Universidad Zaragoza

Year : 2018/19

28948 - Engineering of green areas

Syllabus Information

Academic Year:	2018/19
Subject:	28948 - Engineering of green areas
Faculty / School:	201 -
Degree:	437 - Degree in Rural and Agri-Food Engineering
ECTS:	6.0
Year:	4
Semester:	Second semester
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 learning process designed for this course is based on the following methodologies: Theoretical sessions, Problem/project-based learning, and Computer lab sessions.

Learning tasks

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

- Theoretical sessions (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 the cooperative learning.
  - Problem-solving sessions. The teacher will resolve specific problems.
- Practical sessions (3 ECTS):
  - Problem-based learning. Students, working individually or in groups, gain knowledge and skills by working to respond 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.

Syllabus

Theory program

MODULE 1. Basis for the calculation of structures

1. Structural typologies in fruit and vegetable and gardening buildings.

2. Building elements.

3. Actions on the building.

4. Load theory.

MODULE 2. Metallic structures

5. Properties of steel.

6. Characteristics of metallic structures: Gabled portico.

7. Calculating traction elements.

8. Calculating flexion elements.

9. Calculating compression elements.

MODULE 3. Reinforced and prefabricated concrete structures

10. Properties of prefabricated concrete.

11. Characteristics of reinforced concrete.

12. Calculating flexion elements.

13. Calculating compression elements.

14. Justification and definition of structural elements from prefabricated concrete.

15. Construction details.

MODULE 4. Foundations

16. Geotechnical parameters.

17. Types of foundations.

18. Calculating isolated footings.

MODULE 5. Irrigation pools

1. Constituent elements.

2. Sizing criteria

Practicals program

1. Calculating the actions on the building.

2. Determining load combinations for calculating the structures.

3. Calculating the isolated elements of a metallic structure: Pillars, beams and roof purlins.

4. Calculating a gabled portico made from prefabricated concrete using specific software.

5. Using commercial technical information on prefabricated concrete elements.

6. Calculating superficial foundations using isolated footings

Course planning and calendar

Week	Theoretical sessions (h)	Practical sessions (h)	Individual 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
8	2	2	6	10
9	2	2	6	10
10	2	2	6	10
11	2	2	6	10
12	2	2	6	10
13	2	2	6	10
14	2	2	6	10
15	2	2	6	10
Total hours	30	30	90	150

Bibliography and recommended resources

BB	España. Ministerio de Fomento. EHE-08 : Instrucción de hormigón estructural : Con comentarios de los miembros d Comisión Permanente del Hormigón / Ministerio de Fomen ed. Madrid : Ministerio de Fomento, Secretaría General Té 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 Argüell 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 a Madrid : Bellisco, 2007
BB	Jimenez Montoya, Pedro. Hormigón armado / Pedro Jimén Montoya, Álvaro García Meseguer, Francisco Morán Cabré ed., [reimp.] Madrid : Gustavo Gili, 2000 (reimp. 2007)
CB	Calavera Ruiz, José. Cálculo de estructuras de cimentació Calavera . 4a. ed. [Madrid] : INTEMAC (Instituto Técnico d Materiales y Construcciones), D.L. 2000

CB

Calavera Ruiz, José. Una introducción a la prefabricación d
edificios y naves industriales / J. Calavera Ruiz,J. Fernánd
Gómez . [Madrid : INTEMAC] , D.L.2001

The updated recommended bibliography can be consulted in:
http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=8109