Course guide
270104 - SIO - Information Systems for Organisations

Unit in charge:	Barcelona School of Informatics
Teaching unit:	747 - ESSI - Department of Service and Information System Engineering.
Degree:	BACHELOR'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2010). (Optional subject).
Academic year: 2023	**ECTS Credits:** 6.0 **Languages:** Catalan

LECTURER

Coordinating lecturer:	MARC ALIER FORMENT
Others:	Primer quadrimestre: MARC ALIER FORMENT - 11, 12, 13 JOSE LUIS BELTRAN ANDREU - 11, 12 JORDI MALLOL RÚBIES - 13

PRIOR SKILLS

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

Professional fields in which SiO is projected:

Consultants, computing services enterprises and departments, that develop information systems projects for public or private organizations. Development and innovation in the field of Engineering and Management of Services and Information Systems.

REQUIREMENTS

- Prerequisite BD
- Prerequisite EEE

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.

CSI2.1. To demonstrate comprehension and apply the management principles and techniques about quality and technological innovation in the organizations.

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 demostrate 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.

CSI3.1. To demonstrate comprehension of the principles of risks evaluation and apply them correctly when elaborating and executing operation plans.

CSI3.2. To develop the information system plan of an organization.

CSI3.5. To propose and coordinate changes to improve the operation of the systems and the applications.

CSI4.1. To participate actively in the specification of the information and communication systems.

CT2.4. To demonstrate knowledge and capacity to apply the needed tools for storage, processing and access to the information system, even if they are web-based systems.

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.

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

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.

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

SIO's learning methodology will consist in the active assistance of students to all or most of the classes, which are of three types of sessions (theory, problems and laboratory). To make maximum use of these sessions, and closely synchronized with these, students will be working on various teaching materials for the course (chapters of the base reference book, articles, reports, blogs and other materials selected, etc..).

The teacher will propose and introduce, along the various course modules, the selective reading of the materials (distributed by themes, assigned to student teams), through the publication of a Didactic Guide at the beginning of each module. In order to ensure maximum utilization and completion of the course, students should follow the study guidelines and recommendations concerning the contents of the subject published in the didactic guide for each module as a guiding principle of work. Both the didactic guides and most materials are available to students through Atenea, in the space designated for SIO.

Active monitoring of the SIO Atenea space is of paramount interest of the students, since, besides the reminders made at the classroom, this will be the virtual home that the teacher uses to guide students, and to outline the various activities of research and evaluation. Additionally, this area of □□Atenea will become the access point and common reference which, in addition to the face-to-face sessions, will be used for written doubts and questions, and where answers and proposals will be discussed, at least the most common ones.

This course has a clear conceptual theoretical nature, but the teacher will put a special emphasis on linking and promoting a vision of professional practice-oriented topics, through materials and activities proposed for the subject, that will be selected and presented for students to think and analyze professional experiences (their own and that of others, through cases) in the topics within the scope of the course.

Given the nature of the subject - and the fact that this is a first pilot and experimental edition- we have considered as appropriate to establish a model of continuous assessment (CA) as the only way to overcome the course. The syllabus is structured in four central Modules, preceded and closed by two finishing modules for introduction and summary, respectively.

The complete schedule of the subject will be found fully detailed at the FIB Racó and at Atenea, in the space set for SIO. The dynamic functioning of the modules will be uniform throughout the course.

LEARNING OBJECTIVES OF THE SUBJECT

1.SIO-M0-ObjGral. Knowing the general organization and logistics of learning the course's contents, in relation to its themes and transversal case, as an "index" course and gateway to the IS Itinerary of the GEI of the FIB.
2.SIO-M1-ObjGral. Identify, distinguish and relate the basic concepts about the meaning of the information system of a human organization, and its close relations with other concepts.
3.SIO-M2-ObjGral. Understand the types of uses of information systems in organizations, as well as major current alternatives, both for transactional information systems, decision-making as communicational, with special practical emphasis on ERP systems.
4.SIO-M3-ObjGral. Understand the various strategic roles that IS can play for organizations, as well as alternatives for the strategic planning methodology, and the role of IS as a powerful tool for enterprise integration in a context defined international frameworks of IS governance and audit.
5.SIO-M4-ObjGral. Understand the historical development and current situation regarding the role and function of the internal organization of information systems at enterprises, in a context defined by international quality schemes and organization of the work computer.
6.SIO-M5-ObjGral. Synthesize a conceptual map for IS in organizations with an to the transversal case of the course, and know both the prospective studies relevant to the issues of SIO and its projection to the rest of the the IS Itinerary, and beyond.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	15,0	10.00
Hours large group	15,0	10.00
Self study	84,0	56.00
Hours small group	30,0	20.00
Guided activities	6,0	4.00

Total learning time: 150 h

CONTENTS

Module 0. Introduction and preparations of the course. (1s)

Description:
0.0. General Introduction to the thematic and the case of the course.
0.1. The course in its close context: Itinerary of IS, within the GEI.
0.2. Presentation of the course learning logistics.

Module 1. Concept of information system. (2s)

Description:
1.0. Case of IS: Editorial Defsa. First fascicle "Where we come from."
1.1. Intrinsic functions of the information system.
1.2. Basic components of the information system.
1.3. The information system in an organization.
1.4. Organizational purposes of the information system.
1.5. The computer-based information system.
1.6. Information systems and information technologies.

Module 2. Use of information systems in organizations. (4s)

Description:
2.0. Case of IS: Editorial Defsa. Second fascicle "Where we have arrived at."
2.1. Transactional Information Systems.
2.1.1. Ad-hoc systems and ERP systems (Enterprise Resource Planning systems).
2.1.2. ERP systems in relations with the processes of negotiating and the string-value system.
2.1.3. Modeling and Management of business processes.
2.1.4. Provision and implementation of ERP systems.
2.1.5. Inspection and parameterization of an ERP system.
2.2. Decisional Information Systems.
2.2.1. Decision Support Systems (DSS).
2.2.2. Business Expert Systems (BES).
2.3. Communicational Information Systems.
2.4.1. Group Decision Support Systems (GDSS).
2.4.2. Team support information systems.
2.4. Executive Information Systems (EIS).
2.5. Information systems for BI (business intelligence systems).
2.6. SCM and CRM systems: Introduction, contextualización and Prospects.

Module 3. Strategic Management of Information Systems. (3s)

Description:

3.0. Case of IS: Editorial Defsa. Third fascicle (Part 1): "Where do we want to go?"

3.1. Elements of perception of the role of IS in the organization.

3.1.1. Hypothesis of the stages in the use and management of IS in the organization.

3.1.2. Critical success factors.

3.1.3. The strategic grid of IS.

3.1.4. The matrix benefit / beneficiary of the SI.

3.1.5. Implications for IS responsible.

3.2. Strategic planning of IS.

3.3. Some current strategic alternatives.

3.3.1. Custom development versus acquisition packages.

3.3.2. Redesign of business processes.

3.3.3. IS outsourcing.

3.3.4. Integrated IS, such as ERP, CRM or SCM.

3.4. The IS as a Strategic Enterprise Integration tool.

3.5. Frameworks for governance, audit and risk management of IS (ITIL, COBIT, etc.).

Modul 4. Functional Management of Information Systems. (3s)

Description:

4.0. Case of IS: Editorial Defsa. Third fascicle (Part 2): "Where do we want to go?"

4.1. Historical development of the IS function in organizations.

4.2. Responsibilities of the role of IS in the organization.

4.2.1. Development and maintenance.

4.2.2. Production or exploitation.

4.2.3. Technical systems.

4.2.4. Data Management.

4.2.5. Other areas.

4.3. Professional roles and jobs in the function of SI.

4.4. Current challenges for the IS function.

4.5. Some organizational alternatives for the IS function.

4.5.1. Centralization / decentralization.

4.5.2. Organizational alignment.

4.6. Quality schemes for the IS function (ITIL, ISO-20000, CMMI, PMBOK, etc.).

Modul 5. Summary and projection of the course themes. (2s)

Description:

5.0. IS Case Recap: Editorial Defsa. "The next fascicle ... still in writing".

5.1. Summary: Toward a conceptual framework of IS in organizations.

5.2. Prospective studies relating to the themes of the course.

5.3. Projection: The SIO issues elsewhere in the IS Itinerary of the GEI, and in the MEI.

ACTIVITIES

Activities of Module 0.

Description:
Students should read this guide, which will specify the materials associated with the module.

Specific objectives:
1

Related competencies :
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 1. (1st part)

Description:
Students should read this guide, which will specify the materials associated with the module. Themes from the module will be distributed and assigned to the established student teams.

Specific objectives:
2

Related competencies :
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 1. (2nd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
2

Related competencies :
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 2. (1st part)

Description:
Students should read this guide, which will specify the materials associated with the module. Themes from the module will be distributed and assigned to the established student teams.

Specific objectives:
3

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 2. (2nd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
3

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 2. (3rd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
3

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 2. (4th part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
3

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 3. (1st part)

Description:
Students should read this guide, which will specify the materials associated with the module. Themes from the module will be distributed and assigned to the established student teams.

Specific objectives:
4

Related competencies :
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.
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 3. (2nd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
4

Related competencies :
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.
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 3. (3rd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
4

Related competencies :
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.
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 4. (1st part)

Description:
Students should read this guide, which will specify the materials associated with the module. Themes from the module will be distributed and assigned to the established student teams.

Specific objectives:
5

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 4. (2nd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
5

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 4. (3rd part)

Description:
Students can discuss in team exercises the AC module, but must resolve individually. The exercises will be the topics discussed collectivelly all, and the topics assigned to each team.

Specific objectives:
5

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 5. (1st part)

Description:
Conceptual map of 'IS in organizations' and course summary.

Specific objectives:
6

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

Activities of Module 5. (2nd part)

Description:
Prospective studies and projection of the course.

Specific objectives:
6

Related competencies :
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.
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.

Full-or-part-time: 10h
Theory classes: 1h
Practical classes: 1h
Laboratory classes: 2h
Self study: 6h

GRADING SYSTEM

The final grade of the course is calculated as the average of the laboratory project grade (LAB) and the theory grade (T). The latter is determined by continuous assessment (AC), provided the student has completed at least 80% of the required submissions during problem classes. If the student does not achieve this minimum, they will have to take a final exam. In this case, the theory grade (T) will be calculated as a combination of 60% of the final exam (E) and 40% of the continuous assessment (AC).

If problem submissions >= 80% => T = AC
Otherwise, T = E * 0.6 + AC * 0.4

FINAL Grade = (LAB + T) / 2

The competence in sustainability and social commitment will be assessed in submissions made in problem classes.
The competence in effective communication will be assessed with presentations and individual problem submissions.

BIBLIOGRAPHY

Basic:
- Gómez Vieites, Á.; Suárez Rey, C. Sistemas de información: herramientas prácticas para la gestión empresarial. 4a ed. ampl. y act.. Ra-Ma, 2011. ISBN 9788499641225.
- Laudon, K.C.; Laudon, J.P. Sistemas de información gerencial. 14a ed. México: Pearson Educación, 2016. ISBN 9786073236966.
- Jawadekar, W.S. Management information systems: text and cases. 4th ed. New Delhi: McGraw-Hill, 2011. ISBN 9780070146624.
- O'Brien, J.A.; Marakas, G.M. Management information systems. 10th ed. New York: McGraw-Hill/Irwin, 2011. ISBN 9780071221092.

Complementary:
- McNurlin, B.C.; Sprague, R.H.; Bui, T. Information systems management in practice. 8th ed., Pearson int. ed. Prentice Hall/Pearson Education, 2009. ISBN 9780131579514.
- Amat Salas, O. Análisis económico-financiero. 20a ed. Gestión 2000, 2008. ISBN 9788496612945.
- Piattini Velthuis, M.G.; Hervada Vidal, F. Gobierno de las tecnologías y los sistemas de información. Ra-Ma, 2007. ISBN 9788478977673.

RESOURCES

Hyperlink:
- http://sunsite.informatik.rwth-aachen.de/Publications/CEUR-WS/Vol-344/paper15.pd-
http://www.isaca.org/Knowledge-Center/cobit/Documents/cobiT4.1spanish.pdf