DEGREE CURRICULUM

DATABASES

Coordination: SAYAGO BARRANTES, SERGIO

Academic year 2023-24

DATABASES 2023-24

Subject's general information

<table>
<tr><td>Subject name</td><td>DATABASES</td></tr>
<tr><td>Code</td><td>105016</td></tr>
<tr><td>Semester</td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Computer Engineering</td><td>2</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><th>PRAULA</th><th>TEORIA</th></tr>
<tr><td>Number of credits</td><td>3</td><td>3</td></tr>
<tr><td>Number of groups</td><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>SAYAGO BARRANTES, SERGIO</td></tr>
<tr><td>Department</td><td>COMPUTER ENGINEERING AND DIGITAL DESIGN</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>1 ECTS = 25 hours
6 ECTS = 25x6 = 150 hours
40% face-to-face = 60 hours (theory, pralab, exams)
60% independent work = 90 hours (study and realization of exercises)</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Spanish and Catalan</td></tr>
<tr><td>Distribution of credits</td><td>Sergio Sayago (PRALAB + TEORIA = 6 ECTS)</td></tr>
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DATABASES 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
SAYAGO BARRANTES, SERGIO	sergio.sayago@udl.cat	6	Make an appointment by email Face-to-face tutoring: Office 12 of the Pla de la Massa building Virtual tutoring: video conference space for the subject on the Virtual Campus

Subject's extra information

Databases is a subject that is taught in the first semester of the second year of the Degree in Computer Engineering. Databases are part of the "Application Analysis and Design" Subject within the "Common Training in the Computer Science" Module.

It is based on the knowledge acquired in the subjects of Data Structures and Programming 2.

Databases introduces the student to Database technology as the most common mechanism in the management, manipulation and storage of information, focusing on the relational model.

The knowledge acquired in this subject will be applicable in most professional careers, especially for those who are dedicated to the development of applications.

PostgreSQL is used in the course.

Learning objectives

1. Use a relational database manager.
2. Understand database technology as a common mechanism for managing, manipulating and storing information.
3. Administer a database in a relational manager
4. Understand the functional structure of a Relational Database Management System Design a database according to user needs.
5. Build database manipulation statements based on the SQL standard.
6. Build access statements to a database based on the SQL standard.
7. Understand the information storage needs of users.

Competences

Cross-disciplinary competences

- EPS11. Capacity to understand the needs of the user expressed in a non-technical language.

Specific competences

- GII-CRI2. Capacity to plan, conceive, deploy and direct projects, services and computer systems in all fields, leading his set-up and his continuous improvement and evaluation of his economic and social impact.
- GII-CRI12. Knowledge and application of the characteristics, functionalities and structure of the databases, that allow their suitable use, and the design and the analysis and implementation of applications based in them.
- GII-CRI13.Knowledge and application of the necessary tools for the storage, processing and access to the Systems of information, including those based on the web.
- GII-CRI16. Knowledge and application of the principles, methodologies and life cycle of software engineering.
- GII-CRI17. Capacity to design and evaluate person-computer interfaces that guarantee the accessibility and

usability of systems, services and computer applications.

Subject contents

1. Important concepts
2. Relational model
3. SQL
4. Normalization
5. Conceptual and logical design
6. Components of a DBMS
7. Physical design

Methodology

THEORY and PRALAB sessions (face-to-face):

- Participatory classes where theoretical concepts are explained and exercises are carried out.
- Realization of problems and practices by students, and personalized monitoring of these activities.

Independent Work (non-present):

- Study of theory concepts and related exercises.
- Study and realization of practices, problems and exercises.

Development plan

	Face-to-face		*Non-present*	*Objectives, competences, hours*		
Week	**Theory**	**Pralab**	**Activities**	**Objectives**	**Competences**	**Hours**
1	Presentation Chapter 1	Chapter 2	Check this subject's degree curriculum Study Chapter 1+2	O2 O4 O7	EPS11 GII-CRI12	2H theory 2H pralab 2H non-present
2	Chapter 2	Chapter 2	Study Chapter 2	O2	GII-CRI12	2H theory 2H pralab 6H non-present
3	Chapter 2	Chapter 2	Study Chapter 2	O2	GII-CRI12	2H theory 2H pralab 6H non-present
4	Chapter 3	Chapter 3	Study Chapter 3	O1 O2 O3 O5, O6	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present

5	Chapter 3	Chapter 3	Study Chapter 3	O1 O2 O3 O6-7	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
6	Chapter 3	Chapter 3	Study Chapter 3	O1 O2 O3 O6-7	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
7	Chapter 4	Chapter 4	Study Chapter 4	O2 O5	GII-CRI12	2H theory 2H pralab 6H non-present
8	Mock-up exam	Mock-up exam	Study for the exam	O1-7	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 11H non-present
9	EXAMS					
10	Chapter 5	Chapter 5	Study Chapter 5	O2 O5 O8	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
11	Chapter 5	Chapter 5	Study Chapter 5	O2 O5 O8	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
12	Chapter 5	Chapter 5	Study Chapter 5	O2 O5 O8	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
13	Chapter 6	Chapter 6	Study Chapter 6	O1 O2 O3 O4	GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
14	Chapter 7	Exercises Chapter 6	Study Chapter 6 + 7	O2 O3 O4	GII-CRI2 GII-CRI12	2H theory 2H pralab 6H non-present
15	Mock-up exam	Mock-up exam	Study for the exam	ALL	EPS11 GII-CRI2 GII-CRI12	2H theory 2H pralab 11H non-present
16-17	EXAMS					

18	OFFICE HOURS
19	EXAMS (RE-TAKES)

Evaluation

1. Continuous assessment

Block	ID	Activity	Contents	Weight	Mandatory	Retake	Group/Individual	Minimum mark
A (30%) Written and practical tests	A1	First partial exam (theory, exercises)	T1-T2-T3-T4	30% (Theory=15%; Exercises=15%)	Y	Y	Individual	No
B (30%) Written and practical tests	B1	Second partial exam (theory, exercises)	T5-T6-T7	30% (Theory=15%; Exercises=15%)	Y	Y	Individual	No
C (20%) Laboratories	C1	First Lab	T1-T2-T3-T4	20%	N	N	Group (2)	No
D (20%) Laboratories	D1	Second Lab	T5-T6-T7	20%	N	N	Group (2)	No

1.1 Remarks

- A1. On paper. No notes. Date/time/classroom: check the degree exam calendar (1st period). Language: CAT/CAST/ANG
- B1. On paper. No notes. Date/time/classroom: check the degree exam calendar (2nd period). Language: CAT/CAST/ANG
- C1. Delivery through the corresponding activity on the Virtual Campus.
- D1. Delivery through the corresponding activity on the Virtual Campus.

1.2 Final Mark

- The course is approved with a Final Mark (NF) >= 5
- The compulsory activities must be carried out to pass the course.
- NF = (A1*0.3) + (B1*0.3) + (C1*0.2) + (D1*0.2)
- If NF < 5 then retakes
- A maximum of 0.5 to add to the NF for participation in sessions and student evolution in the subject

1.3 Retakes

- Retake of A1: A1 remarks apply. Minimum score = NO. Maximum mark = 7.5. Date/time/classroom: check the degree exam calendar (retakes). Language: CAT/CAST/ANG
- Retake of A2: A2 remarks apply. Minimum score = NO. Maximum mark = 7.5. Date/time/classroom: check the degree exam calendar (retakes). Language: CAT/CAST/ANG
- Students are requested to confirm their attendance through the Virtual Campus Messages tool.

2. Alternate assessment

Students who have the approval to be assessed through alternative assessment (see requirements and procedure in the assessment regulations) must carry out the following activities

Block	ID	Activity	Contents	Weight	Mandatory	Retake	Group/Individual	Minimum mark
A (60%) Written and practical tests	AA1	Final exam	ALL	60%	Y	Y	Individual	No
B (40%) Laboratories	AB1	Final Laboratory	All	40%	N	Y	Individual	No

2.1 Remarks

- AA1. On paper, without notes. Day of the final exam of the subject. Maximum duration 4 hours. Date/time/classroom: check the degree exam calendar (2nd period). Language: CAT/CAST/ANG
- AB1. Delivery through the corresponding activity on the Virtual Campus. Day of the final exam of the subject. Language: CAT/CAST/ANG

2.2 Final Mark

- The course is approved with a Final Mark (FM) >= 5
- FM = (AA1 * 0.6) + (AB1 * 0.4)
- The compulsory activities must be carried out and passed to pass the course.
- If the FM < 5 then retakes
- If the FM >= 5 but Block A is NOT passed, the NF = 4.9 (failed)

2.3 Retakes

- Retake of AA1: written exam on paper without notes. Maximum duration 4 hours. Maximum note = 7.5. Date/time/classroom: check the degree exam calendar (retakes). Language: CAT/CAST/ANG
- Retake of AB1: Delivery through the corresponding activity in the Virtual Campus. Day of the retake of the subject. Maximum mark = 7.5. Language: CAT/CAST/ANG
- Students are requested to confirm their attendance through the Virtual Campus Messages tool.

Bibliography

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Sistemas de bases de datos: un enfoque práctico para diseño, implementación y gestión / Thomas M. Connolly, Carolyn E. Begg

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