COURSE DESCRIPTION CARD - SYLLABUS

Course name
Road construction III [N1Bud1>BD3]

Course

Field of study
Civil Engineering

Year/Semester
4/8

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
12

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
20

Number of credit points

6,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Basic knowledge of road design and construction. Knowledge of basic methods, techniques, tools and materials used to solve simple engineering tasks. Basic knowledge necessary to understand the social, economic and legal determinants of engineering activities. SKILLS: The ability to identify and formulate specifications for simple engineering tasks of a practical nature. The ability to obtain information from literature, databases and other sources, to integrate the obtained information, interpret it and draw conclusions. The ability to make a critical analysis of the functioning and evaluation of existing technical solutions. SOCIAL COMPETENCE: Ability to work independently and cooperate in a team on a designated task. The ability to properly define priorities for the implementation of a task set by oneself or others. Understanding the need to provide the society with knowledge about road construction.

Course objective

The course objective is to familiarize students in the basic scope with the issues of road operation as a very important field of road engineering regarding issues related to road use, road management, road maintenance and the impact of roads on the environment. Developing the ability to solve tasks related to road maintenance, both in terms of current and system maintenance, and developing the ability to use them in practice.

Course-related learning outcomes

KNOWLEDGE:
1. Student knows the elements of road management systems and road traffic management systems;
2. Student knows the methods of assessing and maintaining the technical condition of roads;
3. The student has a basic knowledge of road traffic engineering and road safety;
4. The student has a basic knowledge of the impact of road operation on the environment.
SKILLS:
1. Student can evaluate the technical condition of building facilities and indicate appropriate methods for their maintenance;
2. Student is able to obtain information from literature, databases and other properly selected sources;
3. Student is able to integrate the obtained information, interpret and evaluate it, as well as draw conclusions, formulate and justify opinions and positions and discuss them.
SOCIAL COMPETENCIES:
1. Student is responsible for the reliability of the obtained results and their interpretation;
2. Student is ready to critically assess their knowledge and the content received, as well as to critically evaluate the results of their own work;
3. Student is aware of the need to improve professional and personal competences.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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Lecture: Students" knowledge is assessed by means of a written test, which takes place during the last class in the semester (according to the class schedule). The test consists of 4 questions, the duration of the test is 30 minutes. Information about the date of the colloquium, its form and duration is provided to students during the first lecture in the semester (according to the schedule).
Projects: Substantive evaluation of the prepared project documentation, systematic work (entries in the consultation card and attendance at classes), project defense (written or oral form).

Programme content

LECTURES:
Issues related to the operation of roads, including: use, management, maintenance and environmental impact;
PROJECTS:
Project 1: project concerning road exploitation;
Project 2: project concerning pavement diagnostics.

Course topics

LECTURES:
Road traffic characteristics. Basic issues related to road use, including the characteristics of road users, road traffic management, road traffic management systems, ITS, road safety.
Road management, tasks of the road administrator, elements of road management systems, rules of keeping road records.
Basic issues concerning road maintenance, including current maintenance (spring, summer, autumn, winter), surface maintenance systems (PMS), systems for assessing the technical condition of the road surface and other road elements, devices for assessing the technical condition of roads.
Methods of strengthening and renovation of road surfaces, selection of the method and scope of surface repair.
The impact of road operation on the environment, traffic noise, air pollution, water and soil pollution, threats to fauna and flora.
PROJECTS:
Exercise 1: execution of the design of the traffic light program at the intersection using the HCM method, together with the assessment of efficiency;
Exercise 2: for the given input data, determining the road surface condition class and designing a reinforcing overlay;

Teaching methods

Lecture - information lecture / problem lecture / lecture with multimedia presentation.
Projects - case study.

Bibliography

Basic
1. Ogólne specyfikacje techniczne dotyczące drogowych robót utrzymaniowych. Praca zbiorowa, Branżowy Zakład Doświadczalny Budownictwa Drogowego i Mostowego, GDDKiA, Warszawa, 1998-2017.
2. Praca zbiorowa: Eksploatacja dróg, Instytut Badawczy Dróg i Mostów, Warszawa 2011.
3. Gaca S., Suchorzewski W., Tracz M.: Inżynieria ruchu drogowego, Wydawnictwa Komunikacji i Łączności, Warszawa 2008.
4. Praca zbiorowa: Zagadnienia utrzymania i modernizacji dróg i ulic, Wydawnictwa Komunikacji i Łączności, Warszawa 1995.
5. Katalog Przebudów i Remontów Nawierzchni Podatnych i Półsztywnych KPRNPP-2014, Generalna Dyrekcja Dróg Krajowych i Autostrad, Instytut Badawczy Dróg i Mostów, Warszawa 2014.
Additional
1. Praca zbiorowa: Zasady uspokajania ruchu na drogach za pomocą fizycznych środków technicznych, Biuro Ekspertyz i Projektów Budownictwa Komunikacyjnego EKKOM Sp. z o.o., 2008.
2. Praca zbiorowa: Zasady ochrony środowiska w drogownictwie, Generalna Dyrekcja Dróg Publicznych, (opracowanie IBDiM), Warszawa, 1999.
3. Praca zbiorowa: Podręcznik dobrych praktyk wykonywania opracowań środowiskowych dla dróg krajowych, EEKOM sp. z o.o., Kraków, 2008.

Breakdown of average student's workload

	Hours	ECTS
Total workload	155	6,00
Classes requiring direct contact with the teacher	32	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	123	4,50