GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00062837		
Field of study	Civil Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Łukasz Mejłun	
	Teachers		

Lesson types

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_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_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_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	Course content – project 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	[1] Wytyczne techniczne do projektowania geometrycznego dróg WR-D (wybrane części). [2] Czasopisma: Drogownictwo, Autostrady [3] WRD-12. Wytyczne wykonywania pomiarów ruchu drogowego. Wzorce i standardy rekomendowane przez Ministra właściwego ds. transportu, 2022 [4] DYREKTYWA PARLAMENTU EUROPEJSKIEGO I RADY (UE) 2019/1936 w sprawie zarządzania bezpieczeństwem infrastruktury drogowej, Parlament Europejski i Rada UE, 2019 [5] Grulkowski, Kędra, Koc, Nowakowski, Drogi szynowe, Wyd. Politechniki Gdańskiej, 2013 [6] Czasopisma: Świat kolei, Przegląd Komunikacyjny, Technika Transportu Szynowego
	eResources addresses	

Example issues/ example questions/ tasks being completed	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.
Practical activites within the subject	Not applicable

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