



Subject card

Subject name and code	, PG_00069815						
Field of study	Transport						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	second-cycle studies		Subject group				
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		2.0		
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 hab. inż. Jacek Oskarbski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30		0.0		0.0	30
Subject objectives	Acquiring knowledge in the field of Intelligent Transportation Systems service planning.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K01] recognizes the importance of knowledge related to the field of study in solving cognitive and practical problems		The student is able to apply the acquired knowledge in the field of ITS service planning to solve real-life problems related to sustainable development and the efficiency of transport systems, demonstrating its importance in both cognitive and practical contexts.		[SK2] Assessment of progress of work [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 [SK1] Assessment of group work skills		
	[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		The student is able to identify and analyze phenomena related to ITS systems, using appropriate theories and methods of analyzing processes in the life cycle of systems, which allows for solving complex problems and making informed decisions.		[SW1] Assessment of factual knowledge [SW2] Assessment of knowledge contained in presentation [SW3] Assessment of knowledge contained in written work and projects		
	[K7_U05] cooperates with other people in the implementation of team work, both as a leader and a team member, effectively achieving set goals		The student can effectively work with others in a team to carry out projects related to ITS planning, taking on different roles (leader and member), and can apply the knowledge they've gained to solve practical problems, achieving the set goals.		[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		

Subject contents	Course content – lecture		
	Definitions, history of the creation and development of ITS. Role and objectives of ITS application. Conditions for ITS implementation. ITS planning process, ITS system architecture. ITS services. Functional structure. Physical structure taking into account equipment and devices. Logical structure. Organizational structure taking into account links between institutions and transport elements, as well as communications. Testing the effectiveness of ITS services.		
	Course content – exercises		
	ITS architecture design. Planning an ITS system in a selected area of the street layout.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the lecture	60.0%	50.0%
	Passing the exercises	100.0%	50.0%
Recommended reading	Basic literature	Lawrence A. Klein, Sensor technologies and Data requirements for ITS. Boston : Artech House, ©2001. Artech House ITS library. ISBN: 158053077X 9781580530774 Thill Jean-Claude, Geographical Information Systems in Transportation Research, Pergamon, 2000. J.M. Sussman, Perspectives on Intelligent Transportation Systems (ITS), Springer, 2005 M.A. Chowdhury and A. Sadek, Fundamentals of Intelligent Transportation Systems Planning, Artech House, 2003 ITS Hand Book 2000: Recommendations for World Road Association (PIARC) by Kan Paul Chen, John Miles	
	Supplementary literature	Websites and journals: IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, IEEE TRANSPORTATION RESEARCH, PART C: EMERGING TECHNOLOGIES, PERGAMON-ELSEVIER SCIENCE LTD JOURNAL OF INTELLIGENT TRANSPORTATION SYSTEMS, TAYLOR & FRANCIS INC INTERNATIONAL JOURNAL OF VEHICLE INFORMATION AND COMMUNICATION SYSTEMS, INDERSCIENCE ENTERPRISES IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, IEEE http://frame-online.eu/ https://www.its.dot.gov/research_archives/arch/architecture_plan.htm https://local.iteris.com/arc-it/index.html	
	eResources addresses		
Example issues/ example questions/ tasks being completed	ITS architecture for a selected group of services. Characteristics of a hierarchical traffic management structure using ITS. Objectives of Intelligent Transport Systems. Logical structure of a road incident management system. Advantages and disadvantages of homogeneous and heterogeneous structures of advanced traffic management systems. Logical structure of the traffic management module on inter-junction sections, modes of operation.		
Practical activities within the subject	Not applicable		