



Universitat de Lleida

# DEGREE CURRICULUM **COMPUTER SCIENCE**

Coordination: FLIX ROVIRA, JOSE MARIA

Academic year 2023-24

## Subject's general information

Subject name	COMPUTER SCIENCE			
Code	101409			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Architectural Technology and Building Construction	1	COMMON/CORE	Attendance-based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRAULA		TEORIA
	Number of credits	3		3
	Number of groups	1		1
Coordination	FLIX ROVIRA, JOSE MARIA			
Department	COMPUTER ENGINEERING AND DIGITAL DESIGN			
Teaching load distribution between lectures and independent student work	1 ECTS = 10h face-to-face lectures + 15h individual work.  6 ECTS = (40%) 60 h face-to-face (60%) 90 h treball autònom			
Important information on data processing	Consult <a href="#">this link</a> for more information.			
Language	Català			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
FLIX ROVIRA, JOSE MARIA	josepmaria.flix@udl.cat	4,4	
GUTIÉRREZ MARTOS, FERNANDO ELOY	fgutier6@xtec.cat	1,6	

## Subject's extra information

This course is essentially practical based on solving recommended exercises. The individual work is essential for obtaining the competences and acquiring the skills to properly use the tools taught during the course. You can find collections of these materials in Campus Virtual: <http://cv.udl.cat>

1. Introduction to the Computer Science applied to Architecture
2. Introduction to Database Management
3. Collection of exercises and bibliography

The correct use of Virtual Campus is essential to access the resources of the subject, the scheduling, notifications generated during the course and also correctly deliver practises and practical exams.

## Learning objectives

The practical nature of the subject makes it very useful in many areas and professional fields. The aim is to provide students with knowledge of the area those that are useful and applicable to their qualification profile.

The main objectives of the course are:

1. Identify the basic components of the current computer and its main features.
2. Identify the software tools to develop their professional work.
3. Identify tools and procedures to keep information secure in their workplace.
4. Identify the advantages and disadvantages in using free/proprietary software and learn to choose the most appropriate depending on the SW characteristics, user requirements and cost.
5. Clearly identify the necessary tools to meet the ICT requirements arising from their profession.
6. Use advanced document editing techniques: Styles, numbering schemes, cross-references and tables of contents.
7. Use advanced data processing techniques: Performing statistical calculations, dynamic filtering tools and graphical representation of information.
8. Acquiring skills in using a drawing tool for drawing 2D shapes.
9. Solve two-dimensional shapes and represent bodies in space from a data set provided.
10. Acquire skills in the use of a database management system.
11. Design and develop a database according to the requirements of an organization and considering storage issues.
12. Query a database and display the information based on established requirements.
13. Develop properly and efficient quality technical documents.
14. Successfully integrate information from different applications.
15. Acquire the habit of working in an orderly, organized and precise.
16. Express information in an orderly and accurate way.

## Competences

### Strategic competences of University of Lleida

- **UdL3.** Mastering ICT's.

### Cross-disciplinary competences

- **EPS5.** Capacity of abstraction and of critical, logical and mathematical thinking.

## Subject contents

### 1. Database Management and information processing

1. Database Management Systems. Concepts and components.
2. Structure of a Relational DBMS. Basic concepts.
3. Creation and Interrogation of a Database
4. Creating Reports

### 2. Computer-Aided design

1. Working environment
2. Data entry. Coordinates system
3. Basic Drawing commands
4. Drawing aid tools and Function Keys
5. Editing commands
6. Visualization control
7. Layers and object properties
8. Creating and editing blocks
9. Creating and editing dimensions.

### 3. Advanced Editing for the development of technical documentation

1. Advanced reporting
2. Advanced use of spreadsheets
3. Information Integration
4. Use and exploitation of collaborative work environments

### 4 Computer system components

1. Main components: Hardware and Software
2. Information security and network storage
3. Virtualization and systems integration

## Methodology

### Master classes (2.7 credits)

- Theoretical lectures: lectures supported by transparencies and/or notes. Discussion with students applying theoretical concepts in real life and/or in the scope of their professional profile.
- Practical lectures: problem based methodology. A collection of problems is provided, the solution of which is being built with the students during the semester.
- It is recommended to review the materials prior to the lectures to facilitate discussion and improve the quality of learning.

**Laboratori classes (3.3 credits)**

- In some cases the session is conducted as a tutorial for the efficient use of ICT tools in the construction of a solution.
- In most of cases the student must solve the proposed practical cases supported by the teacher interaction and feedback.
- It is recommended the active participation of students in order to reinforce learning concepts and make the most of the IT tools.

**Autonomous work:**

- The autonomous work is essential to acquire an optimal use the ICT tools used during this course.
- It is recommended that the student meets all practical cases and problems posed by teachers in the different thematic units.

