GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Railway infrastructure management methods, PG_00062464		
Field of study	Transport		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Specialty subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	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. Zbigniew Kędra	
	Teachers		

Lesson types

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

The aim of the course is to acquaint students the methods of maintenance and managing railways

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W02] explains the importance and interdependence of key components describing transport systems and processes and their environment, using in-depth knowledge in accordance with the main trends in the development of scientific disciplines related to the field of study	Explains and describes the methods used in the analysis of the condition and forecasting of changes in railway infrastructure	[SW1] Assessment of factual knowledge
[K7_U01] creates innovative solutions to complex and unstructured problems, taking into account the variability of the environment by synthesizing information from many sources, using analytical, simulation and experimental methods	Creates models of changes in the condition of railway infrastructure and solves complex problems in the assessment of its condition	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools
[K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values	Makes decisions regarding the maintenance of railway lines, taking into account economic, social and environmental effects	[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Course content – lecture
The quality of rail track geometry. Geometric quality indicators railway track. Degradation prediction models railway track. Methods and criteria for assessing railway infrastructure. Predicting degradation of the railway infrastructure.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	100.0%	30.0%
Written exam	50.0%	40.0%
Laboratory	100.0%	30.0%

Recommended reading	Basic literature	Bałuch H.: Trwałość i niezawodność eksploatacyjna nawierzchni kolejowej. WKiŁ, Warszawa 1980. Bałuch H.: Diagnostyka nawierzchni kolejowej. WKiŁ, Warszawa 1978. Bałuch M., "Interpretacja pomiarów i obserwacji nawierzchni kolejowej", Politechnika Radomska 2005. Bałuch H., Bałuch M.: Determinanty prędkości pociągów - układ geometryczny i wady toru. Instytut Kolejnictwa, Warszawa 2010
	Supplementary literature	Id-1 (D-1), "Warunki techniczne utrzymania nawierzchni na liniach kolejowych", Warszawa 2005 Id-3 (D-4), "Warunki techniczne utrzymania podtorza kolejowego", Warszawa 2009 Id-4 (D-6), "Instrukcja o oględzinach, badaniach technicznych i utrzymaniu rozjazdów", Warszawa 2005 Id-7 (D-10), "Instrukcja o dozorowaniu linii kolejowych", Warszawa 2005 Id-8, "Instrukcja diagnostyki nawierzchni kolejowej", Warszawa 2005 Id-10 (D-16), "Instrukcja badań defektoskopowych szyn, spoin i zgrzein w torach kolejowych", Warszawa 2005 Id-14 (D-75), "Instrukcja o dokonywaniu pomiarów, badań i oceny stanu torów", Warszawa 2005 "Katalog wad w szynach", Warszawa 2005
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Practical activites within the subject	Not applicable	

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