GDAŃSK UNIVERSITY OF TECHNOLOGY

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 knowlege 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

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Passing the design</td><td>60.0%</td><td>60.0%</td></tr>
<tr><td>Passing the exercise</td><td>60.0%</td><td>30.0%</td></tr>
<tr><td>Attendance</td><td>80.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>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</td></tr>
<tr><td>Supplementary literature</td><td>S.Gaca, W. Suchorzewski, M. Tracz: Road Traffic Engineering, WKŁ, Warsaw 2008

AASHTO Roadside Design Guide. 2018, US</td></tr>
<tr><td>eResources addresses</td><td>Podstawowe
https://www.gov.pl/web/infrastruktura/o-wzorcach-i-standardach - A set of guidelines for designing road infrastructure.
Uzupełniające
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">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</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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