GEOTECHNICS I. (SOIL MECHANICS)

2023/24. 1. SEMESTER

BASIC DATA			
COURSE NAME	**GEOTECHNICS I. (SOIL MECHANICS)**		**Geotechnika I. (Talajmechanika)**
COURSE CODE(S)	YCXGET1BNF		
DEPARTMENT	Óbuda University, Ybl Miklós Faculty of Architecture and Civil Engineering, Institute of Civil Engineering		
PROGRAMME, TRAINING	Civil Engineering, BSc		full time
COURSE INSTRUCTOR (Instructor managing the course)	Dr. Telekes Gábor PhD, Professor	telekes.gabor@ ybl.uni-obuda.hu	consulting hours: current on the website: www.ymmf.hu
INSTRUCTORS, LECTURERS	Dr. Telekes Gábor PhD, Professor	telekes.gabor@ ybl.uni-obuda.hu	consulting hours: current on the website: www.ymmf.hu
	Dr. Firgi Tibor Associate Professor	firgi.tibor@ ybl.uni-obuda.hu	consulting hours: current on the website: www.ymmf.hu
	Kaczvinszki-Szabó Vera Assistant Professor	szabo.vera@ uni-obuda.hu	consulting hours: current on the website: www.ymmf.hu
PRE-REQUIREMENT	Construction Geology YCWÉPFÖBNF or Engineering Geology YCWMÉGEBNF		
HOURS OF LECTURES (WEEKLY)	1 hours		
HOURS OF CLASSROOM PRACTICE/ LAB EXERCISE (WEEKLY)	3 hours		
FIELD AND TRAINING (WEEKLY)	0 hours		
ASSIGNMENT	Midterm assignments and exam		
CREDITS	5 credits		
AIM OF THE COURSE, BRIEF DESCRIPTION	Getting to know, classifying the properties of the soil, its behavior under the influence of human interventions. Physical and strength properties of soils with special regard to the forces that affect the stability of the soil and structure. Form and levels of groundwater, corrosive and chemical effects. Soil models used for computer scaling. The soil exploration methods, sampling, laboratory and field studies. Evaluation and documentation of geotechnical data.		
RECOMMENDED LITERATURE	Bartos S. – Králik B.: Mélyépítés I. Szepesházi R.: Geotechnika Faur K.- Szabó I.: Geotechnika Kézdi Á.: Talajmechanika I. – II.		
REQUIRED TECHNICAL APPLIANCES/ SOFTWARE	The use of mobile phones is prohibited during the examinations. In the case of online education: Contact: Neptun, E-learning and E-mail. Education materials: According to E-learning		

SCHEDULE OF THE SEMESTER

WEEK	LECTURE	PROGRAM OF PRACTICE
1	Introduction. Location and role of the subject in the construction industry.	Safety rules in thelaboratory. Introduction to the Soil Mechanics Laboratory. Types of Rocks and the Rock Cycle.
2	Direct soil exploration methods. Sampling.	Soil Identification, Soil Exploration and Sampling.
3	Indirect soil exploration methods	Soil Phase Relationship; Task Solution
4	Soil condition characteristics. Soil components, soil structures. Properties of soil constituents.	Granular Soil Identification: Sieves Analysis, Hydrometer Analysis; Preparation of laboratory test documentation
5	Identification characteristics. Granular soils.	Cohesive Soil Identification: Plastic Limit, Liquid Limit, PI, CI; Preparation of laboratory test documentation
6	Identification characteristics. Cohesive soils. Organic matter and lime content.	Soil Compaction; Preparation of laboratory test documentation; Task Solution
7	Soil incorporation characteristics. Soil compactness, compressibility.	**1. test**; Data Collection, Exploration plan, drilling report, contents of boreholes, groundwater levels
8	Groundwater.	Water Permability; Preparation of laboratory test documentation
9	Water movement in the soil.	Vertical Tension; Task Solution
10	Initial condition of stress state of soils. Deformation of soils.	Oedometer Test, Preparation of laboratory test documentation
11	Shear strength of soil. Soil strength characteristics.	Stress, strain and failure in soils; Task Solution
12	Evaluation, representation and documentation of geotechnical data	**2. test**; Soil Mechanics Documentation, Soil Test Report; Task Solution
13	Soil models. Soil mechanics of unsaturated soils.	Soil Mechanics data processing; Task Solution; **1.-2. Repetative tests**

REQUIREMENTS FOR THE COMPLETION OF THE SEMESTER		
MID-SEMESTER TASKS AND TESTS		
Requirement	**Description**	**Grade**
PARTICIPATION AT LESSONS	The practice lessons can be missed up to three times (see § 29 ETVSZ)	-
IN CASE OF ABSENCE FROM LESSONS AND EXAMINATIONS	Absence is considered to be justified with a medical certificate presented.	-
Short description of the TASKS 1	During the semester, protocols of laboratory tests must be prepared (6 pieces).	1-5
Short description of the TASKS 2	Two in-house papers will be written during the semester.	1-5
Exam	Oral exam from the material of the lectures of the semester and literature.	1-5
TOTAL		1-5

SEMESTER CLOSING REQUIREMENTS	
CONDITIONS FOR OBTAINING A SIGNATURE	Participation in the exercises according to the above requirements. All laboratory protocols should be prepared. Both in-house papers must be written in at least 2 grades. The provisions of the Study Procedure apply to its replacement.
CONDITIONS FOR ADMISSION TO THE EXAM	Only students who have already obtained a signature can take the exam. During the exam period, the student has to register for the exam in the Neptun. The same semester students have the right to try two times the examination.
EXAM GRADE	You can only get an exam grade if you also get at least 2 grade in the oral exam. The grade is given by the grade obtained in the exam and the grades of the semester assignments, as follows: the semester assignment is single, the first in-house paper is single, the second in-house paper is single, taking into account the oral-exam grade with three times weight.