

30729 - Structures 3

Syllabus Information

Academic Year: 2022/23

Subject: 30729 - Structures 3

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 470 - Bachelor's Degree in Architecture Studies

ECTS: 6.0

Year: 4

Semester: First semester

Subject Type: Compulsory

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

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 lessons, problem-solving sessions, computer lessons, a course project, and tutorials.

In the theory sessions, the fundamental concepts of the course are introduced with direct applications in understandable examples, together with an analysis of the bases of the Spanish and European regulations for steel and wood structures.

These are complemented with practical activities related to the analysis of real elements, which encourage decision-making in matters of design, application of regulations, etc. Some of these practice sessions are framed in the context of a course project on a realistic structure with steel and timber elements, and others are aimed to deepen the knowledge of some fundamental concepts in the design and testing of steel and wood structures.

4.2. Learning tasks

This course is organized as follows:

1. **Theory sessions** (T1) in which the theoretical basis of the course are presented, illustrated with examples that help to understand them. (30 hours)
2. **Problem-solving sessions** (T2). In these, the fundamentals of the theory lessons are strengthened through the realization of a series of problems carefully selected to cover all the relevant matters. (15 hours)
3. **Computer sessions** (T3). In these, the student becomes used to the application of computational means for structural analysis, delves into some complex problems that require this kind of tool, and must understand and apply the regulations on steel and wood structures. The main objective of this part is to ensure that the student is able to understand the obtained results and question their validity. (15 hours)
4. **Course project** (T6). A whole project on a real structure is carried out throughout the course, applying all the concepts acquired in the course. A report of the project must be submitted for evaluation at the end of the course.

Partial review dates may be established with the aim of correcting errors made in the initial phases of the project, so that they do not influence the final result.

5. **Tutorials** in which the teacher helps the student to solve the doubts raised during the learning.

4.3. Syllabus

This course will address the following topics:

1. Basis of design in steel and timber structures
2. Design and checking of truss structures
3. Design and checking of steel beams
4. Design and checking of timber beams
5. Design and checking of columns and frames
6. Joints in steel structures
7. Joints in timber structures

4.4. Course planning and calendar

Questionnaires with the results of the practices must be filled at the end of each session.

At the end of the course a report on the course project must be submitted for evaluation. Partial review dates will be announced in advance.

Each professor will inform about their tutoring attention schedule, which will also be found on the school website.

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 College of Higher Engineering and Architecture (EINA) website (<https://eina.unizar.es/>) and Moodle.