



Subject card

Subject name and code	URBAN RAIL TRANSIT SYSTEMS, PG_00044673						
Field of study	Szynowy transport miejski						
Date of commencement of studies	October 2022		Academic year of realisation of subject		2025/2026		
Education level	first-cycle studies		Subject group		Optional subject group 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	4		Language of instruction		Polish		
Semester of study	7		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. Jacek Szmagliński				
	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		10.0		45.0	100
Subject objectives	The aim of the course is to prepare the student to planning and designing urban rail transport routes. The means of urban rail transport that will be discussed on the subject are tram, high-speed city rail, metro and other means of transport combining the features of the above. Technical requirements for pavement design and track geometry in Poland and around the world will be presented. Information on the location and design of tram stops, stations and integration nodes will be provided.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_W18] has proficiency in transport infrastructure as appropriate for their specialty		Is able to develop rules for the integration of various transport modes. Understands the need for planning transport systems and can indicate the effects of planning decisions. Knowledge of basic forms of urban rail transport.		[SW1] Ocena wiedzy faktograficznej		
	[K6_U12] able to select tools and methods, carry out assessments and simple tests of transport systems to an extent required of the specialty / learning profile		Is able to design a cross section of track surface and stops. Knows the rules of tram traffic control and other means of urban rail transport. Is able to design a fragment of a double-track tram road, a junction and a terminal. Can assess the condition of the track and the condition of its components.		[SU1] Ocena realizacji zadania		

Subject contents	Course content – lecture		
	1. Rail City Transport - admission to lectures, 2. Description of vehicles and tram routes and high-speed city rail, 3. Description of vehicles and metro routes, two-system tram, pre-metro and fast tram, 4. Integration nodes - description of solutions and functional requirements, 5. Integration nodes - detailed technical solutions, 6. Designing of tram routes - horizontal geometry, 7. Tramway design - vertical and cross-sectional geometry, 8. Designing tram stops, 9. Construction of rail surfaces - ballast, 10. Construction of rail surfaces - ballastless, 11. Outdoor activities on the tracks, 12. Outdoor activities on the tram depot, 13. Tram switches - geometry, 14. Tram switches - controls, 15. Repetition of material.		
	Course content – project Computer-aided designing		
Prerequisites and co-requisites	Railroads		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Technical desing	100.0%	45.0%
	Test	60.0%	55.0%
Recommended reading	Basic literature	Kubalski J.: Komunikacja miejska. Tory tramwajowe. WKiŁ, Warszawa 1978. Wesołowski J.: Miasto w ruchu. Instytut spraw Obywatelskich (internet), 2008 Warunki techniczne jakim powinny odpowiadać linie metra i ich usytuowanie, Warszawa, 2007 Podoski J.: Transport w miastach. WKiŁ, Warszawa, 1985 Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 2 marca 1999 r. w sprawie warunków technicznych, jakim powinny odpowiadać drogi publiczne i ich usytuowanie. Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 10 września 1998 r. w sprawie warunków technicznych, jakim powinny odpowiadać budowle kolejowe i ich usytuowanie. Wytyczne techniczne projektowania budowy i utrzymania torów tramwajowych, MAGTiOŚ, Warszawa 1983. Tymczasowe wytyczne do projektowania szybkiej komunikacji tramwajowej, MAGTiOŚ, Warszawa 1981	
	Supplementary literature	Wesołowski J.: Transport miejski. Instytut Spraw Obywatelskich (internet). AUSFÜHRUNGSBESTIMMUNGEN ZUR EISENBAHNVERORDNUNG (A B - E B V) Track Design Handbook for Light Rail Transit Second Edition TCRP REPORT 155 Verordnung über den Bau und Betrieb der Straßenbahnen	
	eResources addresses		

Example issues/ example questions/ tasks being completed	Test: describe the means of urban rail transport, describe the basic parameters of integration nodes and integration methods, describe the methods of tram street geometry design, describe and draw typical cross-sections of track surface, describe turnout control methods, draw basic turnout structures. Design: Create a concept of a two-track tram road with a branch and a limit switch, perform calculations regarding geometry, make technical drawings, situational plan, profile, construction cross-sections, system specification track, stakeout plan. make a technical description.
Practical activities within the subject	Not applicable

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