270162 - ASMI - Social and Environmental Issues Od Information Technologies

Coordinating unit: 270 - FIB - Barcelona School of Informatics
Teaching unit: 747 - ESSI - Department of Service and Information System Engineering
Academic year: 2017
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.

Generical:
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>Theory classes:</th>
<th>Practical classes:</th>
<th>Laboratory classes:</th>
<th>Guided activities:</th>
<th>Self study:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total learning time:</strong></td>
<td>150h</td>
<td>30h</td>
<td>30h</td>
<td>0h</td>
<td>84h</td>
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<td>20.00%</td>
<td>20.00%</td>
<td>0.00%</td>
<td>4.00%</td>
<td>56.00%</td>
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</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**
Degree competences to which the content contributes:

Description:
5.1 Computers and Law: fraud and computer crimes
5.2 The legal protection of personal data (LPDP)
5.3 The legal protection of software
5.4 Laws on Internet (LSSICE)
5.5 The electronic contracting and electronic documents
5.6 The electronic transfer of data and money
5.7 Contracts in computing

General history of computing

Degree competences to which the content contributes:

Description:
6.1 The specificity of the history of computing
6.2 Historical Background
- The mechanical calculators and analogue
- Projects of C. Babbage
- The tabs
6.3 The proto-electromechanical computers
6.4 The first electronic computer: the Von Neumann architecture
6.5 - The computers of the classical computer
6.6 - Evolution of technology and software
6.7 - Mini and micro
6.8 - Internet
6.9 - History of computing in Spain
### Planning of activities

| Development of theme 1: society and technology changes | Hours: 4h 30m  
Theory classes: 4h  
Practical classes: 0h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 0h |
|------------------------------------------------------|---------------------------------------------|

**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, 6

| Development of theme 2: Impact of Social Computing | Hours: 18h 30m  
Theory classes: 6h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 8h |
|---------------------------------------------------|---------------------------------------------|

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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).

Students prepare and study a case study with the help, if necessary, of the teacher, and deliver the answers to questions proposed by the teacher.

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

| Development of Theme 3: Impact of environmental infotechnologies | Hours: 18h 30m  
Theory classes: 6h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 8h |
|---------------------------------------------------------------|---------------------------------------------|
**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).

Students prepare and study a case study with the help, if necessary, of the teacher, and deliver the answers to questions proposed by the teacher.

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

<table>
<thead>
<tr>
<th><strong>Development of item 4: The profession: ethics and professional responsibility</strong></th>
<th><strong>Hours:</strong> 18h 30m</th>
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<tbody>
<tr>
<td>Theory classes: 6h</td>
<td></td>
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<tr>
<td>Practical classes: 4h</td>
<td></td>
</tr>
<tr>
<td>Laboratory classes: 0h</td>
<td></td>
</tr>
<tr>
<td>Guided activities: 0h 30m</td>
<td></td>
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<tr>
<td>Self study: 8h</td>
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Students prepare and study a case study with the help, if necessary, of the teacher, and deliver the answers to questions proposed by the teacher.

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

<table>
<thead>
<tr>
<th><strong>Development of item 5: Computer Law: laws affecting computer professionals</strong></th>
<th><strong>Hours:</strong> 16h 30m</th>
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<tr>
<td>Theory classes: 4h</td>
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<tr>
<td>Practical classes: 4h</td>
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<tr>
<td>Laboratory classes: 0h</td>
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## Specific objectives:
1, 2, 4, 6, 7

<table>
<thead>
<tr>
<th>Development of item 6: General History of computing</th>
<th>Hours: 12h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 4h</td>
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<tr>
<td></td>
<td>Practical classes: 4h</td>
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<tr>
<td></td>
<td>Laboratory classes: 0h</td>
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<tr>
<td></td>
<td>Guided activities: 0h 30m</td>
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<tr>
<td></td>
<td>Self study: 4h</td>
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### Specific objectives:
1, 4, 6, 7

<table>
<thead>
<tr>
<th>Review of two books about the program</th>
<th>Hours: 20h 30m</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 0h</td>
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<tr>
<td></td>
<td>Practical classes: 0h</td>
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<tr>
<td></td>
<td>Laboratory classes: 0h</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 0h 30m</td>
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<tr>
<td></td>
<td>Self study: 20h</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Vision and discussion about some ad hoc documentaries</th>
<th>Hours: 10h</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 0h</td>
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<tr>
<td></td>
<td>Practical classes: 10h</td>
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<td></td>
<td>Laboratory classes: 0h</td>
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<tr>
<td></td>
<td>Guided activities: 0h</td>
</tr>
<tr>
<td></td>
<td>Self study: 0h</td>
</tr>
</tbody>
</table>

### Description:
Visualization of the documentary, discussion in small groups, writing down each group with the ideas that are highly suggestive or main for the documentary. Each group must present a document delivering the list of the main ideas suggested by the documentary. Individually, each student will submit a document with his critical opinion on the documentary.
### Study and presentation of a topic in class (group work)

**Hours:** 20h 30m  
Theory classes: 0h  
Practical classes: 0h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 20h

**Description:**  
Students prepare the subject previously with the help, if necessary, of the teacher and expose the subject in the class by helping with presentation tools (prints, PowerPoint, video, etc.). Previously they must deliver a text with the summary of the subject with the bibliography consulted, a text with the content of the presentation and a 2 or 3 minute video as the main result of the search made (text, presentation, and video must be in possession of the teacher with at least one day in advance of the presentation session in class).

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

### Final exam

**Hours:** 10h  
Guided activities: 2h  
Self study: 8h

**Description:**  
Final exam

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

To be evaluated, a student must have submitted and presented the public exposure work, the ethics case(s), the documentation of the video debates (at least 70% of the cases) and delivered the two book reviews. The weight of the various parts in the final evaluation will be the following:

35% - work and exhibition in public of subjects of the program
20% - reading and reviewing two books
20% - ethical case(s)
25% - Other elements susceptible to evaluation: video debates, attendance at practical classes, cooperative learning work, etc.

In the case of not having delivered any of the previous parts or not having a minimum average score of 6, the student will have to do a final exam that counts 50% of the mark of the subject. The other 50% will be calculated from the continuous evaluation note.

Transversal competences are evaluated:
Sustainability and social commitment: based on the specific topics that already exist in the subject on these aspects and, moreover, from the interventions / deliveries in the discussions in class.
Efficient oral and written communication: based on the activities that the student develops:
Written communication: with the book reviews, the text of the presentations and the rest of the works that can be done optionally.
Oral communication: with the presentations made in class by the students and the quality of the presentation used.

Bibliography

Basic:


Complementary: