Universidad Zaragoza

Academic Year/course: 2024/25

28903 - Computer science

Syllabus Information

Academic year: 2024/25
Subject: 28903 - Computer science
Faculty / School: 201 - Escuela Politécnica Superior
Degree: 583 - Degree in Rural and Agri-Food Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject type: Basic Education
Module:

1. General information

The main objective of the subject is that the student is able to analyze a problem, find a solution for it, and develop a computer program to solve it.

In addition, the subject also introduces the basic concepts of a computer, and explains some of the tools needed for other subjects.

The subject does not require previous programming knowledge.

It is essential to carry out the exercises that are presented in class, since apart from presenting some theoretical concepts, the development of the class is eminently practical.

The topics explained and practiced in class are totally incremental, being strictly necessary to master the previous topics in order to continue with the classes.

2. Learning results

Understand the theoretical knowledge presented in class.

Master the computer tools used in the practical classes.

Have the ability to analyze a problem and design an algorithm to solve it.

Be able to design well-structured, readable, clear and efficient algorithms.

Know how to code your algorithms using a high-level programming language.

3. Syllabus

Theory

1. Introduction to computer science
1.1. Hardware
1.2. Software
2. Algorithm
2.1. Introduction
2.2. Scalar types
2.3. Assignment sentence
2.4. Alternative sentence
2.5. Repetitive sentence
2.6. Sequences
2.7. Subprograms
2.8. Tables
2.9. Registrations

Practices

1. Introduction
2. Spreadsheets
3. Programming

3.1. Work environment

3.2. Programming language

3.3. Exercises

4. Academic activities

Lectures: 30 hours.

Fundamental concepts of Computer Science: hardware and software. Structure of an algorithm: basic elements, sentences and examples. Basic Exercises

Practical classes, in the computer classroom: 30 hours

Learning of computer tools useful for the student and for the professional. Translation of the algorithms into a specific programming language , and implementation on the computer. Basic Exercises

Student work: 30 hours

Resolution of a general problem with its analysis, design and implementation, and delivery of a report.

Personal study: 55

Assessment tests. 5h

5. Assessment system

The assessment will consist of three parts:

- Final exam: 65% of the final grade. The exam may be divided into two parts, one theoretical and the other algorithmic,, the latter being the more important
- Partial exam: 10%, to be carried out in the middle of the term
- Final term work: 25%

In case of not taking the partial exam, or if the average with it is lower than the average without it, the exam will be worth 70% and the final paper 30%

A minimum grade of 4 out of 10 will be required in the algorithm of the Final Exam and and in the Final work, the lower of the two will be used as the final grade.

In the algorithm of the test, a correct analysis, a good structure of the solution, its readability, its completeness, and its efficiency will be evaluated, being the structure the main point. In the final paper, in addition to the above points, the correctness of the attached documentation will be assessed.

Success rates in recent years are: 2020-2021: 86,21%;2021-2022: 73,91%; 2022-2023: 60,78%

6. Sustainable Development Goals

4 - Quality Education