



Subject card

Subject name and code	DESIGN OF ROAD AND MOTORWAYS, PG_00044204						
Field of study	Civil Engineering						
Date of commencement of studies	October 2021		Academic year of realisation of subject		2023/2024		
Education level	first-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	3		Language of instruction		Polish		
Semester of study	6		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 Stienss				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	15.0	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		5.0		15.0	50
Subject objectives	<p>The course presents principles of complex design process of a road section, which is based on the concept layout designed during previous semester. The scope of work includes:</p> <ol style="list-style-type: none">1. Traffic assessment,2. Pavement design3. Typical cross sections design,4. Earthworks calculations,5. Concept design of a rural crossroad - in two versions,6. Concept design of a chosen element of interchange.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W03] knows the rules of preparing and circulation of geodetic documentation for realisation of investment; has knowledge about basics of geodetical service of road&construction investments; knows methods of plans projection as well as geodetical equipment and technology used in construction	After completing the course, the student should know the principles of proper preparation of geodetic data necessary to mark out a road in the field.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_U13] knows principles of construction of roads and railroads; can design a section of a road and railroad; can evaluate the technical condition of a road and railroad infrastructure	After completing the course, the student should know the principles of proper horizontal and vertical alignment and drainage design to minimize the negative impact on the environment.	[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
	[K6_W09] knows the principles of determining of loads acting on basic constructions (e.g. general, industrial, bridge, water, marine, transport objects) and rules of its constructing	After completing the course, the student should know the rules for calculating the traffic load on road pavement.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_W10] Has basic knowledge on design, construction and maintenance of roads and railroads	After completing the course, the student should know the principles of designing the pavement, drainage, ditches, slopes, excavations and embankments.	[SW3] Assessment of knowledge contained in written work and projects
	[K6_W15] Has knowledge of construction law and environmental impact of investment realisation	After completing the project, the student should know the principles of designing and building a road in such a way that it has the lowest possible impact on the environment.	[SW3] Assessment of knowledge contained in written work and projects
Subject contents	Exercise and project contents: design of a road section including pavement design, drainage system, earthworks and simple crossroad.		
Prerequisites and co-requisites	Prerequisites (basic): <ol style="list-style-type: none"> 1. Course - Descriptive Geometry (BSP007), 2. Course - Engineering Drawing (BSP008), 3. Course - Computer Aided Design (CAD) (BSP009), 4. Course - Construction and Building Materials (BSP014), 5. Course - Road and Motorway Construction I, II (BSP017), 6. Course - Soil Mechanics (BSP023), 7. Course - Bridge and Tunnels (BSP035). 		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Practical design exercise	100.0%	100.0%
Recommended reading	Basic literature	Basic literature: <ol style="list-style-type: none"> 1. Krystek R. z zespołem: <i>Węzły drogowe i autostradowe</i>. WKŁ, Warszawa, 2008 2. Gaca S., Suchorzewski W., Tracz M.: <i>Inżynieria Ruchu drogowego. Teoria i praktyka</i>. WKŁ, Warszawa, 2009 3. Piłat J., Radziszewski P.: <i>Nawierzchnie asfaltowe</i>. WKŁ, Warszawa, 2004 4. Szydło A.: <i>Nawierzchnie drogowe z betonu cementowego</i>. Polski Cement, 2004 	
	Supplementary literature	Additional literature: <ol style="list-style-type: none"> 1. <i>Katalog typowych konstrukcji nawierzchni podatnych i półsztywnych</i>. GDDKiA, Warszawa, 2012 2. <i>Rozporządzenie Ministra Transportu i Gospodarki Morskiej w sprawie warunków technicznych, jakim powinny odpowiadać drogi publiczne i ich usytuowanie</i>. Dziennik Ustaw, Warszawa, 1999 3. <i>Rozporządzenie Ministra Transportu i Gospodarki Morskiej w sprawie warunków technicznych, jakim powinny odpowiadać drogowe obiekty inżynierskie i ich usytuowanie</i>. Dziennik Ustaw, Warszawa, 2000 	
	eResources addresses	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	Exercise and project contents: design of a road section including pavement design, drainage system, earthworks, crossroad and interchange element.
Work placement	Not applicable