Course guide
820140 - EDEE - Electric Drives

Unit in charge: Barcelona East School of Engineering
Teaching unit: 709 - DEE - Department of Electrical Engineering.
Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
Academic year: 2022 ECTS Credits: 6.0 Languages: Catalan

LECTURER
Coordinating lecturer: SERGI FILLET CASTELLA
Others: Primer quadrimestre:
SERGI FILLET CASTELLA - Grup: T11, Grup: T12
GUILLERMO YESTE MAYORAL - Grup: T11, Grup: T12

PRIOR SKILLS
Advanced electrical Machines course

REQUIREMENTS
MÀQUINES ELÈCTRIQUES II - Prerequisite

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES
Specific:
CEELE-20. Understand machine control and electric drives and their applications.
CEELE-26. Understand automatic regulation and control techniques and their application to industrial automation.

Transversal:
1. 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 40%, individual work by 30%, work in groups (cooperative or not) by 30%.

LEARNING OBJECTIVES OF THE SUBJECT
Understanding the behaviour of the variable-speed electric drives, under the point of view of a whole set made up of power electronics, electric machines and mechanical loads.

STUDY LOAD

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<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tr>
<td>Hours small group</td>
<td>15,0</td>
<td>10.00</td>
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<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
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<tr>
<td>Hours large group</td>
<td>45,0</td>
<td>30.00</td>
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<td><strong>Description:</strong></td>
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<td><strong>Specific objectives:</strong></td>
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<td><strong>Full-or-part-time:</strong></td>
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<th>2. INDUCTION THREE-PHASE ASYNCRONOUS MOTOR IN STEADY STATE.</th>
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<th>3. SYNCHRONOUS MOTORS.</th>
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<td><strong>Specific objectives:</strong></td>
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4. DYNAMIC MODELLING OF AC MACHINES.

Description:
Dynamic models of AC machines.

Specific objectives:

Full-or-part-time: 23h 20m
Theory classes: 9h
Laboratory classes: 1h
Self study : 13h 20m

5. NON VECTORIAL CONTROL OF AC MACHINES.

Description:
Control techniques for ac machines.

Specific objectives:
Classification of control techniques. Scalar control. Vector control. Applications for the asynchronous and the synchronous machines.

Full-or-part-time: 12h 20m
Theory classes: 3h
Laboratory classes: 1h
Self study : 8h 20m

6. VECTORIAL CONTROL ON ALTERN CURRENT MACHINES

Description:
content english

Full-or-part-time: 23h 20m
Theory classes: 9h
Laboratory classes: 1h
Self study : 13h 20m

7. NON CONVENTIONAL ELECTRIC MACHINES

Description:
content english

Related competencies:
CEELE-20. Understand machine control and electric drives and their applications.
CEELE-26. Understand automatic regulation and control techniques and their application to industrial automation.
06 URI N3. 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.

Full-or-part-time: 8h 30m
Theory classes: 5h
Self study : 3h 30m
GRADING SYSTEM

The evaluation will be conducted through the assessment by the teacher, with the following weights assigned to evaluated activities:
Team Work: 25%, laboratory practice: 25% Final exam: 50%.

EXAMINATION RULES.

The final test will have three parts, linked to the different types of activities carried out during the course.
Issues related to group work: 20%
Issues relatee to lab sessions: 20%
Questions related to the course theory: 60%

BIBLIOGRAPHY

Basic: