STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Roads operation**		Code **1010101171010126278**
Field of study **Civil Engineering First-cycle Studies**	Profile of study (general academic, practical) **(brak)**	Year /Semester **4 / 7**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **30** Classes: **-** Laboratory: **-** Project/seminars: **-**		No. of credits **4**
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** **Technical sciences**		ECTS distribution (number and %) **4 100%** **4 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge of design, construction and maintenance of road.
2	**Skills**	The ability to acquire information from literature, databases and other sources and to integrate obtained data. The ability to interpret and draw conclusions The ability to critically analyze and to evaluate of existing road construction technologies
3	**Social competencies**	The ability to work independently and in a team The awareness of the non-technical effects of engineering activities, including its impact on the environment and responsibility for the decisions

Assumptions and objectives of the course:

The aim of the course is to introduce students to the issues of operation of road as a very important area of highway engineering, concerning issues related to the use of roads, road management, road maintenance and impact of roads on the environment.

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

Knowledge:

1. The student knows the elements of road management systems and traffic management systems - [-]
2. The student knows the methods for assessing and maintaining the technical condition of roads - [K_W14]
3. The student has a basic knowledge of road safety - [-]
4. The student has a basic knowledge of the impact of the use of roads on the environment - [K_W17]

Skills:

1. The student uses information technology, Internet resources and other sources to search for information, communication and acquisition of software applications for road manager - [K_U17]

Social competencies:

1. The student deepens the ability to work independently - [K_K01]
2. Student independently complements and extends knowledge of modern techniques for management systems roadsses in the road engineering - [K_K03]
3. The student is aware of the need for professional and personal development - [K_K06]

Assessment methods of study outcomes

Lectures - students? knowledge is assessed on the basis of a written exam which takes place during last lecture (according to the timetable). The exam consists of 4 questions and lasts 30 minutes.

Students are informed about exam?s date, form and time during the first lecture.

Grading scale:

16 points	- A (very good)
14-15 points	- B (good plus)
12-13 points	- C (good)
10-11 points	- D (satisfactory plus)
8-9 points	- E (satisfactory)
below 8 points	- F (fail)

Course description

Issues related to the use of roads, including the characteristics of road users, traffic, traffic management systems, ITS traffic management, road safety;

The impact of exploitation of roads on the environment, traffic noise, air pollution, water pollution and soil, threats to fauna and flora;

Road management,tasks road administration, rules for keeping records of roads, reference systems,road management system elements including road data banks, systems of assessment of road elements, models and analysis, criteria and optimization, analysis of the consequences;

Basic bibliography:

1. Praca zbiorowa: Eksploatacja dróg, Instytut Badawczy Dróg i Mostów, Warszawa 2011

2. Gaca S., Suchorzewski W., Tracz M.: Inżynieria ruchu drogowego, Wydawnictwa Komunikacji i Łączności, Warszawa 2008

3. Praca zbiorowa: Zasady uspokajania ruchu na drogach za pomocą fizycznych środków technicznych, Biuro Ekspertyz i Projektów Budownictwa Komunikacyjnego ?EKKOM? Sp. z o.o., 2008

4. Praca zbiorowa: Zasady ochrony środowiska w drogownictwie, Generalna Dyrekcja Dróg Publicznych, (opracowanie IBDiM), Warszawa, 1999

5. Praca zbiorowa: Podręcznik dobrych praktyk wykonywania opracowań środowiskowych dla dróg krajowych, EEKOM sp. z o.o., Kraków, 2008

Additional bibliography:

1. Praca zbiorowa: Zagadnienia utrzymania i modernizacji dróg i ulic, Wydawnictwa Komunikacji i Łączności, Warszawa 1995

Result of average student's workload

Activity	Time (working hours)
1. Participation in lecture	30
2. Participation in consulation	5
3. Self-improvement of knowledge	15
4. Preparation for the exam	20

Student's workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	35	1
Practical activities	0	0