



Subject card

Subject name and code	Railways , PG_00044658						
Field of study	Transport						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Optional 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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Railway Engineering -> Faculty of Civil and Environmental Engineering						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	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 provide knowledge in the field of methodology of designing and assessing geometric systems of railways. The main aspects related to the representation of the railway track in the situational plan, vertical alignment and cross-sections are discussed. The methodology of designing the complex geometric systems and their dimensioning in the light of the relevant railway regulations is discussed.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W18] has proficiency in transport infrastructure as appropriate for their specialty		The student knows the methodology of designing geometric layouts of the railway track. The student knows the quality assessment criteria in terms of operational parameters. The student knows the geometric elements used in railways, appropriate for the design of complex geometric layouts. The student knows the necessary parameters and their values allowed by the relevant industry regulations.				
	[K6_U13] able to select tools and methods, carry out assessments and simple tests of transport infrastructure and means of transport to an extent required of the specialty / learning profile		The student is able to carry out the design process of the geometric layout of the railway track. Can assess its quality in terms of operational parameters. Can modify the designed system to improve its quality. The student knows the necessary parameters and their values allowed by the relevant industry regulations.				

Subject contents	Characteristics of railway lines, main technical and operational parameters Characteristics of the representation of a railway track in plan, profile (vertical) and cross-sections Reference systems and the method of identifying the position of the track axis in space geometric elements used in the design of railways and their characteristics dimensioning of geometric elements with regard to kinematic parameters methodology of shaping geometric systems in a horizontal alignment evaluation of geometric systems and their modifications		
Prerequisites and co-requisites	The student knows the main elements of the railway infrastructure. The student understands the transport process in railway transportation system.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	50.0%	50.0%
	project reports	50.0%	50.0%
Recommended reading	Basic literature	Not applicable.	
	Supplementary literature	Not applicable.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Sample questions: Characterize the basic elements of the railroad in a cross-section, Explain what the following processes are: adjustment of the track axis, modernization of the railway line, revitalization of the railway line, What is the inventory of the track axis in the global system (spatial reference system in a given country), List the basic geometric elements in the horizontal alignment and characterize the methodology of modeling the system based on the distribution of curvature.		
Work placement	Not applicable		