

Academic Year/course: 2022/23

30200 - Introduction to computers

Syllabus Information

Academic Year: 2022/23

Subject: 30200 - Introduction to computers

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: 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 that is designed for this course is based on:

Escuela de Ingeniería y Arquitectura de Zaragoza:

Classroom activities

Lectures	30 h
Problem-based learning	15 h
Laboratory sessions	15 h

Autonomous activities

Practical work	8 h
Personal study	72 h

Evaluation activities

Final exam	4 h
Laboratory tests	6 h

Escuela Universitaria Politécnica de Teruel:

Classroom activities

Lectures	30 h
Problem-based learning	15 h
Laboratory sessions	10 h

Practical work 25h (groups of two-three students)

Autonomous activities

Practical work and personal study 70 h

Evaluation activities

Exams 4 h

4.2. Learning tasks

The course includes the following learning tasks:

Lectures: 30 h

Problem-based learning: 15 h

Escuela de Ingeniería y Arquitectura del Campus Rio Ebro:

Laboratory sessions: 15 h

- Logic design simulator and combinational circuits (1 session)
- Representation of information and encapsulated circuits (1 session)
- Propagation times of logic gates (1 session)
- Combinational components (1 session)
- Analysis and design of sequential systems (1 session)
- *Máquina Sencilla* (2 sessions)

Escuela Universitaria Politécnica del Campus de Teruel:

Laboratory sessions: 10 h

- Introduction. Simplifying functions
- Combinational blocks
- Sequential systems
- Design of sequential systems
- Introduction to Digital Computer (*Máquina Sencilla*)

Escuela de Ingeniería y Arquitectura del Campus Rio Ebro:

Practical work: 8 h

Escuela Universitaria Politécnica del Campus de Teruel:

Practical work: 25 h

The teacher will supervise the practical work of students divided into groups during 25h.

4.3. Syllabus

The course will address the following topics:

Introduction and mathematical background

Boolean Algebra

Logic gates

Technological constraints

Numerical representation

Representation of natural numbers

Representation of integer numbers

Basic arithmetic operations with integer numbers

Representation of real numbers

Combinational systems

Analysis

Design

Combinational blocks

Sequential systems

Analysis

Design

Memory elements

Critical path and cycle time

Sequential blocks

Introduction to digital computer: *Máquina Sencilla*

Structure and operation

Instruction set architecture

Processing unit

Control unit

4.4. Course planning and calendar

Classroom session scheduling

Escuela de Ingeniería y Arquitectura del Campus Rio Ebro:

15 weeks

- Lectures and problem-based learning: 3 h / week
- Laboratory sessions 2 h / 2 weeks

Escuela Universitaria Politécnica del Campus de Teruel:

15 weeks

- Lectures and problem-based learning: 3 h / week
- Laboratory sessions 2 h / 2 weeks
- Practical work (see calendar)

4.5. Bibliography and recommended resources

Teruel:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30200&Identificador=12486>

Zaragoza:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30200&Identificador=12628>