

26957 - Digital Systems

Syllabus Information

Academic Year: 2019/20

Subject: 26957 - Digital Systems

Faculty / School: 100 -

Degree: 447 - Degree in Physics

ECTS: 5.0

Year: 3

Semester: First semester

Subject Type: Optional

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 methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, problem solving sessions, laboratory sessions, autonomous work, study and assessment tasks.

Students are expected to participate actively in class throughout the semester.

Further information regarding the course will be provided on the first day of class.

4.2.Learning tasks

The course includes the following learning tasks:

- Lectures (4 ECTS).
- Problem solving sessions.
- Lab practices (1 ECTS).
- Assessment tasks.

4.3.Syllabus

The course will address the following topics:

- Topic 1. Boolean algebra and logic functions
- Topic 2. Digital circuits: logic gates and typical parameters
- Topic 3. Combinational systems: multiplexors, demultiplexors and encoders
- Topic 4. Binary arithmetic: signed numbers and basic operations
- Topic 5. Sequential systems: architectures and functional description
- Topic 6. Registers and counters
- Topic 7. Field programmable gate arrays: FPGA
- Topic 8. Microcontrollers: design and programming

Lab practices:

- Topic 1. Combinational systems: multiplexors and encoders
- Topic 2. Binary arithmetic: adders, comparators, ALU's
- Topic 3. Sequential systems: bistables, registers and counters
- Topic 4. Design of an application system

4.4.Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Facultad de Ciencias web <https://ciencias.unizar.es/grado-en-fisica-0>

Face-to-face sessions and reports delivery

4.5.Bibliography and recommended resources