



## Subject card

Subject name and code	Design of Pavements, PG_00044228						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	7	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. Dawid Ryś				
	Teachers		dr hab. inż. Dawid Ryś dr inż. Mariusz Jaczewski				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	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	The aim of the course is to provide knowledge of terminology and classification of pavement construction, traffic load conditions and to determine the traffic. The mechanical properties of the ground and road materials. Analysis of stress and strain in the half elastic and resilient multi-layer system. Stress analysis of traffic load and the temperature in the concrete slabs. Designing flexible and semi-rigid surface. Design of rigid pavement (concrete) unreinforced and reinforced.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W16] Has deeper and adequate knowledge of civil engineering, within offered specialization		Knows the nomenclature and definitions, knows the basic requirements for road materials, can use nomograms and calculation formulas, can interpret the obtained result		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation		
	[K6_U17] has specialized skills in civil engineering within offered specialization		Can list and describe the methods of diagnostic tests of the pavement Is able to characterize the material constants used in empirical and mechanistic methods		[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_W10] Has basic knowledge on design, construction and maintenance of roads and railroads		Is able to determine the design traffic, is able to determine the influence of the climate on the pavement structure, is able to use the methods of pavement design: AASHTO 1993, KTKN PiP 2014, Westergard method		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects		
Subject contents	Terminology and classification of pavements. Traffic loading and traffic assessment. Mechanical properties of subgrade soil and road materials. Stress and strain analysis in elastic half-space and multi-layer visco-elastic pavement structures. Stress analysis of the traffic load and the temperature of the concrete slabs. Design of flexible and semi-rigid pavement structures. Design of rigid (concrete) pavements unreinforced and reinforced.						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Project		55.0%		40.0%		
	Written exam		55.0%		60.0%		

Recommended reading	Basic literature	Yoder, Witczak, Principles of pavement design , 2nd Edition, 1975 Y.H. Huang, Pavement Analysis and design, 2nd Edition 2004  Guide for design of pavement structures, AASHTO, 1993
	Supplementary literature	No requirements.
	eResources addresses	Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	Design of pavement structures.	
Work placement	Not applicable	

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