



Subject card

Subject name and code	Team Project (TS), PG_00044640						
Field of study	Transport						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2023/2024		
Education level	second-cycle studies	Subject group			Optional 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			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	mgr inż. Łukasz Jeliński					
	Teachers	mgr inż. Łukasz Jeliński					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	30.0	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	10.0		35.0		75
Subject objectives	Team development of a project in the field of transport management, traffic organisation, traffic control based on literature studies, analysis of source documents provided by the trainers and found by students. Solving the problem identified from the analysis of the literature studies and the state of existing and planned changes. Learning to work in a team.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K01] able to think and act creatively and enterprisingly; able to define priorities to support the delivery of an individual or group task; understands the need for continuous education and taking responsibility as a professional for their work and the work of the team		The student is able to draw conclusions and develop a project in a selected area of transport on the basis of literature studies and conditionality analysis. The student is able to cooperate in a group and to be responsible for his part of a project task.		[SK2] Assessment of progress of work [SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness [SK3] Assessment of ability to organize work		
	[K7_W12] knows and understands basic terms and rules of industrial property protection and copyright law and the need to manage intellectual property resources		The student is able to use source materials, materials necessary for project preparation in accordance with the principles of industrial property and copyright protection and is able to manage intellectual property resources.		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	[K7_U02] able to plan and conduct research experiments on selected transport problems using different research methods and draft scientific and technological papers in Polish and the synthesis in a foreign language		The student acquires the ability to plan and design a selected issue in the field of transport on the basis of conducted analyses, research and legislative guidelines and requirements.		[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information [SU1] Assessment of task fulfilment		
Subject contents	Definitions, history of the creation and development of Intelligent Transport Systems. Role and objectives of ITS application. ITS systems architecture. Functional structure. Physical structure including equipment and devices. Logical structure taking into account the links between institutions and transport elements. Technological structure. . ITS planning, design and modelling. Assessment of the effectiveness of existing and planned ITS systems.						

Prerequisites and co-requisites	Knowledge of transport system control, transport system planning.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project presentation.	70.0%	50.0%
	Presentation of individual stages of work on the project in the form of a multimedia presentation	70.0%	50.0%
Recommended reading	Basic literature	<p>Lawrence A. Klein, Sensor technologies and Data requirements for ITS. Boston : Artech House, ©2001. Artech House ITS library. ISBN: 158053077X 9781580530774</p> <p>Thill Jean-Claude, Geographical Information Systems in Transportation Research, Pergamon, 2000.</p> <p>J.M. Sussman, Perspectives on Intelligent Transportation Systems (ITS), Springer, 2005</p> <p>M.A. Chowdhury and A. Sadek, Fundamentals of Intelligent Transportation Systems Planning, Artech House, 2003</p> <p>ITS Hand Book 2000: Recommendations for World Road Association (PIARC) by Kan Paul Chen, John Miles</p>	
	Supplementary literature	<p>Guerrero-Ibáñez J, Zeadally S, Contreras-Castillo J. Sensor Technologies for Intelligent Transportation Systems. Sensors (Basel, Switzerland). 2018;18(4):1212. doi:10.3390/s18041212. Feng J, Xu J, Liao W, Liu Y. Review on the Traction System Sensor Technology of a Rail Transit Train. Sensors (Basel). 2017;17(6):1356. Published 2017 Jun 11. doi:10.3390/s17061356 Li P., Jia L.-M., Nie A.-X. (2003). Study on railway intelligent transportation system architecture IEEE Conference on Intelligent Transportation Systems, Proceedings, ITSC, 2 , art. no. 1252729 , pp. 1478-1481. E. Bekiaris and Y.J. Nakanishi, Economic Impacts of Intelligent Transportation Systems: Innovations and Case Studies, Elsevier/JAI, 2004 F. Van Quickenborne, F. De Greve, F. De Turck, I. Moerman, and P. Demeester, Management of aggregation networks for broadband Internet access in fast moving trains. BERLIN: SPRINGER-VERLAG BERLIN, 2005, pp. 273-283. J. G. Andrews, A. Ghosh, and R. Muhamed, Fundamentals of WiMAX: Understanding Broadband Wireless Networking Prentice Hall, 2007. Wireless Technologies in Intelligent Transportation Systems (Transportation Issues, Policies and R & D), Ming-Tuo Zhou, Yan Zhang, Laurence T. Yang, Nova Science Publishers, 2010</p> <p>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</p>	
	eResources addresses	<p>Adresy na platformie eNauczenie:</p> <p>Projekt zespołowy (2023/2024) - Moodle ID: 29394 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=29394</p>	

<p>Example issues/ example questions/ tasks being completed</p>	<ol style="list-style-type: none"> 1. The concept of integrating the Kashubian Route Management Board with the TRISTAR system 2. the concept of ITS in the Metropolitan Ring Road Corridor including integration with the environment (regional/local, urban, other national ITS) 3. ITS concept for voivodeship roads (identify the possibility and select an area for a detailed concept of the area to be recognized) 4. development of TRISTAR system from the point of view of regional ITS (neighbouring cities, area selection, detailed concept for the selected area) 5. ITS development for the port area (Port of Gdynia) logistic/transportation approach 6. ITS on integration nodes and an example of application at a selected node with particular emphasis on public transport (provincial approach).
<p>Work placement</p>	<p>Not applicable</p>