

## 28929 - Farming: construction

### Syllabus Information

**Academic Year:** 2019/20

**Subject:** 28929 - Farming: construction

**Faculty / School:** 201 - Escuela Politécnica Superior

**Degree:** 437 - Degree in Rural and Agri-Food Engineering  
583 - Degree in Rural and Agri-Food Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** Second semester

**Subject Type:** Optional

**Module:** ---

### 1.General information

#### 1.1.Aims of the course

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

#### 1.3.Recommendations to take this course

### 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

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

- Lectures,
- Problem/project-based learning, and
- Computer lab sessions.

#### 4.2.Learning tasks

The program that the student is offered to achieve the expected results includes the following activities:

- Lectures (3 ECTS):
  - The teacher explains the theoretical content of each session. One of the objectives of this activity will be the promoting of the participation of the students and cooperative learning.
  - Problem-solving sessions. The teacher will resolve specific problems.
- Practice sessions (3 ECTS):
  - Problem-based learning. Students, working individually or in groups, gain knowledge and skills by working

to respond to problems and questions.

- Computer lab sessions. Students use specific structural calculation software.
- Project-based learning. Students gain knowledge and skills by working with examples of real projects.

### 4.3.Syllabus

**The course will address the following topics:**

Section 1 - Fundamentals for the calculation of structures

1. Structural typologies in agricultural buildings
2. Constructive elements
3. Types of loads in structures
4. Load hypothesis

Section 2 - Metallic structures

1. Properties of steel
2. Characteristics of metal structures - gabled porch
3. Calculation of elements in tension
4. Calculation of elements in bending
5. Calculation for compressed elements

Section 3 - Precast and reinforced concrete structures

1. Properties of reinforced concrete
2. Characteristics of reinforced concrete structures
3. Calculation of elements in bending
4. Calculation for compressed elements
5. Justification and definition of structural prefabricated concrete elements
6. Construction details

Section 4 - Foundations

1. Geotechnical parameters
2. Types of foundations
3. Calculation of isolated footings

#### Practical sessions

1. Calculation of structural loads and Establishment of load combinations for the calculation of structures
2. Calculation of isolated elements of metallic structures - pillars, beams, and roof purlins
3. Calculation of a gabled porch built in precast concrete using specific software.
4. Use of technical-commercial information on precast concrete elements.
5. Calculation of superficial foundations through isolated footings.

### 4.4.Course planning and calendar

Week	Lectures (h)	Practice sessions (h)	Autonomous work (h)	Total (h)
1	2	2	6	10
2	2	2	6	10
3	2	2	6	10
4	2	2	6	10
5	2	2	6	10
6	2	2	6	10
7	2	2	6	10

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<b>8</b>	2	2	6	10
<b>9</b>	2	2	6	10
<b>10</b>	2	2	6	10
<b>11</b>	2	2	6	10
<b>12</b>	2	2	6	10
<b>13</b>	2	2	6	10
<b>14</b>	2	2	6	10
<b>15</b>	2	2	6	10
<b>Total hours</b>	30	30	90	150

#### 4.5. Bibliography and recommended resources

- BB** España. Ministerio de Fomento. EHE-08 : Instrucción de hormigón estructural : Con comentarios de los miembros de la Comisión Permanente del Hormigón / Ministerio de Fomento. 3ª ed. Madrid : Ministerio de Fomento, Secretaría General Técnica, 2009
- BB** España. Ministerio de la Vivienda. Código técnico de la edificación. Edición septiembre 2009 Madrid : La Ley, 2009
- BB** Estructuras de acero. [1] Cálculo / autores, Ramón Argüelles Álvarez ... [et al.] . 2ª ed. amp y act. Madrid : Bellisco, 2005
- BB** Estructuras de acero. [2], Uniones y sistemas estructurales / autores, Ramón Argüelles Álvarez ... [et al.]. 2ª ed. amp y act. Madrid : Bellisco, 2007
- BB** Jimenez Montoya, Pedro. Hormigón armado / Pedro Jiménez Montoya, Álvaro García Meseguer, Francisco Morán Cabré . 14ª ed., [reimp.] Madrid : Gustavo Gili, 2000 (reimp. 2007)
- BC** Calavera Ruiz, José. Cálculo de estructuras de cimentación / J. Calavera . 4a. ed. [Madrid] : INTEMAC (Instituto Técnico de Materiales y Construcciones), D.L. 2000
- BC** Calavera Ruiz, José. Una introducción a la prefabricación de edificios y naves industriales / J. Calavera Ruiz, J. Fernández Gómez . [Madrid : INTEMAC] , D.L.2001

The updated recommended bibliography can be consulted in:  
<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=28929&Identificador=14187>