## Development plan

**ENGLISH**

Dates (Weeks)	Description:	Face-to-Face Activity	FH (2) (Hours)	Autonomous Activity	AH (3) (Hours)
Week 1	Welcome day				
Week 2	Course Presentation	Exhibition events and methodology	1	Teaching Plan Review	1
	T1. RDBMS Concepts	Lecture and participatory classes	2	Exercises resolution and study	2
Week 3	T1. Relational Model	Lecture and participatory classes	2	Exercises resolution and study	4
	T1. Case of Study.	Problem Based Learning	2	Exercises resolution and study	4
Week 4	DB Design Activity.	Problems and classroom practices	2	Lab exercises	8
	DB Design Activity.	Problems and classroom practices	2	Lab exercises	8
Week 5	T1. Queries. Lab Activity.	Problem Based Learning	2		
	DB Queries Activity.	Problems and classroom practices	2	Lab exercises	8
Week 6	T1. Case of Study.	Problem Based Learning	2	Exercises resolution and study	4
	DB Lab exercises.	Problems and classroom practices	2	Lab exercises	8
Week 7	T1. Case of Study.	Problem Based Learning	2	Exercises resolution and study	4
	DB Lab exercises.	Problems and classroom practices	2	Lab exercises	6
Week 8	T1. Design Exercise ( <b>CP1</b> )	Problem Based Learning	2	Exercises resolution and study	4
	CP1. Lab exercise	Problems and classroom practices	4	Lab exercises	6

Week 9	<b>PA1. Evaluation Test - 1</b>	Individual written exam	2	Resolution and Exam Review	1
Week 10	T2. CAD I. (T)	Participatory classes and lab practice	3		
	PR1. CAD I.	Problem Based Learning	1	Exercises resolution and study	4
Week 11	T2. CAD II. (T)	Participatory classes and lab practice	2		
	PR2. CAD II.	Problem Based Learning	2	Exercises resolution and study	4
Week 12	T2. CAD III. (T)	Participatory classes and lab practice	2		
	PR3. CAD III.	Problem Based Learning	2	Exercises resolution and study	4
Week 13	T4. Main component: Hardware and Software (T)	Participatory classes	2	Study and <b>Autonomous activity</b>	4
	<b>CP2. CAD</b>	Problem Based Learning	2		
Week 14	T4. Information security and data storage (T)	Participatory classes	2	<b>Autonomous activity</b>	2
	T3. Technical Report Writing	Participatory classes and lab practice	2	<b>Lab exercise and Autonomous activity</b>	6
Week 15	T3. Spreadsheets Elaboration	Participatory classes and lab practice	2	<b>Lab exercise and Autonomous activity</b>	6
	Lab Activity	Problem Based Learning	2		
Week 16 Week 17	<b>PA2. Evaluation Test - 2</b>	Individual written exam	2	Resolution and Exam Review	
Week 18	Qualifications and Tutoring session				
Week 19	Recovery Test	Individual written exam	2	Resolution and Exam Review	

(2) FH = Face-to-Face Hours

(3) AH = Autonomous Hours

## Evaluation

Objectives	Assesment Activities	%	Dates	O/V (1)	I/G (2)	Remarks
Unit 1	<b>CP1. Classroom Exercise (BD)</b>	10	Week 8	O	I	
Unit 2	<b>PA1. Assesment Test 1</b>	20	Week 9	O	I	
Unit 2	<b>CP2. CAD</b>	30	Week 13	O	I	
Unit 3	<b>ACTs. Autonomous Activities</b>	10	During the course	O	I	
Unit 4	<b>PA2. Assesment Test 2</b>	30	Weeks 16 i 17	O	I	

Objectives	Assesment Activities	%	Dates	O/V (1)	I/G (2)	Remarks
Units 1, 2, 3	Recovery assesment	80	Week 19	V	I	Recoveries Week
<b>NotaFinal</b> = PA1+CP1+PR6+PA2+ACTs						

(1) Mandatory / Voluntary

(2) Individual / Group

The final grade is calculated by the sum of the results obtained from the avaluable exercises (**CP1, CP2 i ACTs**) plus the assessment test (**PA1 + PA2**).

(\*) On the 19th week the grade of the course can be recovered by a final exam (80%). This test can also be done by all those students having passed the ongoing assessment and want to modify their grade, assuming that the obtained score in the recovery test is the only score that will be considered for the calculation of the final mark.

## Bibliography

### Main Bibliography

- AutoCad 2000. Basico. Tickoo S. Paraninfo. ISBN8428326673
- Up and running with AutoCAD 2017 : 2D and 3D drawing and modeling. Gindis Elliot. Academic Press. 2016. ISBN9780128110584. Repositori electrònic UdL.
- Bases de datos relacionales y modelado de datos. Piñeiro Gómez. Paraninfo. 2013. ISBN9788428333566
- Aprende SQL en un fin de semana: El curso definitivo para crear y consultar bases de datos. Antonio Padial Solier. 2017. ISBN9781520363462
- Introducción a la Informática. Prieto A., Lloris P., Torres J.C. 4a Edición. McGraw-Hill. ISBN8448146247