

## 30209 - Programming II

### Syllabus Information

**Academic year:** 2024/25

**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

The purpose of this subject is that the student learns and applies methodologies for the design of correct, robust and efficient programs. The student will learn the necessary concepts about specification, correctness, design and evaluation of the cost of an algorithm and the basic pillars of modular and object-oriented programming. Since the subject has a strong practical character, these concepts will be applied to the design of various information processing problems.

### 2. Learning results

- Develop robust medium-sized programs in a modular and object-oriented way.
- Know and apply the formal specification of algorithms.
- Design and analyse the cost of correct iterative and recursive algorithms.
- Formally demonstrate the correctness of simple algorithms.

### 3. Syllabus

- Modular and object-oriented programming.
- Formal specification, design and correction of iterative and recursive algorithms.
- Analysis of the cost and complexity of an algorithm.
- Development of a programming project.

At EINA the emphasis will be on modular programming and at EUPT on object-oriented programming.

### 4. Academic activities

#### At the School of Engineering and Architecture:

**Participatory lectures:** 30 hours

The contents of the subject will be presented with a practical orientation in order to facilitate interaction with the students.

**Problem solving and case studies:** 15 hours

Practical problems will be solved.

**Laboratory practices:** 15 hours

Algorithms related to the knowledge acquired in the master classes will be designed and implemented.

**Teaching assignments:** 30 hours

Programming assignments covering various topics of the subject will be carried out.

**Study and personal work:** 56 hours

**Assessment tests.** 4 hours

### **At the Polytechnic University School of Teruel:**

**Participatory lectures:** 30 hours

The contents of the subject will be presented with a practical orientation in order to facilitate interaction with the students.

**Laboratory practices:** 30 hours

Algorithms related to the knowledge acquired in the master classes will be designed and implemented.

**Teaching assignments:** 30 hours

Programming assignments covering various topics of the subject will be carried out.

**Study and personal work:** 55 hours

**Assessment tests.** 5 hours

## **5. Assessment system**

### **At the School of Engineering and Architecture**

The subject will be evaluated in the global assessment mode. The following activities will be evaluated in the first call:

- Individual written test of problems and conceptual questions (60% of the grade, minimum 4 out of 10; if the minimum 4 is not exceeded, the percentage will be 100%).
- Individual laboratory test (20% of the grade) related to laboratory practices
- Programming work (20% of the grade)

The following activities will be evaluated in the second round:

- Individual written test of problems and conceptual questions (60% of the grade, minimum 4 out of 10; if the minimum 4 is not exceeded, the percentage will be 100%).
- Individual laboratory test (40% of the grade) related to the laboratory practices and the programming work.

### **In the Polytechnic University School of Teruel**

In the first call it will be carried out through continuous assessment:

- Practice grade (40% of the grade). A minimum grade of 5 is required to pass the subject. Final exam (60% of the grade). A minimum grade of 5 is required to pass the subject.

In case of not delivering the practices or not passing the minimum grade, the student will be able to take the global assessment: Final exam grade: (100% of note).

The following activities will be evaluated in the second call:

- Final exam (100% of the grade)

## **6. Sustainable Development Goals**

8 - Decent Work and Economic Growth

9 - Industry, Innovation and Infrastructure