ECTS

ΕΥΡΩΠΑΪΚΟ ΣΥΣΤΗΜΑ ΜΕΤΑΦΟΡΑΣ ΑΚΑΔΗΜΑΪΚΩΝ ΜΟΝΑΔΩΝ ΣΤΗΝ ΕΥΡΩΠΑΪΚΗ ΕΝΩΣΗ

(B) Course information in english

General course information:

Course title:	EXPERIMENTAL SOIL MECHANICS	**Course code:**	ΓΕ0201
Credits:	5	**Work load (hours):**	114

Course level:	Undergraduate	☑	Graduate	☐
Course type:	Mandatory	☑	Selective	☐
Course category:	Basic	☐	Orientation	☑

Semester:	7th	**Hours per week:**	4

Course objectives (capabilities pursued and learning results):

The course supplements the Soil Mechanics knowledge of a Civil Engineering student with a Geotechnical orientation, not so much on issues of design, but on issues of evaluating the nature and the parameters of strength and deformability of soils, by means of experiments. These issues are the basis of the design of any foundation, retaining system or geotechnical structure.

The students acquire expertise on planning, executing, analyzing and interpreting the results of a laboratory and insitu geotechnical testing program, since they execute the tests themselves under the supervision of the instructor. Moreover, the students, by performing and presenting weekly projects, develop cooperativeness, effective oral communication skills and the ability to write technical reports.

Prerequisites:

Knowledge of Soil Mechanics (nature of soil, soil stresses and strains, Mohr's circle, shear strength under undrained and fully drained conditions, soil consolidation, flow through soil)

Instructor's data:

Name:	Polyxeni Kallioglou
Level:	Lecturer
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Other tutors:	-

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	Introduction – Identification of soils	4	
2	Determination of natural water content – Determination of unit weight – Determination of organic matter and carbonate calcareous contents	4	1
3	Grain-size distribution (sieve analysis and hydrometer test) – Specific gravity	4	1
4	Minimum and maximum density of sandy soils – Proctor Compaction test	4	1
5	Atterberg Limits (LL και PL) – Soil classification	4	1
6	Permeability test – One-dimensional consolidation test	4	2
7	Unconfined compression test	4	1
8	Direct shear test	4	1
9	Triaxial compression test	4	2
10	Planning of geotechnical investigation – Insitu tests of geotechnical investigation – Drilling & Sampling – Eurocode 7	4	1
11	Standard Penetration Test, SPT Constant Penetration Test, CPT	4	1
12	Plate Test - Flat Plate Dilatometer Test - Pressumeter test – Vane test	4	1
13	Statistic on the assessment of characteristic values of engineering soil properties determined by experimental measurements	4	1
14	Geophysical testing	4	1

Additional hours for:			
Class project	**Examinations**	**Preparation for examinations**	**Educational visit**
25	3	10	5

Suggested literature:

- Σ. Κωστόπουλος : ΠΕΙΡΑΜΑΤΙΚΗ ΓΕΩΤΕΧΝΙΚΗ ΜΗΧΑΝΙΚΗ, Εκδόσεις Ιων, 2005
- Ν. Παπαχαρίσης : ΓΕΩΤΕΧΝΙΚΗ ΜΗΧΑΝΙΚΗ, Εκδόσεις Αφοι Κυριακίδη, 2003
- Θ. Τίκα : ΣΗΜΕΙΩΣΕΙΣ – ΕΠΙΤΟΠΟΥ ΔΟΚΙΜΕΣ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ, Α.Π.Θ., 2014
- G. Barnes : ΕΔΑΦΟΜΗΧΑΝΙΚΗ: Αρχές και Εφαρμογές, Εκδόσεις Κλειδάριθμος, 2005
- J. Bowles : ENGINEERING PROPERTIES OF SOILS AND THEIR MEASUREMENT, McGraw-Hill Inc, 4th Edition, 1992
- M. Budhu : SOIL MECHANICS & FOUNDATIONS, John Wiley & Sons, Inc, 1999
- B. Das : SOIL MECHANICS LABORATORY MANUAL, Oxford University Press, 7th Edition, 2008
- D. Fratta, J. Aguettant & L. Russel – Smith : INTRODUCTION TO SOIL MECHANICS LABORATORY TESTING, CRC Press, Taylor & Francis, 2007
- K. Head : MANUAL OF SOIL LABORATORY TESTING, 3rd Edition, 2006
- M. Kalinski : SOIL MECHANICS LAB MANUAL, 2nd Edition, John Wiley & Sons, Inc, 2011
- F. Schnaid : IN SITU TESTING IN GEOMECHANICS, Taylor & Francis, 2009

Teaching method *(select and describe if necessary -* **weight***):*		
Teaching	☑	20%

Seminars	☐	…….%
Demonstrations	☐	…….%
Laboratory	☑	70% Lab mandatory experiments
Exercises	☐	.....%
Visits at facilities	☐	10%
Other *(describe):* …….	☐	…….%
Total		100%

Evaluation method *(select)*- **weight:**				
	written	*%*	*Oral*	*%*
Homework	☐		☐	
Class project	☑	40	☑	10
Interim examination	☐		☐	
Final examinations	☑	50	☐	
Other *(describe):* …….	☐		☐	