820130 - TCEE - Control Techniques

Degree competences to which the subject contributes

Specific:
1. Understand automatic regulation and control techniques and their application to industrial automation.

Transversal:
4. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

Teaching methodology

The course uses master classes by 30%, individual work by 60%, work in groups (cooperative or not) by 10%.

Learning objectives of the subject

To study the control of feedback systems, while introducing input-output relationships in the electromechanical systems, along with the time-domain response.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 45h</th>
<th>30.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 15h</td>
<td>10.00%</td>
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<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Specific objectives</th>
<th>Learning time</th>
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<tbody>
<tr>
<td><strong>(ENG) Item 1: Feedback systems.</strong></td>
<td>The concepts of feedback systems and transfer function are introduced, along with the use of block diagrams for the representation of systems.</td>
<td>Feedback system concept. Transfer function concept. System representation by block diagrams.</td>
<td>23h 20m</td>
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<tr>
<td><strong>(ENG) Item 2: Linear systems time domain analysis.</strong></td>
<td>Time response of first and second order systems is studied, also the case of multiple-input systems.</td>
<td>Time response of first order systems. Time response of second order systems. Multiple-input systems.</td>
<td>25h 20m</td>
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</table>
The evaluation will be conducted through the assessment by the teacher, with the following weights assigned to evaluated activities:

- Partial exam: 25%
- Specific work: 20%
- Laboratory practice: 20%
- Final exam: 35%

This subject will not have a re-evaluation exam.

**Qualification system**

The evaluation will be conducted through the assessment by the teacher, with the following weights assigned to evaluated activities:

- Partial exam: 25%
- Specific work: 20%
- Laboratory practice: 20%
- Final exam: 35%

This subject will not have a re-evaluation exam.

**Regulations for carrying out activities**

The attendance to the laboratory sessions is mandatory.

**Bibliography**

**Basic**


**Complementary**