220007 - Calculus II

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2018
Degree:
BACHELOR'S DEGREE IN AEROSPACE TECHNOLOGY ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN AEROSPACE VEHICLE ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Catalan

Teaching staff
Coordinator: 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

General:
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 problems, 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 its more relevant applications.
## Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 32h</th>
<th>21.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 28h</td>
<td>18.67%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Learning time</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Curves.</td>
<td>21h 02m</td>
<td>4h 27m</td>
<td>3h 44m</td>
<td>12h 51m</td>
</tr>
<tr>
<td>2. Introduction to several variables functions.</td>
<td>14h 58m</td>
<td>2h 40m</td>
<td>3h 44m</td>
<td>8h 34m</td>
</tr>
<tr>
<td>3. Differential calculus.</td>
<td>39h 02m</td>
<td>8h</td>
<td>7h 28m</td>
<td>23h 34m</td>
</tr>
<tr>
<td>4. Integral calculus.</td>
<td>33h 15m</td>
<td>6h 13m</td>
<td>5h 36m</td>
<td>21h 26m</td>
</tr>
</tbody>
</table>

### Description:

### Related activities:
5. Vector analysis.

Learning time: 41h 43m
- Theory classes: 10h 40m
- Practical classes: 7h 28m
- Self study: 23h 35m

Description:

Related activities:

Qualification system

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

Regulations for carrying out activities

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

Bibliography

Basic:

Complementary:

Others resources: