



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Geotechnics and Special Foundations

### Course

Field of study

Year/Semester

Civil Engineering

1/2

Area of study (specialization)

Profile of study

Road, Bridge and Railway Engineering

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

full-time

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

30

15

Tutorials

Projects/seminars

15

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr inż. Andrzej T. Wojtasik

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### Prerequisites

Basic knowledge on building mechanics, soil mechanics and engineering geology

### Course objective

Knowledge on types and technologies of foundations and soil improvement.

### Course-related learning outcomes

Knowledge

Has detailed knowledge of the rules of foundation engineering of complex building structures.

Skills

Can design foundations and soil improvement in complicated soil conditions, for II and III structures category for road, bridge and railway structures.

Social competences

Take responsibility for the reliability of working results and their interpretation.



### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Exam, soil improvement design project.

### Programme content

Soil mechanics. Soil improvement methods including soil gouting techniques - design and execution. Pile foundations methods - execution and calculations of bearing capacity and settlements. Bearing capacity of other deep foundations - barrettes. Lateral earth pressure, deep excavations and retaining structures. Dewatering of deep excavations. Presentation of case studies.

### Teaching methods

Lectures, design project

### Bibliography

Basic

1. "Ground Improvement". Klaus Kirsch, Alan Bell
2. "Fundamenty palowe – technologie i obliczenia" Kazimierz Gwizdała, PWN
3. "Fundamenty palowe – badania i zastosowania" Kazimierz Gwizdała, PWN
4. „Prefabrykowane pale wbijane” Kazimierz Gwizdała, Jakub R.Kowalski, PG
5. „Fundamentowanie, projektowanie posadowień” Czesław Rybak i inni.

Additional

1. „Wzmacnianie i uszczelnianie gruntu metodą mieszania in –situ”. Michał Topolnicki

### Breakdown of average student's workload

	Hours	ECTS
Total workload	90	3,0
Classes requiring direct contact with the teacher	60	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation)) <sup>1</sup>	30	1,0

<sup>1</sup> delete or add other activities as appropriate