

## 30209 - Programming II

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 30209 - Programming II

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura  
326 - Escuela Universitaria Politécnica de Teruel

**Degree:** 439 - Bachelor's Degree in Informatics Engineering  
443 - Bachelor's Degree in Informatics Engineering

**ECTS:** 6.0

**Year:** 1

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

### 1. General information

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The learning process for this subject is based on the following aspects:

- students must work on the subject since the beginning of the semester.
- lectures for the presentation of the main concepts and methodologies for the analysis and design of correct and efficient programs. The teacher will make the lectures as interactive as possible so that students should also participate.
- the use of the presented methodologies in practical problem sessions, where students should have a participative attitude. In some of these sessions, the teacher will propose students some optional work to be evaluated, and whose results will be incorporated into the final subject mark.
- the laboratory sessions, where students will learn the necessary technologies for the development of small programming projects.
- some teamwork programming projects, which should be conveniently designed, developed and documented.

#### 4.2. Learning tasks

The subject program proposed to students in order to reach the defined learning objectives includes the following activities:

- lectures for the presentation and discussion of the items proposed in the course syllabus
- problem sessions for the direct application of the concepts worked during the lectures
- laboratory sessions for the implementation of programs requiring the methods and techniques presented in both the lectures and problem sessions.

#### 4.3. Syllabus

The course will address the following topics:

- Formal specification of programs.
- Design of recursive algorithms
- Cost analysis of algorithms
- Correctness verification of iterative and recursive algorithms
- Modular programming
- Development of a programming project

#### 4.4. Course planning and calendar

The students' workload for reaching the aimed learning results is estimated at about 150 hours, organized as follows:

- At the "Escuela de Ingeniería y Arquitectura":
  - 50 hours, approx., of face-to-face activities (lectures, problems, and laboratory practice)
  - 40 hours, approx., of guided programming work
  - 57 hours, approx., of efficient personal study (studying class notes and some documents, resolving problems, preparing classes and laboratory exercises, and developing computer programs)
  - 3 hours, approx., for the final exam
- At the "Escuela Universitaria Politécnica de Teruel":
  - 60 hours, approx., of face-to-face activities (lectures, problems, and laboratory practice)
  - 30 hours, approx., of guided programming work
  - 55 hours, approx., of efficient personal study
  - 5 hours, approx., of evaluation activities

Calendar of face-to-face sessions and presentation of work:

- At the "Escuela de Ingeniería y Arquitectura", the teaching activities of this subject are scheduled as follows:
  - Lectures (2 hours per week)
  - Problem lessons (1 hour per week)
  - Laboratory sessions (six sessions of 2 hours, each one every two weeks). These sessions consist of programming in the laboratory, with the guidance of a teacher
- At the "Escuela Universitaria Politécnica de Teruel", the teaching organization of this subject is scheduled as follows:
  - Lectures (2 hours per week)
  - Problem lessons and laboratory sessions (2 hours per week)
  - Presentation of works for evaluation: The specific dates for presenting problems and programming activities will be determined when the teacher proposes these activities.

#### 4.5. Bibliography and recommended resources

**Teruel:**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30209&Identificador=12495>

**Zaragoza:**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30209&Identificador=12637>