30153 - Reinforced and Prestressed Concrete

Información del Plan Docente

Academic Year	2016/17
Academic center	179 - Centro Universitario de la Defensa - Zaragoza
Degree	563 - Bachelor's Degree in Industrial Organisational Engineering 457 - Bachelor's Degree in Industrial Organisational Engineering
ECTS	6.0
Course	4
Period	First semester
Subject Type	Optional
Module	---

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

t 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.

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5.2.Learning activities

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 introduces a complete reinforced concrete edification, obtaining the necessary datas for the realization of the final work of the course.
4. Visit to a work: Students will visit a reinforced concrete work when it are in placement process of reinforcement in slabs, to understand which elements composes the different parts of the structure and how they work in situ. Will show them the plans used for construction and its interpretation will 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.

5.3.Program

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 fundations.

8 Prefabricated concrete construction.

9 Behavior basis of prestressed concrete.

10 Execution of concrete structures.

5.4.Planning and scheduling

Activities Calendar

The theory and problems classes, as well as computer practice sessions will have the schedule of the oficial website. Deliveries of work and partial exams will be announced by the professor in sufficient time for proper realization.

5.5.Bibliography and recomended resources

BB España. Ministerio de Fomento. EHE-08 : Instrucción de hormigón estructural EHE : Con comentarios de los miembros de la Comisión Permanente del Hormigón / Ministerio de Fomento . - 1ª ed. rev. Madrid : Centro de Publicaciones, Secretaría General Técnica, Ministerio de Fomento, 2008

BB Jimenez Montoya, Pedro. Hormigón armado / Pedro Jiménez Montoya, Álvaro García Meseguer, Francisco Morán Cabré . 15ª ed., [reimp.] Madrid : Gustavo Gili, 2000

BC Gracia Villa, Luis. Estructuras de hormigón armado Luis Gracia Villa, Elena Ibarz Montaner . [S.l.] [s.n.] D.L. 2011

BC Manual de edificación. 3, Mecánica de los terrenos y cimientos / Antonio García Valcarce, dirección de la obra ; José Antonio Sacristán Fernández, coordinador ; Antonio García Valcarce ... [et al.], autores . - 1ª ed. Madrid : CIE Inversiones Editoriales Dossat 2000, 2003

BC Medina Sánchez, Eduardo. Construcción de estructuras de hormigón armado : edificación / Eduardo Medina Sánchez Madrid : Delta, D. L. 2007