

30153 - Reinforced and Prestressed Concrete

Información del Plan Docente

Academic Year	2018/19
Subject	30153 - Reinforced and Prestressed Concrete
Faculty / School	179 - Centro Universitario de la Defensa - Zaragoza
Degree	457 - Bachelor's Degree in Industrial Organisational Engineering 563 - Bachelor's Degree in Industrial Organisational Engineering
ECTS	6.0
Year	4
Semester	First semester
Subject Type	Optional
Module	---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

It is a continuous learning process where the student plays an important participatory role.

Different methodologies are alternated along the course and complement each other: Participatory theory classes, case studies, computer practices, visit to a work and oral presentation. The participation in their own training is encouraged through the moodle platform.

It is a continuous learning process where the student plays an important participating role.

4.2.Learning tasks

30153 - Reinforced and Prestressed Concrete

The learning activities will be:

1. Participatory lectures. Consisting in exhibition of concepts and theoretical developments of the subject, always accompanied by real examples that help understanding thereof. The student will participate in the reasoning and deduction of the concepts, to reinforce learning a theoretical and practical way. Photographs of various works will be shown to the student to visualize the whole construction process.
2. Case-studies. Different section and reinforcement designs of various resistant elements, with the full calculation of these will be studied. Students will learn to resolve from start to finish the main structural typologies that will find in their professional activity.
3. Computer practices: will be taught the handling of the software for structures calculating most habitual in the engineer profession: CYPE. Along various practical computer sessions, they will introduce a complete reinforced concrete edification, obtaining the necessary data for the realization of the final work of the course.
4. Visit to a work: Students will visit a reinforced concrete work when it is in placement process of reinforcement in slabs, to understand which elements compose the different parts of the structure and how they work in situ. Will show them the plans used for construction and its interpretation will be explained.
5. Oral presentations: The students will make an oral presentation of 10 minutes about the results of his final work in English
6. Moodle interactive platform: the student will be encouraged to put up videos, photographs and interesting facts about the topics covered in class, to share thereof with the other students. Discussion forums to resolve doubts are created by the professor or among them.
7. Tutorials in which the student is helped to resolve the doubts raised during learning.

4.3.Syllabus

The program that the student is offered to help achieve the expected results is

1 Concrete dosification and properties. Constituents

2 Reinforced concrete. Behavior.

3 Calculation bases. Deformation domains.

4 Limit states and verifications:

1. Normal stress~resultants
2. Tangential stress~resultants

5 Reinforcement. Disposition, overlaps and anchors

6 Working checks.

7 Shallow foundations.

8 Prefabricated concrete construction.

9 Behavior basis of prestressed concrete.

30153 - Reinforced and Prestressed Concrete

10 Execution of concrete structures.

4.4.Course planning and calendar

The available class sessions will be distributed in theoretical sessions, taught by the teacher, computer practices and public presentations by students about topics related to contents of subject. To help achieve the necessary skills in English, these presentations will be held in English.

The evaluation of the subject will be based on several exams, evaluation of practices and public presentations. In addition, students who don't pass such evaluation, two final exams will be held in official competitions.

If possible, a visit to a work will be made. This activity is common to the three subjects of the module. Lectures given by invited staff can be scheduled too.

Key dates will be announced by the teacher, both in class and through the platform moodle support.

4.5.Bibliography and recommended resources