30200 - Introduction to computers

Syllabus Information

Academic Year: 2019/20
Subject: 30200 - Introduction to computers
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
Degree: 443 - Bachelor's Degree in Informatics Engineering
439 - Bachelor's Degree in Informatics Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject Type: Basic Education
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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*
Estructure and operation

Instruction set arquitecture
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