Universidad Zaragoza

1542

Year : 2018/19

60807 - Structural Mechanics and Building Technology

Syllabus Information

Academic Year:	2018/19
Subject:	60807 - Structural Mechanics and Building Technology
Faculty / School:	110 -
Degree:	532 - Master's in Industrial Engineering
ECTS:	4.5
Year:	
Semester:	Half-yearly
Subject Type:	Compulsory
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

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

Methodology, learning tasks, syllabus and resources

Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, problem-solving, projects, and group work.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course

syllabus, as well as other course-specific learning materials.

Learning tasks

The course includes the following learning tasks:

- **T1 Lectures**. Presentation of the main theoretical contents illustrated with relevant examples.
- **T2 Practice sessions**. These sessions are designed to complement lectures, allowing the student to apply the concepts introduced as well as to face and solve simple but realistic problems in the field of engineering practice.
- **T4 Laboratory sessions**. The aim of these practice sessions is to present the student other essential tools in structural engineering. The main objectives are to become familiar with updated software for engineering mechanics and industrial builings.
- **T5 Project**. Project-based learning aims to reinforce and fix the learning contents of the other learning tasks, as well as to improve the competence of team work together with T3 and T4. These projects will allow the students to improve their skills in searching relevant information in the field and to take decisions with insufficient information.
- **Tutorials**. Teacher's office hours for students to review particular aspects and solve doubts of the course contents.

Syllabus

The course will address the following topics:

Section I. Structural mechanics

- Topic 1. Introduction to linear structural mechanics
- Topic 2. Beam structures
- Topic 3. Analysis of isostatic structures
- Topic 4. Analysis of hyperstatic structures
- Topic 5. Fundamentals of beam structure design

Section II. Design of steel structures

- Topic 6. Introduction to steel structure design
- Topic 7. Introduction to the elastic Design of steel structures
- Topic 8. Design for bending effects
- Topic 9. Design for Compression buckling and lateral buckling
- Topic 10. Criteria for design of steel structures

Section III. Design of reinforced concrete structures

- Topic 11. Concrete
- Topic 12. Properties of concrete and steel
- Topic 13. Setup of reinforcements
- Topic 14. Fundamentals of reinforced concrete structure analysis
- Topic 15. Design for normal stresses
- Topic 16. Design for shear stresses

Course planning and calendar

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 EINA website and the Moodle platform.

Bibliography and recommended resources

Basic bibliography could be found in the library website