GDAŃSK UNIVERSITY OF TECHNOLOGY

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

<table>
<tr><td>Subject contents</td><td>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.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Passing the lecture</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Passing the exercises</td><td>100.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>Websites and journals:
IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEMS, IEEE TRANPORTATION 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</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>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.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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