

| Degree programme     | Type | Course |
|----------------------|------|--------|
| Computer Engineering | OB   | 3      |
| Computer Engineering | OP   | 4      |

## Contact lecturer

Name : Isabel Guitart Hormigo

Email : mariaisabel.guitart@uab.cat

## Teaching staff

Ramón Musach Pi

## Group languages

You can consult this information at the [end](#) of the document.

## Prerequisites

There are no prerequisites.

## Objectives

This course gives the guidelines to know what is information system, which is their role in today's organizations, differentiate various types of information system developed and used in organizations and understand and how information systems provide continuous improvements in organizations to achieve a high level of competitiveness

More specifically, the objectives are:

- Understand basic concepts of Information Systems.
- Understand Information Systems and their role in today's organizations.
- Know Porter's value chain model.
- Understand Integrated Information Systems.
- Develop the capacity to analyze, evaluate and select Integrated Information Systems.
- Understand the implementation life cycle of information system.
- Know new trends in information systems.

## Learning outcomes

1. Develop a capacity for analysis, synthesis and prospection.
2. Select information system platforms to implement IT solutions.
3. Know and understand the characteristics and possibilities of servers and applications and of the

- client/server model.
- 4. Define security and quality specifications for databases and distributed systems.
- 5. Determine the requirements of an organisation's information and communication systems.
- 6. Design and evaluate an integrated information system based on its cost and quality.
- 7. Understand the management, exploitation and maintenance principles of an organisation's information systems.
- 8. Work cooperatively.

## Contents

The subject deals with the general concepts of information systems, their role within an organization, the processes that they provide support, the competitive advantage in business sector.

### Topic 1.- Introduction to information systems

- Basic concepts of information systems. Information systems in an organization. Types of information systems. Evolution of information systems.

### Topic 2.- Transaction processing system

- Characteristics of transaction processing system. Porter's value chain model. The main information systems: Internal Resource Management (ERP), Customer Relations Management (CRM), Supply Chain Management (SCM).

### Topic 3. - Decision support system

- Characteristics of the decision support system. Types of decision support systems.

### Topic 4. - Business intelligence systems

- Definition of the business intelligence system. Components of the Business Intelligence System. Data warehouse. Data Mart. ETL tools. Reporting. Dashboard. Data Mining. New Trends in Business Intelligence: Big Data.

### Topic 5.- Strategic management of information systems

- Department of information systems. Professional role. Tools to support the strategic management of ICTs.

## Learning activities and methodology

| Title                                | Hours | ECTS | Learning outcomes      |
|--------------------------------------|-------|------|------------------------|
| Theoretical classes                  | 26    | 1.04 | 1, 3, 4, 5, 7          |
| Preparing for an exam                | 20    | 0.8  | 1, 3, 4, 5             |
| Preparing for problems and practices | 30    | 1.2  | 1, 2, 5, 6, 7          |
| Problems classes                     | 12    | 0.48 | 1, 2, 3, 4, 5, 6, 7, 8 |
| Mentoring                            | 18    | 0.72 | 1, 3, 5, 6, 7          |
| Practical classes                    | 12    | 0.48 | 1, 2, 3, 4, 5, 6, 7, 8 |
| Individual work                      | 25    | 1    | 1, 3, 4, 5             |

Directed activities (33%)

- In the theory sessions, the teaching staff will provide information on the basic concepts and techniques of the subject, with indications of how to expand and organize their learning. During these sessions, the active participation of the students will be encouraged by proposing examples or alternatives to the solutions presented, as well as gathering evidence in relation to the practical cases exposed during the session to monitor the student's learning. In the classes of problems, a list of exercises will be followed that the student will try to solve on his own. The exhibition of the resolution of problems by the students will be encouraged.
- Resolution of problems and cases in class that work the concepts explained by the teacher. The student's participation must be active, proposing solutions, analyzing the proposed solutions critically, and presenting new approaches to the problem. Attendance at problems classes is compulsory.
- In the sessions of practices of Laboratory will be dealt with in depth related subjects: exposition of real cases and extension of certain subjects. The student will put into practice the knowledge that is acquiring the subject, as well as the transversal competences. Attendance at practical classes is compulsory.

