Coordinating unit: 270 - FIB - Barcelona School of Informatics
Teaching unit: 747 - ESSI - Department of Service and Information System Engineering
Academic year: 2016
Degree: BACHELOR’S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 6  Teaching languages: Catalan

Teaching staff
Coordinator: - Maria Jose Casañ Guerrero (mjcasany@essi.upc.edu)
Others: - Marc Alier Forment (ludo@essi.upc.edu)

Prior skills
Interest in computing, its impact and history

Degree competences to which the subject contributes

Specific:
CT3.6. To demonstrate knowledge about the ethical dimension of the company: in general, the social and corporative responsibility and, concretely, the civil and professional responsibilities of the informatics engineer.
CT3.7. To demonstrate knowledge about the normative and regulation of informatics in a national, European and international scope.

General:
G2. SUSTAINABILITY AND SOCIAL COMPROMISE: to know and understand the complexity of the economic and social phenomena typical of the welfare society. To be capable of analyse and evaluate the social and environmental impact.

Teaching methodology
The specific organization of these 6 credits (four lessons per week in a semester of about 15 weeks useful) would be as follows:

- Two sessions each week, with:
  A two-hour exhibition dedicated to Professor
  B-two hours devoted to student presentations and documentaries

Learning objectives of the subject

1. Ability to analyze the social and environmental impact of science and technology with particular reference to computing and problems of sustainable development.
2. Knowledge about legal issues arising from the use of computing, and the legislation in force and its impact on professionals.
3. Ability to cope with ethical issues and codes of practice in the computing field, the impact of computing on the environment, and the issue of sustainable development in today’s world.
4. Knowing how to make public presentations on the historic, social and environmental aspects of computing.
5. Knowing how to write essays on computing and its social and environmental impact.
6. Ability to study and analyze problems in a critical mood.
7. Ability to critically read texts on computing, its impact and history.
## Study load

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong> 150h</td>
<td>30h</td>
<td>20.00%</td>
</tr>
<tr>
<td>Hours large group:</td>
<td>30h</td>
<td>20.00%</td>
</tr>
<tr>
<td>Hours medium group:</td>
<td>30h</td>
<td>20.00%</td>
</tr>
<tr>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td>Guided activities:</td>
<td>6h</td>
<td>4.00%</td>
</tr>
<tr>
<td>Self study:</td>
<td>84h</td>
<td>56.00%</td>
</tr>
</tbody>
</table>
Content

Society and technological change

Degree competences to which the content contributes:
Description:
1.1 Science and technology
1.2 The process of technological change
1.3 The diffusion of technology
1.4 The technology and its creators
1.5 The organization and technological change

The social impact of computing

Degree competences to which the content contributes:
Description:
2.1 The IT "revolution"
2.2 Social and economic effects of computerization
- From manufacture to the production of knowledge
- Information technology, labor and employment
- Other effects: education, health, leisure, etc..
2.3 Information, property and social control
2.4 Macroergonomy: social interaction between users
2.5 Microergonomy: physiology and psychology in relation Person / Computer

ICT's environmental impact

Degree competences to which the content contributes:
Description:
3.1 Computers and the Environment
3.2 The problem of computer waste
3.3 Computing and sustainability,

The computing professional: ethics and duties

Degree competences to which the content contributes:
Description:
4.1 The IT profession
4.2 Subjects and agents from liability in computing
4.3 Ethics and professional ethics in computing
4.4 Deontological codes in computing

Computing Law: the legislation affecting computing professionals
<table>
<thead>
<tr>
<th>Degree competences to which the content contributes:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
</tr>
<tr>
<td>5.1 Computers and Law: fraud and computer crimes</td>
</tr>
<tr>
<td>5.2 The legal protection of personal data (LPDP)</td>
</tr>
<tr>
<td>5.3 The legal protection of software</td>
</tr>
<tr>
<td>5.4 Laws on Internet (LSSICE)</td>
</tr>
<tr>
<td>5.5 The electronic contracting and electronic documents</td>
</tr>
<tr>
<td>5.6 The electronic transfer of data and money</td>
</tr>
<tr>
<td>5.7 Contracts in computing</td>
</tr>
</tbody>
</table>

### General history of computing

<table>
<thead>
<tr>
<th>Degree competences to which the content contributes:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong></td>
</tr>
<tr>
<td>6.1 The specificity of the history of computing</td>
</tr>
<tr>
<td>6.2 Historical Background</td>
</tr>
<tr>
<td>- The mechanical calculators and analogue</td>
</tr>
<tr>
<td>- Projects of C. Babbage</td>
</tr>
<tr>
<td>- The tabs</td>
</tr>
<tr>
<td>6.3 The proto-electromechanical computers</td>
</tr>
<tr>
<td>6.4 The first electronic computer: the Von Neumann architecture</td>
</tr>
<tr>
<td>6.5 - The computers of the classical computer</td>
</tr>
<tr>
<td>6.6 - Evolution of technology and software</td>
</tr>
<tr>
<td>6.7 - Mini and micro</td>
</tr>
<tr>
<td>6.8 - Internet</td>
</tr>
<tr>
<td>6.9 - History of computing in Spain</td>
</tr>
</tbody>
</table>
### Planning of activities

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
<th>Specific objectives</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development of theme 1: society and technology changes</strong></td>
<td>In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc...), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation).</td>
<td>1, 6</td>
<td>4h 30m</td>
</tr>
</tbody>
</table>

Theory classes: 4h  
Practical classes: 0h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 0h  

| **Development of theme 2: Impact of Social Computing** | In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc...), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation). | 1, 4, 6, 7 | 18h 30m |

Theory classes: 6h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 8h  

| **Development of Theme 3: Impact of environmental infotecnologies** |  |  | 18h 30m |

Theory classes: 6h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 8h  

### Hours

- **Theory classes**: 4h  
- **Practical classes**: 0h  
- **Laboratory classes**: 0h  
- **Guided activities**: 0h 30m  
- **Self study**: 8h  

Total: 18h 30m
**Description:**
In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc..), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation).

**Specific objectives:**
1, 3, 4, 6, 7

<table>
<thead>
<tr>
<th>Development of item 4: The profession: ethics and professional responsibility</th>
<th>Hours: 18h 30m</th>
</tr>
</thead>
</table>
| **Description:**
In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc..), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation). |
| **Specific objectives:**
1, 3, 4, 6 |

<table>
<thead>
<tr>
<th>Development of item 5: Computer Law: laws affecting computer professionals</th>
<th>Hours: 16h 30m</th>
</tr>
</thead>
</table>
| **Description:**
In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc..), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation). |
| **Specific objectives:**
1, 2, 4, 6, 7 |
### Development of item 6: General History of computing

**Description:**
In the lectures of the professor, students listen respectfully, take notes and ask questions to clarify doubts. In sessions in which some students do presentations, most students follow the same task when there are lectures by teacher; while students who are presenting the subject, had to prepare it, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc..), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation).

**Specific objectives:**
1, 4, 6, 7

<table>
<thead>
<tr>
<th>Hours</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Laboratory classes</th>
<th>Guided activities</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4h</td>
<td>4h</td>
<td>0h</td>
<td>0h 30m</td>
<td>4h</td>
</tr>
</tbody>
</table>

### Review of two books about the program

**Description:**
Reading, study and writing by students

**Specific objectives:**
1, 5, 6, 7

<table>
<thead>
<tr>
<th>Hours</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Laboratory classes</th>
<th>Guided activities</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0h</td>
<td>0h</td>
<td>0h</td>
<td>0h 30m</td>
<td>20h</td>
</tr>
</tbody>
</table>

### Vision and discussion about some ad hoc documentaries

**Description:**
View the documentary, discussion in small groups each group scoring three ideas suggested by the documentary and participate in the final debate led by the teacher.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Theory classes</th>
<th>Practical classes</th>
<th>Laboratory classes</th>
<th>Guided activities</th>
<th>Self study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0h</td>
<td>10h</td>
<td>0h</td>
<td>0h</td>
<td>0h</td>
</tr>
</tbody>
</table>
Study and presentation of a topic in class  
(group work)

**Description:**
Prepare the subject, if necessary with help from the teacher, and expose the subject to the class with the aid of some presentation tools (Impress, Powerpoint, etc.), after having prepared also a text summary of the subject (both text and presentation, must be in possession of the teacher with, at least, one day in advance of the meeting presentation).

**Specific objectives:**
1, 4, 5, 6

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Final exam

**Description:**
Final exam

**Specific objectives:**
1, 2, 3, 6, 7

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Qualification system

To be evaluated, a student must be delivered and presented two papers delivered and the two recensions that are required.

The weight of the various parties in the final evaluation will be:

30% - and work in public exhibition of agenda
20% - read reviews of two books
40% - final exam
10% - other elements that assessment: class attendance practices, ethics cases, work of cooperative learning, etc..

Generic skills are evaluated:
Sustainability and social commitment: from the specific issues that are already in the program on these aspects and also from interventions in class discussions.
Effective oral and written communication: from the activities that the student does:
Written communication: with reviews of books, the text of the presentations, the writing in the final exam and other works that could be made optional.
Oral communication: the presentations made by students in class and quality of presentation used.
270162 - ASMI - Social and Environmental Issues Od Information Technologies

Bibliography

Basic:


Complementary:


