Universidad Zaragoza

Academic Year/course: 2024/25

30155 - Structures Calculus

Syllabus Information

Academic year: 2024/25
Subject: 30155 - Structures Calculus
Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza
Degree: 563 - Bachelor's Degree in Industrial Organisational Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject type: Optional
Module:

1. General information

After taking the subject Structural Design the student should be able to establish the sizing situations for a structure, determine the actions that will request it in each situation and calculate the effects that these actions will produce. They should know how to obtain, in accordance with the regulations, the effect to be borne in the most unfavourable situation . They must be able to solve structures manually and by means of computer programs.

2. Learning results

1- Correctly apply structural theoretical models to the analysis of real problems.

2- Use with rigor and agility the different models and methodologies of structural analysis in order to apply them to their future professional practice.

3. Syllabus

1. Summary of results of the subject Strength of Materials.
2. Introduction to the theory of structures. Stability and static determination.
3. Basic theorems and applications.
4. Technical Building Code, Basic Structural Safety Document.
5. Technical Building Code, Basic Structural Safety Document Actions in the building.
6. Isostatic and hyper static articulated structures.
7. Hyper static structures. Matrix calculation of member structures.

4. Academic activities

1. -Theoretical classes. Explanation and development of contents
2. -Classes dedicated to problem solving.
3. -Group work sessions.
4. -Computer practices.
5. -Public presentation by students.
6. -Tutoring.
7. -Lectures given by guest speakers (Activity to be confirmed).

8. -Visit to a construction site (Activity to be confirmed).

5. Assessment system

FIRST CALL

Continuous assessment:

The student will be able to pass the subject by continuous evaluation, based on:

1. Midterm exams: Two exams of equal weight in the final grade. .

2. Computer practices.

3. Papers and oral presentations.

A minimum of 4 points must be obtained in each part, and all parts must be completed. Students who achieve 5 or more points out of 10 in continuous assessment will not be required to take the official exams.

Global test:Students who do not pass the subject through continuous assessment or wish to improve their grade will have the right to take a global test, with the highest grade obtained prevailing. In this test, grades obtained in continuous assessment will not be considered.

SECOND CALL

Global test:

Students who do not pass the subject in the first call may sit for another global exam with the same structure as the one described for the first exam.

ASSESSMENT CRITERIA

All exams may contain theoretical and practical questions, either in development or test format, as well as problems. To consider a problem well solved, the correct result must have been reached, and then the procedure followed will be evaluated.

Assessment instruments:	Weighting (%)	RA-1	RA-2
Average mid-term exams	60	x	x
Practical classes:	25	x	x
Presentations	15	x	x

6. Sustainable Development Goals

9 - Industry, Innovation and Infrastructure