270203 - LMD - Logic and Discrete Mathematics

Coordinating unit: 270 - FIB - Barcelona School of Informatics
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2017
Degree: BACHELOR'S DEGREE IN DATA SCIENCE AND ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)
ECTS credits: 7,5  
Teaching languages: Catalan

Degree competences to which the subject contributes

Basic:
CB1. That students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply Knowledge from the vanguard of their field of study.

Specific:
CE1. Skillfully use mathematical concepts and methods that underlie the problems of science and data engineering.

General:
CG5. To be able to draw on fundamental knowledge and sound work methodologies acquired during the studies to adapt to the new technological scenarios of the future.

Transversal:
CT5. Solvent use of information resources. Manage the acquisition, structuring, analysis and visualization of data and information in the field of specialty and critically evaluate the results of such management.
CT6. Autonomous Learning. Detect deficiencies in one's own knowledge and overcome them through critical reflection and the choice of the best action to extend this knowledge.

Teaching methodology

Teaching methodology is described in Activities

Learning objectives of the subject

1. To know the language of mathematical logic
2. To understand basic arithmetic of integers and polynomials, specially the computational aspects
4. To know the basic results of enumerative combinatorics
5. To know the basics of graph theory, with emphasis on algorithmic problems

Study load

| Total learning time: 187h 30m | Theory classes: 82h 30m 44.00% |
|                             | Self study: 105h 56.00% |

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# Content

## (ENG) Càlcul proposicional

**Degree competences to which the content contributes:**

**Description:**

**Related activities:**
(ENG)

**Specific objectives:**

## (ENG) Aritmètica d'enters i polinomis

**Degree competences to which the content contributes:**

**Description:**

**Related activities:**
(ENG)

**Specific objectives:**

## (ENG) Enumeració bàsica i recurrències

**Degree competences to which the content contributes:**

**Description:**

**Related activities:**
(ENG)

**Specific objectives:**

## (ENG) Grafs i abres

**Degree competences to which the content contributes:**

**Description:**

**Related activities:**
(ENG)

**Specific objectives:**
### Planning of activities

<table>
<thead>
<tr>
<th>Problem solving</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0h</td>
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<tr>
<td>Theory classes</td>
<td>0h</td>
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<tr>
<td>Practical classes</td>
<td>0h</td>
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<tr>
<td>Laboratory classes</td>
<td>0h</td>
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<tr>
<td>Guided activities</td>
<td>0h</td>
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<tr>
<td>Self study</td>
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<table>
<thead>
<tr>
<th>Specific objectives:</th>
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### Qualification system

Midterm exam (40%) and final exam (60%)
Bibliography

Basic:

