820240 - ASEDEIA - Applications of Digital Electronics Systems

Coordinating unit: 295 - EEBE - Barcelona East School of Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering
Academic year: 2015
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)
ECTS credits: 6

Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: JORDI COSP VILELLA
Others: ALFONSO CONESA ROCA - JORDI COSP VILELLA

Prior skills
Knowledge of digital electronics and foundations of the VHDL description language

Requirements
To have completed the course on Digital Electronics and Microprocessors

Degree competences to which the subject contributes

Specific:
1. Design analogue, digital and power systems.
2. Understand the fundamentals and applications of digital electronics and microprocessors.

Transversal:
3. 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.

Teaching methodology
Provided that the size of the group permits it, there will be sessions on fundamentals of digital design theory and then a working design and synthesis of a digital system will be proposed to performed in a group.

Learning objectives of the subject
Improve the knowledge of digital electronic systems design.
### Study load

<table>
<thead>
<tr>
<th></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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<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
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<td>0h</td>
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<td>Learning time</td>
<td>Theory classes:</td>
<td>Laboratory classes:</td>
<td>Self study:</td>
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<tr>
<td>(ENG) Introducción. Revisió dels conceptes bàsics de l’electrònica digital</td>
<td>20h</td>
<td>6h</td>
<td>2h</td>
<td>12h</td>
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<tr>
<td>(ENG) Consideracions elèctriques i temporals en al interconnexió de circuits integrats</td>
<td>20h</td>
<td>6h</td>
<td>2h</td>
<td>12h</td>
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<tr>
<td>(ENG) Ús de dispositius programables</td>
<td>20h</td>
<td>6h</td>
<td>2h</td>
<td>12h</td>
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<tr>
<td>(ENG) Memòries</td>
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<td>6h</td>
<td>2h</td>
<td>12h</td>
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<tr>
<td>(ENG) Codificació i aritmètica digital</td>
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<td>6h</td>
<td>2h</td>
<td>12h</td>
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<tr>
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<td>5h</td>
<td>15h</td>
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</table>
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Qualification system

Written test 25% Laboratory work: 25% Design of a digital system: 50%

Regulations for carrying out activities

It is required to have completed the laboratory exercise and bring the ID card or other identification on the day of testing.

Bibliography

Basic:


Complementary: