

## 30204 - Programming I

### Syllabus Information

**Academic Year:** 2020/21

**Subject:** 30204 - Programming I

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

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

**ECTS:** 6.0

**Year:** 1

**Semester:** First semester

**Subject Type:** Basic Education

**Module:** ---

## 1.General information

### 1.1.Aims of the course

### 1.2.Context and importance of this course in the degree

### 1.3.Recommendations to take this course

## 2.Learning goals

### 2.1.Competences

### 2.2.Learning goals

### 2.3.Importance of learning goals

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

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

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

### 4.1.Methodological overview

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

- Continuous work starting on the first day of class.
- Learning concepts and methodologies for program design through lectures, in which student participation will be encouraged.
- The application of such knowledge on program design in sessions devoted to problem solving. In these sessions, students will play an active role in the discussion of cases and solving problems. In these sessions, students' work could be evaluated.
- Practice sessions, where students learn the necessary technology needed for coding, compiling and running their programs, using a certain programming language. Students will also learn to work with a certain operating system and developing environment.
- Part of the students work in programming could be developed in teams.
- Learning to program requires continuous work by students in the understanding of concepts, problem analysis, problem solving using "pencil and paper" and coding, running and testing a number of programs.

This course is only taught in Spanish.

## 4.2.Learning tasks

The course includes the following learning tasks:

- The syllabus of the course will be developed through lectures, case analysis and problem-solving, where concepts and techniques presented in the syllabus will be applied.
- In practice sessions, each student, in front of a computer, will code, run and debug programs work directly related to the topics studied in the course. This work could be individual or be made in teams.
- In addition, a programming project under the supervision of a teacher will be developed.

## 4.3.Syllabus

The course will address the following topics:

1. Basic concepts in programming
  - Information processing problems, algorithms and programs
  - Programming languages and program execution
  - Information, data, operations and expressions
3. Design of the first programs
  - Design of some elementary programs
  - Simple and structured instructions
  - Computational problems with integer numbers
  - Top-down and modular program design
  - Computational problems with real numbers
5. Design of programs that work with data structures
  1. Indexed data
  2. Character strings
  3. Aggregated data
  4. Basic algorithms working with indexed data
7. Design programs that work with files
  1. Data input and output
  2. Working with text files
  3. Working with binary files
  4. Working with files: other possibilities
9. Program design methodology

## 4.4.Course planning and calendar

The schedule on EINA (Zaragoza) is as follows:

- Lectures: 2 hours per week
- Case problem sessions: 1 hour per week
- Practice sessions: one 2-hour session every two weeks

The schedule on EUPT (Teruel) is as follows:

- Lectures: 2 hours per week
- Case problem and practice sessions: 2 hours per week

Concrete schedule and dates will be announced in due time by the Faculty Board of the appropriate School, and published on its web site.

## 4.5.Bibliography and recommended resources