

Academic Year/course: 2022/23

30711 - Construction 1

Syllabus Information

Academic Year: 2022/23 Subject: 30711 - Construction 1 Faculty / School: 110 - Escuela de Ingeniería y Arquitectura Degree: 470 - Bachelor's Degree in Architecture Studies ECTS: 6.0 Year: 2 Semester: First semester Subject Type: Compulsory Module:

1. General information

1.1. Aims of the course

-Know general concepts of architectural construction, its objectives, reasons, vocabularies and theories. Learn to think and propose structural and energy solutions integrated into the environment in which they are they build.

-Know what a construction system is, how the parts that compose it interact with each other, what they exchange with the environment, as well as the complexity of the functions and requirements to which they must respond.

-Know the characteristics of the materials as well as the knowledge that allows an adequate choice and sustainable.

1.2. Context and importance of this course in the degree

In the context of the degree, the construction subjects provide the student with technological knowledge and regulations that guarantee the integrity of the constructions and at the same time understand the material, consumer of resources and generator of construction emissions. Also as one of the basic processes and its contribution to the formalization and expression of architectural conceptual ideas and their constructive effect. Construction 1 is the first subject in the field of Construction that the student studies, so in it a introduction to Construction in Architecture and all types of construction systems, and continues to focus on the constructive and structural energy systems that guarantee the stability of the building and the exchange of energy that allow their operation.

From Construction 1, construction is conceptualized from a problematic and systemic approach, understanding the architecture in its biological character, as well as its affection and interaction with the environment. climate change and its consequences, especially the loss of biodiversity and global warming are considered fundamental problems that must be considered from the beginning in all constructive design, as well as the global and individual responsibility that this means for architecture

1.3. Recommendations to take this course

It is convenient that the student has completed and passed the subjects Fundamentals of Physics 1 and Graphic Expression 1 and 3.

2. Learning goals

2.1. Competences

C.G.G.4 Understand the problems of structural design, construction and engineering related to building projects as well as the techniques for solving them.

C.T.5 Ability to assess the social and environmental impact of solutions acting with ethical professional responsibility and social commitment.

C.T.9 Ability to learn continuously and develop autonomous learning strategies.

EC. 12.OB Ability to: Apply technical and construction standards (T).

EC. 13.OB Ability to: Preserve building structures, foundations and civil works.

EC. 15.OB Ability to: Assess the works.

EC. 24.OB Adequate knowledge of: Conventional construction systems and their pathology (T).

EC. 26.OB Adequate knowledge of: Industrialized construction systems (T).

EC. 30.OB Knowledge of: The methods of measurement, assessment and expertise.

EC. 52.OB Adequate knowledge of: The architectural, urban and landscape traditions of Western culture, as well as their technical, climatic, economic, social and ideological foundations, aesthetics and the theory and history of fine arts and applied arts (T).

2.2. Learning goals

- Knowledge of conventional structural construction systems, and aptitude for their representation, installation, conservation and measurement and assessment methods.

- Know and properly use the technical vocabulary of construction.

- Knowledge and application of basic construction regulations.
- Acquisition of criteria for the correct choice of materials for the construction of structural elements in architecture.
- Ability to understand the logic of architectural constructions.

- Ability to recognize the architectural repercussions of each construction system and each material of the structural elements in the architectural project and in the work.

- Know how to elaborate constructive details and technical prescriptions of the structural elements, which express the architectural fact and its construction.

2.3. Importance of learning goals

Every building is at least a material construction made by the human being to inhabit a certain environment, the Earth, which affects and is affected. In addition to the energy required for any erection of a building, buildings they will exchange information, matter and energy with the environment to maintain their functions. To do this, buildings are made up of systems and subsystems that interrelate in a complex way with each other and with the environment. Architectural construction studies these interactions, the problems they must raise, and the questions that all responsible architectural design must address.

3. Assessment (1st and 2nd call)

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

The student is evaluated through a written/graphic theoretical test, with theory and problems at the end of the semester and a practical exercise carried out throughout the course. The evaluation of the practical exercise will be continuous and all deliveries of the semester, both partial and final, will be graded.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as theory sessions, practice sessions, assignments, visits, tutorials, autonomous work and study, and exams.

The course consists of a theoretical part in approaches to architectural construction and structural building solutions are introduced.

In parallel, practical activities are devoted to the application of the theoretical lessons. The exercises are performed in groups of several students during the semester and are supervised during the course, thus allowing a continuous evaluation.

Complementarily, visits and practical exercises may be proposed.

4.2. Learning tasks

This course is organized as follows:

Activities

- 1. Theory and problem-solving sessions (large group).
- 2. Practice classes (intermediate group).
- 3. Visits or conferences.
- 4. Tutorials:

- 5. Test
- 6. Studying and individual work.
- 7. Performing tasks and projects individually and/or in small groups.

Total hours of student work: 150 hours (6 ECTS) Theory credits: 75 hours (3 ECTS) Practice credits: 75 hours (3 ECTS)

4.3. Syllabus

This course will address the following topics:

- Introduction to building in Architecture.
- Introduction to the construction of structural elements: structure and project, construction of structural elements throughout history.
- Soils and Foundation: field survey, earthwork, footings, slabs, piles, retaining walls.
- Pillars and slabs: one-way slabs, waffle slabs, solid slabs, and other types of floor structures. Reinforced concrete and metal pillars.
- Masonry walls: brick, thermal clay blocks, concrete blocks.
- · Vertical Communications: stairs and elevators

4.4. Course planning and calendar

- 2 hours of theory sessions per week according to the School schedule.
- 2 hours of practice sessions per week according to the School schedule.
- The course assignments will have partial pre-delivery and final delivery dates that will be defined at the beginning of the course.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the College of Higher Engineering and Architecture (EINA) website (https://eina.unizar.es/) and Moodle.

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?id=8631&p=1