

Course guide

310704 - 310704 - Introduction to Construction

Last modified: 20/09/2023

Unit in charge: Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019).
(Compulsory subject).

Academic year: 2023 **ECTS Credits:** 4.5 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: MARTA BATLLE BELTRÁN

Others: MARTA BATLLE BELTRAN, JORDI PASCUAL MO

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

3. FE-4 Knowledge of the materials and traditional or prefabricated construction systems used in construction, their varieties and physical and mechanical features which define them.

FE-01. FE-1 Ability to understand and make the graphical documentation of a project, to do data gathering, surveying of plans and geometric control of construction units.

FE-12. FE-12 Knowledge of the evaluation of the environmental impact of the construction and demolition, the sustainability in the construction, and the procedures and techniques to evaluate the energetic efficiency of the buildings.

Transversal:

1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.

2. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

01 EIN N1. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.

02 SCS N1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world's situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.

05 TEQ N1. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.

07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

TEACHING METHODOLOGY

The face-to-face and autonomous methods will be combined. This combination will give the chance for students to achieve the levels of knowledge understanding and application necessary to complete the course.

In the face-to-face method, special attention will be paid to aspects of clarity, precision and order by the teachers. They will be done with the whole group. The teacher will develop the course topics in the classroom. Students will have advanced the necessary documentation in PDF in ATENEA in order to better follow the class.

In person, the classroom practices will also be done in groups.

As autonomous self-learning, the student must carry out a series of practices that must be documented and delivered in the ATENEA space for evaluation.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the course, students should be able to:

- Determine the meaning of the constructive elements.
- Explain the process and phases of the construction of a building.
- Relate the constructive elements with the optimum materials for its construction.
- Define the properties of the constructive elements.
- Identify the different constructive systems and subsystems.
- Use the construction vocabulary and awareness of the responsibility of being a building professional in terms of sustainability and environmental respect.

STUDY LOAD

Type	Hours	Percentage
Hours large group	27,0	24.00
Self study	67,5	60.00
Hours medium group	18,0	16.00

Total learning time: 112.5 h

CONTENTS

UNIT I. BUILDING AND ENVIRONMENT

Description:

This content covers the following topics:

- Course introduction. Introduction to the information resources and Atenea working.
- The human needs and the relation between humans and environment. Functional necessities of the building.
- General characteristics and types of buildings. Urban conditioning.
- Habitability requirements and the necessity of a policy framework.
- The infrastructure necessity
- The agents involved in the building process
- The environmental responsibilities, the analysis of natural resources optimization

Specific objectives:

To acquire the knowledge related to the theory taught.

Acquire habits and self study material

Coordinate group activities

Writing and editing documents of university level

Related activities:

This block will be carried out 1 Directed activity, stated via ATENEA, and with the established correction criteria. This activity will be delivered on the date indicated and evaluated.

Full-or-part-time: 28h 45m

Theory classes: 11h 15m

Self study : 17h 30m

UNIT II. LOW GRADE

Description:

This content works on the analysis of the construction process of the different construction elements located below ground. The characteristics of the different types of soils and their properties are analyzed. An introductory analysis will be made of the different operations of the earthworks, machinery, incidence of the swelling of the terrain and an introduction to the rethinking of the buildings.

There will be an introduction to the different types of foundations in the building, their classification according to the type of terrain, different typologies and the way of working.

An introduction will be made to the different earth containment systems and the thrusts that support the walls. Different construction solutions and the way the walls work will be analyzed.

Related activities:

This block will be carried out 1 Directed activity, stated via ATENEA, and with the established correction criteria. This activity will be delivered on the date indicated and will be evaluated.

Full-or-part-time: 28h 45m

Theory classes: 11h 15m

Self study : 17h 30m

UNIT III. STRUCTURES

Description:

In this content we work on the analysis of the construction process of the different structural systems of the building. It will be done in an introductory way to acquire vocabulary and be able to understand how the different structural systems work. The brick factory will be analyzed, the different typologies, the importance of the locking law and its relationship with the slabs in the case of load-bearing walls. The beams and pillars, different materials, their behavior in front of the actions will be studied and some examples will be analyzed. There will be an introduction of the different types of slabs depending on their components (steel, wood, concrete) and the way of working (unidirectional or bidirectional). Some differentiated examples will be analyzed. There will be an introduction of the stairs, shapes, design, construction system and application regulations.

Related activities:

This block will be carried out 1 Directed activity, stated via ATENEA, and with the established correction criteria. This activity will be delivered on the date indicated and will be evaluated.

Full-or-part-time: 28h 45m

Theory classes: 11h 15m

Self study : 17h 30m

UNIT IV. CLOSURES AND FINISHES

Description:

In this content we work on the analysis of the construction process of the enclosures and finishes of buildings. The concept of envelopes and the different types of construction will be studied both in terms of facades and roofs. The hygrothermal behavior of the façades will be analyzed according to the solution used and the different types of roofs will be analyzed. The different solutions of interior partitions, their function and characteristics of the different typologies will be studied. The need for finishes, the different types of materials to be used and the most common techniques will be studied.

Related activities:

From this block it will be carried out "1 Directed activity", stated via ATENEA, and with the established correction criteria. This activity will be delivered on the date indicated and will be evaluated.

Full-or-part-time: 28h 45m

Theory classes: 11h 15m

Self study : 17h 30m

ACTIVITIES

Activities

Description:

There will be 4 activities, defined at the beginning of the course, that relate the theoretical contents with the applied learning: graphic or written documentation will be generated.

Specific objectives:

To consolidate the knowledge acquired in the classroom
Know and use appropriate vocabulary building
Recognize the building systems in the built park.

Material:

Will be specified in the statements published ATENEA

Delivery:

In the date published in Athena.

Full-or-part-time: 45h

Guided activities: 45h

GRADING SYSTEM

CONTINUOUS EVALUATION. During the scheduled exam periods in the school calendar two partial exams will be taken.

The first exam represents 35% of the total, the second 40% and the activities 25%

FINAL NOTE = Exam 1 35% + Exam 2 40% + ACT 25%. Passed grade 5 or higher.

RE-EVALUATION. The re-evaluation tests will be done on the dates designated by the center. It is recalled that, to access the re-evaluation, the mark obtained from the Continuous Evaluation must be equal to or greater than 3.50

EXAMINATION RULES.

If an activity of the continuous evaluation is not done, it will be considered as not marked.

BIBLIOGRAPHY

Basic:

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Complementary:

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RESOURCES

Other resources:

Various. Published and updated on ATENEA