220002 - C1 - Calculus I

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2019
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:
Magaña Nieto, Antonio

Others:
Saludes Closa, Jordi
Llongueras Arola, Maria Dolors

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

Teaching methodology

· Attendance sessions of exposition of the contents
· Attendance sessions of practical work.
· Self-developed study and realization of exercises.
During theory lessons the basic concepts will be introduced, as well as examples and practical cases. In the practical lessons, the students are due to solve problems in order to help them to understand the concepts and to acquire the ability of correctly expressing themselves.
The students are due to solve a problems collection during both attendance and not attendance work. A solved list of problems will be available in order to be a reference for the students.

Learning objectives of the subject

Providing basic knowledge about differential and integral calculus in one variable. Introduction to complex numbers.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>32h</th>
<th>21.33%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>28h</td>
<td>18.67%</td>
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<tr>
<td></td>
<td>Self study:</td>
<td>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. Numbers and functions</td>
<td>22h 10m</td>
<td>3h 34m</td>
<td>4h 40m</td>
<td>13h 56m</td>
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<tr>
<td>2. Derivation</td>
<td>26h 34m</td>
<td>6h 13m</td>
<td></td>
<td>20h 21m</td>
</tr>
<tr>
<td>3. Integration</td>
<td>49h 44m</td>
<td>10h 13m</td>
<td>11h 40m</td>
<td>27h 51m</td>
</tr>
<tr>
<td>4. Series and sequences</td>
<td>51h 32m</td>
<td>12h</td>
<td>11h 40m</td>
<td>27h 52m</td>
</tr>
</tbody>
</table>

## Planning of activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITY 1. MIDTERM EXAM</td>
<td>3h</td>
<td>3h</td>
<td></td>
<td></td>
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<tr>
<td>ACTIVITY 2. FINAL EXAM</td>
<td>3h</td>
<td>3h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVITY 3: THEORY SESSIONS AND PRACTICES</td>
<td>144h</td>
<td>26h</td>
<td>28h</td>
<td>90h</td>
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</table>
Qualification system

Continuous assessment: 25%
First midterm exam: 25%
Final exam: 50%

Regulations for carrying out activities

The final and the partial exams are due to be done individually. The teacher may ask the students to identify themselves.

Bibliography

Basic:


Complementary:

Others resources: