30204 - Programming I

Información del Plan Docente

Academic Year	2016/17
Academic center	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
Course	1
Period	First semester
Subject Type	Basic Education
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

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

- The continued work from the first day of class.
- Learning concepts and methodologies for program design through lectures, in which student participation is encouraged.
- The application of such knowledge on program design in the classes devoted to problems. In these classes, students will play an active role in the discussion of cases and solving problems. In these classes, student's work

could be evaluated.
- Classes of laboratory practices where students learn the necessary technology needed for program coding, compilation and execution, using a certain programming language. Students will also learn to work in a concrete operating system and developing environment.
- Part of the students work in programming will 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 taught only in Spanish .

5.2.Learning activities

- In the classroom, 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 .
- The practice sessions take place in a computer lab . Throughout the different sessions, each student must do , individually or in teams, work directly related to the topics studied in the course.
- In addition , teamwork projects under the supervision of a teacher will be realized. In these projects , each team must establish the test plan of a software project and implement it.

5.3.Program

1. Programming basic concepts and elements
   - Information processing problems, algorithms and programs
   - Programming languages and program execution
   - Information, data, operations and expressions
2. Design of the first programs
   - Design of some elementary programs
   - Simple and structured instructions
   - Computational problems with integers
   - Top-down and modular design of programs
   - Computational problems with real numbers
3. Design of programs that work with data structures
   1. Indexed data
   2. Character strings
   3. Aggregated data
   4. Basic algorithms working with indexed data
4. 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
5. Program design methodology

5.4.Planning and scheduling

The schedule on EINA (Zaragoza) is as follows:

- Lectures: 2 hours per week
- Case problems classes: 1 hour per week
- Laboratory classes: one 2-hour session every two weeks

The schedule on EUPT (Teruel) is as follows:

- Lectures: 2 hours per week
- Case problems and laboratory classes: 2 hours per week

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

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5.5.Bibliography and recomended resources