

Academic Year/course: 2021/22

30303 - Fundamentals of computer studies

Syllabus Information

Academic Year: 2021/22

Subject: 30303 - Fundamentals of computer studies

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Basic Education

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 has been designed according to the following activities:

1. Presentation of contents and techniques for problem solving by means of master classes.
2. Problem resolution in classroom,
3. Personal study and developing of problem solving skills by means of proposed problems.
4. Guided practical work in laboratories.
5. Programming simple solutions of increasing difficulty.

4.2. Learning tasks

According to the practical and theoretical approach of the subjects, and the need to develop in the students of the required skills to solve problems, we will intensively use example programs that solve intriguing problems, supported with exercises ranging from self-study drills to challenging problems that call for creative solutions. The aim is to learn to program in the context of scientific applications.

4.3. Syllabus

The course will address the following topics:

Basic concepts of Computers: Machine that executes Algorithms. Algorithms. Computers. Digital data, coding, hardware, software. Operating Systems. Databases. Networks. Programming: Programming styles, the hierarchy of languages, programming elements.

Abstraction with Procedures. Basic data types and algorithmic composition schemes. Constants and Variables. Basic data types: Boolean, char, integer, real. Control Structures, Procedure and Functions. Algorithm design techniques. Sequential processing.

Abstraction with Data. Tables. indexed acces. Sorting. Abstract data types: Modularity, objects, state.

4.4. Course planning and calendar

On-site sessions and works calendar.

The timing of the subject will be defined according to the timetable defined by the center in the academic calendar.

Hours devoted to the subject by the learner.

The estimation is about 150 hours distributed in the following way:

- 70 hours, approximately, on-site activities (master class (Theory and problems) and laboratory sessions.
- 20 hours work/projects
- 55 hours individual work/study (problem-solving, coding, study, etc.)
- 5 hours exams

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30303>