

COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED SCIENCES		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE UNIT CODE	GE5320	ΕΞΑΜΗΝΟ ΣΠΟΥΔΩΝ	3 ^ο
COURSE TITLE	SOIL MECHANICS I		
COURSEWORK BREAKDOWN	ΕΒΔΟΜΑΔΙΑΙΕΣ ΩΡΕΣ ΔΙΔΑΣΚΑΛΙΑΣ	ΠΙΣΤΩΤΙΚΕΣ ΜΟΝΑΔΕΣ	
Διαλέξεις - προετοιμασία και παρουσιάσεις επί μέρους θεμάτων του μαθήματος από τους φοιτητές – εκπαιδευτικές επισκέψεις σε χώρους παραγωγής.	5	6	
COURSE UNIT TYPE	SBC: Specific Background Courses		
PREREQUISITES :	Soil Mechanics I		
LANGUAGE OF INSTRUCTION/EXAMS:	Greek		
COURSE DELIVERED TO ERASMUS STUDENTS	YES		
MODULE WEB PAGE (URL)	http://geope.teikoz.gr/undergraduate/ug_studies.htm		

2. LEARNING OUTCOMES

Learning Outcomes
<p>The course aims to provide the necessary knowledge upon subjects relevant to Soil Mechanics I studies of geotechnical projects so that the students will be able to cope with similar subjects and especially:</p> <ol style="list-style-type: none"> 1. To understand soil properties effecting its composition and mechanical behaviour. 2. To apply laboratory methods and field tests in order to determine soil's parameters and properties, and the appropriate usage of the soil as construction material for projects and also as load bearing material for engineering projects. 3. To organize laboratories for soil's properties determination.
General Skills
<p><i>Upon successful completion of the programme students will:</i></p> <ul style="list-style-type: none"> -have the basic theoretical and practical knowledge in the fields of the subject area of Geotechnology and Environmental Engineering -be able to properly apply the theoretical and practical knowledge acquired during the study period -be able to cover a wide spectrum of scientific and technical knowledge related to mining and geotechnical projects as well as the sector of environmental reclamation -have gained the necessary competencies to proceed to their second cycle study
<ul style="list-style-type: none"> • Independent Work • Teamwork • Work in a multidisciplinary environment • Respect the natural environment • Search, analyze and synthesize data and information, and the use of essential technologies

3. COURSE CONTENTS

- Types of soil.
- Physical and mechanical properties.
- In situ measurements of soil.
- Strength properties.
- Friction and cohesion.
- Triaxial compression.
- Cohesion and cohesionless soils.
- Permeability.
- Penetrometers.
- Compaction.
- Compressibility and consolidation.
- Vertical slope.
- Retaining walls.
- Slope stability.
- Foundations, Footings Support of excavations.
- Foundation beams.
- Pile foundations.

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY	In classroom, face to face lectures and seminars.	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	<ul style="list-style-type: none"> • Lectures assisted by power point presentations and group comprehension exercises. Educational tours and excursions. • Contact between instructor and students via email. 	
TEACHING METHODS	<i>Δραστηριότητα</i>	<i>Φόρτος Εργασίας Εξαμήνου</i>
	Classroom lectures	39
	Laboratory exercises	39
	Independent and Directed Study	10
	Total work load hours of lesson	88
ASSESSMENT METHODS	<p>Formally written examination at the end of the semester on the theoretical background, oral presentations in classroom and assessment of laboratory exercises & skills on selected topics relevant to Soil Mechanics I.</p> <p>Laboratory and / or Coursework: 40.00%, Formal examination at the end of the semester: 60.00%.</p>	

5. RESOURCES

- SACHPAZIS, C., "Lecture Notes on Soil Mechanics I", 2011. (ΣΑΧΠΑΖΗΣ, Κ., «Σημειώσεις Εδαφομηχανικής Ι», 2011).
- SACHPAZIS, C., "Lecture Notes on Soil Mechanics I issues: 1) Clay Mineralogy, 2) Soil Classification, 3) Phase Relations 4) Soil Compaction, 5) Permeability", 2011. (ΣΑΧΠΑΖΗΣ, Κ., Σημειώσεις σε θέματα: 1) Ορυκτολογία Αργίλου, 2) Ταξινόμηση Εδαφών, 3) Σχέσεις Μεταξύ των Εδαφικών Φάσεων, 4) Συμπύκνωση των Εδαφών, 5) Περαιτότητα και Διήθηση

Διαμέσου των Εδαφών, 2011).

- D. BALALAS, «SOIL MECHANICS», KIRIAKIDIS BROS PUBLICATIONS, THESSALONIKI, 1996, ISBN: 960-343-363-2. (Δ. ΒΑΛΑΛΑΣ, «ΕΔΑΦΟΜΗΧΑΝΙΚΗ», ΕΚΔΟΣΕΙΣ ΑΦΟΪ ΚΥΡΙΑΚΙΔΗ, ΘΕΣΣΑΛΟΝΙΚΗ, 1996, ISBN: 960-343-363-2).
- BARNES GRAHAM, «SOIL MECHANICS: PRINCIPLES AND APPLICATIONS», KLIDARITHMOS PUBLICATIONS, ATHENS, 2005, ISBN: 960-209-883-X. (BARNES GRAHAM, «ΕΔΑΦΟΜΗΧΑΝΙΚΗ: ΑΡΧΕΣ ΚΑΙ ΕΦΑΡΜΟΓΕΣ», ΕΚΔΟΣΕΙΣ ΚΛΕΙΔΑΡΙΘΜΟΣ, ΑΘΗΝΑ, 2005, ISBN: 960-209-883-X.).
- N. PAPACHARISIS, I. GRAMMATIKOPOULOS, A. N. MANOU, «GEOTECHNICAL ENGINEERING INVESTIGATION –BOREHOLES - LABORATORY (2ND PUBLICATION)», KIRIAKIDIS BROS PUBLICATIONS, THESSALONIKI, 2003, ISBN: 960-343-692-5. (N. ΠΑΠΑΧΑΡΙΣΗΣ, I. ΓΡΑΜΜΑΤΙΚΟΠΟΥΛΟΣ, Α. Ν. ΜΑΝΟΥ, «ΓΕΩΤΕΧΝΙΚΗ ΜΗΧΑΝΙΚΗ ΈΡΕΥΝΑ-ΓΕΩΤΡΗΣΕΙΣ-ΕΡΓΑΣΤΗΡΙΟ (Β' ΕΚΔΟΣΗ)», ΕΚΔΟΣΕΙΣ ΑΦΟΪ ΚΥΡΙΑΚΙΔΗ, ΘΕΣΣΑΛΟΝΙΚΗ, 2003, ISBN: 960-343-692-5.).
- S. KOSTOPOULOS, «EXPERIMENTAL GEOTECHNICAL ENGINEERING», ION PUBLICATIONS, ATHENS, 2005, ISBN: 978-960-411-515-0. (Σ. ΚΩΣΤΟΠΟΥΛΟΣ, «ΠΕΙΡΑΜΑΤΙΚΗ ΓΕΩΤΕΧΝΙΚΗ ΜΗΧΑΝΙΚΗ», ΕΚΔΟΣΕΙΣ ΙΩΝ, ΑΘΗΝΑ, 2005, ISBN: 978-960-411-515-0.).