

## 28763 - Engineering: Pre-Fabricated Sections

### Syllabus Information

**Academic Year:** 2019/20

**Subject:** 28763 - Engineering: Pre-Fabricated Sections

**Faculty / School:** 175 -

**Degree:** 423 - Bachelor's Degree in Civil Engineering

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject Type:** Optional

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

The subject and its expected results respond to the following approaches and objectives:

At the end of this subject, the student:

- You will know the field of prefabricated elements.
- You will know the characteristics of the structures built with prefabricated elements.
- Will be able to design, analyze and dimension prefabricated structural elements.
- Will be able to raise the general process of prefabrication of a structural element: execution, transport and assemblage.

#### 1.2.Context and importance of this course in the degree

The subject of "Engineering of the Prefabricated Elements" implies a very important impact in the acquisition of the competences of the degree, in addition to providing additional useful training in the performance of functions of the Civil Engineer related to the field of prefabricated structures.

The need for the subject in this degree is justified due to the constant increase of the prefabricated solutions.

The student should have previous knowledge of the behavior of structures.

#### 1.3.Recommendations to take this course

It is recommended to have acquired the basic concepts of Theory and Technology of 2nd Course Structures. The student, before starting this course, should be able to:

- Solve both isostatic and hyperstatic structures, obtaining the different efforts that are requested.
- Solve section problems with pure, compound and simple bending.
- Dimension sections of structural concrete.

### 2.Learning goals

#### 2.1.Competences

#### 2.2.Learning goals

#### 2.3.Importance of learning goals

### 3.Assessment (1st and 2nd call)

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

## 4.Methodology, learning tasks, syllabus and resources

### 4.1.Methodological overview

Presentation general methodology

The learning process designed for this subject is based on the following:

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

The current subject is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each teaching unit, the solving of problems or resolution of questions and laboratory work, at the same time supported by other activities

The organization of teaching will be carried out using the following steps:

- **Theory Classes:** Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.
- **Practical Classes:** The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching complements the theory shown in the lectures with practical aspects.
- **Individual Tutorials:** Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.

### 4.2.Learning tasks

Programmed learning activities

The programme offered to the student to help them achieve their target results is made up of the following activities...

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

**Face-to-face generic activities:**

- **Theory Classes:** The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.
- **Practical Classes:** Problems and practical cases are carried out, complementary to the theoretical concepts studied.

**Generic non-class activities:**

- Study and understanding of the theory taught in the lectures.
- Understanding and assimilation of the problems and practical cases solved in the practical classes.
- Preparation of seminars, solutions to proposed problems, etc.
- Preparation of the written tests for continuous assessment and final exams.

The subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the subject file in the Accreditation Report of the degree, taking into account the level of experimentation considered for the said subject is moderate.

### Activity / Weekly school hours

Lectures / 4

Other Activities / 6

### 4.3.Syllabus

#### Set of topics

- Topic 1. Prefabrication. Current possibilities.
- Topic 2. Concept and system of prestressed concrete
- Topic 3. Materials and equipments for prestressed concrete
- Topic 4. Loss of prestressed force.
- Topic 5. Basic parameters in the project of prestressed beams
- Topic 6. Dimensioning of prestressed beams
- Topic 7. Prefabrication in civil engineering
- Topic 8. Prefabrication in building
- Topic 9. Light prefabrication
- Topic 10. Transport and assembly

#### **4.4.Course planning and calendar**

##### **Calendar of meetings attend them and presentation of works**

The dates of both final examinations will be the published ones of official form in

<http://www.eupla.unizar.es/asuntos-academicos/examenes>

The dates of the partial tests will communicate to the beginning of the classes.

#### **4.5.Bibliography and recommended resources**

[http://biblos.unizar.es/br/br\\_citas.php?codigo=28763&year=2019](http://biblos.unizar.es/br/br_citas.php?codigo=28763&year=2019)