

COURSE SYLLABUS AND COURSE REQUIREMENTS

ACADEMIC YEAR 2023/2024 SEMESTER FALL

Course title	Soil Mechanics and Earthworks
Course Code	MSB135AN-EA-00
Hours/Week: le/pr/lab	2 lectures, 2 practice , 1 lab/week
Credits	6
Degree Programme	B.Sc in Civil Engineering
Study Mode (TVSZ-ben training schedule)	
Requirements	None
Teaching Period	3th
Prerequisites	None
Department(s)	Civil Engineering
Course Director	
Teaching Staff	Ali Mohamed Mohamed Salem
Hours/Week: le/pr/lab	2 lectures, 2practice, 1 Lab /week

COURSE DESCRIPTION

Neptun: Instruction/Subjects/Subject Details/Basic data/Subject description

This course is aimed to provide basic and various aspects of soil mechanics and earth work. Topics covered by the course include soil site explorations, Soil classification, Soil classification, soil consistency, soil compaction, shear strength of soil, Earth pressures, Retaining walls, sheet pile walls, supported deep excavation, and soil improvement.

SYLLABUS

Neptun: Instruction/Subjects/Subject Details/Syllabus

1. GOALS AND OBJECTIVES

Neptun: Instruction/Subjects/Subject Details/Syllabus/Goal of Instruction

This course is aimed to provide basic and various aspects of soil mechanics and earth structures.

Students will gain from this course:

- knowledge of soil exploration and soil classification,
- Providing the Practical meaning of the various aspects of soil mechanics.
- knowledge of soil exploration and lateral earth distribution
- Understanding and Practical knowledge of retaining structures design
- Knowledge of Ground improvement

2. COURSE CONTENT

Neptun: Instruction/Subjects/Subject Details/Syllabus/Subject content

TOPICS

LECTURE	TOPICS
	1. Soil investigation
	2. Physical properties of soil - Grain size distribution -
	3. Soil Consistency - Soil Classification
	4. Soil compaction- Consolidation
	5. Hydraulic Properties of soils (Geo – static stress)- Permeability
	6. Shear strength of soils
	7. Lateral earth pressure (at rest – active – passive)
	8. Earth pressure Distribution
	9. Types and definition of earth retaining structures Retaining walls (Gravity – cantilever – counterfort)
	10. Stability of Retaining walls
	11. Sheet Pile walls (Gravity)

PRACTICE

12. Sheet Pile walls (anchored – strutted)
 13. Ground improvement and soil reinforcement
1. Soil investigation
 2. Physical properties of soil - Grain size distribution -
 3. Soil Consistency - Soil Classification
 4. Soil compaction- Consolidation
 5. Hydraulic Properties of soils (Geo – static stress)- Permeability
 6. Shear strength of soils
 7. Lateral earth pressure (at rest – active – passive)
 8. Earth pressure Distribution
 9. Types and definition of earth retaining structures Retaining walls (Gravity – cantilever – counterfort)
 10. Stability of Retaining walls
 11. Sheet Pile walls (Gravity)
 12. Sheet Pile walls (anchored – strutted)
 13. Ground improvement and soil reinforcement

DETAILED SYLLABUS AND COURSE SCHEDULE

ACADEMIC HOLIDAYS INCLUDED

LECTURE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Course description. Orientation.
2.	Introduction in Geotechnical Engineering - Soil investigation	Lecture notes and slides	----	
3.	Physical properties of soil - Grain size distribution	Lecture notes and slides	Assignment _1	19-09-2023
4.	Soil Consistency - Soil Classification	Lecture notes and slides	Assignment _2	26-10-2023
5.	Soil compaction	Lecture notes and slides	Assignment _3	03-10-2023
6.	Hydraulic Properties of soils (Geo – static stress, Permeability)	Lecture notes and slides	Assignment _4	10-10-2023
7.	Shear strength of soils	Lecture notes and slides	Assignment _5	17-10-2023
8.	Mid-Term Exam			24-10-2023
9.	Lateral earth pressure Distribution	Lecture notes and slides	Assignment _6	07-11-2023
10.	Design of gravity retaining wall	Lecture notes and slides	Assignment _7	14-11-2023
11.	Design of cantilever retaining wall	Lecture notes and slides	Assignment _8	21-11-2023
12.	Sheet Pile walls (Gravity – anchored – strutted)	Lecture notes and slides	Assignment _9	28-11-2023
13.	Ground improvement and soil reinforcement	Lecture notes and slides	Assignment _10	05-12-2023
14.	Final exam.			

