

60807 - Building and structural engineering

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	532 - Master's in Industrial Engineering
ECTS	4.5
Course	
Period	Half-yearly
Subject Type	Compulsory
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

The course will have the form of a series of lectures and problem solving examples, in the spirit of active learning.

The student will complement his or her learning outcomes by developing a project of a building whose characteristics will be presented by the instructors. This will be accomplished in small groups.

60807 - Building and structural engineering

The students will receive a set of lecture notes to complement the bibliography (see below).

5.2.Learning activities

The course program offers the student the next activities designed to help him in achieving the planned results and competences...

The course will be developed along the semester as a collection of the following activities:

1. Theory lectures (T1). In them, the main scientific body of the course will be exposed and several examples of application will be presented.
2. Exercise lectures (T2). These lectures are designed to complement the T1 activities, allowing the student to fix and apply the concepts introduced as well as to face and resolve simple but realistic problems in the field engineering practice.
4. Simulation practices (T4). The aim of these practices is to present the student other essential tools in structural engineering. The main practical objectives are to become familiar with update software for engineering mechanics and industrial buildings.
5. Course project (T5). In here, the idea is to promote the formula of project-based learning to reinforce and fix the learning results of the rest of activities, as well as to improve the competence of team work, together with T3 and T4. Finally, these projects will allow the student to improve his skills in searching relevant information in the field and take decisions with insufficient information.
6. Mentoring. Individual contacts between teacher and student help in fixing particular aspects and solve doubts derived from the different teaching activities.

5.3.Program

1: Syllabus

1. Introduction to structural mechanics. Structural typologies
2. Stiffness and flexibility methods
3. Introduction to the design of steel structures
4. Plastic design of steel structures
5. Design of steel structures following EC3 and EAE codes.
 1. Buckling
 2. Bending
 3. Steel joints
 4. Instability and global buckling
6. Recommendations for the design of steel structures
7. Introduction to the design of concrete structures. Stress fields.
8. Design of reinforced concrete structures
 1. Normal stresses
 2. Shear stresses

60807 - Building and structural engineering

3. Instability and buckling
9. Foundations
10. Industrial buildings and their basic requirements. Selection of structural typologies.
11. Construction: foundations, supports, beams, slabs, ... details and procedures.

5.4.Planning and scheduling

The school will make public each academic year the schedule of practical and lab sessions. The course will have an on-line support through the university's web page.

Lab sessions will be announced at the beginning of the course through the Moodle platform. The final exam will be held at the dates fixed officially by the school.

5.5.Bibliography and recommended resources

Usually, the bibliography for each course is updated and can be consulted at the University Library web.