1.1.1 Laboratory and Field Tests in Soil Mechanics

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΓΕΩ012	**SEMESTER**	8th
COURSE TITLE	Laboratory and Field Tests in Soil Mechanics		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
	4	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Specialization Course
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	

LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon successful completion of the course, the student will be able to:

• Recognize, understand and evaluate the basic physical and mechanical properties of the soil.
• Distinguish the stages of performing laboratory experiments and in-situ soil testing.
• Perform basic soil mechanics laboratory tests.
• Determine which laboratory or field tests are appropriate (as well as combine individual tests) in order to estimate the required soil properties.
• Calculate soil parameters from test results and qualitatively assess the expected soil behavior.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*

Team work *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Criticism and self-criticism* *Production of free, creative and inductive thinking* *……* *Others…* *…….*

The course contributes to the following skills:

- Search, analysis and synthesis of data and information
- Decision-making
- Working independently
- Project planning

SYLLABUS

Content of theory lectures and practical exercises:

- Relation to Soil Mechanics (soil characteristics, physical and mechanical soil properties).
- Common soil mechanics laboratory tests (theoretical presentation and laboratory applications)
- Presentation of tests and field research
- Specialized soil tests (determination of dynamic soil behavior properties, geophysical investigations)
- Monitoring soil behavior with instrumentation
- Code provisions – testing requirements – mandatory application cases.

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Lecture presentations using computer and projector, in person or by teleconference (remotely) if required. Support of the learning process through the e-learning platform and electronic communication with students (online announcements and comments, e-mail, announcements on the Department's website etc.). If required, support of students by using teleconference tools and software.
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	***Semester workload***
Lectures	26
Practice/exercises	26
Practice/exercises	30
Individual study	48
Course total (26 hours workload per ECTS credit)	***130***

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other*	Written final examination including: • Theoretical knowledge and judgment questions on course subjects • Solving problems-exercises Written assignment (compulsory) which includes: • Processing and solving exercises-problems • Assessment of understanding key concepts of the course

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	

ATTACHED BIBLIOGRAPHY

- [In Greek] Παπαχαρίσης Ν. Γραμματικόπουλος Ι., Ανδρεάδου-Μάνου Ν. (2015), "Γεωτεχνική Μηχανική: Έρευνα-Γεωτρήσεις-Εργαστήριο (3η έκδοση)", Εκδόσεις Κυριακίδη ΙΚΕ, ISBN: 978-618-5105-88-4
- [In Greek] Κωστόπουλος Σ.Δ. (2005), "Πειραματική Γεωτεχνική Μηχανική", Εκδόσεις Ίων, ISBN: 978-960-411-515-0
- [In Greek] Αναγνωστόπουλος Α., Ανδρέου Π., Αναγνωστόπουλος Γ. (2014), "Εδαφικές Ιδιότητες από επί τόπου Δοκιμές", Εκδόσεις Συμεών, ISBN: 978-960-9400-49-7
- [In Greek] Μαραγκός Χ.Ν. (2020), "Επιτόπου Δοκιμές στη Γεωτεχνική Μηχανική", Έκδοση Ν.Χ. Μαραγκός, ISBN: 978-618-84839-0-3