



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

SPECIAL FOUNDATIONS

### Course

Field of study

Civil Engineering

Area of study (specialization)

Structural Engineering

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lecture

30

Laboratory classes

Tutorials

Projects/seminars

15

Other (e.g. online)

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer:

dr inż. Andrzej T.Wojtasik

Responsible for the course/lecturer:

email: andrzej.wojtasik@put.poznan.pl

### 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 in complicated soil conditions, for II and III structures category and selected quasi-static and quasi-dynamic loaded building 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, pile 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	60	2.0
Classes requiring direct contact with the teacher	45	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation)) <sup>1</sup>	15	0,5

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