#### Autonomous activities (50%)

- Individual study of the student, preparation of diagrams, conceptual maps, summaries, etc.
- Research and consultation of the bibliography of the subject.
- Individual resolution or in reduced groups of problems and cases, outside the classroom environment.

#### Supervised activities (12%)

- Preparation by the student of actions and works, under the tutelage of the professor.
- Group and individual tutorials.

#### Evaluation activities (5%)

- Individual and group tests that determine the acquisition by the student of the expected learning outcomes. In carrying out the individual and group assessment tests, in addition to the specific competences of the subject, the transversal competences acquired by the students will also be assessed.
- Other evaluation actions will also be evaluated, the development of which is included in the supervised, supervised and supervised activities.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Assessment

### Continuous assessment activities

| Title                                                           | Weight | Hours | ECTS | Learning outcomes      |
|-----------------------------------------------------------------|--------|-------|------|------------------------|
| Final work- Group - Group - Minimum rating: 5                   | 10%    | 1     | 0.04 | 1, 8                   |
| Practices - Group - Minimum rating: 4                           | 20%    | 2     | 0.08 | 1, 2, 3, 4, 5, 6, 7, 8 |
| Partial tests / Recovery tests - Individual - Minimum rating: 4 | 40%    | 2     | 0.08 | 1, 3, 4, 5, 7          |
| Problems - Individual - Minimum rating: 4                       | 30%    | 2     | 0.08 | 1, 2, 3, 4, 5, 6, 7    |

Continuous-assessment dates, delivery of problems, practices or work will be published on Campus Virtual (<https://cv.uab.cat>) and on the presentation slides, specific programming may change when necessary. Any such modification will always be communicated to students through Campus Virtual, which is the usual communication platform between lecturers and students.

#### a) Process and evaluation activities programmed

The assessment will be continuous and formative based on the development of the following evaluation activities:

- Problems (PP): resolution and delivery of problems and exercises proposed specifically for each session of problems, as well as the active participation in the sessions of problems.
- Practices (PL): completion of the practice reports and participation in the practical sessions. The correction of the delivered practices and their presentation will be evaluated. Although the practices will be in group, the qualifications will be individual, with questions to validate the practices delivered. In addition, the acquisition of the cross-cutting competence of working cooperatively with aspects such as the coordination and the distribution of tasks among the members of the group will be evaluated.
- Final work (TF): The teaching staff will propose a series of subjects related to the subject. A student from each group will have to communicate the selected topic and the teacher will have to validate the selection. The memory of the work and the oral presentation will be evaluated. Although the work will end in a group, the qualifications will be individual.
- Partial validation tests (PPV): of individual knowledge. This part will be composed of two tests, a first partial test performed in the middle of the course and a second partial test in the month of January. The specific dates will be communicated at the beginning of the course. Both tests are free of charge in case they are overcome with a grade greater than or equal to 4. The PPV will contain questions of the theory classes and a problem or exercise related to the part of problems that will be taken into account for the qualification of the part of problems.

Each evaluation activity will have a final grade that will be obtained if the following requirements are met:

- Final qualification of Partial Tests (NProv): In the event that the qualification from each of the two partials reaches 4 or more, the NProv will be the simple average of the two grades. Otherwise, the calculation will not be made and the student will have to submit to the recovery exam only for the part or parts suspended.
- Final problem qualification (NProb): The final grade will be obtained from the average of all the notes of problems and the qualifications of the problem question in each of the partial validation tests. Those students with a NProb of less than 4 will be able to take a review of this part.
- Final qualification of practices (NPract): The final grade will be obtained from the average of all practice notes. In the first class of practices, the weight of each practice will be reported in the NPract. Those students who have NPract less than 4 can not perform a recovery practice, the part of the practice is not recoverable.
- Final work qualification (NT): The final work will have two grades, the group work memorandum and the individual mark of each student based on the oral presentation and the questions posed during the exhibition. Those students who have the final suspended work will be able to do the work of a new subject proposed by the teaching staff.

#### b) Programming of evaluation activities

The scheduling of the assessment activities will be given on the first day of the subject and will be made public through the Virtual Campus and on the website of the School of Engineering, in the exam section.

#### c) Recovery process

Each part of the partial tests, problems and practices will have to be exceeded with a score of 4 or more and the final work with a score of 5 to be able to calculate the final mark of the subject. Otherwise, the student will have to perform the corresponding recovery tests:

- Proof of recovery of partial exams: of individual knowledge. Only students that have not obtained the minimum mark in one of the partial exams or in the two partial examinations will be presented to this test. The partial will be recovered that does not reach the minimum mark; If both are partial will be presented to the examination of recovery of both partial.
- Problem recovery test: of individual knowledge. The students who do not obtain the minimum mark in the final note of problems will be presented to the examination of recovery of this part.
- Test of recovery of the final work: of individual knowledge. The students who do not obtain the minimum mark of the final work will do an individual work of the subject proposed by the teaching staff, as a recovery of this part.

- The practical part of the subject is not recoverable. Students who do not obtain the minimum mark in this part will be suspended the subject.

The recovery test will also apply the minimum required for each of the parts to which the student must present. Also, within this test, each part must be exceeded with a mark greater than or equal to 4 to be able to ponder the final grade of the subject.

To pass the subject it is necessary that the evaluation of each one of the parts exceeds the minimum required and that the total evaluation exceeds the 5 points. If you do not pass the subject for some of the two previous conditions, the numerical note of the file will be the lowest value between 4,5 and the weighted average of the notes.

Therefore, after completing the recovery test, if the calculation of the final mark of the subject is equal to or greater than 5, but the minimum required in one of the assessment activities has not been obtained, the numerical note of The file will be the lowest value between 4,5 and the weighted average of the notes.

#### d) Procedure for the review of qualifications

For each assessment activity, a place, date and time of review will be indicated allowing students to review the activity with the lecturer. In this context, students may discuss the activity grade awarded by the lecturers responsible for the subject.

If students do not take part in this review, no further opportunity will be made available.

#### e) Special qualifications

- Students who have to submit to the recovery test (to suspend one of the two partial tests or both), do not submit to the recovery, they will have a "Non-Valuable" rating on their file.
- In order to pass the course with honour, the final grade must be a 9.0 or higher. Because the number of students with this distinction cannot exceed 5% of the number of students enrolled in the course, this distinction will be awarded to whoever has the highest final grade.

#### f) Irregularities by the student, copy and plagiarism

Without prejudice to other disciplinary measures deemed appropriate, and in accordance with current academic regulations, irregularities committed by a student that may lead to a grade variation in an evaluable activity will be graded zero (0).

Evaluation activities qualified in this way and by this procedure will not be recoverable. If it is necessary to pass any of these evaluation activities to pass the subject, this subject will be suspended directly, with no opportunity to recover it in the same course.

These irregularities include, among others:

- the total or partial copy of a practice, report, or any other evaluation activity;
- let copy;
- present a group work not done entirely by the members of the group (applied to all members, not only to those who have not worked);
- unauthorized use of AI (eg Copilot, ChatGPT or equivalent) to solve exercises, practices and/or any other evaluable activity;
- Submit as your own materials prepared by a third party, even if they are translations or adaptations, and in general works with non-original and exclusive elements of the student;
- have communication devices (such as mobile phones, smartwatches, camera pens, etc.) accessible during individual theoretical-practical assessment tests (exams);
- talk with classmates during the individual theoretical-practical evaluation tests (exams);
- copy or try to copy other students during the theoretical and practical evaluation tests (exams);
- Use or attempt to use writings related to the subject during the theoretical-practical evaluation tests (exams), when these have not been explicitly allowed. In future editions of this subject, students who have committed irregularities in an evaluation act will not have any of the evaluation activities carried out validated. In summary: copying, allowing copying or plagiarism (or the attempt to) in any of the

evaluation activities is equivalent to a FAIL, not compensable and without validation of these parts of the subject in subsequent courses.