PRACTICE, LABORATORY PRACTICE

week	Topic	Compulsory reading; page number (from ... to ...)	Required tasks (assignments, tests, etc.)	Completion date, due date
1.	Course description. Orientation.

2.	Introduction in Geotechnical Engineering	Lecture notes and slides	----	
3.	Soil investigation	Lecture notes and slides	Assignment _1	19-09-2023
4.	Physical properties of soil	Lecture notes and slides	Assignment _2	26-10-2023
5.	Grain size distribution	Lecture notes and slides	Assignment _3	03-10-2023
6.	Soil Consistency	Lecture notes and slides	Assignment _4	10-10-2023
7.	Soil Classification	Lecture notes and slides	Assignment _5	17-10-2023
8.	Soil compaction	Lecture notes and slides	Assignment _6	24-10-2023
9.	Mid-Term Exam	-----	-----	-----
10.	Consolidation	Lecture notes and slides	Assignment _7	07-11-2023
11.	Hydraulic Properties of soils (Geo – static stress, Permeability)	Lecture notes and slides	Assignment _8	14-11-2023
12.	Shear strength of soils	Lecture notes and slides	Assignment _9	21-11-2023
13.	Ground improvement and soil reinforcement	Lecture notes and slides	-----	-----
14.	Final exam.			

3. ASSESSMENT AND EVALUATION

(Neptun: Instruction/Subjects/Subject Details/Syllabus/Examination and Evaluation System)

ATTENDANCE

In accordance with the Code of Studies and Examinations of the University of Pécs, Article 45 (2) and Annex 9. (Article 3) a student may be refused a grade or qualification in the given full-time course if the number of class absences exceeds 30% of the contact hours stipulated in the course description.

Method for monitoring attendance (e.g.: attendance sheet / online test/ register, etc.)

attendance sheet

ASSESSMENT

Cells of the appropriate type of requirement is to be filled out (course-units resulting in mid-term grade or examination). Cells of the other type can be deleted.

Course resulting in mid-term grade (PTE TVSz 40§(3))

Mid-term assessments, performance evaluation and their ratio in the final grade

Type	Assessment	Ratio in the final grade
Attendance	10 points	10%
Assignments	20 points	20%
Midterm Exam	30 points	30%
Final Exam	40 points	40%

Opportunity and procedure for re-takes (PTE TVSz 47§(4))

all tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

Grade calculation as a percentage

based on the aggregate performance according to the following table

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

Course-unit with final examination

Mid-term assessments, performance evaluation and their weighting as a pre-requisite for taking the final exam

Type	Assessment	Weighting as a proportion of the pre-requisite for taking the exam
1. Attendance	10 points	10%
2. Assignments	20 points	20%
3. Midterm Exam	30 points	30%
4. Final Exam	40 points	40%

Requirements for the end-of-semester signature

The end-of-semester signature is successful if the result is minimum **40** %.

Re-takes for the end-of-semester signature (PTE TVSz 50§(2))

All tests and assessment tasks can be repeated/improved at least once every semester, and the tests and home assignments can be repeated/improved at least once in the first two weeks of the examination period.

Type of examination (written, oral): written

The exam is successful if the result is minimum **40** %.

Calculation of the grade (TVSz 47§ (3))

The mid-term performance accounts for **30** %, the performance at the exam accounts for **40** % in the calculation of the final grade.

Calculation of the final grade based on aggregate performance in percentage.

Course grade	Performance in %
excellent (5)	85 % ...
good (4)	70 % ... 85 %
satisfactory (3)	55 % ... 70 %
pass (2)	40 % ... 55 %
fail (1)	below 40 %

The lower limit given at each grade belongs to that grade.

4. SPECIFIED LITERATURE

In order of relevance. (In Neptun ES: Instruction/Subject/Subject details/Syllabus/Literature)

COMPULSORY READING AND AVAILABILITY

- [1.] Primary compulsory reading and its availability
- [2.] Compulsory literature and its availability
- [3.] - Lecture notes and slides

RECOMMENDED LITERATURE AND AVAILABILITY

- [4.] - Das, B.M. (1998). Principles of Geotechnical Engineering, 4th edition, PWS Publishing Company.
- [5.] - Holtz, R.D. and Kovacs, W.D. (1981). An Introduction to Geotechnical Engineering, Prentice Hall
- [5.] - Lecture notes and slides