# COURSE DESCRIPTION CARD - SYLLABUS

Course name
Technology of Earth and Road Works [N2MiBP1-MR>TRZiD]

## Course

Field of study
Mechanical and Automotive Engineering

Year/Semester
1/1

Area of study (specialization)
Heavy-duty Machines

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
part-time

Requirements
compulsory

## Number of hours

Lecture
9

Laboratory classes
9

Other
0

Tutorials
9

Projects/seminars
0

## Number of credit points

3,00

## Coordinators

dr hab. inż. Jarosław Selech prof. PP
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## Lecturers

## 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:

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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.

## Course topics

none

## 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 | 3,00 |
| Classes requiring direct contact with the teacher | 27 | 2,00 |
| Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation) | 18 | 1,00 |