820242 - EAVEIA - Audio and Video Electronics

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering
Academic year: 2019
Degree: BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)

BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)

ECTS credits: 6
Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator: HERMINIO MARTINEZ GARCIA.
Others: HERMINIO MARTINEZ GARCIA y otros a determinar.

Opening hours

Timetable: To determine at the semester beginning. It will be announced to the whole students the first week of the course.

Prior skills

Please, see Spanish or Catalan version.

Requirements

Please, see Spanish or Catalan version.

Degree competences to which the subject contributes

Specific:
1. Summarise information and undertake self-directed learning activities.
2. Design analogue, digital and power systems.
3. Understand the fundamentals and applications of analogue electronics.

Transversal:
4. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
5. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

Teaching methodology

Please, see Spanish or Catalan version.
The subject ‘Audio and Video Electronics’ (EAV-EIA - 820242), which is presented as an elective for the degree of Bachelor of Engineering in Industrial Electronics and Automation, is the logical continuation of related subjects studied in the aforementioned degree. However, it focuses on practical applications in the field of the Electronics Engineering for audio and video.

The main objective of EAV-EIA is to present students the modern electronic techniques typically used in the areas of video and audio for linear signal processing in low and high power. The course focuses mainly on specific analog integrated circuits, bipolar transistors (BJT), and field-effect transistors (MOSFET).

EAV-EIA also go into detail about different topics of analog techniques that have not been studied in other courses of the degree.

EAV-EIA students have to obtain a technical-scientific basis to not only analyze, but also design, synthesize, simulate and implement physically electronic structures based on these devices for applications in audio and video equipment.

<table>
<thead>
<tr>
<th>Study load</th>
<th>Hours large group:</th>
<th>Hours medium group:</th>
<th>Hours small group:</th>
<th>Guided activities:</th>
<th>Self study:</th>
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</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
<td>45h</td>
<td>0h</td>
<td>15h</td>
<td>90h</td>
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## Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Laboratory classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.- Linear Regulators and Voltage References.</td>
<td>19h 30m</td>
<td>6h 30m</td>
<td>3h</td>
<td>10h</td>
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<tr>
<td>Description:</td>
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<tr>
<td>Specific objectives:</td>
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<tr>
<td>2.- Transistors as Basic Amplifier Devices in Audio, Video and</td>
<td>18h</td>
<td>6h</td>
<td>2h</td>
<td>10h</td>
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<tr>
<td>Communication Electronics.</td>
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<tr>
<td>3.- Output Stages for Power Amplifiers in Audio, Video and</td>
<td>16h</td>
<td>4h</td>
<td>2h</td>
<td>10h</td>
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<td>Communication Electronics.</td>
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<td>4.- Monolithic IC Integrated Power Amplifiers.</td>
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<td>2h 30m</td>
<td>2h</td>
<td>5h</td>
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<td>5.- Frequency Response of Amplifier Stages for Audio, Video and</td>
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<td>3h</td>
<td>2h</td>
<td>10h</td>
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<td>Communications.</td>
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### Qualification system

Please, see Spanish or Catalan version.
Regulations for carrying out activities

Please, see Spanish or Catalan version.

Bibliography

Basic:


Complementary:


Others resources:

Hyperlink

Moodle ATENEA: http://atenea.upc.edu/moodle/