



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 2025	Academic year of realisation of subject			2026/2027		
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 -> Wydział Politechniki Gdańskiej						
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_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					
	[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 diagnostics 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.					
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		
	Railway project	100.0%			60.0%		
	Test	60.0%			40.0%		

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

Document generated electronically. Does not require a seal or signature.