220002 - 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: 32h</th>
<th>21.33%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group: 28h</td>
<td>18.67%</td>
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<tr>
<td></td>
<td>Self study: 90h</td>
<td>60.00%</td>
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## Content

| 1. Numbers and functions | Learning time: 22h 10m  
Theory classes: 3h 34m  
Practical classes: 4h 40m  
Self study: 13h 56m |
|--------------------------|--------------------------------------------------|
| 2. Derivation            | Learning time: 26h 34m  
Theory classes: 6h 13m  
Self study: 20h 21m |
| 3. Integration           | Learning time: 49h 44m  
Theory classes: 10h 13m  
Practical classes: 11h 40m  
Self study: 27h 51m |
| 4. Series and sequences  | Learning time: 51h 32m  
Theory classes: 12h  
Practical classes: 11h 40m  
Self study: 27h 52m |

## Planning of activities

| ACTIVITY 1. MIDTERM EXAM | Hours: 3h  
Theory classes: 3h |
|-------------------------|-----------------|
| ACTIVITY 2. FINAL EXAM  | Hours: 3h  
Theory classes: 3h |
| ACTIVITY 3: THEORY SESSIONS AND PRACTICES | Hours: 144h  
Theory classes: 26h  
Practical classes: 28h  
Self study: 90h |
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: