



Subject card

Subject name and code	Railway Traffic Engineering, PG_00044620						
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				Obligatory subject group in the field of study 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				4.0	
Learning profile	general academic profile	Assessment form				exam	
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		50.0	100
Subject objectives	The aim of the course is to familiarize students with the principles of railway traffic on the railway network (lines and stations). The student learn about the classification of the elements of the railway network and railway traffic control systems. The basic principles for calculating of the movement resistance as well as a capacity problems of railway lines are discussed. The purpose and ways of implementation of the ERTMS are presented.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U08] able to solve simple transport logistics and traffic engineering problems		Ability to solve basic problems in the field of transport logistics and traffic engineering.		[SU1] Assessment of task fulfilment		
	[K6_W09] has basic knowledge of transport traffic engineering to understand its importance for transport operation and differentiate between how it is applied in different modes of transport		Knowledge of railway traffic engineering in the context of other transport systems.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_K01] able to think and act creatively and enterprisingly; able to define priorities to support the delivery of an individual or group task; understands the need for continuous education and taking responsibility as a professional for their work and the work of the team		The ability to define priorities and select appropriate methods for the implementation of the task. Understanding for the need for self-development.		[SK3] Assessment of ability to organize work		
Subject contents	Basic principles of the organization of a passenger rail transport. Basic principles of organization of freight transport. Combined transport. Railway network. Traffic posts. Railway stations and their classification. Overview of the traffic control systems. Railway station equipments. Automatic Block Signalling. Traffic safety control systems. European Train Control System (ETCS). The rules of railway signalling. Basic information about rolling stock and combining of trains. Traffic in the routes and in the station area. Scheduling railway traffic on the network. Timetables of trains. Graphs of the train traffic. The relationship between the railway infrastructure and the train traffic. Queuing model and its application to calculate the required number of track in a station. The capacity of railroads. The way of incrising of the capacity of railroads. Measures of efficiency of the traffic.						
Prerequisites and co-requisites	Not required						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lectures test	50.0%	60.0%
	Practical exercise	50.0%	40.0%
Recommended reading	Basic literature	1. Bergiel K., Karbowski H.: Automatyzacja prowadzenia pociągu. EMI-PRESS. Łódź 2005 2. Bogdaniuk B., Massel A.: Podstawy transportu kolejowego. Wydawnictwo PG. Gdańsk 1999 3. Zalewski P., Siedlecki P., Drewnowski A.: Technologia transportu kolejowego. WKiŁ. Warszawa 2004	
	Supplementary literature	Not required	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Dimensioning and constructing a functional diagram of a node station		
Work placement	Not applicable		