



**Universidad de Jaén**

Escuela Politécnica Superior de Jaén

## **Tecnologías para la gestión de la información**

2024-2025

Grado en Ingeniería Informática (E.P.S. Jaén)



GRUPO



Acceso Mayores 40

Guías docentes UJA

Horarios de tutorías

Llamamientos PAU

Movilidad (Coordinador)

P.O.D.

Solicitud bilingüismo

# Syllabus 2024-25 - 13312039 - Information Management Technology (Tecnologías para la gestión de la información)

## Caption

- Level 1: Tutorial support sessions, materials and exams in this language
- Level 2: Tutorial support sessions, materials, exams and seminars in this language
- Level 3: Tutorial support sessions, materials, exams, seminars and regular lectures in this language

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Full version (Spanish)

English

DEGREE:

Grado en Ingeniería informática

FACULTY:

SCHOOL OF ENGINEERING OF JAÉN

ACADEMIC YEAR:

2024-25

COURSE:

Information Management Technology

## SYLLABUS

### 1. COURSE BASIC INFORMATION

NAME: Information Management Technology

CODE: 13312039

ACADEMIC YEAR: 2024-25

LANGUAGE: English

LEVEL: 2

ECTS CREDITS: 6.0

YEAR: 4

SEMESTER: PC

### 2. LECTURER BASIC INFORMATION

NAME: SERRANO CHICA, JOSÉ MARÍA

DEPARTMENT: U118 - INFORMÁTICA

FIELD OF STUDY: 075 - CIENCIA DE LA COMPUTACIÓN E INT. ARTIFICIAL

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LANGUAGE: English

LEVEL: 2

### 3. CONTENT DESCRIPTION

Theory:

- Module 0. Introduction
- Module 1. Datawarehouses and digital resources
  - Datawarehousing
  - OLAP tools
  - Data mining
- Modulo 2. Big data and NoSQL
- Module 3. Information systems
  - Content management systems (CMS)
  - Analysis of CMS
- Module 4. Social networks

Practice:

- The students will design and develop a prototype solution to a given real-world problem of information management using a tool based on datawarehousing.
- It is recommended to develop the practical project in groups (minimum: 2 students per group).
- Each group will choose a real-world problem, collect enough data about it, and model it through the most appropriate tool for this, also of their choice.
- All this previous process will be conveniently documented and supervised along the course.
- The students will perform an oral presentation with the most significant results obtained from the project.

### 4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

#### Theoretical sessions

The theoretical aspects, needed for the appropriate acquisition of the subject contents and objectives, will be taught in the classroom. Each learnt technology will be placed in the general context, by means of examples in real world problems.

Active participation in classroom will be encouraged, by means of oral expositions and problem solving.

The student can ask questions in order to clarify the theoretical aspects whenever it is needed.

### Practical sessions

Practical sessions will follow specific guides oriented to the training in certain technologies, related to the development of a functional information management system. Students can work individually or in groups of variable size, according to the problem complexity.

Students with special educational needs should contact the Student Attention Service (Servicio de Atención y Ayudas al Estudiante) in order to receive the appropriate academic support

## 5. ASSESSMENT METHODOLOGY

In order to pass the subject, the student must obtain a qualification equal or higher than 5 points (up to 10), in both theory and practice parts, considering all the following aspects:

- Theoretical part will be evaluated by means of a written exam (short or test questions) (20%).
- The student will be encouraged to prepare an oral exposition regarding theoretical aspects of the matter (20%) (Only for January exams)
- During the practical sessions, the students will develop a structure for a datawarehouse, by means of available commercial tools. This practical exercise will be performed individually or in groups of different sizes, depending on its complexity. There will be a defense at the end of the course (50%).
- Finally, attendance and regular participation in class will be taken into account (10%).

### Competencies:

- S1 (attendance and participation): CTI1,CTI3
- S2 (theoretical goals): CTI1,CTI3,CTI5,CT6
- S3 (exercises and expositions): CTI1,CTI3,CTI5,CT6
- S4 (practical goals): CTI1,CTI3,CTI5,CT6

### Results:

- S1 (attendance and participation): 1, 3, 6
- S2 (theoretical goals): 1, 3, 6, CTI1R
- S3 (exercises and expositions): 1, 3, 6, CTI1R, CTI3R, CTI5R
- S4 (practical goals): 1, 3, 6, CTI1R, CTI3R, CTI5R

## 6. BOOKLIST ([Access the bibliography in the Library catalog](#))

### MAIN BOOKLIST:

- Web content management [Recurso electrónico] : a collaborative approach. Edition: -. Author: Nakano, Russell. Publisher: Boston : Addison-Wesley, 2001. ([Library](#))
- Creating content management systems in Java [Recurso electrónico] . Edition: -. Author: Ferguson, Arron. Publisher: Boston : Charles River Media, 2006, c2007. ([Library](#))
- Introducción a la minería de datos. Edition: Reimp. Author: Hernández Orallo, José. Publisher: Madrid : Pearson, D. L.2010 ([Library](#))
- Advanced data management : for SQL, NoSQL, cloud and distributed databases. Edition: -. Author: Wiese, Lena. Publisher: Oldenburg : De Gruyter, 2015 ([Library](#))
- Data warehouse design : modern principles and methodologies. Edition: -. Author: Golfarelli, Matteo. Publisher: San Francisco : McGraw-Hill Companies, 2009 ([Library](#))
- Professional content management systems : handlin digital media assets . Edition: -. Author: Mauthe, Andreas. Publisher: Chichester : John Wiley, 2004 ([Library](#))
- Introduction to social networking. Edition: -. Author: Miller, Michael, 1958-. Publisher: Upper Saddle River, NJ : Pearson Prentice Hall, c2011 ([Library](#))

### ADDITIONAL BOOKLIST:

- Data analysis using SQL and Excel [electronic resource] . Edition: 1st edition. Author: Linoff, Gordon.. Publisher: Wiley Pub. ([Library](#))
- SQL for Data Analysis. Edition: -. Author: -. Publisher: O'Reilly Media, Inc. ([Library](#))
- PHP and MySQL Web development. Edition: 4th ed.. Author: Welling, Luke, 1972-. Publisher: Upper Saddle River, N.J. : Addison-Wesley, 2009 ([Library](#))
- Database: systems concepts. Edition: 5th ed. Author: Silberschatz, Abraham. Publisher: Boston [etc.]: McGraw-Hill, 2006
- CMS security handbook [Recurso electrónico] : the comprehensive guide for WordPress, Joomla!, Drupal, and Plone . Edition: -. Author: Canavan, Tom. Publisher: Indianapolis, Ind. : Wiley Pub., 2011 ([Library](#))
- PHP 5 social networking [Recurso electrónico] : create a powerful and dynamic social networking webs. Edition: -. Author: Peacock, Michael. Publisher: Birmingham, U.K. : Packt Pub., 2010 ([Library](#))

## 7. SUSTAINABLE DEVELOPMENT GOALS

Educación de calidad

Igualdad de género

Industria, innovación e infraestructura

Paz, justicia e instituciones sólidas

## Alianzas para lograr objetivos

**DETAILED INFORMATION**

Goal 4. Quality Education: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes

4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy

4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

4.A Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all

4.B By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries

4.C By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states

Goal 5. Gender Equality: Achieve gender equality and empower all women and girls.

5.1 End all forms of discrimination against all women and girls everywhere

5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation

5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation

5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decisionmaking in political, economic and public life

5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences

5.A Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

5.B Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

5.C Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation

9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

9.A Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States 18

9.B Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

9.C Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Goal 16. Peace, Justice, and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.

16.1 Significantly reduce all forms of violence and related death rates everywhere

16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children

16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all

16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime

16.5 Substantially reduce corruption and bribery in all their forms

16.6 Develop effective, accountable and transparent institutions at all levels

16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels

16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance

16.9 By 2030, provide legal identity for all, including birth registration

16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements

16.A Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime

16.B Promote and enforce non-discriminatory laws and policies for sustainable development

Goal 17. Partnerships for the Goals: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

#### Finance

17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

17.3 Mobilize additional financial resources for developing countries from multiple sources

17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

17.5 Adopt and implement investment promotion regimes for least developed countries

## Technology

17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism

17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed

17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

## Capacity building

17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation

## Trade

17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda

17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020

17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

## Systemic issues

### Policy and institutional coherence

17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence

17.14 Enhance policy coherence for sustainable development

17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development

### Multi-stakeholder partnerships

17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries

17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

### Data, monitoring and accountability

17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

## 8. VIRTUAL / CLASSROOM TEACHING SCENARIO

Both theoretical and practical sessions will be scheduled in face-to-face modality.

