SUBJECT TEACHING GUIDE

G1177 - Further Geotechnics

Degree in Civil Engineering

Academic year 2016-2017

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering			Type and Year	Optional. Year 4
Faculty	School of civil Engineering				
Discipline	Optional Subjects: Open to all Itineraries				
Course unit title and code	G1177 - Further Geotechnics				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIA E INGENIERIA DEL TERRENO Y DE LOS MATERIALES
Name of lecturer	JORGE CASTRO GONZALEZ
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Other lecturers	FERNANDO CAÑIZAL CASUSO

3.1 LEARNING OUTCOMES
- Analyse and calculate ground water flow in two dimensions (2D).
- Analyse and calculate soil consolidation.
- Design soil improvement using preloading.
- Advanced interpretation of shearing laboratory tests.
- Advanced design of shallow foundations. Calculation of bearing capacity and settlements.
- Systematic calculation of rigid walls.
- Use geotechnical computational codes with critical engineering judgement.

4. OBJECTIVES
Understand ground water flow.
Understand the physical phenomenon of soil consolidation
Understand the mechanical behaviour of soil.
Get familiar with geotechnical computational codes.
Get used to design shallow foundations and rigid walls.

6. COURSE ORGANIZATION	
CONTENTS	
1	Advanced soil mechanics
1.1	Seepage
1.2	Consolidation
1.3	Soil strength
2	Computational calculations of geotechnical problems
2.1	Footings
2.2	Rigid walls

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Individual project on ground water flow	Work	No	Yes	25,00
Presentation on a specific topic about consolidation and strength of soils	Work	No	Yes	12,50
Individual short project on footings.	Work	No	Yes	17,50
Individual short project on rigid walls.	Work	No	Yes	12,50
Short written exams.	Written exam	No	Yes	25,00
Introductory exercises.	Work	No	No	7,50
TOTAL				100,00

Observations

Minimum global grade of 5 and in the following parts a minimum grade of 4:
- Individual short projects on seepage, consolidation and strength (37.5%)
- Individual short projects on footings and rigid walls (30%)

Regarding those evaluation activities that the students can resit, the following general criteria were adopted at the regular meeting of the Civil Engineering School Board held on June 10, 2010:
- A student can only resit an evaluation activity that has not passed (i.e. a grading lower than 5 out of 10).
- The evaluation activity in the resitting period will follow the same procedure and will have the same guidelines as in the ordinary period.

Note:
According to Spanish regulations (RD 1125/2003) about the European credit system and the grading system for University degrees, each course will be graded using a linear scale between 0 and 10 with a precision of a decimal. According to that grading, a qualitative rating may be added:
0.0-4.9: Suspenso (SS). Fail
5.0-6.9: Aprobado (AP). Satisfactory
7.0-8.9: Notable (NT). Good
9.0-10: Sobresaliente (SB). Excellent
9.0-10: Matrícula de Honor (MH). Outstanding (with honours)

Observations for part-time students

Part time students may ask for the following evaluation system:
- Written exam (50%)
- Individual short projects on seepage, footings and rigid walls (50%)

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Geotecnia I: Propiedades del terreno. C. Sagaseta, J. Cañizal y A. da Costa. E.T.S. de Ingenieros de Caminos, C. y P. Santander, 2007.

Geotecnia y Cimientos I. Propiedades de los suelos y de las rocas. J.A. Jiménez Salas, y J.L. de Justo Alpañés. Editorial Rueda, 1975.

Geotecnia y Cimientos II. Mecánica del suelos y de las rocas. J.A. Jiménez Salas, J.L. de Justo Alpañés y A.A. Serrano. Editorial Rueda, 1976.

Guía de cimentaciones en obras de carretera. Ministerio de Fomento, 2003.