340366 - FOMA-I1O43 - Fundamentals of Mathematics

Coordinating unit: 340 - EPSEVG - Vilanova i la Geltrú School of Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2019
Degree: BACHELOR’S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2018). (Teaching unit Compulsory)
BACHELOR’S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
ECTS credits: 7.5  Teaching languages: Catalan

Teaching staff
Coordinator: Joan Gómez i Urgellés
Others: Joan Gómez i Urgellés

Opening hours

Timetable:

Prior skills

Requirements

Degree competences to which the subject contributes

Specific:
1. CEFC6. CEFC6. Basic knowledge and application of algorithmic processes, informatic techniques to design solutions of problems, analyzing if proposed algorithms are apt and complex.

Transversal:
2. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
05 TEQ N1. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
04 COE N1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
07 AAT N2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.

Teaching methodology

Learning objectives of the subject

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# Study load

<table>
<thead>
<tr>
<th>Total learning time: 187h 30m</th>
<th>Hours large group:</th>
<th>75h</th>
<th>40.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>112h 30m</td>
<td>60.00%</td>
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</tbody>
</table>
### Content

| 3. Vector spaces | **Learning time:** 28h  
Theory classes: 10h  
Practical classes: 0h  
Self study: 18h |
<table>
<thead>
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<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>How to determine the dependence / independence of vectors and calculate dimensions and bases of a subspace.</td>
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</table>
| **Related activities:** | 1 Review of systems of linear equations. Methods Gauss and Cramer.  
2 Vector spaces. Subspace. |
| **Specific objectives:** |  |
## 4. Expansion of matrix algebra

**Learning time:** 39h  
- **Theory classes:** 15h  
- **Practical classes:** 0h  
- **Self study:** 24h

**Description:**
- 
**Related activities:**
- 
**Specific objectives:**
- 

## 5. Differential calculus

**Learning time:** 54h 40m  
- **Theory classes:** 21h 20m  
- **Practical classes:** 0h  
- **Self study:** 33h 20m

**Description:**
- 
**Related activities:**
- 
**Specific objectives:**
- 

## 7. Integral Calculus

**Learning time:** 42h  
- **Theory classes:** 16h  
- **Practical classes:** 0h  
- **Self study:** 26h

**Description:**
- Calculate change of variable primitives and parts. Calculation of integrals of rational functions. Rule Barrow.

1. Revision immediate calculation primitives. Change of variable and integration by parts.
2. Primitives rational functions.
3. Global defined as area. Barrow's rule.
4. Applications to the calculation of areas and volumes.

**Related activities:**
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**Specific objectives:**
- 

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**Specific objectives:**
- 

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Qualification system

Regulations for carrying out activities

Bibliography

Complementary:


Others resources:
- http://www.geogebra.org

Octave

Computer material
Geogebra
Resource