230005 - FO - Fundamentals of Computers

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 701 - AC - Department of Computer Architecture
Academic year: 2017

Degree:
- BACHELOR’S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
- BACHELOR’S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
- BACHELOR’S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Compulsory)
- BACHELOR’S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Compulsory)

ECTS credits: 6

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering

Degree competences to which the subject contributes

Requirements
This course does not require having previously taken any other course.

Degree competences to which the subject contributes

Transversal:
1. 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.
The goals of this course are that:

1. The student must be able to code, test, and debug programs using the C language to solve elementary problems.

2. The student understands and masters the basics of procedural programming and uses the top-down design technique to solve the problems raised.

3. The student must understand what is about an operating system and its role on a computer functionality. He or She must know basic commands of a general purpose operating system.

Learning outcomes:

1. To Know the operation of a basic computer and how develop simple programs using it.

2. To use automatic tools for editing, compiling, running and debugging programs.

3. To correctly state the problem structure from a given problem description and identify alternative solutions.

4. To apply a suitable resolution choice and prove the correctness of that solution.

5. To know and correctly use the tools, instruments and applications, available at the lab, and properly achieve the analysis of the collected data.

6. To complete assigned tasks on a given schedule following the guidelines set by the course's profesor. The student must also be able to assess his or her work's progress, and the degree of fulfillment of this course's objectives.
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## Content

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<tr>
<th>Topic 1. Basic computer architecture</th>
<th>Learning time: 7h</th>
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<td>Description:</td>
<td>Theory classes: 3h</td>
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<td>Laboratory classes: 2h</td>
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<td>Self study: 2h</td>
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**Description:**
Basic structure of a computer: memory, I/O and CPU. Description of the three subsystems. Representation of the information. Memory units. Process of implementation of a program.

<table>
<thead>
<tr>
<th>Topic 2. Basic programming concepts</th>
<th>Learning time: 25h 40m</th>
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<tr>
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<td>Theory classes: 12h</td>
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<td>Laboratory classes: 4h</td>
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<td>Self study: 9h 40m</td>
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**Description:**

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<tr>
<th>Topic 3. Flow control statements</th>
<th>Learning time: 32h</th>
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<tbody>
<tr>
<td>Description:</td>
<td>Theory classes: 12h</td>
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<td>Laboratory classes: 4h</td>
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<td>Self study: 16h</td>
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**Description:**

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<th>Topic 4. Data structures</th>
<th>Learning time: 38h</th>
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<tr>
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<td>Laboratory classes: 6h</td>
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<td>Self study: 20h</td>
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**Description:**
**Topic 5. Functions**

**Learning time:** 40h 20m  
Theory classes: 16h  
Laboratory classes: 4h  
Self study: 20h 20m

**Description:**  

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**Topic 6. Files**

**Learning time:** 7h  
Theory classes: 3h  
Laboratory classes: 2h  
Self study: 2h

**Description:**  
Management of files.

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**Qualification system**

Laboratory (40%) = (30% - 50%) Quizz + (70% - 50%) Project  
Quizzes theoretical (0% - 20%)  
Final exam (40% - 60%)

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**Bibliography**

**Basic:**  

**Complementary:**  