28718 - Geotechnics

Información del Plan Docente

Academic Year	2017/18
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia
Degree	423 - Bachelor's Degree in Civil Engineering
ECTS	6.0
Year	2
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

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The current subject (Geotechnics) is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each teaching unit, the solving of problems/resolution of questions and laboratory work.

5.2.Learning tasks

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

— **Face-to-face generic activities** :

1. **Theory Classes** : The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.
2. **Practical Classes** : Problems and practical cases are carried out, complementary to the theoretical concepts studied.
3. **Laboratory workshop:** The lecture group is divided up into various groups, according to the number of registered students, but never with more than 20 students, in order to make up smaller sized groups.
4. **Individual Tutorials** : Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.

— **Generic non-class activities** :

1. ● Study and understanding of the theory taught in the lectures.
2. ● Understanding and assimilation of the problems and practical cases solved in the practical classes.
3. ● Preparation of seminars, solutions to proposed problems, etc.
4. ● Preparation of the written tests for continuous assessment and final exams.

5.3.Syllabus

INTRODUCTION (1 WEEK)

- 1.- GEOTECHNICS AND CIVIL ENGINEERING
- 2.- GEOTECHNICAL CLASSIFICATION OF SOILS AND ROCKS

SOIL MECHANICS (10 WEEKS)

- 3.- BASIC PROPERTIES OF SOILS
- 4.- STRENGTH OF NATURAL SOILS
- 5.- NATURAL TENSIONS IN SOILS
- 6.- DEFORMABILITY OF SOILS
- 7.- SPECIAL SOILS AND REUSING OF SOILS IN CIVIL WORKS

ROCK MECHANICS (1 WEEK)

- 8.- GEOMECHANICS OF ROCK MASSES

GEOTECHNICAL SURVEY OF GROUND (1 WEEK)

- 9.-GEOTHECNICAL PROPECTIONS IN THE FIELD

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BEARING CAPACITY OF FOUNDATIONS (2 SEMANAS)

- 10.- INTRODUCTION TO FOUNDATIONS FROM A GEOTECHNICAL POINT OF VIEW. SELECTION CRITERIA OF FOUNDATIONS. THE GEOTECHNICAL REPORT.

5.4.Course planning and calendar

ThIS subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the subject file in the Accreditation Report of the degree, taking into account the level of experimentation considered for the said subject is moderate.

Activity	Weekly school hours
Lectures	4
Other Activities	6

Nevertheless the previous table can be shown into greater detail, taking into account the following overall distribution:

— 46 hours of lectures, with 50% theoretical demonstration and 50% solving type problems.

— 6 hours of laboratory work.

— 4 hours of written assessment tests, two hours per test.

— 90 hours of personal study, divided up over the 15 weeks of the 2 nd semester.

5.5.Bibliography and recommended resources

- Ingeniería geológica / Luis I. González de Vallejo...[et al.] Madrid [etc.] : Prentice Hall, D.L. 2002
- Muzás Labad, Fernando. Mecánica del suelo y cimentaciones / Fernando Muzas Labad. - 1ª edición Madrid : Fundación Escuela de la Edificación, 2007
- Geotécnia y cimientos. V. 1, Propiedades de los suelos y de las rocas / J.A. Jiménez Salas, J.L. de Justo Alpañes . - 2a. ed. Madrid : Rueda, D.L. 1975
- Geotécnia y cimientos. V. 2, Mecánica del suelo y de las rocas / J.A. Jiménez Salas, J.L. de Justo Alpañes, Alcibíades A. Serrano González . - 2a ed Madrid : Rueda, D.L. 1981
- Waltham, Tony. Foundations of engineering geology / Tony Waltham . - 2th ed., repr London [etc.] : Spon Press,

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