



## Subject card

Subject name and code	Environmental Protection in Transport , PG_00044591						
Field of study	Transport						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2021/2022		
Education level	first-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	3	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. arch. Romanika Okraszewska					
	Teachers	dr inż. arch. Romanika Okraszewska mgr inż. Lucyna Gumińska					
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 Adresy na platformie eNauczanie:						
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		20.0	70
Subject objectives	Acquainting the student with the types of environmental impacts of the transport system and the ways of preventing / mitigating them. Developing the ability to acquire environmental information, conduct measurements and forecast selected physical values related to the impact of transport on the environment, interpret information / data and draw conclusions based on them. Promoting social and professional environmental awareness and responsibility. Incorporate some topical topics from current sustainable transport policy and research.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_K02] understands the need to formulate and communicate to the public information and opinions on the achievements of environmental engineering and other aspects of work of a sanitary industry engineer; is aware of the importance of and understands non-technical aspects and consequences of engineering; takes steps to communicate such information and opinions in a comprehensible manner and present different points of view	The student is aware of the role of Environmental Impact Assessment in the life cycle transport investment.	[SK2] Assessment of progress of work
	[K6_U07] able to identify the effects of management, progress in technology, spatial policy, environmental protection, health and safety on the operation and development of transport and include these in the process of planning, designing, building and operating means and systems of transport	The student is able to indicate the influence of management mechanisms, technological progress, spatial policy, environmental protection, security on operating and development of transport and take it into account in the process of planning, design, construction and operation of transport means and systems.	[SU2] Assessment of ability to analyse information
	[K6_W11] has basic knowledge to understand economic, spatial, environmental and legal conditions and consequences of transport	The student has basic knowledge to understand the economic, spatial, ecological and legal conditions and effects of the operating and development of the transport system.	[SW1] Assessment of factual knowledge
Subject contents	<ul style="list-style-type: none"> <li>• Anthropocene - the era of human being</li> <li>• Characteristics of impacts and methods of prevention: emission of noise and vibrations</li> <li>• Methods and tools for assessing the acoustic climate</li> <li>• Noise protection methods. Technical solutions - acoustic screens.</li> <li>• Characteristics of impacts and methods of prevention: water and soil pollution</li> <li>• Water dilemmas. Rainwater management. The role of the transport system in adapting the city to climate change.</li> <li>• Methods of forecasting the quantity and quality of runoff waters</li> <li>• Characteristics of impacts and measures to prevent: landscape degradation and space occupation by transport infrastructure and vehicles</li> <li>• Characteristics of impacts and methods of prevention: emission of substances harmful to the environment.</li> </ul> <ul style="list-style-type: none"> <li>• Methods and tools for air quality assessment and forecasting</li> <li>• Characteristics and methods of preventing influences on animate nature</li> <li>• Social and civilization effects of transport. The impact of environmental pollution on human health</li> <li>• Environmental impact assessment system - SEA, EIA, Natura 2000</li> <li>• Mobility management as a tool to reduce the negative impact of the transport system on the environment</li> </ul>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exercise classes	60.0%	70.0%
	Test	60.0%	30.0%
Recommended reading	Basic literature	<ol style="list-style-type: none"> <li>1. Podręcznik dobrych praktyk wykonywania opracowań środowiskowych dla dróg krajowych, GDDKiA, 2008</li> <li>2. Oddziaływanie infrastruktury transportowej na przestrzeń przyrodniczą, GDDKiA, 2007</li> <li>3. Urszula Forczek-Brataniec, Widok z drogi. Krajobraz w percepcji dynamicznej, ELAMED, Katowice 2008</li> <li>4. M. Borysewicz, Nowa generacja prognozowania jakości powietrza w aglomeracji miejskiej, Instytut Ochrony Środowiska, W-wa 2009</li> <li>5. H. Sawicka-Siarkiewicz, Ograniczanie zanieczyszczeń w splywach powierzchniowych z dróg, Instytut Ochrony Środowiska, W-wa 2009</li> </ol>	
	Supplementary literature	1. Donella Meadows, Dennis Meadows, William Behrens, Jørgen Randers: "Limits to Growth". Warszawa: PWE, 1973.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> <li>1. Please define: smog, red book, environmental pollution, restricted area use, "Limits to Growth", information level, alert level, ecological corridor, environmental protection, Environmental Assessment System.</li> <li>2. Harmful impact of transport on the environment - list the types of impacts and briefly characterize .</li> <li>3. Natura 2000 network - how it was created, what are its goals, and how it influences the process of transport investments.</li> <li>4. Factors influencing the production of noise and factors suppressing / reducing it - on the example of air or road transport.</li> <li>5. Types of noise protection measures - list and provide examples for each group.</li> <li>6. Types of pollutants emitted by transport and environmental threats related to their emission.</li> </ol>		

Work placement	Not applicable
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