



COURSE: Geotechnics

TEACHER: Caterina Di Maio

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Language: Italian (or English in the presence of foreign students)

ECTS: 9

n. of hours:81

Academic year: 2015-2016

Campus: Potenza

Semester: 1st

TOPICS

This course teaches the fundamentals of soil mechanics and provides the principles and the methods for their application in cases of interest for engineering practice.

TEACHING METHODS (please tick one or more options)

Theoretical lessons

Tutorials in classroom

Tutorials in laboratory

Project works

Technical visits

Other activities (please specify) _____

TEXTBOOKS

R. Lancellotta – Geotecnica – Zanichelli

J. Atkinson – Meccanica delle Terre e delle Fondazioni – McGraw-Hill

ON-LINE EDUCATIONAL MATERIAL

web address: <http://www2.unibas.it/dimaio/materiale.html>

LEARNING OUTCOMES

Learning fundamentals of soil mechanical behaviour. Knowledge of *in situ* and laboratory tests for soil characterization. Ability to solve with simple methods engineering problems such as: determining stress states in a subsoil, predicting the effects of seepage in soils, calculating the bearing capacity of a shallow foundation, predicting settlements and their time trend, determining earth pressure on a retaining structure.

REQUIREMENTS: knowledge of mechanics of continuum and fluid mechanics

EVALUATION METHODS (please tick one or more options)

Intermediate verifications

Written examination

Discussion of a project work

Practical test

Oral examination

Other methods (please specify) _____

DETAILED CONTENT Introduction to the role of Soil Mechanics in engineering practice; Soil Identification; Recapitulation of fundamentals of continuum mechanics; Effective stress principle; Lithostatic pressure; Seepage in steady state conditions; *In situ* pore pressure measurements; Pore overpressures induced under undrained conditions; Undisturbed sampling; Soil compressibility; One-dimensional consolidation; Settlements in one-dimensional conditions; Deformability and shear strength of soils; *In situ* measurement of deformability and shear strength; Settlements in 2-D or 3-D conditions; Bearing capacity of shallow foundations; Earth pressure on retaining structures.

Tutorials: Identification of a soil sample; Lithostatic pressure under either hydrostatic or seepage conditions; Soil seepage; Elaboration of oedometer test and triaxial test data; Calculation of bearing capacity and settlements; Calculation of earth pressure on retaining structures.



Università degli Studi della Basilicata
Scuola di Ingegneria

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION
