Course guide
340055 - DIMA-M6O12 - Machine Design

Unit in charge: Vilanova i la Geltrú School of Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.

Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Optional subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2023 ECTS Credits: 6.0 Languages: Catalan

LECTURER

Coordinating lecturer: JOAN SOLE ROVIRA
Others: JOAN SOLE ROVIRA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. CE20. Knowledge and ability of calculation, design and machine testing.

Transversal:
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.
3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

TEACHING METHODOLOGY

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LEARNING OBJECTIVES OF THE SUBJECT

When finishing the subject the student has to be able to:
- Design typical elements of machines.
- Work in teams effectively, improving communication, distribution of tasks and group cohesion.
- Exhibits effective technical results.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>7,5</td>
<td>5.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>52,5</td>
<td>35.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## CONTENTS

1. Three-dimensional state of tensions.

**Description:**

- **Full-or-part-time:** 21h
  - Theory classes: 8h
  - Laboratory classes: 1h
  - Guided activities: 12h

2. Failure theories.

**Description:**

- **Full-or-part-time:** 13h
  - Theory classes: 4h
  - Laboratory classes: 1h
  - Guided activities: 8h

3. Fatigue.

**Description:**

- **Full-or-part-time:** 25h
  - Theory classes: 9h
  - Laboratory classes: 1h
  - Guided activities: 15h

4. Shafts.

**Description:**

- **Full-or-part-time:** 13h
  - Theory classes: 4h
  - Laboratory classes: 1h
  - Guided activities: 8h

5. Rolling bearings.

**Description:**

- **Full-or-part-time:** 16h
  - Theory classes: 5h
  - Laboratory classes: 1h
  - Guided activities: 10h

Description:

**Full-or-part-time:** 24h 30m  
Theory classes: 8h 30m  
Laboratory classes: 1h  
Guided activities: 15h

7.

Description:

**Full-or-part-time:** 17h  
Theory classes: 6h  
Laboratory classes: 1h  
Guided activities: 10h

8. Threaded fasteners and power screws.

Description:

**Full-or-part-time:** 20h 30m  
Theory classes: 8h  
Laboratory classes: 0h 30m  
Guided activities: 12h

**GRADING SYSTEM**

The training activities of knowledge acquisition and related to the control of the learning process of the student will be evaluated with the support of the platform SoRAP and will assume 7% of the final grade of the subject. The assessment evaluation activities will be solved in two evaluation acts that will be planned by the School within the periods of partial evaluation and final evaluation, respectively. These accrediting evaluation activities will take the form of written exercises, their results will correspond to 93% of the final grade of the subject and will be reevaluable (during the reevaluation period) according to what is specified in the academic regulations of the Degree studies.
BIBLIOGRAPHY

Basic: