270088 - CSI - Information Systems Concepts

**Coordinating unit:** 270 - FIB - Barcelona School of Informatics

**Teaching unit:** 747 - ESSI - Department of Service and Information System Engineering

**Academic year:** 2019

**Degree:** BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Teaching unit Optional)

**ECTS credits:** 6  
**Teaching languages:** Spanish

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### Teaching staff

**Coordinator:** - Joan Antoni Pastor Collado (pastor@essi.upc.edu)

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### Prior skills

B1 level of English to read some articles that we will use

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### Requirements

- Prerequisite BD
- Prerequisite EEE
- Pre-Corequisite SIO

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### Degree competences to which the subject contributes

**Specific:**

CES1.1. To develop, maintain and evaluate complex and/or critical software systems and services.

CES1.9. To demonstrate the comprehension in management and government of software systems.

CES2.2. To design adequate solutions in one or more application domains, using software engineering methods which integrate ethical, social, legal and economical aspects.

CES3.2. To design and manage a data warehouse.

CSI1. To demonstrate comprehension and apply the principles and practices of the organization, in a way that they could link the technical and management communities of an organization, and participate actively in the user training.

CSI2.2. To conceive, deploy, organize and manage computer systems and services, in business or institutional contexts, to improve the business processes; to take responsibility and lead the start-up and the continuous improvement; to evaluate its economic and social impact.

CSI2.5. To demonstrate knowledge and capacity to apply business information systems (ERP, CRM, SCM, etc.).

CSI2.6. To demonstrate knowledge and capacity to apply decision support and business intelligence systems.

CSI4. To participate actively in the specification, design, implementation and maintenance of the information and communication systems.

CTI1.1. To demonstrate understanding the environment of an organization and its needs in the field of the information and communication technologies.

CT3.2. To know and describe the main processes of the functional areas of a company and the existent links between them, which make possible the coordination and integration in a group.

CT3.5. To identify the use possibilities and benefits which can be derived from an application in the different business software typologies and existent ICT services.

**General:**

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 course comprises theory classes, classes of problems, and lectures.

Theory:

The theory classes comprise the teacher’s explanations and constitute the main part of the course. In addition to presenting the theory, the teacher will also suggest articles and practical cases for in-depth study and which will be related to the course themes.

Exercises:

These are based on students presenting articles or cases to the class and that are linked to the theme under discussion. These expositions may be given on an individual or on a group basis. A group of between 2 and 4 students will present a previously-prepared theme at each session. The presentations will then be debated by students in order to delve more deeply into the theme. The teacher will guide and moderate the debate. Students are expected to participate actively in the debate and adopt a critical and constructive role during the discussion.

Another way of obtaining points is to carry out individual or group work on the articles. The work covers those articles/readings/cases which are not dealt with in class.

Presentations:

Presentation sessions will be held at the end of the course. In these, groups of students will choose and set forth a theme relating to the course material but which was not dealt with in class. The presentations will be given in lecture format. The presentation sessions effectively constitute a kind of congress at which students are both speakers and audience. The presentations must be accompanied by a written article of the kind one would expect to see in a specialised journal.

Learning objectives of the subject

1. Understand the role played by professional information systems in organizations
2. Understand and explain the processes running in the departments of information systems
3. Learn the basic processes of organizations and how to give service from the department of information systems.
4. Knowing how to implement and manage decision-making & strategy of our organization
5. Understanding how important are the non-technical skills for professionals in information systems

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>13h</th>
<th>8.67%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>30h</td>
<td>20.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Guided activities:</td>
<td>2h</td>
<td>1.33%</td>
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<tr>
<td></td>
<td>Self study:</td>
<td>105h</td>
<td>70.00%</td>
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Content

Systems, Information Systems and Other Animal (traducció: Systems, information systems and internal value chain)

Degree competences to which the content contributes:
Description:
    Systems, Information systems types and definition of the theory of internal value chain of organizations.

The role of the Information Systems Professional

Degree competences to which the content contributes:
Description:
    We emphasize the role that the software engineer must develop within the department of information systems and within their own organization. Talk about the equation of the credibility of the IT Professional and the CIO's role.

Organization and services of Information Systems Departments

Degree competences to which the content contributes:
Description:
    We will see that the department should provide information systems in organizations. Discuss the Services Catalog, SLAs, Outsourcing. We will make an introduction to IT governance using ITIL, COBIT, and others.

Enterprise Resource Planning (ERP)

Degree competences to which the content contributes:
Description:
    Discuss the historical evolution to ERP, the ERP concept, how are the ERP’s projects, ERP selection criteria, etc.

Innovation and Re-engineering

Degree competences to which the content contributes:
Description:
    Discuss the concept of task and process of re-engineering processes (BPR), the radical and radical innovation and organizational learning.

The external value chain

Degree competences to which the content contributes:
Description:
Discuss the concept of external value chain. We emphasize the importance of competitive forces and the need to control the market and relationships with competitiveness. Talk about Customer Relationship Management (CRM) and Supply Relationship Management (SRM).

Business Intelligence

Degree competences to which the content contributes:
Description:
Deals with the concept of Business Intelligence (BI) and the elements of a comprehensive BI solution: Datawarehouse, ETL tools, ER models and multidimensional, query, reporting, dashboards, data mining, etc. …

Performance management systems and strategic management systems.

Degree competences to which the content contributes:
Description:
We discuss about budget & forecasting, about the performance management tools, and also we discuss about strategic management systems such as Balanced Scorecard and EFQM.

The virtual value chain

Degree competences to which the content contributes:
Description:
Discuss the importance of the virtual value chain, generation of the array of value and as the information becomes a product itself.

Speeches and articles

Degree competences to which the content contributes:
Description:
Student's speeches and articles related to the subject. (Detailed thematic content variable each year)
## Planning of activities

| **Introduction** | **Hours:** 1h  
Theory classes: 1h  
Practical classes: 0h  
Laboratory classes: 0h  
Guided activities: 0h  
Self study: 0h |
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<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>During this session will be an introduction and overall course goals will be scored between teacher and student groups</td>
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<tr>
<td><strong>Specific objectives:</strong></td>
<td>1, 5</td>
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</table>

| **Vision of the role of information systems and internal management of the department** | **Hours:** 14h  
Theory classes: 2h  
Practical classes: 4h  
Laboratory classes: 0h  
Guided activities: 0h  
Self study: 8h |
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<tbody>
<tr>
<td><strong>Description:</strong></td>
<td>Students will explain an oral presentation and do further discussion on the role of information systems and internal management of the IT department using a set of articles.</td>
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<td><strong>Specific objectives:</strong></td>
<td>1, 2, 5</td>
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| **Information Systems for the internal value chain** | **Hours:** 17h  
Theory classes: 2h  
Practical classes: 5h  
Laboratory classes: 0h  
Guided activities: 0h  
Self study: 10h |
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<tr>
<td><strong>Description:</strong></td>
<td>Students will do an oral presentation and further discussion on the internal value chain using a set of articles.</td>
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<td><strong>Specific objectives:</strong></td>
<td>1, 3, 5</td>
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</table>

| **Information Systems for the external value chain** | **Hours:** 18h  
Theory classes: 3h  
Practical classes: 5h  
Laboratory classes: 0h  
Guided activities: 0h  
Self study: 10h |
|-----------------|--------------------------|
### Information Systems for Decision Making

**Description:**
Students will do a presentation and discussion on the external value chain and relatives information systems using a set of articles.

**Specific objectives:**
1, 3, 5

<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>18h</td>
<td>3h</td>
<td>5h</td>
<td>0h</td>
<td>0h</td>
<td>10h</td>
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### Strategic Information Systems

**Description:**
Students will make a presentation and discussion of decision making in organizations and the appropriate SI tactical monitoring processes using a set of news articles.

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

<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>12h</td>
<td>2h</td>
<td>2h</td>
<td>0h</td>
<td>0h</td>
<td>8h</td>
</tr>
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### The virtual value chain and value matrix

**Description:**
Students will make a presentation and discussion on the importance of the matrix of value in today's economy using a set of articles.

**Specific objectives:**
1, 3, 5

<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>
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</thead>
<tbody>
<tr>
<td>8h</td>
<td>0h</td>
<td>3h</td>
<td>0h</td>
<td>0h</td>
<td>5h</td>
</tr>
</tbody>
</table>
Conferences

Hours: 30h
Theory classes: 0h
Practical classes: 6h
Laboratory classes: 0h
Guided activities: 0h
Self study: 24h

Description:
Students will make a presentation as if in a scientific conference and also write an divulgative article

Specific objectives:
1, 2, 3, 4, 5

Final Exam

Hours: 32h
Guided activities: 2h
Self study: 30h

Description:
Final Exam

Specific objectives:
1, 2, 3, 4, 5

Qualification system

Note 10
1) Articles & Case Studies (3 points)
   2 points for the content of the presentations and papers
   1 point corresponding to G4 competition

2) Final Paper (3 points)
   2 points for the content of the presentations and paper
   1 point corresponding to G4 skill

3) Participation in class (1 point)

4) Final Exam (3 points)
**Bibliography**

**Basic:**

Fernández González, Jorge. Transparències fetes servir durant la teoria (format PPT o PDF).

Varis. Recopilatori d'articles divulgatius i d'actualitat sobre els que treballarem: diverses revistes/blogs/twitters (format PDF).

Varis. Recopilatori de casos per treballar.
