

## 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

-

-

#### 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
<b>TOTAL</b>				<b>100,00</b>
Observations				
---				
Observations for part-time students				
-				

#### 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.

