340124 - ELAN-K5O10 - Analogue Electronics

Coordinating unit: 340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering
Academic year: 2015
Degree: BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: PEDRO FRANCISCO GAYA SUÑER
Others: - PEDRO FRANCISCO GAYA SUÑER
- JOSE ANTONIO SORIA PEREZ

Prior skills
It is necessary to have a certain knowledge about both discrete and integrated analog devices (diodes, transistors and operational amplifiers). It is also recommended to have advanced skills on analog electronic circuits analysis and the use of circuit simulation software.

Requirements
Sistemes Electrònics (SIEK)

Degree competences to which the subject contributes

Specific:
1. CE20. Fundamental knowledge and application of analogue electronics.
2. CE24. Ability to design electronical, analog, digital and power systems.
3. CE25. Knowledge and ability of systems modeling and simulation.

Transversal:
4. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
5. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

Teaching methodology
The methodology is structured in both theory classes and laboratory classes, which include lectures, laboratory activities and solving problems.

Learning objectives of the subject
At the end of he course, the student should be able to:
- determine the normal behaviour of an analog circuit, both in the time domain and the frequency domain.
- design the components of an electronic system so that it develops an analog function to accomplish some specifications.
- use electronic simulation software to understand the behaviour of analog circuits and design component values.
- mount, verify and test analog circuits.

**Study load**

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 30h 20.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h 0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 30h 20.00%</td>
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<td>Guided activities: 0h 0.00%</td>
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<td>Self study: 90h 60.00%</td>
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**Content**

- **Analog circuits in the time domain and the frequency domain.**

  Degree competences to which the content contributes:

- **Analog integrated circuits and their applications.**

  Degree competences to which the content contributes:

- **Feedback amplifiers.**

  Degree competences to which the content contributes:

- **Linear and nonlinear electronic circuits.**

  Degree competences to which the content contributes:

**Qualification system**

The course includes regular assignments consisting in activities in the laboratory (PRAC), circuit design problems (PROB), and one or two exams (PA).

The final grade (NF) is calculated by means of the following expression:

\[ NF = 0.5 \times PA + 0.3 \times PRAC + 0.2 \times PROB \]
Regulations for carrying out activities

Both problem assignments and exams will be individually developed by the student. All the lab activities must be done to pass the course. A follow-up will be taken into account as part of the student evaluation in his lab activities.

Bibliography

Basic:

