

Academic Year/course: 2022/23

## 28631 - Structures IV: Geotechnics and Foundations

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 28631 - Structures IV: Geotechnics and Foundations

**Faculty / School:** 175 - Escuela Universitaria Politécnica de La Almunia

**Degree:** 422 - Bachelor's Degree in Building Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

To become familiar with the work prior to the constructive activity itself, that is, to presc

These approaches and objectives are in line with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the course learning outcomes provides training and competence to contribute to their achievement to some degree.

(9) Industry, Innovation and Infrastructure.

### 1.2. Context and importance of this course in the degree

The subject of Structures IV, is part of the Degree in Technical Architecture taught by EUPLA.

This subject provides additional useful training in the performance of technical architect fur

### 1.3. Recommendations to take this course

No requirements of previous knowledge, beyond those marked by the Ministry of Education and Sc

It is useful to have completed the subjects of Structures I and Structures II.

## 2. Learning goals

### 2.1. Competences

**Upon passing the course, the student will be more qualified to ...**

#### **Generic capacities**

G01. Organization and planning.

G02. Solve problems.

G03. Take decisions.

G04. Oral and written communication.

G05. Analysis and synthesis.

G06. Information management.

G07. Teamwork.

G08. Critical thinking.

- G09. Multidisciplinary teamwork.
- G10. Work in an international context.
- G11. Adapt to new situations.
- G12. Leadership aptitude.
- G13. Adapt to social and technological innovations.
- G14. Reason and present their own ideas.
- G15. Communicate with words and pictures.
- G16. Search, analyze and select information.
- G17. Self-learning.
- G18. Understand advanced aspects of the study area.
- G19. Apply their knowledge in solving problems and think out arguments in the study area.
- G20. Search and interpret data, analyze and think about relevant topics.
- G21. Transmit information and ideas to all kinds of public.
- G22. Acquire learning techniques to expand their studies later.

#### Specific competences

- CE9. Ability to rule on the causes and manifestations of building injuries, propose solutions to avoid or correct pathologies, and
- CE15. Aptitude for the pre-dimensioning, design, calculation and verification of metallic structures and to direct their material ex

## 2.2. Learning goals

The student, to pass this subject, must demonstrate the following results ...

Ability to plan the field study campaign.

Ability to interpret the results obtained in the laboratory, in order to determine the optimal

Capacity for the design and dimensioning of foundation elements.

## 2.3. Importance of learning goals

Through the achievement of the relevant learning results, the necessary capacity is obtained t

# 3. Assessment (1st and 2nd call)

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

**The student must demonstrate that they have achieved the expected learning outcomes through the following assessment activities:**

### Continuous assessment

Throughout the course there will be several mandatory exercises. Its value is 30% of the total course. The teacher will propose the practical exercises, which the students must do during the determined time. Students will deliver the practice on the date scheduled for their evaluation. Once delivered, the practice will be resolved in class.

The continuous assessment will be completed with a theoretical-practical test whose value is 70% of the total of the course.

Students whose average mark is equal to or greater than 5.0 points will pass the course in continuous assessment.

It will also be necessary to have attended 80% of the face-to-face activities.

### Final assessment

Students who do not pass the course in continuous assessment will have to take a theoretical-practical final test, which will be scored from 0 to 10 and it will be necessary to obtain a minimum score of 5 points to pass the course.

# 4. Methodology, learning tasks, syllabus and resources

## 4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as theory sessions, practice sessions, workshops, autonomous work and study, and tutorials.

A strong interaction between the teacher/student is promoted. 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 approach, methodology and assessment of this guide are intended to be the same for any teaching scenarios. They will

be adapted to the social-health situation at any particular time, as well as to the instructions given by the authorities concerned.

## 4.2. Learning tasks

This 6 ECTS course is organized as follows:

- **Theory sessions:** The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.
- **Practical sessions:** Problems and practical cases are carried out, complementary to the theoretical concepts studied.
- **Laboratory Workshop:** This work is tutored by a teacher, in groups of no more than 20 students.
- **Autonomous work and study**
  - Study and understanding of the theory taught in the lectures.
  - Understanding and assimilation of the problems and practical cases solved in the practical classes.
  - Preparation of seminars, solutions to proposed problems, etc.
  - Preparation of laboratory workshops, preparation of summaries and reports.
  - Preparation of the written tests for continuous assessment and final exams.

## 4.3. Syllabus

Topic 1	GEOTECHNICAL STUDY
Topic 2	RECOGNITION OF THE AREA
Topic 3	PROPERTIES OF THE SOILS
Topic 4	TENSIONS AND CAPACITY
Topic 5	WALLS OF CONTAINMENT
Topic 6	WALLS OF BASEMENT AND SCREENS
Topic 7	SUPERFICIAL FOUNDATIONS
Topic 8	SLABS OF FOUNDATION
Topic 9	PILES
Topic 10	PATHOLOGY OF THE FOUNDATIONS

## 4.4. Course planning and calendar

The 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. This includes 3 hours of lectures, 1 of workshops and 6 of other activities.

Calendar of evaluation.

Name	Start	Deadline	Resolution	Grades
Practice 1	3 week	4 week	4 week	5 week
Practice 2	7 week	8 week	8 week	9 week
Practice 3	12 week	13 week	13 week	14 week
(1st call)				
(2nd call)				

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of EUPLA website and Moodle.

## 4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28631>

