GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Designing of railway lines and junctions, PG_00044345		
Field of study	Civil Engineering		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Optional subject group
Mode of study	Part-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 Railway Engineering -> Faculty of Civil and Environmental Engineering		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Sławomir Grulkowski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	10.0	0.0	0.0	10.0	0.0	20

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	20	5.0	50.0	75

Subject objectives

The aim of the course is to identify the design principles of railway lines and stations and junctions. Taking into account the principles of engineering in the design of railway traffic and of technological processes at the railway station leads to optimizing systems track

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W08] has deep knowledge of railway track construction, including high speed railroads; design and renovation of railroads of complex geometry; has detailed knowledge about diagnistics of railroads, knows basics of railway traffic organisation and control	The student is able to choose the parameters of the infrastructure to the assumed traffic parameters. He can identify problems in the field of infrastructure, analyze them and solve them.	
[K7_U09] is able to design railway tracks of complex geometry on sections and stations, both newly designed and renovated; can make a plan and perform diagnostic of railway track and to interpret its results, propose conclusions; can evaluate durability and reliability of railroad elements	He knows the rules and criteria for designing railway infrastructure. Can calculate physical parameters for geometrical systems. Finds solutions to problems	

Subject contents

LECTURE
Principles of design of railways. Optimization track system and junctions
PROJECT
Designing a fragment of the railway line in a variety of field conditions in the plan, profile and cross-section. Design of the station

Prerequisites and co-requisites

Knowledge of the subject Railroad Construction

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Test	60.0%	40.0%
Railway project	100.0%	60.0%

Recommended reading	Basic literature	Grulkowski S., Kędra Z., Koc W., Nowakowski M., Drogi szynowe, Wydawnictwo Politechniki Gdańskiej, Gdańs, 2013 Bałuch H.: Optymalizacja układów geometrycznych torów. WkiŁ, Warszawa 1983. Warunki techniczne, jakim powinny odpowiadać budowle kolejowe i ich usytuowanie Technical standards for railway lines
	Supplementary literature	Koc W.: Elementy teorii projektowania układów torowych. Wydawnictwo PG. Gdańsk 2004 Massel A., Projektowanie linii i stacji kolejowych, Warszawa 2010
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Design station and railway junction at the indicated limiting conditions. Bandwidth calculations station and railway junction Types of stations	
Work placement	Not applicable	