



Subject card

Subject name and code	Railway infrastructure management methods, PG_00051695						
Field of study	Transport						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
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			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Zbigniew Kędra					
	Teachers	dr inż. Kamila Szwackiewicz dr inż. Zbigniew Kędra					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	15.0	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	5.0		15.0		50
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_U14] able to solve detailed problems of transport infrastructure to an extent required of the specialty	Able to model and predict the behavior of the railway infrastructure. He can choose the model prediction and forecast the state of the railway infrastructure			[SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
	[K7_W11] has basic knowledge of energy in transport	Ma podstawową wiedzę w zakresie utrzymania trakcji kolejowej			[SW3] Assessment of knowledge contained in written work and projects		
	[K7_W14] has advanced knowledge of transport infrastructure maintenance and management to an extent required of the specialty	Has detailed knowledge in the field of railway infrastructure management. Knows the methods of railway infrastructure assessment			[SW1] Assessment of factual knowledge		
Subject contents	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%			50.0%		
	Written exam	50.0%			50.0%		

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	<p>Adresy na platformie eNauczanie:</p> <p>Metody zarządzania infrastrukturą kolejową 2023/24 - Moodle ID: 35157</p> <p>https://enauczanie.pg.edu.pl/moodle/course/view.php?id=35157</p>
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	