Universidad Zaragoza
1542

Year : 2018/19

29936 - Automatic Control Systems

Syllabus Information

Academic Year:	2018/19
Subject:	29936 - Automatic Control Systems
Faculty / School:	110 -
Degree:	435 - Bachelor's Degree in Chemical Engineering
ECTS:	6.0
Year:	2
Semester:	Second semester
Subject Type:	Compulsory
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 in the following aspects:

1. Master classes by the teachers.

2. Resolution of the problems proposed during the course.

3. Lab sessions for the students supervised by a teacher. The students will apply, in a real or simulated environment, their theoretical knowledge, dealing with the problems and limitations of real systems. All of this will result in a better understanding, deepening and comprehension of the theoretical part of the course.

4. Personal study by the students.

It should be considered that the course has an important theoretical basis and that additionaly the student must understand and assimilate its importance in the world of industrial application.

The learning process emphasizes

1. The attendance of the student to the master classes.

2. The personal study.

3. The resolution of problems.

Learning tasks

The program offered to the student, in order to help him to achieve the expected results, includes the following activities:

Master classes explaining the theoretical contents. The contents developed in the course are the following:

1st. BLOCK.- Dynamic Behavior of Continuous-Time Systems.

- Modeling of Continuous-Time Systems.
- Time-Domain Analysis of Continuous-Time Systems.
- Frecuency Analysis of Continuous-Time Systems.

2nd. BLOCK.- Feedback Control Systems.

- Feedback Systems.
- Control of Continuous-Time Systems.

3rd. BLOCK. - Logic automatisms.

- Control of Discrete Event Systems.

Doing exercises selected from a collection provided for student work.

Lab sessions. The sessions will take place in the following laboratories:

- Computer lab for the simulation tasks.
- Lab with Continuous-Time System models. Process control using PLCs (with an integrated PID algorithm) and industrial controlers.
- Lab with a Discrete Event System model. Control using PLCs.

Syllabus

Lesson 1. Modeling of Continuous-Time Systems

Lesson 2. Time-Domain Analysis of Continuous-Time Systems

Lesson 3. Frecuency Analysis of Continuous-Time Systems

Lesson 4. Feedback Systems

Lesson 5. Control of Continuous-Time Systems

Lesson 6. Control of Discrete Event Systems

Course planning and calendar

Schedule of classes, lab sessions and works presentation

The schedule of classes and lab sessions of the course is fixed by the Center.

Other learning activities that can be done during the course will be announced with adequate notice.

Bibliography and recommended resources