Degree competences to which the subject contributes

Specific:
1. 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.
2. CT3.7. To demonstrate knowledge about the normative and regulation of informatics in a national, European and international scope.

Generical:
1. 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.
2. G4. EFFECTIVE ORAL AND WRITTEN communication: To communicate with other people knowledge, procedures, results and ideas orally and in a written way. To participate in discussions about topics related to the activity of a technical informatics engineer.

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
  - Two hours devoted to student presentations, case studies, exercises 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>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>30h</th>
<th>20.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>30h</td>
<td>20.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>6h</td>
<td>4.00%</td>
</tr>
<tr>
<td></td>
<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 de computing

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

**Description:**
- 2.1 The acceleration of technological change and its effects
  - The multiplier factor of ICT
  - Moore's Law
  - Metcalfe's law
  - Law of Fracture (Negroponte)
  - Gartner's hype curve
- 2.2 Some social and economic aspects of ICT
  - The future of work
  - Exponential organizations
  - Vigilance Capitalism
  - Others

### 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 Why is it important to study ethics?
- 4.3 Ethics, moral, culture and values
- 4.4 Ethical theories
- 4.5 Ethics and professional ethics in computing
- 4.6 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)

### 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 |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Description: <strong>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).</strong></td>
<td></td>
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</tbody>
</table>
| 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 |
<table>
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<tbody>
<tr>
<td>Description: <strong>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).</strong></td>
<td></td>
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</tbody>
</table>
| Specific objectives:  
1, 4, 6, 7 |

| Development of Theme 3: Impact of environmental infotecnologies | Hours: 18h 30m  
Theory classes: 6h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h 30m  
Self study: 8h |
<table>
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<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Description: <strong>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.</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Specific objectives:  
1, 6, 7 |
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

Development of item 4: The profession: ethics and professional responsibility

<table>
<thead>
<tr>
<th>Hours: 18h 30m</th>
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</thead>
<tbody>
<tr>
<td>Theory classes: 6h</td>
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<tr>
<td>Practical classes: 4h</td>
</tr>
<tr>
<td>Laboratory classes: 0h</td>
</tr>
<tr>
<td>Guided activities: 0h 30m</td>
</tr>
<tr>
<td>Self study: 8h</td>
</tr>
</tbody>
</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).

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

Development of item 5: Computer Law: laws affecting computer professionals

<table>
<thead>
<tr>
<th>Hours: 16h 30m</th>
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<tbody>
<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>
</tr>
<tr>
<td>Guided activities: 0h 30m</td>
</tr>
<tr>
<td>Self study: 8h</td>
</tr>
</tbody>
</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

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

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

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

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

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

<table>
<thead>
<tr>
<th>Description:</th>
<th>Hours: 20h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td>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).</td>
<td></td>
</tr>
<tr>
<td>Specific objectives:</td>
<td>1, 4, 5, 6</td>
</tr>
</tbody>
</table>

## Final exam

<table>
<thead>
<tr>
<th>Description:</th>
<th>Hours: 10h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam</td>
<td></td>
</tr>
<tr>
<td>Specific objectives:</td>
<td>1, 2, 3, 6, 7</td>
</tr>
</tbody>
</table>
To be evaluated by the continuous evaluation (CE), a student must have submitted the public exposure work (all partial submissions and presented the public exposure work), the ethics submissions (at least 75% of the submissions), the documentation of other elements susceptible of evaluation (at least 75%) and delivered the book review.

In the event that in one of the parts of the continuous evaluation (exhibition work, ethics deliverables, other deliverable or book review) the minimum required is not delivered, this part is considered not submitted and the corresponding note will be zero.

In the case of following the continuous evaluation, the mark of the subject is calculated as follows:
- 30% - Note of the work and exhibition in public of subjects of the program
- 20% - Note of book review
- 25% - Note of ethical submissions
- 25% - Note of other elements susceptible to evaluation: exercises based on videos, cooperative learning work, etc.

In the case of not following the continuous assessment, the student will have to do a final exam (EF). In this case, the final mark of the subject is calculated as follows:
\[ \text{max}(\text{EF},(0.5\times\text{EF} + 0.5\times\text{CE})) \]

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 review, 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:


