

**Información del Plan Docente**

|                        |                                                       |
|------------------------|-------------------------------------------------------|
| <b>Academic Year</b>   | 2016/17                                               |
| <b>Academic center</b> | 175 - Escuela Universitaria Politécnica de La Almunia |
| <b>Degree</b>          | 423 - Bachelor's Degree in Civil Engineering          |
| <b>ECTS</b>            | 6.0                                                   |
| <b>Course</b>          | 2                                                     |
| <b>Period</b>          | Second semester                                       |
| <b>Subject Type</b>    | Compulsory                                            |
| <b>Module</b>          | ---                                                   |

**1.Basic info****1.1.Recommendations to take this course****1.2.Activities and key dates for the course****2.Initiation****2.1.Learning outcomes that define the subject****2.2.Introduction****3.Context and competences****3.1.Goals****3.2.Context and meaning of the subject in the degree****3.3.Competences****3.4.Importance of learning outcomes****4.Evaluation****5.Activities and resources****5.1.General methodological presentation**

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.

The current subject (Geotechnics) is conceived as a stand-alone combination of contents, yet organized into three

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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 activities

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.Program

#### 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

#### BEARING CAPACITY OF FOUNDATIONS (2 SEMANAS)

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

### 5.4.Planning and scheduling

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:

&mdash; 46 hours of lectures, with 50% theoretical demonstration and 50% solving type problems.

&mdash; 6 hours of laboratory work.

&mdash; 4 hours of written assessment tests, two hours per test.

&mdash; 90 hours of personal study, divided up over the 15 weeks of the 2<sup>nd</sup> 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, 2003
- Asociación Española de Normalización y Certificación.. Geotecnia : ensayos de campo y de laboratorio / Asociación Española de Normalización y Certificación.. - 1ª edición Madrid : AENOR, 1999.

