

Academic Year: ( 2023 / 2024 )

Review date: 26-04-2023

Department assigned to the subject: Computer Science and Engineering Department, Electronic Technology Department

Coordinating teacher: MORENO PELAYO, VALENTIN MIGUEL

Type: Compulsory ECTS Credits : 3.0

Year : 4 Semester : 2

## OBJECTIVES

Assess and manage systems secure erase and data recovery.

- Implement databases over a transmission system. Assess and use different techniques to integrate data mining: extraction techniques and modeling analysis.

- To know concepts and objectives of databases
- To abstract and design databases using the Relational Model
- To acquire practical experience in querying a database

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to databases and database management systems (DBMS)
  - 1.1 Introduction to Information Systems
  - 1.2 Database definition
  - 1.3 Database Management Systems
  - 1.4 Architectures of Database systems
  - 1.5 Database applications
  - 1.6 Current trends. Big Data and Cloud Computing
2. Relational Data Model.
  - 2.1 A methodology for database development
  - 2.2 What is a data model?
  - 2.3 Relational data model
    - 2.3.1 Domains, attributes and relations
    - 2.3.2 Representing a relational schema
    - 2.3.3 Relations
    - 2.3.4 Inherent constraints
    - 2.3.5 Semantic constraints
3. Designing relational databases.
4. Introduction to SQL: Querying a database (SELECT)

## LEARNING ACTIVITIES AND METHODOLOGY

Attending classes: 1.2 ECTS corresponding to student work in classroom with teacher support (lectures, practical classes, laboratory work, student presentations).

homework: 1.8 ECTS corresponding to personal student work.

50% of activities (1.5 ECTS) are oriented to knowledge acquisition and 50% is oriented to practical skills.

COLLECTIVE TUTORING: 4 online sessions

## ASSESSMENT SYSTEM

40% of evaluation corresponds to continuous assessment (practical exercises concerning database design and implementing a database using a commercial DBMS). 60% corresponds to a final exam to evaluate knowledge, skills and competencies.

|                                                                             |    |
|-----------------------------------------------------------------------------|----|
| <b>% end-of-term-examination:</b>                                           | 60 |
| <b>% of continuous assessment (assignments, laboratory, practicals...):</b> | 40 |

#### BASIC BIBLIOGRAPHY

- D. Cuadra, E. Castro, A. Iglesias, P. Martínez, F.J. Calle, C. de Pablo, H. Al-Jumaily, L. Moreno y otros Desarrollo de bases de datos : casos prácticos desde el análisis a la implementación (2ª edición actualizada), RA-MA, 2012

#### ADDITIONAL BIBLIOGRAPHY

- Silberschatz, A.; Korth, H.; Sudarshan, S.. Fundamentos de bases de datos (5ª edición) , McGraw-Hill /Interamericana Mexico , 2005