Course guide
220051 - M2 - Mechanics II

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 712 - EM - Department of Mechanical Engineering.

Degree: BACHELOR’S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).
Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan, Spanish, English

LECTURER

Coordinating lecturer: JORDI ROMEU GARBI - ROBERT ARCOS VILLAMARÍN
Others:
Primer quadrimestre:
ROBERT ARCOS VILLAMARÍN - 11, 12, 13, 14
JOAN CARDONA GONYALONS - 11, 12, 13, 14
JORDI ROMEU GARBI - 11, 12, 13, 14

PRIOR SKILLS

To properly tackle the present subject, the student should have a solid basis on Newtonian mechanics (statics, kinematics and
dynamics) and on the obtention of the independent degrees of freedom of a mechanical system.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE22-GRETA. GrETA - An adequate understanding of the following, as applied to engineering: physical phenomena of flight, flight
qualities and control, aerodynamic and propulsive forces, performance and stability.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

- To have a good command of the determination of the equation of motion of a mechanical system and know the analytical methods
  that allow this obtention.
- To be able to understand the vibratory behaviour of a mechanical system in the free case and subjected to diferents kinds of
  excitation and, furthermore, know the mathematical expressions and the calculation procedures that allow to address a problem like
  this.
- To know the experimental techniques used to measure the mechanical vibration in structures and how to use this experimental data
to dynamically characterise the particular mechanical system.
- To learn computational techniques able to solve the equations of motion of mechanical systems in both time and frequency domains.
- To know the passive control techniques that allow to control the dynamic behaviour of a particular mechanical system.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>46,0</td>
<td>30.67</td>
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<tr>
<td>Hours small group</td>
<td>14,0</td>
<td>9.33</td>
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Total learning time: 150 h

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<td>Related activities</td>
<td>...</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 38h</td>
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<td>Theory classes: 12h</td>
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<td>Laboratory classes: 4h</td>
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<tr>
<td>Self study : 22h</td>
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<td><strong>Full-or-part-time:</strong> 14h</td>
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<td>Theory classes: 3h</td>
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<td>Laboratory classes: 2h</td>
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<td>Self study : 9h</td>
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<td>Related activities</td>
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<tr>
<td><strong>Full-or-part-time:</strong> 32h</td>
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<tr>
<td>Self study : 18h</td>
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Description:

Specific objectives:

Related activities:

**Full-or-part-time:** 50h
Theory classes: 16h
Laboratory classes: 4h
Self study: 30h

ACTIVITIES

**Full-or-part-time:** 89h
Theory classes: 43h
Self study: 46h

Description:

Specific objectives:

Material:

Delivery:

**Full-or-part-time:** 3h
Theory classes: 3h
Description:

Specific objectives:

Material:

Delivery:

**Full-or-part-time:** 8h
Laboratory classes: 1h
Self study: 7h

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Description:

Specific objectives:

Material:

Delivery:

**Full-or-part-time:** 8h
Laboratory classes: 1h
Self study: 7h

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Description:

Specific objectives:

Material:

Delivery:

**Full-or-part-time:** 16h
Laboratory classes: 4h
Self study: 12h
Description:

Specific objectives:

Material:

Delivery:

Full-or-part-time: 26h
Laboratory classes: 6h
Self study: 20h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:

Complementary:

RESOURCES

Other resources: