



Subject card

Subject name and code	, PG_00062837						
Field of study	Civil Engineering						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		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 inż. Łukasz Mejłun				
	Teachers		dr inż. Łukasz Mejłun				
			dr inż. Marcin Budzyński				
			dr inż. Sławomir Grulkowski				
			dr inż. Jacek Szmagliński				
		dr inż. Joanna Wachnicka					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	0.0	30
	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	30		0.0		0.0	30
Subject objectives	The aim of the course is to familiarize students with practical road and railway engineering issues in the field of: (1) modern road pavement diagnostics, (2) functioning of the transport system and traffic safety, (3) implementation of investments in the construction and maintenance processes of railway infrastructure.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_U05] Conducts research (obtaining information, simulations, experimental methods) in the field of construction in order to solve specific tasks and report research results.	The student is able to carry out simple research, measurements and analyzes in road and railway transport engineering, using the knowledge previously acquired during classes.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools
	[K6_W05] Demonstrate knowledge and understanding of research methods (obtaining information, simulations, experimental methods) in the field of civil engineering.	The student has elementary knowledge of basic issues related to transport engineering (road and railway) in the field of road construction, traffic engineering and rail transport.	[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects
	[K6_K02] Can work effectively in a group, as well as function in teams, which may consist of representatives of various branches and levels.	The student is able to solve simple practical engineering tasks while working in a team.	[SK1] Assessment of group work skills [SK2] Assessment of progress of work [SK3] Assessment of ability to organize work [SK5] Assessment of ability to solve problems that arise in practice
	[K6_K03] Can effectively, clearly and unambiguously convey information, describe activities and communicate their results/ outcomes to engineers or a wider audience using appropriate communication methods and tools.	The student is able to present the results of his/her work in a team, provide information and communicate with other people regarding engineering issues.	[SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work [SK2] Assessment of progress of work [SK1] Assessment of group work skills
Subject contents	1. Basics of road engineering.2. Damage to road pavements.3. Road materials and laboratory tests of their characteristics.4. Road pavement diagnostic equipment.5. Diagnostics of road pavement condition.6. Functioning of transport systems.7. Road traffic safety.8. Basics of railway engineering.9. Implementation of investments in the construction of railway infrastructure elements.10. Maintenance of track infrastructure elements.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final colloquium in the form of a closed, multiple-choice test	50.0%	100.0%
Recommended reading	Basic literature	[1] J. Piłat, P. Radziszewski, Nawierzchnie asfaltowe, WKŁ, Warszawa 2007 [2] Z. Wiłun, Zarys geotechniki, WKŁ, Warszawa 2000 [3] R. Edel, Odwodnienie dróg, WKŁ, Warszawa 2006 [4] GDDKiA, Wytyczne techniczne WT-2 - Nawierzchnie asfaltowe na drogach krajowych, Warszawa 2010 [5] S. Gaca, W. Suchorzewski, M. Tracz. Inżynieria ruchu drogowego. Teoria i praktyka, Wydawnictwa Komunikacji i Łączności, 2008 [6] Bogdaniuk, Massel, Podstawy Transportu Kolejowego, Wyd. Polit. Gda. 1999 [7] K. Towpik, Infrastruktura transportu szynowego, oficyna Wydawnicza Polit. Warsz., 2017	

	Supplementary literature	<p>[1] Wytyczne techniczne do projektowania geometrycznego dróg WR-D (wybrane części).</p> <p>[2] Czasopisma: Drogownictwo, Autostrady</p> <p>[3] WRD-12. Wytyczne wykonywania pomiarów ruchu drogowego. Wzorce i standardy rekomendowane przez Ministra właściwego ds. transportu, 2022</p> <p>[4] DYREKTYWA PARLAMENTU EUROPEJSKIEGO I RADY (UE) 2019/1936 w sprawie zarządzania bezpieczeństwem infrastruktury drogowej, Parlament Europejski i Rada UE, 2019</p> <p>[5] Grulkowski, Kędra, Koc, Nowakowski, Drogi szynowe, Wyd. Politechniki Gdańskiej, 2013</p> <p>[6] Czasopisma: Świat kolei, Przegląd Komunikacyjny, Technika Transportu Szynowego</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	<p>1. Causes of specific surface damage.2. Layout of road pavement structure layers.3. Features of materials used in road construction.4. Characteristics of selected research and measurement methods in road engineering.5. Construction of a railway track.6. Elements of rail transport infrastructure.7. Elements of road traffic safety.8. Elements of transport infrastructure in urban areas and outside built-up areas. 9. Methods of maintaining road infrastructure. 10. Methods of maintaining track infrastructure.</p>	
Work placement	Not applicable	

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