

28715 - Structure Technology

Syllabus Information

Academic year: 2023/24

Subject: 28715 - Structure Technology

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

Degree: 423 - Bachelor's Degree in Civil Engineering

ECTS: 6.0

Year: 2

Semester: Second semester

Subject type: Compulsory

Module:

1. General information

No previous knowledge requirements, beyond those established by the Ministry of Education and Science for access to a university degree in Civil Engineering.

This subject aims to provide the student with the knowledge of the design and dimensioning of reinforced concrete structures for their application to the different fields of Civil Engineering from an eminently basic level, and an introduction to metallic structures.

A technical architect cannot be understood without structural foundations that allow him to become familiar with his own construction activity, to carry out tests, to understand and assess the results obtained for the correct execution of the project and the work.

It is recommended to have passed Theory of Structures.

These approaches and objectives are aligned with the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda () and specific targets Agenda (<https://www.un.org/sustainabledevelopment/es/>) and specific targets, so that the acquisition of the learning results of the subject will contribute to some extent to the achievement of targets 8.2 and 8.4 of Goal 8, and target 9.4 of Goal 9.1.

2. Learning results

The student, in order to pass this course, must demonstrate Ability to design and dimensioning of elements and reinforced concrete and metallic structures, within the field of civil engineering, that will allow them to design and manage these structures.

3. Syllabus

The following contents are studied:

- SAFETY CRITERIA. THEORY OF LIMIT STATES.
- CHARACTERISTICS OF THE MATERIALS. CONCRETE AND STEEL.
- SECTION CALCULATION BY THE CLASSICAL METHOD. LIMIT MOMENT. CALCULATION OF SECTIONS IN

EXHAUSTION.

- BASIC ASSUMPTIONS ABOUT THE ULTIMATE LIMIT STATES. PIVOT DIAGRAM.
- BENDING AND DEFLECTED BENDING CALCULATION.
- SHEAR STRESS.
- BUCKLING ANALYSIS.
- TORSION.
- SERVICE LIMIT STATES. FISSURATION. DERFORMATIONS.
- BUILDING OF REINFORCED CONCRETE ELEMENTS.
- REINFORCED CONCRETE ONE-WAY SLABS.
- ASSEMBLY OF METALLIC ELEMENTS.

4. Academic activities

Face-to-face activities:

A) Theoretical classes: Theoretical concepts of the subject will be explained and practical examples will be developed by the teacher.

B) Tutorial practices, classes of practical exercises: Students will develop examples and carry out practical problems or cases related to the theoretical concepts studied.

Tutored autonomous activities: These activities will be guided by the subject faculty.

They will be focused on the realization of works/projects, either individually or in small groups, as well as on the methodology of study necessary or more convenient for the assimilation of each of the aspects developed in each subject. The student will have the possibility to carry out these activities at the center, under the supervision of a teacher of the branch/department.

Reinforcement activities: Through a virtual teaching portal (Moodle) various activities will be conducted to reinforce the basic contents of the course. These activities will be personalized and controlled through the same.

5. Assessment system

At the beginning of the subject the student will choose one of the following two assessment methodologies:

Continuous assessment mode: Characterized by the obligation to take and pass the practical tests, midterm exams and academic work proposed in the subject, within the deadlines established for this purpose. In this case, the student does not have to take a final exam.

In the continuous assessment model, the teacher will assess the student's participation in the theoretical classes, the demonstration of the acquired knowledge and the ability to solve problems.

Indicated are the indicative weights of the parts cited in the evaluation process.

Participation in theory classes, practical classes, assignments, projects 30%

Continuous assessment exams 70%

Non-continuous assessment: Characterized by not taking or not passing the practical tests, partial exams or academic papers proposed in the subject. In this case, the student must take a final exam.

The student must opt for this mode when, due to his/her personal situation, he/she cannot adapt to the pace of work required in the continuous assessment mode

Indicated are the indicative weights of the parts cited in the evaluation process.

Final Exam 100%