GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Railways II, PG_00065728		
Field of study	Civil Engineering		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	4.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Transportation Engineering -> Faculty of Civil and Environmental Engineering -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Kamila Szwaczkiewicz	
	Teachers	mgr inż. Natalia Karkosińska-Brzozowska dr inż. Michał Urbaniak mgr inż. Piotr Omieczyński dr inż. Zbigniew Kędra dr hab. inż. Piotr Chrostowski prof. dr hab. inż. Eligiusz Mieloszyk dr inż. Kamila Szwaczkiewicz	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 4164 Drogi szynowe II sem VI https://enauczanie.pg.edu.pl/2025/course/view.php?id=4164						

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	0.0	0.0	45

Subject objectives	The aim of the course is to present the structure of railroads, the characteristics of railroad surface elements and to discuss (basic) issues related to the design of track systems (railway lines, urban rail transport), railroad maintenance

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U07] Design and build engineering structures in a sustainable manner, with care for the natural environment and a minimum carbon footprint	The student is able to design a railway structure in a sustainable way, with care for the natural environment and a minimal carbon footprint	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K6_W03] Demonstrate knowledge and understanding of the processes, established standards and design methods in the civil engineering subject area and of their limitations.	The student has the ability to distinguish the characteristics of the basic elements of the track structure. The student is able to interpret the geometric and physical parameters describing the geometric systems. The student knows the principles of simple track layouts designing. The student is able to assess the conditions of the work of classic track as well as of the CWR track.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
[K6_U03] Design engineering objects and details, processes and engineering systems by applying appropriate standards and methods of design.	Student is able to adjust the surface structure of a particular class of rail track. He knows the rules for creating the basic track layouts	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment
[K6_W07] Understand the investment's impact on the environment and the interrelationships and dependencies between the building structure and the natural environment	The student has knowledge and demonstrates understanding of the impact of a railway investment on the environment and the interconnections and dependencies between the existing and planned railway track and the natural environment	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge

Subject contents

Course content – lecture
Reliability on Railways; Design of railways; Railway Traffic Engineering; Track Diagnostics; City Rail Transport.

Prerequisites and co-requisites

Railways I

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project (I and II)	60.0%	30.0%
exercises (report and colloquium)	60.0%	20.0%
exam from lectures	60.0%	50.0%

Recommended reading

Basic literature	1. Bałuch H.: Układy geometryczne połączeń torów. WKŁ. Warszawa 1989. 2. Bałuch M.: Podstawy dróg kolejowych. Politechnika Radomska 2001. 3. Koc W.: Elementy teorii projektowania układów torowych. Politechnika Gdańska 2004. 4. Sysak J.: Drogi kolejowej. PWN, Warszawa 1986. 5. The regulation of the Minister of Transport, Construction and the Maritime Economy, Dz. U. 15 Dec 1998. as amended (In Polish) 6. Id -1 Technical conditions for maintaining the surface on railway lines (In Polish) Warszawa, 2005. 7. Grulkowski S., Kędra Z., Koc W., Nowakowski M.: Drogi szynowe. Wyd. Pol. Gdańskiej, Gdańsk 2013 (script in pdf format, link to the fulltext version: pbc.gda.pl/dlibra/docmetadata?id=30780)
Supplementary literature	Szczegółowe warunki techniczne dla modernizacji lub budowy linii kolejowych do prędkości Vmax 200 km/h (dla taboru konwencjonalnego) / 250 km/h (dla taboru z wychylnym pudłem) TOM I - DROGA SZYNOWA (obowiązują od 18.07.2019 r.); Szczegółowe warunki techniczne dla modernizacji lub budowy linii kolejowych do prędkości Vmax 200 km/h (dla taboru konwencjonalnego) / 250 km/h (dla taboru z wychylnym pudłem) TOM I - DROGA SZYNOWA Załącznik ST-T1-A6 Układy geometryczne torów (obowiązują od 01.01.2018 r.); Szczegółowe warunki techniczne dla modernizacji lub budowy linii kolejowych do prędkości Vmax 200 km/h (dla taboru konwencjonalnego) / 250 km/h (dla taboru z wychylnym pudłem) TOM II - SKRAJNIA BUDOWLANA LINII KOLEJOWYCH. STANDARDY TECHNICZNE szczegółowe warunki techniczne dla modernizacji lub budowy linii kolejowych do prędkości Vmax 250 km/h TOM I ZAŁĄCZNIK ST-T1-A8 KONSTRUKCJA NAWIERZCHNI KOLEJOWEJ
eResources addresses	

Example issues/ example questions/ tasks being completed	1. Draw right hand turnout and mark its components; 2. Characterize railway traffic posts; 3. Characterize the methods of repairing the main railway surface; 4. What is the cant designed for? Draw forces and accelerations on the arc
Practical activites within the subject	Not applicable

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