



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

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