

Databases

Academic Year: (2021 / 2022)

Review date: 04-06-2021

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MARTINEZ FERNANDEZ, PALOMA

Type: Compulsory ECTS Credits : 6.0

Year : 2 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

knowledge organization and representation

OBJECTIVES

This course aim is to understand the databases roll in an Information System, to know the features which define a Databases System, and to acquire skills to implement a Databases Systems through different data models.

1. Cross/Generic Capabilities

- Analysis and synthesis abilities
- Organize and plan abilities
- Troubleshooting
- Teamwork
- Ability to apply knowledge in practice

2. Specific Capabilities

Cognitive (Knowledge)

- Fundamentals of Databases
- Databases development methodology
- Relational data model

Procedural/Instrumental (Know how)

- Database Design to different abstraction levels
- Implementing Database Systems using a DBMS

Attitudinal (To be)

- Ability to create designs (creativity)
- Discuss and clarify the diverse solutions for a problem

Generals: CG1, CG2, CG3, CG4, CG7, CB2, CB3, CB4, CB5

CROSS: CT2, CT3,CT4SPECIFICS: CE1, CE2, CE3, CE4,CE7,CE11, CE12

DESCRIPTION OF CONTENTS: PROGRAMME

The descriptors associated with the subject are: Basic concepts of databases. The role of database management system. Application of a methodology for the development of databases. Data models in methodologies. The Relational model. SQL, Case studies to develop a database.

CONTENTS

Issue 1. Introduction to databases

- 1.1 The Databases role in Information Systems
- 1.2. Foundations of Databases
- 1.3 Databases Management System (DBMS)
- 1.4 Database modesl and development methodologies

Issue 2. Relational model

- 2.1. Basis elements
- 2.2. Constraints

Issue 3. Relational databases Design

Issue 4: SQL language -Definition, Updating and Querying Databases

LEARNING ACTIVITIES AND METHODOLOGY

- Theory: 1.5 ECTS. The aim is to achieve the specific cognitive skills of the subject
- Problem-based learning: 0.75 ECTS. Specific works under the supervision of the teacher about real problems.
- Practical: 1 ECTS. To develop specific skills instrumentals and traversals, such as teamwork, analysis and synthesis. We also aim to develop specific skills attitude.
- Tutoring: 0.5 ECTS. With the presence of teacher to review and discuss the materials and topics presented in class.
- Review: 0.25 ECTS. Set of written tests, oral, practical projects, works, etc.. used in the assessment of student progress. They aim to influence and complement in the development of specific cognitive and procedural skills.
- Practical Self-work : 0.5 ECTS. Lab works studied under a didactical guide provided by teacher.
- Self-Theoretical study: 1.5 ECTS. Study of content related to "classroom" (test study, library work, reading, doing problems and exercises, etc.)

ASSESSMENT SYSTEM

The evaluation system includes the evaluation of academic activities and practices designed with the following weights.

The evaluation system includes the evaluation of the directed academic activities and practices according to the following weighting.

1.- Ordinary Exam: 40%

2.- Continuous evaluation tests: 60%

Midterm exam I: 20%

Midterm exam II: 20%

Final mandatory project 20%.

Percentage Weight of the Final Exam: 40

Percentage weight of the rest of the evaluation: 60

% end-of-term-examination:	40
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% of continuous assessment (assignments, laboratory, practicals...):	60
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BASIC BIBLIOGRAPHY

- - Elmasri, R. Database systems : models, languages, design, and application programming, Pearson , 2011
- - Silberschatz, A. Database system concepts, McGraw-Hill, 2011

BASIC ELECTRONIC RESOURCES

- . Oracle tutorial: <https://www.oracletutorial.com/>