

# **Information Systems and Systems Architecture**

Code: 44743 ECTS Credits: 6

2024/2025

Degree	Туре	Year
4318290 Archival Studies and Information Governance	ОВ	1

### Contact

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# Teaching groups languages

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document.

## **Prerequisites**

Skills at the user level of a computer system and its operating system (Windows, Linux, MacOS or equivalent) are recommended.

# **Objectives and Contextualisation**

Students will be provided with information technology knowledge including hardware and software, web technologies, information storage systems and information service and processing models (virtualization, cluster and cloud).

Concepts about types of database management systems and the underlying models in these systems will also be explained.

These objectives will be possible through a methodology based on face-to-face and virtual sessions that will allow the student to work with the fundamental concepts of the subject, carry out activities based on common use cases on the topics covered and apply these concepts to practical problems

## **Learning Outcomes**

- 1. CA05 (Competence) Validate technological instruments for document, information and data management based on the basic requirements.
- 2. CA06 (Competence) Develop basic databases in organisations and archive centres.
- 3. CA07 (Competence) Report the functions of information systems in professional settings in relation to archival science.
- 4. KA12 (Knowledge) Recognise information technologies applied to archival science.
- 5. KA13 (Knowledge) Define the specific concepts of information storage systems in the field of archival science.
- 6. KA14 (Knowledge) Define the specific concepts of types of database management systems in the field of archival science.
- 7. SA08 (Skill) Make basic use of computer applications for document, information and data management.
- 8. SA09 (Skill) Distinguish between information systems and their functionalities in the archival context.

SA10 (Skill) Determine the basic application requirements for document, information and data management.

#### Content

- 1. Introduction to the architecture of information systems.
- a) Architecture (hardware and software)
- b) Operating system and applications/services
- c) Communication networks and the Internet
- d) Information coding and storage systems
- e) Virtualization and cloud.
- f) Information security
- g) Use cases: virtual machines, environments and services.
- 2. Information systems
- a) Information management processes and services in the archives area
- b) Information systems based on Web technologies
- c) Architecture of an information system.
- d) Use cases: web environments and document management platform.
- 3. Information storage and processing systems
- a) Introduction to databases
- b) Architecture and entity-relationship models
- c) Primary/foreign keys
- d) SQL language
- e) Use cases: databases in a records area.
- 4. Final project of the subject: deployment of a web environment with a database for a file environment.

# **Activities and Methodology**

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Interactive classroom	40	1.6	
Type: Supervised			
Practices on use cases	35	1.4	
Type: Autonomous			
Personal study activity. Case analysis.	25	1	

The methodology used is based on guided activities (concepts and discussion), supervised (practices) and autonomous activities (study and preparation of assignments and participation in discussion forums).

Considering the definition of this subject in the master's study plan, the teaching of this subject will combine face-to-face with virtual classrooms and will have a continuous assessment.

Teaching language: Catalan.

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

#### **Continous Assessment Activities**

Title	Weighting	Hours	ECTS	Learning Outcomes
Follow-up questionnaires	32%	10	0.4	KA13, SA09, SA10
Participation in discussion forums and classes	20%	10	0.4	CA07, KA13, SA09
Use cases	48%	30	1.2	CA05, CA06, KA12, KA13, KA14, SA08, SA09, SA10

#### Assessment:

The assessment system is based on the "continuous assessment" model and, given its practical nature, there is no possibility of a single evaluation. The assessment includes the planned activities (use cases, questionnaires, participation). The platform for communication, delivery and registration of activities will be the virtual campus.

The activities must be delivered within the indicated period and the delivering after the deadline without justification will be penalized.

Re-Assessment: the re-assessment process can only be carried out on the follow-up questionnaires given the nature of the other evaluable activities and on the date indicated by the coordination.

Honors: Awarding a grade with honors is the decision of the professors of the subject. The UAB regulations indicate that the Honors can only be awarded to students who have obtained a final grade equal to or greater than 9.00. Up to 5% honors of the total number of students enrolled can be awarded.

In the case of not attending any evaluation, the student will have a 'No Avaluable' as the final grade for the subject.

Irregularities due to copying and plagiarism:

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

The 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 directly marked with zero with no opportunity to recover it in the same course.

These irregularities include, among others:

- the total or partial copy of a work, report, or any other evaluation activity;
- letcopy:
- use Al platforms (such as chatGTP or equivalent) in evaluable activities.
- 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);

- present as their own materials prepared by a third party (including translations or adaptations), and in general activities with non-original and exclusive contents produced by the student;
- have communication devices (such as mobile phones, smartwatches, camera pens, etc.) accessible during individual assessment tests;
- talk with classmates during individual assessment tests;
- copying or attempting to copy from other students during assessment tests;
- use or try to use writings related to the subject during the evaluation tests when these have not been explicitly allowed.

In future editions of this course, students who have committed irregularities in an evaluation act will not have any of the evaluation activities carried out validated.

# **Bibliography**

Books in digital format (ebooks):

To access it must be done from UAB computers or through http://xpv.uab.cat with the NIU and individual password from outside the UAB, (BR = relevant bibliography for the course).

Cercador: https://cutt.ly/bibcercadoruab

- (BR) Encyclopedia of computer science and Technology. Henderson, Harry. 2009.
- (BR) Aplicaciones informáticas de bases de datos relacionales, LibreOffice Base 6.x. Ladrón de Guevara, Miguel Angel, 2020.
- (BR) Introducció a Internet: fonaments tecnològics i recursos per a usuaris. David Rincón Rivera, Lluís Casals Ibáñez. 2003.
- (BR) Sistemes operatius: teoria aplicada. Solsona, Francesc. 2015.
- Data Simplification: Taming Information with Open Source Tools. Jules J. Berman. 2016.
- Global E-Governance Series: E-Governance: A Global Perspective on a New Paradigm. Obi, T. 2007.
- Ethical and social issues in the information age. Kizza, Joseph. 2003.
- Database Modeling and Design. Toby J. Teorey, Sam S. Lightstone, Tom Nadeau and H.V. Jagadish. 2011.
- The Illustrated Network. How TCP/IP Works in a Modern Network. Walter Goralski. 2011.
- Virtual Machines. Versatile Platforms for Systems and Processes. James E. Smith and Ravi Nair. 2005.

#### Other eBooks:

Administració de sistemes GNU/Linux. Jorba i Esteve, Josep, Suppi Boldrito, Remo. 2016. http://openaccess.uoc.edu/webapps/o2/handle/10609/60687

Administració avançada del sistema operatiu GNU/Linux, Jorba i Esteve, Josep, Suppi Boldrito, Remo. 2016. http://openaccess.uoc.edu/webapps/o2/handle/10609/60685

Books at UAB libraries:

Sistemas operativos : un enfoque en espiral. Elmasri, Ramez. 2010. Biblioteca Ciència i Tecnologia.

Big data : gestión y explotación de grandes volúmenes de datos. Alsina, Montserrat. 2017. Biblioteca C. Comunicació.

#### Software

Students will use a Cloud system (based on the OpenNebula environment) with virtual machines and free software (open-source) for each section in the subject.

# Language list

Name	Group	Language	Semester	Turn
(TE) Theory	1	Catalan	first semester	afternoon