Those activities that cannot take place in face-to-face modality will be carried out in a blended format with rotating attendance, and the use of videoconference systems, provided that the capacity and infrastructure of the space assigned for teaching the subject allow it.

The School could vary the percentage of attendance with respect to the number of students and classroom/laboratory capacity. In case the attendance gets under 100%, the School will determine the periodic rotation between students.

Evaluation system and mechanisms will stay the same as for the face-to-face modality.

**Recording, broadcasting and/or distribution by any means of activities is expressly prohibited without explicit permission from the teacher.**

## 9. VIRTUAL TEACHING SCENARIO

All teaching activities will be carried out synchronously and/or asynchronously, through the virtual learning platform and/or those mechanisms allowed and enabled by the University of Jaén.

Evaluation system and mechanisms will stay the same as for the face-to-face modality, replacing exercises and tests with similar tools as provided by the virtual learning platform and/or those mechanisms allowed and enabled by the University of Jaén, provided that the students can properly identify themselves.

**In any case, the recording, broadcasting and/or distribution by any means of teaching activities is expressly prohibited without explicit permission from the teacher.**

### DATA PROTECTION CLAUSE (on line exams)

**Institution in charge of data processing:** Universidad de Jaén, Campus Las Lagunillas, s/n, 23071 Jaén

**Data Protection Delegate:** dpo@ujaen.es

**Purpose:** In accordance with the Universities Law and other national and regional regulations in force, carrying out exams and assessment tests corresponding to the courses students are registered in. In order to avoid frauds while sitting the exam, the exam will be answered using a videoconference system, being able the academic staff of the University of Jaén to compare and contrast the image of the person who is answering the exam with the student's photographic files. Likewise, in order to provide the exam with evidential content for revisions or claims, in accordance with current regulation frameworks, the exam will be recorded and stored.

**Legitimacy:** compliance with legal obligations (Universities Law) and other national and regional regulations currently in force.

**Addressees:** service providers who are the owners of the platforms where the exams are carried out and with whom the University of Jaén has signed the corresponding data access contracts.

**Storage periods:** those established in current in force regulations. In the specific case of exam videoconference recordings, not before the examination records and transcripts are closed or the exam can still be reviewed or challenged.

**Rights:** you can exercise your right of access, amendment, cancellation, opposition, suppression, limitation and portability by sending a letter to the postal or electronic address indicated above. In the event that you consider that your rights have been violated, you may submit a complaint to the Andalusian Council for Transparency and Data Protection [www.ctpdandalucia.es](http://www.ctpdandalucia.es)

### CLASS RECORDING CLAUSE PERSONAL DATA PROTECTION

**Person in charge:** Universidad de Jaén, Paraje Las Lagunillas, s/n; Tel.953 212121; [www.ujaen.es](http://www.ujaen.es)

**Data protection delegate (DPO):** TELEFÓNICA, S.A.U. ; Email: dpo@ujaen.es

**Procedure aim:** To manage proper recordings of teaching sessions with the aim of facilitating learning process under a multimodal and/or online teaching

**Period for record storage:** Images will be kept during legal term according to regulations in force

**Legitimacy:** Data will be managed according to legal regulations (Organic Law 6/2001, December 21, on Universities) and given consent provided by selecting corresponding box in legal admission documents

**Data recipients (transfers or assignments):** Any person allowed to get access to every teaching modality

**Rights:** You may exercise your rights of access, rectification, cancellation, portability, limitation of processing, deletion or, where appropriate, opposition. To exercise these rights, you must submit a written request to the Information, Registration and Electronic Administration Service of the University of Jaén at the address above, or by e-mail to the address above. You must specify which of these rights you are requesting to be satisfied and, at the same time, you must attach a photocopy of your ID card or equivalent identification document. In case you act through a representative, legal or voluntary, you must also provide a document that proves this representation and identification. Likewise, if you consider that your right to personal data protection has been violated, you may file a complaint with the Andalusian Data Protection and Transparency Council [www.ctpdandalucia.es](http://www.ctpdandalucia.es)

