COURSE DESCRIPTION CARD - SYLLABUS

Course name
Road construction II [N1Bud1>BD2]

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
compulsory

Number of hours

Lecture
20

Laboratory classes
10

Other
0

Tutorials
0

Projects/seminars
10

Number of credit points

4,00

Coordinators

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Lecturers

Prerequisites

KNOWLEDGE: Basic knowledge of road design, soil mechanics, technology of road materials; 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; Ability to obtain information from literature, databases and other sources, to integrate the obtained information, to interpret it and to draw conclusions; Ability to make a critical analysis of the functioning and evaluation of existing technical solutions; SOCIAL COMPETENCES: Ability to work independently and to cooperate in a team on a designated task; The ability to properly define priorities for the implementation of a task set by yourself or others;

Course objective

Provision of engineering knowledge in the field of road works; Developing the ability to identify and solve basic tasks related to mechanization and organization of road works;

Course-related learning outcomes

KNOWLEDGE:

1. Student knows the national (PN) and European (EN) standards as well as the technical conditions of road construction;
2. Student knows the principles of construction and analysis of road construction objects;
3. Student has detailed knowledge of the technology of road construction and the rules for the selection of tools, machines and equipment for the implementation of construction works;
4. Student has basic general knowledge of the organization of road works.
SKILLS:
1. Student is able to obtain information from literature, databases and other properly selected sources;
2. 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;
3. Student knows how to classify road construction objects;
4. Student is able to perform a preliminary economic analysis of the basic engineering activities undertaken, as well as to draw up a simple work schedule of construction machines.
SOCIAL COMPETENCIES:
1. Student is ready to independently supplement and expand knowledge in the field of modern processes and technologies in road construction;
2. Student understands the need for teamwork, is responsible for the safety of his own and the team"s work;
3. Student is ready to critically assess their knowledge and the content received, as well as to critically evaluate the results of their own work.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Lecture: Exam (in the form of a test) in the scope of the material provided during lectures.
Projects and laboratories: substantive assessment of the prepared project documentation, systematic work (entries in the consultation card and attendance at classes), project defense (written or oral form).

Programme content

Characteristics of construction works included in the technological process of road construction and methods of their mechanization (technologies of preparatory, earthwork, surface and finishing works).

Course topics

Lectures:
Principles of road works, which are part of the technological process of road construction and methods of their mechanization (technologies of preparatory, earth, surface and finishing works). Classification and characteristics of construction machines used in road construction (intended use, construction and work patterns of machines). Groups and assemblies of construction machines. Theoretical, technical and operational efficiency of road machines. Basic methods of organizing road works and the principles of preparing a work schedule for construction machines. Development of the construction site. Rules for the acceptance of road works.
Projects:
Development of selected elements of technical documentation in the field of technology and mechanization of road pavement works.
Scope of laboratory exercises:
Determination of the grain size of the asphalt mixture after extraction. Determination of free space content and compaction index. Determining the evenness of the road surface using the patch and wedge method. Determination of pavement load-bearing capacity. Determination of anti-slip properties of surfaces. Determination of the substrate deformation modulus by plate loading (VSS test).

Teaching methods

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

Bibliography

Basic

1. Ogólne specyfikacje techniczne dotyczące drogowych robót inwestycyjnych. Praca zbiorowa, Branżowy Zakład Doświadczalny Budownictwa Drogowego i Mostowego, GDDKiA, Warszawa, 1998-2017.
2. Biruk S., Jaworski K. M., Tokarski Z. Podstawy organizacji robót drogowych, PWN, Warszawa 2007.
3. Andrzej Maciejewicz. Mechanizacja i organizacja robót drogowych. WKiŁ, Warszawa 1971.
4. Bogdan Cyunel. Technologia i organizacja budownictwa drogowego. PWN, Warszawa 1986.
5. Włodzimierz Martinek, Zbigniew Tokarski, Kazimierz Chojnacki, Organizacja budowy asfaltowych nawierzchni drogowych, PWN, Warszawa 2012.
6. Jerzy Kaniewski, Wiesław Kietliński., Technologia zmechanizowanych robót drogowych, (skrypt Politechniki Warszawskiej, 1994r.).
Additional
1. Błażejowski K., Styk S., Technologia warstw asfaltowych, WKŁ, Warszawa 2009.
2. Wymagania Techniczne WT 2010, GDDKiA Warszawa 2010.
3. PN-S-02205. Drogi samochodowe. Roboty ziemne. Wymagania i badania.
4. PN-S-96025. Drogi samochodowe i lotniskowe. Nawierzchnie asfaltowe. Wymagania.
5. Maciej Jodłowski. Operator maszyn do robót drogowych. Wyd. KaBe, Krosno 2003.
6. Maciej Jodłowski, Operator maszyn do robót ziemnych, Wyd. KaBe, Krosno 2007.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100125	45,00
Classes requiring direct contact with the teacher	40	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	60	2,50