STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Junctions and road interchanges**		Code **1010102111010120277**
Field of study **Civil Engineering Second-cycle Studies**	Profile of study (general academic, practical) **(brak)**	Year /Semester **1 / 1**
Elective path/specialty **Bridges and Underground Engineering**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **1** Classes: **-** Laboratory: **-** Project/seminars: **-**		No. of credits **1**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences**		ECTS distribution (number and %) **1 100%**

Responsible for subject / lecturer:

dr inż. Jarosław Wilanowicz
email: jaroslaw.wilanowicz@put.poznan.pl
tel. 61-665-24-86
Faculty of Civil and Environmental Engineering
Piotrowo street, 5

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K_W06 ? The student has knowledge of road design guidelines and related technical conditions. K_W07 i K_W09 ? The student knows the rules of the design and construction of road earthworks.
2	**Skills**	K_U01 ? The student is able to classify the elements of road. K_U08 ? The student knows how to dimension the basic elements of the road.
3	**Social competencies**	K_K06 ? The student is aware of the need to improve his professional skills. K_K10 ? The student follows the rules of ethics.

Assumptions and objectives of the course:

1) Transfer of knowledge in the scope of design and operation of the junctions at grade and the grade separated junctions.
2) Development of skills concerning to identify important problems in the design of junctions and road interchanges.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. The student knows the rules of the dimensioning and designing of geometric details of road intersections and grade separated junctions. - [K_W02 i K_W16]
2. The student knows the technical requirements concerning designing of road intersections and grade separated junctions and their components. - [K_W14]

Skills:

1. The student is able to make a classification of road intersections and grade separated junctions. - [K_U02]
2. The student knows how to dimension the basic geometric details of road intersections and grade separated junctions. - [K_U09]

Social competencies:

1. The student is aware of the need to improve his professional skills. - [K_K06]
2. The student follows the rules of ethics. - [K_K10]

Assessment methods of study outcomes

Student's knowledge and skills are assessed based on a written pass, which takes place on the last lectures per semester (according to the plan of studies).

The written pass consists of three questions and takes 45 minutes.

Information about the form and date of test and its duration shall be provided to students during the first lecture in the semester.

Course description

Basic classification and description of road intersections and grade separated junctions (one-, two- and multi-level crossing).

The types of traffic maneuvers at junctions and road interchanges, their impact on the collision and traffic safety.

Principles of design of geometric details of road intersections and grade separated junctions.

Types of cross section for slip road. Methods of used traffic management systems (traffic signing and road marking).

Basic bibliography:

1. Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 2 marca 1999r. w sprawie warunków technicznych, jakim powinny odpowiadać drogi publiczne i ich usytuowanie, Dz. U. Nr 43 (poz. 430), Warszawa, 14 maja 1999r.

2. Wytyczne projektowania skrzyżowań drogowych, Generalna Dyrekcja Dróg Publicznych, Warszawa 2001.

3. Krystek Ryszard (praca zbiorowa), Węzły drogowe i autostradowe, Wydawnictwo Komunikacji i Łączności, Warszawa 1998.

Additional bibliography:

1. ?Rozporządzenie Ministra Infrastruktury z dnia 16 stycznia 2002r. w sprawie przepisów techniczno-budowlanych dotyczących autostrad płatnych, Dz. U. Nr 12 (poz. 116), Warszawa, 15 lutego 2002r.

2. ?Bartoszewski J., Węzły drogowe i uliczne, PWK, Warszawa 1970.

3. ?Chrostowski H., Rolla ST., Wrześniowski ST., Autostrady ? projektowanie, budowa, ekonomika, WKiŁ, Warszawa 1975.

4. ?Szczuraszek T., Bezpieczeństwo ruchu miejskiego, WKiŁ, Warszawa 2006.

5. ?Tracz M., Allsop R.E., Skrzyżowania z sygnalizacją świetlną, WKiŁ, Warszawa 1990.

Result of average student's workload

Activity	Time (working hours)
1. Direct participation of the student in lectures.	14
2. Learning student to prepare himself to pass the exam.	13
3. Direct participation of the student in the writing pass.	1

Student’s workload

Source of workload	hours	ECTS
Total workload	28	1
Contact hours	15	0
Practical activities	0	0