Course guide
320027 - CAME - Machine Control and Operation

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 709 - DEE - Department of Electrical Engineering.

Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2023  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: Joan Montañá - JUAN MONTAÑA PUIG
Others: Jaime Saura Perise - JAIME SAURA PERISE

PRIOR SKILLS

- Ability to understand the operation of electrical machines.
- Ability to solve problems with initiative, creativity, critical thought communication skills and transmission of knowledge, skills and abilities in the field of electricity.
- Ability to analyze and assess the social and environmental impact of technical solutions.
- Ability to apply the principles and methods of quality.
- Ability to work in a multilingual and multidisciplinary environment.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
3. ELE: Applied knowledge of power electronics.
4. ELE: Understanding of the principles of automatic control and their application to industrial automation.
5. ELE: Understanding of machine control, electric drive systems and their applications.

Transversal:
1. 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.
2. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT
### STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>45.0</td>
<td>30.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>15.0</td>
<td>10.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90.0</td>
<td>60.00</td>
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</tbody>
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**Total learning time:** 150 h

### CONTENTS

#### (ENG) Mòdul 1. Introducció

**Full-or-part-time:** 2h
- Theory classes: 1h
- Self study: 1h

#### (ENG) Mòdul 2. Introducció al control de posició velocitat i parell de les màquines elèctriques

**Full-or-part-time:** 41h
- Theory classes: 6h
- Practical classes: 4h
- Guided activities: 6h
- Self study: 25h

#### (ENG) Mòdul 3. Modelat de sistemes electromecànics

**Full-or-part-time:** 30h
- Theory classes: 5h
- Practical classes: 4h
- Laboratory classes: 2h
- Self study: 19h

#### (ENG) Mòdul 4. Introducció control de les màquines elèctriques en variables de Park

**Full-or-part-time:** 51h
- Theory classes: 12h
- Practical classes: 4h
- Laboratory classes: 5h
- Self study: 30h

#### (ENG) Mòdul 5. Modelat i control de les altres màquines d’execució especial

**Full-or-part-time:** 25h
- Theory classes: 4h
- Practical classes: 3h
- Laboratory classes: 2h
- Self study: 16h
GRADING SYSTEM

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept.

If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

BIBLIOGRAPHY

Basic: