



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Soil mechanics and foundations [N1Bud1>MGiF2]

### Course

Field of study

Civil Engineering

Year/Semester

2/4

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

10

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

10

### Number of credit points

2,00

### Coordinators

dr inż. Adam Duda

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### Lecturers

### Prerequisites

KNOWLEDGE: Student beginning this course should have basic knowledge in the field of mathematics and physics and the scope of knowledge included in the study program of the 1st and 2nd semester of studies in the field of Construction. SKILLS: Student should: - be able to obtain information from literature, databases and other properly selected sources; - be able to integrate the obtained information, interpret and evaluate it, as well as draw conclusions and formulate opinions. SOCIAL COMPETENCIES: Student should be able to work independently and cooperate in a team on the assigned task and be responsible for the reliability of the results of their work and their interpretation.

### Course objective

Achieving a basic level of knowledge in the field of soil science and soil mechanics appropriate for the 1st degree studies in the field of Construction.

### Course-related learning outcomes

KNOWLEDGE: Student:

1. Knows the basics of geology, has detailed knowledge in the field of soil mechanics and foundations engineering work;

2. Knows building legislation, Polish standards (PN) and European standards (EN), technical conditions of constructing building facilities, as well as basic ideas and rules in the field of intellectual and industrial property protection.

SKILLS: Student:

1. Is able to plan and carry out simple laboratory experiments leading to the assessment of the quality of building materials and engineering structures; is able to clearly present and interpret the obtained results and to draw conclusions;
2. Is able to obtain information from literature, databases and other properly selected sources; is able to integrate the obtained information, interpret and evaluate it, as well as draw conclusions, formulate opinions and positions and discuss them.

SOCIAL COMPETENCES: Student:

1. Is responsible for the reliability of the obtained results and their interpretation
2. Understands the need for teamwork, is responsible for the safety of his own and the team's work;
3. Is ready to critically assess their knowledge and received content, 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:

- written colloquium,
- checking contemporary knowledge and activity during classes,
- execution of a design project.

### Programme content

The module's programme covers

- lectures on load capacity, including stresses in soil medium and deformability of subsoil;
- lectures on foundations, including their division and dimensioning, and excavation stability and drainage;
- a foundations project.

### Course topics

Introduction to foundations. Division of direct foundations. Load capacity of the subsoil. Dimensioning of direct foundations. Stresses in the soil medium. Deformability of subsoil, foundation settlement. Stability of construction excavations. Drainage of the subsoil.

### Teaching methods

1. Lecture - multimedia presentation.
2. Project - multimedia presentation, preparation of the direct foundation design.

### Bibliography

Basic:

1. Wiłun Z.: Zarys geotechniki, WKiŁ, Warszawa 2012.
2. O. Puła: Projektowanie fundamentów bezpośrednich według Eurokodu 7. Wyd. 2 lub 3, DWE, Wrocław 2014.
3. A. Dąbska, A. Gołębiewska. Podstawy geotechniki: zadania według Eurokodu 7. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2012.
4. S. Garwacka-Piórkowska i I. Cios: Projektowanie typowych fundamentów bezpośrednich i konstrukcji oporowych z uwzględnieniem Eurokodów wraz z przykładami. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2014.

Additional:

1. L. Wysokiński, W. Kotlicki i T. Godlewski, Projektowanie geotechniczne według Eurokodu 7. Poradnik. Instytut Techniki Budowlanej, Warszawa 2011.
2. Cz. Rybak i in.: Fundamentowanie. Projektowanie posadowień. DWE, Wrocław 2001.
3. M. Obrycki, S. Pisarczyk: Wybrane zagadnienia z fundamentowania. Przykłady obliczeń. WPW, Warszawa 2005.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	52	2,00
Classes requiring direct contact with the teacher	22	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	30	1,00