

SUBJECT TEACHING GUIDE

G1446 - Introduction to Geotechnical Engineering

Degree in Civil Engineering
BILINGUAL UC-CU CIVIL ENGINEERING PROGRAM

Academic year 2022-2023

1. IDENTIFYING DATA			
Degree	Degree in Civil Engineering BILINGUAL UC-CU CIVIL ENGINEERING PROGRAM	Type and Year	Compulsory. Year 2 Compulsory. Year 1
Faculty	School of civil Engineering		
Discipline	Obligatory Subjects FUNDAMENTALS OF SOIL ENGINEERING		
Course unit title and code	G1446 - Introduction to Geotechnical Engineering		
Number of ECTS credits allocated	6	Term	Semester based (1)
Web			
Language of instruction	English	Mode of delivery	Face-to-face

Department	DPTO. CIENCIA E INGENIERIA DEL TERRENO Y DE LOS MATERIALES		
Name of lecturer	MARINA MIRANDA MANZANARES		
E-mail	marina.miranda@unican.es		
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. BECARIOS - GEOTECNIA (1056)		
Other lecturers	ALMUDENA DA COSTA GARCIA		

3.1 LEARNING OUTCOMES
- Rock properties
- Soil description and classification. Phase relationships.
- Calculation of pore water pressure in soils. Seepage through soils. Quick condition
- Calculation of total and effective stresses. The principle of effective stress
- Calculation of settlements in confined compression situations.
- Estimation of strength parameters of soils from laboratory tests.
- Analyse strength and deformability tests of soils

4. OBJECTIVES

Nature of soils. Soil description and classification.
Understanding of the models to predict soil behaviour
Understanding of how to obtain soil parameters and critically evaluate the results
Identifying the geotechnical processes in real cases
Identify the best model and calculations methods among the possible ones
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6. COURSE ORGANIZATION

CONTENTS	
1	Soils and rocks: origi, identification, classification
2	Ground water: at rest and steady flow
3	Stresses in soils
4	Confined compression. Consolidation
5	Partially saturated soils
6	Strength and deformation of soils
7	Rock mechanics

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Exam units 1 to 3	Written exam	No	Yes	30,00
Exam units 4 to 6	Written exam	No	Yes	30,00
Exam units 7 to 10	Written exam	Yes	Yes	30,00
Laboratory sessions test	Activity evaluation with Virtual Media	No	No	10,00
TOTAL				100,00
Observations				

Observations for part-time students				
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8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC
Fundamentals of Geotechnical Engineering. D.M. Das. Ed. Thomson, cop. 2005
Soil mechanics. T.W. Lambe and R.V. Whitman. Ed. John Wiley, 1969
Soil Mechanics. R.F. Craig. Ed. London: Spon, 2001
Geotechnical Engineering. R. Lancellotta. Ed. Rotterdam: A.A. Balkema, 1995
Geotecnia I: Propiedades del terreno. C. Sagaseta, J. Cañizal y A. da Costa. E.T.S. de Ingenieros de Caminos, C. y P.

