GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Railway Traffic Engineering, PG_00044620		
Field of study	Transport		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Sławomir Grulkowski	
	Teachers		

Lesson types

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 cappacity 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

Subject contents

Course content – lecture
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 trafic 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
Practical exercise	50.0%	40.0%
Lectures test	50.0%	60.0%

Recommended reading

Basic literature	1. Bergiel K., Karbowiak 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	

Example issues/ example questions/ tasks being completed

Dimensioning and constructing a functional diagram of a node station

Practical activites within the subject	Not applicable

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