

Tadeusz Kosciuszko Cracow University of Technology

Course Card

Faculty of Civil Engineering

Field of study: Civil Engineering

Study profile: general academic

Study form: full-time

Field of study code: BUD

Study cycle: 1st

Specialty: no specialty

1 COURSE INFORMATION

Course name	Fundamentowanie
Course name in English	Foundations
Course code	WIL BUD oIS C36 24/25
Course category	Basic
No. of ECTS points	3.00
Semester	5

2 CLASS TYPE, NUMBER OF HOURS ACCORDING TO THE STUDY PLAN

Semester	Lecture	Class exercise	Laboratory	Computer lab	Design exercise	Seminar
5	30	0	0	0	15	0

3 COURSE OBJECTIVES

Objective 1 Getting to know the classification of foundations and the selection of a foundation to soil conditions

Objective 2 Getting to know the design of direct foundations, check the bearing capacity state and serviceability limit state

Objective 3 Getting acquainted with the design of foundations on piles, checking bearing capacity and serviceability limit state

Objective 4 Getting acquainted with the execution technology of various types of piles

Objective 5 Getting acquainted with the execution technology of diaphragm walls

4 PREREQUISITES IN TERMS OF KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1 Completing the entire course of Soil Mechanics

2 Completing the entire course of Strength of Materials

5 LEARNING OUTCOMES

LO1 Knowledge Student gives the types of foundations and difference of structural solutions

LO2 Skills Student can choose the type of foundation to soil conditions

LO3 Knowledge Student determines the bearing capacity limit state and serviceability limit state for direct foundations

LO4 Skills Students can check the bearing capacity limit state and serviceability limit state for direct foundations according to Polish standards and Eurocode 7

LO5 Skills Student determines the bearing capacity limit state and serviceability limit state for foundations on piles

LO6 Knowledge Students can check the bearing capacity limit state and serviceability limit state for foundations on piles according to Polish standards and Eurocode 7

LO7 Skills Student gives the execution technology of displacement piles screw piles

LO8 Knowledge Student gives the execution technology of diaphragm walls

6 COURSE CONTENT

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L1	Types of foundations. Geotechnical design techniques suitable to geotechnical category.	3
L2	Direct foundations: strip, feet, grates, plates. Bearing capacity limit state according to Polish standard PN-81/B-03020.	3
L3	Direct foundations: strip, feet, grates, plates. Bearing capacity limit state according to Eurokod PN-EN 1997-1	3
L4	Direct foundations. Settlement, serviceability limit state according to Polish standard PN-81/B-03020.	2
L5	Direct foundations. Admissible settlements, serviceability limit state according to standards PN-81/B-03020 and PN-EN-1997-1	2

Lecture		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
L6	Indirect foundations: on piles, on wells, on diaphragm walls, on caissons. Types and examples.	2
L7	Foundation on piles. Bearing capacity limit state according to Polish standard PN-81/B-03020.	3
L8	Foundation on piles. Bearing capacity limit state according to Eurocode PN-EN 1997-1.	3
L9	Foundation on piles. Bearing capacity limit state according to Polish standard PN-81/B-03020. Exam of the bearing capacity the pile based on static load.	2
L10	Overview of piles technology: drilled piles; displacement piles. Examples of the advantages and disadvantages of each technology.	2
L11	Diaphragm walls. Application and technology execution steps. Examples of implementation as retaining walls and as basement walls.	2
L12	Limit states of special foundations: on walls and on caissons. Summary of the object.	3

Design exercise		
No.	Subject matter of the course Detailed description of thematic blocks	No. of class hours
P1	Direct foundation. Bearing capacity limit state according to Polish standard PN-81/B-03020.	3
P2	Direct foundation. Bearing capacity limit state according to Eurocode PN-EN 1997-1.	3
P3	Direct foundation. Consultation and check the individual student project.	1
P4	Foundation on piles. Bearing capacity limit state according to Polish standard PN-83/B-02482.	3
P5	Foundation on piles. Bearing capacity limit state according to Eurocode PN-EN 1997-1.	3
P6	Foundation on piles. Consultation and check the individual student project. Final test.	2

7 TEACHING TOOLS

N1 Lectures

N2 Project tutorials

N3 Team work

N4 Counseling

N5 Discussion

8 Student workload

Activity form	Number of hours of activity
Hours realized in contact with the teacher	
Hours resulting from the study plan	45
Consultation hours	7
Exams and tests during session	3
Hours of autonomous student work	
Preparing for classes, studying literature	10
Developing results	15
Preparing of reports, projects presentations, discussion	10
Total number of hours devoted to the subject	90
Total number of ECTS points	3.00

9 Methods of grading

Partial grades

F1 Individual project

F2 Oral mark

F3 Test

Summary grade

P1 Final exam

P2 Weighted average of the positive marks

Conditions for passing the course

L1 The exam may join students who passed the individual projects

L2 The written examination consists of parts of knowledge test and example test

L3 Evaluation of the effect of education is the average of P1 and P2

L4 Condition for completing the subject is to obtain a positive pass of each effects of training
