



Subject card

Subject name and code	Implementation of scientific research in the development of transport systems, PG_00050330						
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					
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 inż. Wojciech Kustra					
	Teachers	mgr inż. Łukasz Jeliński mgr inż. Patrycja Jerzyło dr hab. inż. Kazimierz Jamroz dr inż. Sławomir Grulkowski dr hab. inż. Piotr Jaskuła dr hab. inż. Jacek Oskarbski dr inż. Wojciech Kustra					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	0.0	0.0	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	Knowledge of research methods in transport, their application in practice and their impact on the development and operation of transport.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[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 student is able to obtain and process source data and use it in the management and organization of transportation systems.			[SU1] Assessment of task fulfilment		
	[K7_W06] has broad knowledge of transport management	The student knows the data sources related to transportation and their acquisition and analysis methods. He has knowledge of their usefulness and applicability in the multi-faceted development of transportation systems.			[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>LECTURES: Elements of the transport system, Demand for research in the field of transport, Implemented research results in transport, Research techniques, Creativity in research, Defining the research problem, Acquiring knowledge from current research, Experimental methodology, Proposed research project, Research project management, Evaluation research results, Implementation of results in practice, Research ethics.</p> <p>TUTORIALS: Interdisciplinary group projects, Group study of a selected research topic.</p>		
Prerequisites and co-requisites	knowledge of the basics of mathematics and statistics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	project evaluation	50.0%	50.0%
	test	50.0%	50.0%
Recommended reading	Basic literature	<p>Research Methodology: a Step-by-Step Guide for Beginners (2014), Kumar, R., SAGE, ISBN: 978-1446269978.</p> <p>Research Strategies: Finding your Way through the Information Fog (2014), Badke, W. B., 5th ed., Bloomington, IN, ISBN: 978-149172233</p>	
	Supplementary literature	Understanding the Research Process (2010), Oliver, P., SAGE Publications, ISBN: 978-1849201117	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	Interdisciplinary group projects, Group study of a selected research issue.		
Work placement	Not applicable		