30741 - Construction 4A

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	470 - Bachelor's Degree in Architecture Studies
ECTS	6.0
Course	5
Period	Second semester
Subject Type	Optional
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

BRIEF PRESENTATION OF THE COURSE

Along the course we shall be studying various techniques and constructive solutions to singular buildings. By developing and deepening into constructive thinking to establish relationships between the different parts of a building with which to develop and integrate intertwined systems.

Constructive knowledge will cover all parts of the building: structure, energy and cladding, as well as the interrelationship between them.

Students will be taught how to adopt for each case, and depending on the requests of each building, the most appropriate constructive solutions and materials that can be used under construction functional, economic, energy efficiency and sustainability criteria.

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

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3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

1. The acquisition of basic knowledge is mainly developed through participatory lectures and small case studies.

2. The application of knowledge is done through workshop classes in which students will develop a final work under the supervision of teachers, presenting and defending the solutions adopted.

3. The tutorials will serve to review both knowledge and the work done by the student.

To follow the theory the student will have the teaching materials developed by teachers and various materials of interest to increase motivation and curiosity to eventually continue learning individually.

5.2.Learning activities

- Two hours a week will be developed and taught as workshop classes in which students will develop the knowledge acquired in theory.
- The practices will focus on the constructive resolution of a building, to be delivered at the end of the course, so that students will face the evolution that the structural, energetic and cladding systems suffer throughout the project, as well as the integration of all them.

5.3.Program

1. Singular architecture and constructive thinking

1.1 Complexity in contemporary architecture

1.2 Thinking structures, the constructive thinking

1.3 Systems, strategies, attitudes

2. High tech and the technological attitude

2.1 Industrialized constructive systems

2.2 Constructive thinking: design and integration of materials and construction techniques

2.3 Innovation

2.4 Technological architecture

3. Structural systems

3.1 Structure as a system

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3.2 Structure systems by Heino Engel

3.3 Vector active

3.4 Section active

3.5 Altered structures

3.5.1. Selection and design

3.5.2. Alejandro Bernabéu and Cecil Balmond

3.6 Prefabrication

3.7 Integrating the systems, Structure

4. Energy systems

4.1 Architecture and energy

4.2 Social and environmental impact

4.3 Sustainability and Energy Efficiency

4.4 High energy efficiency buildings

4.5 Strategies in the design and construction of energy efficient buildings

4.6 Integrating the systems, Energy

5. Cladding systems

5.1 Cladding in contemporary architecture

5.2 The facade understood as a complex system of interaction with the environment

5.3 Heavy cladding

5.4 Light cladding

5.5 Metal façade

5.5.1. Steel

5.5.2. Aluminium

5.5.3. Cupper

5.5.4. Zinc, Titanium

5.6 Glass architecture

5.7 Curtain wall

5.8 Stone

5.9 Plastic

5.9.1 Textiles

5.10 Passive solar collection elements

5.11 Integrating the systems, Cladding

6. Integrating the systems

6.1 Structure/Energy/Cladding

6.2 Vertical elements

6.3 Accesibility

5.4.Planning and scheduling

Two hours of weekly theoretical knowledge will be taught. The theoretical teaching of the subject will be developed through participatory lectures.

Complementarily two hours a week will be developed and taught as workshop classes in which students will develop the knowledge acquired in theory. The practices will focus on the constructive resolution of a building, to be delivered at the end of the course, so that students will face the evolution that the structural, energetic and cladding systems suffer throughout the project, as well as the integration of all them.

Throughout the course they will make several partial deliveries of work, announced in advance through e-mail and the moodle platform, indicating the work to be included.

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There will be a final delivery of all the work, the date shall be determined in coordination with deliveries of works of other subjects.

The student will be evaluated through a system of continuous assessment. Students who do not opt for continuous assessment , who do not pass the subject by this procedure, or who want to improve their final score, are entitled to present to a final global test, prevailing in any case, the best test scores

5.5.Bibliography and recomended resources