iwański

COURSE DESCRIPTION

Teaching block	specialism
Course status	required
Language of instruction	Polish
Semester of delivery	semester III
Prerequisites	-
Exam (YES/NO)	NO
ECTS	2

Mode of teaching	lecture	class	lab	project	seminar
Number of hours per semester	15	15		15	

LEARNING OUTCOMES

Category	Code	Learning outcomes	Corresponding programme outcome code
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Knowledge	W01	Students know the materials currently used in highway engineering and the various technologies for resurfacing a road.	B2_W07
	W02	Students know standards and guidelines for road construction and materials used.	B2_W14
Skills	U01	Students can carry out laboratory tests leading to the assessment of the quality of road materials used and the strength of road structural elements.	B2_U11
	K01	Students can work independently and cooperate in a team on a given task.	B2_K01
	K02	Students are responsible for the reliability of the results obtained.	B2_K02

COURSE CONTENT

Teaching mode*	Topics covered
lecture	<ol style="list-style-type: none"> 1. Characteristics of pavement surface damage influencing repair methods. 2. Traditional pavement resurfacing technologies. 3. Cold-applied thin overlays as a surface renovation treatment for pavements. 4. Surface hardening. Classification. Design principles. Technology of execution and acceptance of surface hardening. 5. Asphalt pavement texturing/roughening technologies. 6. Modern surface renewal treatments for road surfaces.
class	<ol style="list-style-type: none"> 1. Asphalt pavement structure renewal design considering pavement condition with the use of geosynthetic material. 2. Mechanistic design for road pavement strengthening on weak subgrades.
project	<ol style="list-style-type: none"> 1. Determining the causes of pavement surface/structure damage and the methodology of invasive/non-invasive testing to justify the assumptions made. 2. Presenting pavement structure repair technology along with cost estimates and a bill of quantities for road works.

METHODS OF LEARNING OUTCOMES VERIFICATION

Learning outcome	Learning outcome verification methods					
	Oral exam	Written exam	Test	Project	Report	Other
W01			X	X		
W02			X	X	X	
U01			X		X	
K01					X	
K02					X	

ASSESSMENT

Teaching mode*	Assessment type	Criteria
lecture	mark-based	<i>Scoring at least 50% on the in-class test.</i>
class	mark-based	<i>A passing grade or higher on each report and in-class test.</i>
project	mark-based	<i>A passing grade or higher on each project and in-class test.</i>

STUDENT WORKLOAD

ECTS weighting							
	Activities	Student workload					Unit
		W	C	L	P	S	
1.	Scheduled contact hours	15	15		15		h
2.	Other (office hours, exams)	1	1		1		h
3.	Total number of contact hours	48					h
4.	Number of ECTS credits for contact hours	1,92					ECTS
5.	Independent study hours	2					h
6.	Number of ECTS credits for independent study	0,08					ECTS
7.	Practical hours	18					h
8.	Number of ECTS credits for practical hours	0,7					ECTS
9.	Total workload	50					h
10.	ECTS credits for the course <i>1 ECTS credit =25 student learning hours</i>	2					ECTS

READING LIST

1. M. Bugajski, W. Grabowski: *Geosyntetyki w budownictwie drogowym*. WPP, Poznań 1999.
2. **Kalabińska M., Piłat J., Radziszewski P.: *Technologia materiałów i nawierzchni drogowych*. Oficyna Wydawnicza Politechniki Warszawskiej, 2008.**
3. Piłat J., Radziszewski P.: *Nawierzchnie asfaltowe*. WKiŁ, W-wa, 2008.
4. Tylman E.: *Technologia materiałów drogowych*. WKiŁ, W-wa, 1987.
5. Luszawski S., Wojdanowicz S.: *Nowoczesne nawierzchnie bitumiczne*. WKiŁ, W-wa, 1977.
6. Geotekstylija – Poradnik projektanta DON&LOW LTD, Scotland 1995.
7. Katalog wzmocnień i remontów nawierzchni podatnych i półsztywnych. IBDIM W-wa 2001.

8. Czasopisma naukowo-techniczne: *Drogownictwo, Drogi i Mosty*.
9. Normy przedmiotowe.