COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technology of Earth and Road Works

Course

Field of study	Year/Semester
Mechanical and Automotive Engineering	1/1
Area of study (specialization)	Profile of study
Machines	general academic
Level of study	Course offered in
Second-cycle studies	Polish
Form of study	Requirements
part-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
9	9	
Tutorials	Projects/seminars	
9	0	

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Jaroslaw Selech prof. PP

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tel. 61 665 22 27

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge:

Has a general mathematical and physical vision and knows the general construction of earthmoving and road machinery.

Skills:

He can use a computer in the field of office software

Social competences

He knows a foreign language

Course objective

Get to know the basic technologies of earth and road works.

Course-related learning outcomes

Knowledge

Has basic knowledge about selected technologies of machine works in agriculture, construction, transport, food industry, etc.

Has extended knowledge of the standards for working machines in the field of methods of calculating and testing machines, safety, including road safety, environmental protection as well as mechanical and electrical interface.

Has extended knowledge of the life cycle of machines, the principles of operation of working machines and destructive processes occurring during operation, such as tribological wear, corrosion, surface fatigue and volumetric aging of the material.

Skills

He can design the technology of exploitation of a selected machine with a high degree of complexity.

Can plan and carry out experimental research of specific processes taking place in machines and routine tests of a working machine or a vehicle from a selected group of machines.

Can communicate on specialist topics with a diverse audience.

Social competences

He is ready to critically assess his knowledge and received content.

Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.

It is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Partial grades:

Assessment of student activity during lectures.

Summative assessment:

Assessment taking into account the activity of students during the classes and a written exam on the material

Programme content

Technology of mechanized road works. Types and application of mechanization and transport coefficients and indicators. Complex mechanization method. The cost of machinery work. Technical operation of road machinery. Road transport. Machines for loading and local transport. Technology and mechanization of preparatory works and earthworks. Technology and mechanization of works in soil stabilization. Technology and mechanization of surface works. Construction of bituminous surfaces. Machines and equipment for the production of paving compounds and paving construction. Construction of cement concrete pavement. Production of concrete mass. Machines and equipment for concrete works. Technology and mechanization of works in auxiliary production. Preparation of aggregate in bases. Technology and mechanization of repair of bituminous and cement concrete pavements.

Teaching methods

1. Lecture with multimedia presentation

2. Exercises - solving problems

Bibliography

Basic

1. Organizacja budowy asfaltowych nawierzchni drogowych. W. Martinek, Z. Tokarski, K.z Chojnacki. Wydawnictwo Naukowe PWN, 2012

2. Budownictwo drogowe w zarysie. A. Sieniawska-Kuras, KABE 2010,

3. Podstawy organizacji robót drogowych. Praca zbiorowa pod red. S. Biruka, Wydawnictwo Naukowe PWN 2007.

Additional

1. Roboty ziemne i rekultywacyjne w budownictwie komunikacyjnym, K. Piechowicz i inni, WKŁ 2011

2. Datka S.: Drogowe roboty ziemne. Warszawa 1979, WKiŁ

Breakdown of average student's workload

	Hours	ECTS
Total workload	45	3,0
Classes requiring direct contact with the teacher	27	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	18	1,0

[1] delete or add other activities as appropriate