



## Subject card

Subject name and code	Road Engineering, PG_00045833						
Field of study	Civil Engineering						
Date of commencement of studies	February 2023	Academic year of realisation of subject			2022/2023		
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	1	ECTS credits			2.0		
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. Marcin Budzyński					
	Teachers						
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	2.0		8.0		55
Subject objectives	Expanding student knowledge and skills related to road design and construction as well as their maintenance.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K03] can think and act creatively and enterprisingly and works for society		The student is able to take into account the public interest in solving problems in the field of road design, construction and maintenance.		[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice		
	[K7_W02] knows principles of analysis, design and dimensioning of complex constructions and its elements		The student gains knowledge of the analysis necessary to solve problems in the field of road design and construction and their maintenance.		[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge		
Subject contents	Designing road infrastructure geometry (modern interchanges and intersections). Designing road surroundings and road barriers. Road traffic research and analysis. The organization of road traffic on the example of fast roads. Design and implementation of Intelligent Transport Systems. Road safety and risk assessment methods on the road.						
	Comparison of asphalt and concrete surfaces. Functions of geosynthetics in road construction and key requirements of technical specifications. Road embankments on low-bearing lands - the concept of construction and available technologies. Pavement systems on bridge structures. Recycling of road surfaces						
Prerequisites and co-requisites	Basic knowledge of road engineering obtained in first level of studies.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Lecture		60.0%		50.0%		
	Workshops		60.0%		50.0%		

Recommended reading	Basic literature	<p>1. BUREAU OF DESIGN AND ENVIRONMENT MANUAL, INTERCHANGE TYPE AND DESIGN STUDIES, Illinois, 2017</p> <p>2. Jamroz K.: Risk management method in road engineering, Gdansk University of Technology Publishing House, 2011</p> <p>3. STEER Program of the EU: INTELLIGENT TRANSPORT SYSTEMS, 2006</p> <p>4. Piłat J., Radziszewski P., Asphalt pavements, WKŁ, 2004</p> <p>5. Szydło A., Road surfaces of cement concrete, Poland Cement, 2004</p> <p>6. Radziszewski P., Piłat J., Sarnowski M., Król J., Kowalski K., Asphalt surfaces for bridge structures., Printing House of PW., 2016</p> <p>7. Towards sustainable pavement systems., FHA, 2015</p> <p>8. Rune Elvik, Truls Vaa, Alena Hoye, Michael Sorensen: The Handbook of Road Safety Measures: Second Edition, 2009, Emerald Group Publishing</p> <p>9. Intelligent Transport Systems (ITS) Introduction Guide, International Scientific Exchange Fund (ISEF) of JSCE, 2016</p> <p>10. AASHTO, Roadside Design Guide, 2011</p>
	Supplementary literature	<p>1. PIARC (World Road Association). 1994. International Road Maintenance Handbook: Practical Guidelines for Rural Road Maintenance</p> <p>2. Recycling and reclamation of asphalt pavements using in-place methods. NCHRP Synthesis 421, 2011</p> <p>3. Recycling hot-mi asphalt pavements, NAPA, Information Series 123, 1996</p> <p>4. Judycki J., Alenowicz J., Modern methods of renovation asphalt surfaces., WKŁ Warsaw 1988</p> <p>5. PIARC, Road Safety Manual, 2020</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Rules for lighting pedestrian crossings.	
Work placement	Not applicable	

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