



Subject card

Subject name and code	Road traffic control, PG_00062455						
Field of study	Transport						
Date of commencement of studies	February 2024	Academic year of realisation of subject			2024/2025		
Education level	second-cycle studies	Subject group			Specialty 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	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
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						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	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		5.0		25.0	75
Subject objectives	To obtain knowledge of traffic control systems in transportation, means and methods of urban traffic control and traffic control on highways and expressways. To acquire skills in planning and designing area traffic control systems. To acquire the ability to design and evaluate the effectiveness of solutions (traffic efficiency and safety) within control systems.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K02] makes competent and ethical decisions, caring for the public interest and maintaining economic, social and environmental values		Ability to evaluate the solution in terms of safety, traffic efficiency, and minimization of negative environmental impact, taking into account economic aspects.		[SK2] Assessment of progress of work [SK1] Assessment of group work skills [SK3] Assessment of ability to organize work [SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice		
	[K7_U02] presents logical and solid arguments regarding the obtained results, through analysis, synthesis of information in various technical contexts, critically approaching their interpretation		Ability to design area system traffic signals and other selected ITS traffic control services, supported by analysis and simulations.		[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		
	[K7_W01] identifies in an in-depth way phenomena related to the field of study as well as theories describing them and possible methods of analyzing processes occurring in the life cycle of technical systems		Ability to recognize and name traffic control systems for transportation. The ability to plan a traffic control system in cities and on urban roads and their integration.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>Elements of traffic signals and methods of traffic control using signals. Area traffic control systems using traffic signals (centralized, decentralized systems). Substitute measures of brd. Urban Traffic Control Systems. Traffic control systems on highways and expressways (traffic metering at entrances, speed management, warnings, messages, variable message signs). Cooperation of urban and suburban systems. Optimization of control parameters. Traffic control under incident conditions and during mass events. Priorities in traffic control. Controlling accessibility. Traffic management centers.</p>		
Prerequisites and co-requisites	<p>Knowledge of the principles of planning and design of traffic signals and traffic organization. Knowledge of the basics of designing linear coordination of signaling and accommodative and fixed-time signaling.</p>		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Credit for lectures	60.0%	40.0%
	Credit for the laboratory	90.0%	30.0%
	Credit for exercises	90.0%	30.0%
Recommended reading	<p>Basic literature</p> <p>Jamroz K. i inni.: Systemy sterowania ruchem ulicznym. WKŁ, 1984 r. Krystek R. i inni: Komputerowe systemy sterowania ruchem ulicznymi drogowym. Przykłady zastosowań. WKŁ. 1984. Leško M., Guzik J.: Sterowanie ruchem drogowym. WPS, 2000. Gaca S., Suchorzewski W., Tracz M.: Inżynieria Ruchu Drogowego WKŁ 2008. Tracz M., Allsop R.E.: Skrzyżowania z sygnalizacją świetlną. WKŁ 1990. Wrześniowski Z. i inni: Koordynacja sygnalizacji świetlnej. WKŁ 1977. Krystek R. i inni: Symulacja ruchu potoku pojazdów WKŁ 1980. Krystek R. i inni: Węzły drogowe i autostradowe. WKŁ 2008. Michael Kyte, Maria Tribelhorn: Operation, Analysis, and Design of Signalized Intersections: A Module for the Introductory Course in Transportation Engineering. 2014. Coleman A. O'Flaherty: Transport Planning and Traffic Engineering. 1997. Peter Guest, Mike Slinn, Paul Matthews: Traffic Engineering Design: Principles Practice. Elsevier Butterworth-Heinemann, 2005.</p>		
	Supplementary literature	Transport Miejski i Regionalny, Traffic Engineering & Control, Przegląd ITS, Autostrady	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	<p>State the difference between a centralized and decentralized traffic control system. Characterize one selected area-based traffic control system. How can we manage traffic on interstitial sections of highways and expressways using traffic control systems. What are the goals and methods of using traffic control systems in cities and on urban roads. How can we prioritize public transportation vehicles using a traffic control system. What traffic signal parameters can we optimize using traffic control systems. Characterize these parameters. How can we evaluate the level of traffic safety using surrogate measures.</p>		
Work placement	Not applicable		

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