

## 30717 - Computing

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 30717 - Computing

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 470 - Bachelor's Degree in Architecture Studies

**ECTS:** 6.0

**Year:** 2

**Semester:** Second semester

**Subject type:** Compulsory

**Module:**

### 1. General information

This subject of transversal character belongs to the set of knowledge and disciplines that are necessary to know in order to the current study of Architecture, understanding that this technique is based on the exhaustive use of computer tools and that it is developed in the current Information Society.

The current development of the architectural profession inevitably requires the use of computer tools and its projects will coexist with the world of the Information Society.

Both the aforementioned tools and the current type of society are based on the use of both the computer, understood as the universal machine for automatic information processing, and the Computer Science understood as the techniques and tools used to carry out this processing.

The importance of the learning results of this subject lies in the fact that the key words of the previous paragraph, computer and computer science, will no longer be for the student of Architecture, a black box and a meaningless word. In addition, will learn about the algorithmic design philosophy of all the computer tools related to the design of geometric shapes, the reason for their approach from the point of view of human-machine interaction and finally the current challenge that aims to automate as much as possible the activities involved in the architectural project.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDGs, of the Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific goals, so that the acquisition of the learning results of the subject provides training and competence to the student to contribute to some extent to their achievement:

- **Objective 1:** End poverty in all its forms throughout the world. Goal 1.4.
- **Objective 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Goal 8.2.

### 2. Learning results

- Clearly know the reason for the IT-Architecture binomial
- Understand the physical structure, logic and operation of a computer
- Know what an algorithm is, be able to understand them when they describe the solution to any kind of abstract problem and in particular in the field of architecture.
- Understand object-oriented and event-driven programming techniques.
- Learn to work in small groups.

### 3. Syllabus

- Information, Informatics and Architecture.
- History of Computer Science and Artificial Intelligence
- The physical structure of a computer: hardware
- The logical structure of a computer: software
- Algorithmics, programming and programming-related laboratory exercises
- Representation of information
- Computer graphics
- Networks and Internet
- Computer security
- The new challenges of IT in the world of architectural design

### 4. Academic activities

- Interactive lectures (2 hours per week): The objective of the interactive lecture is to provide the student with the

necessary basis to know and understand the essential theoretical concepts.

- **Problem solving** (1 hour per week): In the problem classes, problems will be solved by applying the concepts and techniques presented in the course syllabus.
- **Practices** (2 hours per week): The objective of the practice is the application and use of computer tools seen in the theoretical part.
- **Tutored jobs**

## 5. Assessment system

**Continuous assessment** The student must demonstrate that they have achieved the expected learning results comes through the following assessment activities:

- **Theoretical test**, as well as participation and exercises during theory classes and problems (40%). A minimum score of 3 out of 10 in this activity is required.
- **Laboratory practices** (30%)
- **Individual practical work** (20%)
- **Essay** on a topic about the relationship between computer science and architecture (10%)

**Global assessment:** It will consist of a theoretical test and, in the event that the assignments or practicals are not handed in on the established deadlines ( ) or the students wish to waive the grade obtained, they may make a single delivery and a defense on the day of the exam of the exam in which they wish to pass the subject.