Subject card

Subject name and code	Road infrastructure diagnostics, PG_00062465					
Field of study	Transport					
Date of commencement of studies	February 2024		Academic year of realisation of subject		2024/2025	
Education level	second-cycle studies		Subject group			
Mode of study	Full-time studies		Mode of delivery		at the university	
Year of study	1		Language of instruction		Polish	
Semester of study	2		ECTS credits		3.0	
Learning profile	general academic profile		Assessment form		assessment	
Conducting unit	Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering					
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Piotr Jaskuła			
	Teachers		dr hab. inż. Dawid Ryś			
			dr hab. inż. Piotr Jaskuła			

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	15.0	0.0	45
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	45	5.0	25.0	75

Subject objectives	Lecture: Pavement. Diagnostics as a part of the Pavement Management System and legal basis in Poland. Objectives and effects of diagnostics. Scope of tests. Criteria for pavement condition assessment based on DSN system. Diagnostics of airport, non-urban and urban pavements. Models for predicting pavement condition and assessing pavement durability.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values	Can indicate the test for prediction of road surface condition.	[SK1] Assessment of group work skills [SK2] Assessment of progress of work [SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice
	[K7_U05] cooperates with other people in the implementation of team work, both as a leader and a team member, effectively achieving set goals	Can collect the data	[SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment
	[K7_W01] identifies in an in-depth way phenomena related to the field of study as well as theories describing them and possible methods of analyzing processes occurring in the life cycle of technical systems	Knows the goals and scope of pavement diagnostics.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K7_U02] presents logical and solid arguments regarding the obtained results, through analysis, synthesis of information in various technical contexts, critically approaching their interpretation	Is able to evaluate the results of the pavement assessment.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	[K7_K01] recognizes the importance of knowledge related to the field of study in solving cognitive and practical problems	Can prepare report.	[SK4] Assessment of communication skills, including language correctness [SK2] Assessment of progress of work

Subject contents	
	Lecture: Pavement. Diagnostics as a part of the Pavement Management System and legal basis in Poland. Objectives and effects of diagnostics. Scope of tests (surface condition, evenness, load-bearing capacity, anti-skid, noise) and methodology of pavement condition assessment. Criteria for pavement condition assessment based on DSN system. Diagnostics of airport, non-urban and urban pavements. Models for predicting pavement condition and assessing pavement durability.Lab: Visual assessment of the pavement condition of a selected road section. Pavement deflection tests using the FWD device. Longitudinal and transverse evenness and anti-skid properties of the pavement.Project: Determination of the technical condition of a section of an urban road based on visual assessment. Assessment of pavement load-bearing capacity. Assessment of evenness and anti-skid properties of the pavement.

Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Laboratory	60.0%	50.0%
	Project	60.0%	50.0%

Recommended reading	Basic literature	https://www.gov.pl/web/gddkia/diagnostyka-stanu-nawierzchni
		Diagnostyka Stanu Nawierzchni - https://www.archiwum.gddkia.gov.pl/userfiles/articles/z/zarzadzenia-generalnego-dyrektor_17474/zarzadzenie%2034%20zalacznik%20wytyczne%20stosowania.pdf
		Jerzy Piłat, Piotr Radziszewski, Nawierzchnie Asfaltowe, Wydawnictwo Komunikacji i Łączności. Warszawa 2007
		Antoni Szydło, Nawierzchnie drogowe z betonu cementowego, Cement Polski, Kraków 2004
	Supplementary literature	Thom N., Principles of Pavement Engineering, Emerald Publishing Limited, 2008

	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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