



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2023/2024
MASTER'S DEGREE (MSC)	CIVIL ENGINEERING
SUBJECT	ADVANCED GEOMECHANICS
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50353-Ingegneria civile
CODE	22245
SCIENTIFIC SECTOR(S)	ICAR/07
HEAD PROFESSOR(S)	FERRARI ALESSIO Professore Ordinario Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	9
INDIVIDUAL STUDY (Hrs)	142
COURSE ACTIVITY (Hrs)	83
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	FERRARI ALESSIO Friday 8:00 10:00 Ufficio docente

DOCENTE: Prof. ALESSIO FERRARI

PREREQUISITES	Fundamental knowledge of soil mechanics is requested.
LEARNING OUTCOMES	By the end of the course, the student must be able to: understand and use constitutive models for geomaterials; use numerical codes to analyse and design geotechnical systems; deal with geomaterials in more advanced conditions (partial saturation, non-isothermal conditions).
ASSESSMENT METHODS	Assessment is carried out in oral form. The exam aims at assessing the theoretical knowledge and the ability of the student to use the fundamental concepts of the course to provide a quantitative evaluation of geotechnical systems.
EDUCATIONAL OBJECTIVES	The course aims at providing the student with advanced knowledge of Soil Mechanics and Geotechnical Engineering.
TEACHING METHODS	Ex cathedra, exercises, visits of the laboratory
SUGGESTED BIBLIOGRAPHY	Soil Behaviour and Critical State Soil Mechanics David Muir Wood Cambridge University Press, 1990 - Technology & Engineering - 462 pages ISBN: 9781139878272 DOI: https://doi.org/10.1017/CBO9781139878272 Geotechnical Modelling David Muir Wood CRC Press, 2 Sep 2003 - Science - 504 pages ISBN-10 : 0419237305 Finite Element Analysis in Geotechnical Engineering David M. Potts, Lidija Zdravković Thomas Telford, 1999 ISBN-10 : 0727727834

SYLLABUS

Hrs	Frontal teaching
16	Elasto-plasticity and constitutive modelling for soils
7	Hydro-mechanical coupling, analytical and numerical solutions.
8	Unsaturated soil mechanics
4	Soil Mechanics in non-isothermal conditions

Hrs	Practice
16	Use of numerical software to deal with geotechnical systems
16	Implementation and calibration of constitutive models for soils.
16	Numerical analyses of flow problems.