30020 - Automatic Systems

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology
ECTS	6.0
Course	3
Period	First semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The methodology is composed of:

1. Theoretical classes where the main subject contents are presented and discussed, student participation is encouraged. The student is directed to the bibliography to foster self learning.
2. Practical exercise sessions.- The student learns how to apply the theoretical concepts. Approximated methods are applied. A set of exercise, are proposed to forester the student self learning.
3. Lab sessions.- Focused on simulation and on measurement of the behavior of real systems. The student learns how to relate the approximate solutions of the exercises, with simulation with the behavior of the real system.
4. Tutorial sessions.- To guide the students in its self learning.

5. Assessment.- To measure the learning results.

5.2.Learning activities

5.3.Program

Theoretical sessions

1. Continuous dynamic systems modelling.
2. Dynamic response. Time domain specifications. Stability.
3. Feedback.
4. Root-Locus.
5. Frequency-Response. Bode plot. Nyquist simplified criteria. Frequency domain specifications.
6. Frequency response design.
7. PID control. Empirical methods.
8. Feedforward and minor loop control.

Lab sessions

1. Experiments with a real servomechanism.
2. Root-locus.
3. Analysis and design of P and PI control.
4. PID design.
5. Feedforward and minor loop control.

5.4.Planning and scheduling

5.5.Bibliography and recomended resources