GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Road traffic control, PG_00044652
Field of study	Transport

Date of commencement of studies	October 2020	Academic year of realisation of subject	2023/2024
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

Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Jacek Oskarbski
	Teachers	mgr inż. Lucyna Gumińska dr hab. inż. Jacek Oskarbski

Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	15.0	0.0	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	Gain knowledge of traffic control systems for transport, urban traffic control measures and methods, and traffic control on motorways and motorways. To acquire skills in planning and designing traffic control systems. Acquiring the ability to design accommodative and adaptive traffic signals and to coordinate signals using modern tools. Acquiring knowledge in the operation of traffic control systems. To be prepared to work with industries accompanying traffic signal design.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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	The ability to recognise and name traffic control systems for transport. The ability to plan a traffic control system for urban and rural roads. The ability to design accommodative and adaptive traffic signal plans and to coordinate signalling.	[SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task
	[K6_W17] has proficiency in transport systems as appropriate for their specialty	Is familiar with the means and methods of controlling traffic, principles of planning and design of of traffic control systems road traffic control systems.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects

Subject contents	Definitions, basics of traffic control systems. Traffic control systems as Intelligent Transport Systems services. Characteristics of traffic control systems. Means and methods of urban traffic control Planning and design of traffic control systems. Design of accommodative and adaptive traffic lights and signal coordination. Traffic signalling and road safety. Traffic control under incident conditions and during mass events. Priorities in traffic control. Driver information systems. Traffic management systems on motorways and motorways. Operation of traffic control systems Traffic control systems.
Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the laboratory	90.0%	20.0%
	Design	90.0%	20.0%
	Passing lectures	60.0%	60.0%

Recommended reading	Basic literature	1. Jamroz K. i inni.: Systemy sterowania ruchem ulicznym. WKŁ, 1984 r. 2. Krystek R. i inni: Komputerowe systemy sterowania ruchem ulicznymi drogowym. Przykłady zastosowań. WKŁ 19843. Leśko M., Guzik J.: Sterowanie ruchem drogowym. WPŚ, 2000.4. Gaca S., Suchorzewski W., Tracz M.: Inżynieria Ruchu Drogowego WKŁ 20085. Tracz M., Allsop R.E.: Skrzyżowania z sygnalizacją świetlną. WKŁ 19906.Wrześniowski Z. i inni: Koordynacja sygnalizacji świetlnej. WKŁ 19777. Krystek R. i inni: Symulacja ruchu potoku pojazdów WKŁ 19808. Krystek R i inni: Węzły drogowe i autostradowe. WKŁ 20089. Michael Kyte, Maria Tribelhorn: Operation, Analysis, and Design of SignalizedIntersections: A Module for the Introductory Course in TransportationEngineering. 201410. Coleman A. O'Flaherty: Transport Planning and Traffic Engineering. 1997.11. Peter Guest, Mike Slinn, Paul Matthews: Traffic Engineering Design: Principles and Practice. ElsevierButterworth-Heinemann, 2005.
	Supplementary literature	Journals: Transport Miejski i Regionalny,TrafficEngineering&Control, Przegląd ITS, Autostrady
	eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	How does the linear coordination of traffic lights differ from network coordination? What possibilities do we have with network coordination used in urban traffic control systems? State the difference between centralised and decentralised traffic control systems. Characterise one selected traffic control system (SCATS, SCOOT.)How can we manage traffic on interchange sections of motorways and expressways using traffic control systems? What are the purposes of using traffic control systems, make a proposal for using a set of systems on a motorway or urban street system. Give the formula for calculating the capacityof an inlet at an intersection with traffic lights. What does saturation intensity depend on?How can we prioritise public transport vehicles using a traffic control system? What traffic signal parameters can we optimise using traffic control systems. Characterise these parameters. What are the types of traffic signals in terms of the wayprogramme implementation and repeatability of operation. What are the advantages and disadvantages of each type. How do you assess the validity of using signalling at an intersection? Give an example of: a)one group of lanes at an intersection, b) two groups of lanes at an intersection, c) three groups.
Work placement	Not applicable