

29817 - Automatic Control Systems

Syllabus Information

Academic year: 2024/25

Subject: 29817 - Automatic Control Systems

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

326 - Escuela Universitaria Politécnica de Teruel

Degree: 440 - Bachelor's Degree in Electronic and Automatic Engineering

444 - Bachelor's Degree in Electronic and Automatic Engineering

ECTS: 6.0

Year: 2

Semester: Second semester

Subject type: Compulsory

Module:

1. General information

Automatic Control Systems is a subject from the branch of industrial technologies that covers, in this degree only partially, the competence "knowledge about the fundamentals of (automation and) control methods."

In the subject, the student learns to analyze and design feedback control systems, (analog and) by computer. At the end of the subject, the student is able to understand the importance of systems control and its importance in industrial processes from a technical, economic and environmental point of view.

2. Learning results

- Knows the properties of feedback and basic control actions.
- Knows and knows how to apply feedback control design techniques for single-variable continuous systems and their programmed implementation (computer control).
- Knows and knows how to select complementary control schemes, and apply them to case studies.

3. Syllabus

- Feedback control. Feedback properties. Feedback systems analysis.
- Basic control actions. PID control. Practical aspects. Programmed realization.
- Design and adjustment of PID controllers in continuous time or with fast sampling.
- Direct design of digital controllers.
- Complementary structures to basic feedback control.
- Study cases.

4. Academic activities

- Lecture classes (28 hours)
- Problem and case resolution classes (14 hours)
- Laboratory sessions (18 hours)
- Study (84 hours)
- Evaluation tests (6 hours)

5. Assessment system

The evaluation of this subject is global.

The tests are:

- Exam (Ex, 0:10 points), mandatory, minimum grade: 4
One in each official call. It consists of several exercises, with an indication of the points each one is worth. (If possible, computer tools, MatLab and Simulink, would be used.)
- Practice Evaluation (EP, 0:2 points), optional, without minimum qualification
The EP grade will be awarded based on the oral evaluation, at the end of classes, of the work carried out in the laboratory practices, conditioned to the satisfactory completion of all of them. The grade will be saved (only) throughout the course.

Final Qualification: IF $Ex \geq 4$, THEN $\min(Ex+EP;10)$, ELSE Ex

6. Sustainable Development Goals

9 - Industry, Innovation and Infrastructure

12 - Responsible Production and Consumption