



Subject card

Subject name and code	Advanced transport management systems, PG_00045925						
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 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	mgr inż. Karol Źarski 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	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	10.0		35.0	75	
Subject objectives	Gaining knowledge on the application of modern methods and solutions for transport management, including technological and organizational solutions.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W03] has broad knowledge of modelling transport processes, including the knowledge required to describe and assess how selected elements of the transport system operate	The ability to model and analyse and evaluate selected elements of transport management.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K7_U13] able to solve detailed problems of transport systems to an extent required of the specialty	The ability to recognize and apply modern methods and solutions in transport management.	[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_U06] able to integrate knowledge of mathematics, physics, electronics, power engineering, traffic engineering, civil engineering of transport and other fields by applying a system based approach, including non-technology aspects (economics, psychology, sociology, environment, health and safety), able to define the effect these fields have on the development of transport systems, able to use new technical and technological achievements and assess their utility for transport	The ability to apply modern methods and solutions in transport management, taking into account knowledge from various fields and non-technical aspects	[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_U05] able to apply an extended mathematical apparatus, mathematical models and computer simulations to describe complex technical processes in transport, model the relations which occur in transport and analyse, design and assess the operation of transport systems	The ability to use extended mathematical apparatus, mathematical models and computer simulations to describe complex technical processes in transport, modelling compounds occurring in transport and analysing, designing and evaluating the functioning of transport systems.	[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	Asset Management in Transport. MaaS (Mobility as a Service). Cooperative Systems (C-ITS). Sustainable control strategies. Public transport management systems. Databases. Open data. Applications in transport management. Decision support and vehicle security systems. Support to transport safety management systems.		
Prerequisites and co-requisites	Knowledge of traffic engineering, organization and control, transport control, transport process modelling, automation, ICT systems and equipment		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exercises	90.0%	50.0%
	Lectures	60.0%	50.0%

Recommended reading	Basic literature	<p>1. AASHTO Transportation Asset Management Guide: A Focus on Implementation. AASHTO, 2011. 2. Transportation Asset Management: Methodology and Applications. Zongzhi Li. 2018. 3. Understanding Mobility as a Service (MaaS). David Hensher Corinne Mulley Chinh Ho Yale Wong Göran Smith John Nelson. 2020. 4. Cooperative Intelligent Transport Systems: Towards high-level automated driving. Meng Lu. 2019.</p>
	Supplementary literature	<p>Web sites 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, IINDERS SCIENCE ENTERPRISES IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY, IEEE</p>
	eResources addresses	Adresy na platformie eNauzanie:
Example issues/ example questions/ tasks being completed	<p>1. What is transport asset management, which scope it covers. 2. List the assessment criteria used in Asset Management. 3. What is the purpose of implementing Asset Management solutions. 4. Methods of risk assessment in transport. 5. What are the conditions of the MaaS scope implementations. 6. How MaaS differs from TMaaS. 7. Examples and effects of C-ITS application in transport management. Work placement</p>	
Work placement	Not applicable	