#### g) Evaluation of repeating students

Regarding the repeating students, in the case of having passed the practices, the final work or the problems, will save the qualification obtained from the previous course in these parts. The repeating students will not have differential treatment in the parts that they must take.

#### h) Single assessment

This course does not provide for the single assessment system.

#### i) Restricted Use of AI

For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively for support tasks, such as searching for bibliography or information, or gathering ideas about tools and systems. Students must clearly identify in each submitted assignment which parts have been generated using AI technology, specify the tools used (including the prompts), and include a critical reflection on how these tools have influenced both the process and the final outcome of the activity.

Failure to transparently disclose the use of AI in this graded activity will be considered a breach of academic integrity and may result in partial or total penalties on the assignment grade, or more severe sanctions in serious cases.

## Bibliography

Essential reading:

- Laudon, Kenneth C. & Laudon, Jane P. (2018). Management information systems: managing the digital firm. (15th global ed.) Pearson Education Limited

[Available](#) in print at the library / [Available](#) online

- Fernández Alarcón, Vicenç. (2006). Desarrollo de sistemas de información: una metodología basada en el modelado. Edicions UPC

[Available](#) online / [Available](#) in print at the library

- Gómez Vieites, Álvaro & Suárez, Carlos. (2011). Sistemas de información: herramientas prácticas para la gestión empresarial. (4ª ed. ampl. y act.) RA-MA

[Available](#) in print at the library

- García Valcárcel, Ignacio. (2001). CRM: gestión de la relación con los clientes. Fundación Confemetal

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- Kumar, V. & Reinartz, Werner J. (2018). Customer relationship management: concept, strategy, and tools. (3rd ed.) Springer

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- Christopher, Martin. (2016). Logistics & supply chain management. (5th ed.) Pearson

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Further reading:

- O'Leary, Daniel Edmund. (2000). Enterprise resource planning systems : systems, life cycles, electronic commerce, and risk. (1st ed.) Cambridge University Press

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- Raab, Gerhard. (2008). Customer relationship management: a global perspective. (1st ed.) Gower

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- Davenport, Thomas H. (2000). Mission critical: realizing the promise of enterprise systems. Harvard Business School Press

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- Davenport, Thomas H. (2002). Misión crítica: promesas y riesgos de los sistemas empresariales de información. Oxford University Press

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- Turban, Efraim & Delen, Dursun & Sharda, Ramesh. (2011). Decision support and business intelligence systems. (9th ed.) Prentice Hall

[Available](#) en paper a la biblioteca

- Eckerson, W. W. (2011). Performance dashboards: measuring, monitoring, and managing your business (2nd ed.). Wiley.

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- Davenport, Thomas H. (2007). Competing on analytics. Computerworld, 41(38), 52.

[Available](#) online

- Stadtler, H. (2005). Supply chain management and advanced planning--basics, overview and challenges. European journal of operational research, 163(3), 575-588.

[Available](#) online

## Software

Software used in the course is open source (information systems-ERPs, BI systems, ...)

## Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE

| Type of teaching              | Group | Language | Semester       | Shift         |
|-------------------------------|-------|----------|----------------|---------------|
| (TE) Theory                   | 450   | Catalan  | first semester | morning-mixed |
| (PAUL) Classroom practices    | 451   | Catalan  | first semester | morning-mixed |
| (PLAB) Practical laboratories | 451   | Catalan  | first semester | morning-mixed |
| (PAUL) Classroom practices    | 452   | Catalan  | first semester | morning-mixed |
| (PLAB) Practical laboratories | 452   | Catalan  | first semester | morning-mixed |
| (PAUL) Classroom              | 453   | Catalan  | first          | morning-mixed |

| practices                     |     |         | semester       |               |
|-------------------------------|-----|---------|----------------|---------------|
| (PLAB) Practical laboratories | 453 | Catalan | first semester | morning-mixed |
| (PLAB) Practical laboratories | 454 | Catalan | first semester | morning-mixed |
| (PLAB) Practical laboratories | 455 | Catalan | first semester | morning-mixed |