205089 - The Space Environment

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 748 - FIS - Department of Physics
Academic year: 2019
Degree: MASTER'S DEGREE IN SPACE AND AERONAUTICAL ENGINEERING (Syllabus 2016). (Teaching unit Optional)
MASTER'S DEGREE IN AERONAUTICAL ENGINEERING (Syllabus 2014). (Teaching unit Optional)
ECTS credits: 3
Teaching languages: English

Teaching staff
Coordinator: Manel Soria
Others: Jordi Gutiérrez

Opening hours
Timetable: To be agreed with students

Prior skills
Knowledge of Satellites Design

Teaching methodology
Lectures and design projects

Learning objectives of the subject

Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group: 27h</th>
<th>36.00%</th>
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</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: 0h</td>
<td>0.00%</td>
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<td></td>
<td>Guided activities: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Self study: 48h</td>
<td>64.00%</td>
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</tbody>
</table>
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Content

The Space Environment and its Effects on Spacecraft Design

Learning time: 75h
Theory classes: 27h
Self study: 48h

Description:
1. Introduction.
2. The gravitational field
3. The magnetic field and the van Allen belts
4. Neutral environment: the high atmosphere
5. The plasma environment
6. Cosmic rays
7. Meteoroids and Space Debris

Related activities:
Use of Spenvis

Qualification system

Class participation and class exercises: 30%
Assignment: 30%
Project: 40%

Students with a grade below 5.0 in the project, or the assignments, or the classroom participation, will be able to take an additional written exam covering all the subject, that will take place in the date fixed in the calendar of final exams. The grade obtained in this exam will range between 0 and 10, and will replace the part or parts below 5.0 only in case it is higher, up to a maximum of 5.0 points. The additional exam will be done on the appointed day for the reconduction of bimonthly subjects in the academic calendar.

Bibliography

Basic:
