



Subject card

Subject name and code	INTERCHANGES AND INTERSECTIONS DESIGN, PG_00044246						
Field of study	Civil Engineering						
Date of commencement of studies	October 2020	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	4	Language of instruction			Polish		
Semester of study	7	ECTS credits			5.0		
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	15.0	0.0	60
	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	60		7.0		58.0	125
Subject objectives	The aim of the course is for students to acquire the skills to design road intersections and identifying problems and hazards for existing and designed solutions. Additionally, preliminary knowledge of the principles of designing interchanges.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U04] can correctly choose tools (analytical or numerical) to solve engineering problems in design of structures or construction process		Ability to use the AutoCAD environment to design road infrastructure elements. The use of technical conditions and guidelines for the selection of design solutions.		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools		
	[K6_U17] has specialized skills in civil engineering within offered specialization		Design skills road intersections. Ability to assess errors in existing condition and in design documentation for road intersections		[SU2] Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject [SU5] Assessment of ability to present the results of task		
	[K6_W16] Has deeper and adequate knowledge of civil engineering, within offered specialization		Design knowledge road infrastructure and standards required of it.		[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation		
Subject contents	Lectures: Types of intersections. Detailed characteristics of roundabout intersections with traffic lights and sewage systems. Design elements in plan and profile. Criteria for selecting the type of intersection and its parameters. Traffic safety at intersections. Traffic organization at intersections. Types of road junctions. Detailed characteristics of selected types. Criteria for selecting types of interchanges and their parameters. Traffic safety at interchanges.						
	Project: Concept of an urban intersection. Assessment of the existing condition. Field research. Crossroads design in three variants. Selection of a interchanges for the indicated road traffic intensity - diagram drawings.						
	Exercise: Assessment of traffic conditions and safety level for an existing intersection. Field research. Recommendations for corrective actions						
Prerequisites and co-requisites	Completion of the subject: Construction of Roads and Motorways						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Passing the design	60.0%	60.0%
	Passing the exercise	60.0%	30.0%
	Attendance	80.0%	10.0%
Recommended reading	Basic literature	Road and motorway interchanges WKŁ. 2008. Work edited by prof. R. Krystka Intersection design guidelines. Patterns and Standards. Ministry of Infrastructure 2022 Interchange design guidelines. Patterns and standards. Ministry of Infrastructure 2022	
	Supplementary literature	S.Gaca, W. Suchorzewski, M. Tracz: Road Traffic Engineering, WKŁ, Warsaw 2008 <i>AASHTO Roadside Design Guide. 2018, US</i>	
	eResources addresses	Podstawowe https://www.gov.pl/web/infrastruktura/o-wzorcach-i-standardach - A set of guidelines for designing road infrastructure. Uzupełniająca Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	Reconstruction project of the existing intersection. Assessment of problems and selection of corrective measures for the existing intersection Assessment of a road junction, identification of problems Assessment and selection of reconstruction variants		
Work placement	Not applicable		