Universidad Zaragoza
1542

Year : 2018/19

30236 - Embedded Systems I

Syllabus Information

Academic Year:	2018/19
Subject:	30236 - Embedded Systems I
Faculty / School:	110 -
Degree:	439 - Bachelor's Degree in Informatics Engineering
ECTS:	6.0
Year:	3
Semester:	Indeterminate
Subject Type:	
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

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

Methodology, learning tasks, syllabus and resources

Methodological overview

The learning process designed for this course is based on the following:

The teaching process will take place at the following levels: theory classes, exercise classes and case resolution, and laboratory work, with increasing level of student participation.

Also, additional learning activities will be undertaken to encourage continuous and autonomous student work throughout the semester.

The course will be teach in Spanish

Learning tasks

Class work: 2.4 ECTS (60 hours)

1) Master class (type T1) (30 hours).

Lectures of theoretical and practical content. The concepts and fundamentals of digital electronic systems are presented, illustrated with real examples. Student participation will be encouraged.

2) Exercises classes and cases resolution (type T2) (12 hours).

Exercises and cases involving students, coordinated with the theoretical contents will be developed. Students are encouraged to work on the subject previously. Some of these hours may engage in learning activities assessable as specified in each course.

3) Lab (type T3) (18 hours).

The student will mount, schedule and monitor the operation of an embedded systems in the laboratory. Each project assignment will be qualified in the laboratory.

Self-study: 3.6 ECTS (90 hours)

1) Assignment (T6 type) (30 hours).

Activities that the student will perform alone or in groups and that the teacher will propose throughout the teaching period.

2) Study (type T7) (54 hours).

The ongoing work of the student will be encouraged by the homogeneous distribution throughout the course of the various learning activities. This includes tutorials, as a direct student care, identification of learning problems, orientation in the subject, attention to exercises and assignments.

3) Evaluation tests (T8) (6 hours).

In addition to the qualifying function, evaluation is also a learning tool with which the student checks the degree of understanding and assimilation reached.

Syllabus

Theory:

1. Introduction: Hardware, development tools, operating systems, languages, applications, restrictions and features.

2. Hardware for Embedded Systems

3. Development of embedded systems

4. Time Management

5. Application Development

6. Concurrent Applications

Lab. (indicative):

* P1. Basic development of an embedded system.

* P2. Time management. Programming a timer.

* P3. Discrete control. Control of an elevator.

* P4. Sampled Control. Motor speed control.

* P5 and P6. Concurrent systems. A washing machine.

Course planning and calendar

It will be implemented for each teaching group when the academic calendar of the University of Zaragoza is approved and established by each center.

Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- [BB] Silva Suárez, Manuel. Las redes de Petri : en la automática y la informática / Manuel Silva . - 1a ed. 1985, 1a reimp. 2002 Madrid : Editorial AC, 2002
- [BC] Sickle, T. Van. Programing Microcontrollers in C / T. Van Sickle. 2nd edition Newnes,2001

Listado de URL

- Transparencias (apuntes) de la asignatura. Hojas de problemas y Guiones de prácticas. .[http://moodle.unizar.es]