Course guides
220007 - C2 - Calculus II

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 749 - MAT - Department of Mathematics.

Degree: BACHELOR’S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Compulsory subject).
BACHELOR’S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2021 ECTS Credits: 6.0 Languages: Catalan

LECTURER

Coordinating lecturer: JORDI SALUDES CLOSA

Others: ANTONIO MAGAÑA NIETO

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. The ability to solve mathematical problems that may arise in an engineering context. The ability to apply knowledge of linear algebra; geometry; differential geometry; differential and integral calculus; differential and partial differential equations; numerical methods; numerical algorithms; statistics and optimisation

Generical:
2. THE ABILITY TO ANALYSE AND SYNTHESISE: The ability to think abstractly about the fundamental concepts of a text or exposition and to intelligibly present the result of one’s work.

TEACHING METHODOLOGY

- Attendance theory lessons.
- Attendance exercises lessons.
- Autonomous work.

In theory lessons there will be introduced the basic concepts and results of each topic, as well as examples and practical instances. In practical lessons the students are due to solve exercises and problems that would help them to understand the theory concepts. On the other hand, the students are due to solve a collection of problem, both during lessons and autonomous work. Along the course, a tracing of the learning of the student will be made. As a reference, there will be a solved problem collection available. Teachers will set doubts hours.

LEARNING OBJECTIVES OF THE SUBJECT

Provide the basic concepts of differential and integral calculus in several variables. Introduce the concept of parameterization of a curve and a surface. Introduce the vector calculus and it more relevant applications.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>28,0</td>
<td>18.67</td>
</tr>
<tr>
<td>Hours large group</td>
<td>32,0</td>
<td>21.33</td>
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</tbody>
</table>
Total learning time: 150 h

## CONTENTS

### 1. Curves.

**Description:**

**Related activities:**

**Full-or-part-time:** 21h 02m  
Theory classes: 4h 27m  
Practical classes: 3h 44m  
Self study: 12h 51m

### 2. Introduction to several variables functions.

**Description:**

**Related activities:**

**Full-or-part-time:** 14h 58m  
Theory classes: 2h 40m  
Practical classes: 3h 44m  
Self study: 8h 34m

### 3. Differential calculus.

**Description:**

**Related activities:**

**Full-or-part-time:** 39h 02m  
Theory classes: 8h  
Practical classes: 7h 28m  
Self study: 23h 34m

### 4. Integral calculus.

**Description:**

**Related activities:**

**Full-or-part-time:** 33h 15m  
Theory classes: 6h 13m  
Practical classes: 5h 36m  
Self study: 21h 26m
5. Vector analysis.

Description:

Related activities:

**Full-or-part-time:** 41h 43m
- Theory classes: 10h 40m
- Practical classes: 7h 28m
- Self study: 23h 35m

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**GRADING SYSTEM**

Continuous evaluation: 25%
Midterm exam: 25%
Final exam: 50%

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**EXAMINATION RULES.**

The final and midterm exams are individually developed. The teacher may ask the students to identify themselves.

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**BIBLIOGRAPHY**

**Basic:**

**Complementary:**