# Data Base

**Academic Year: ( 2022 / 2023 )** **Review date: 19-05-2022**

**Department assigned to the subject: Computer Science and Engineering Department**

**Coordinating teacher: MORENO LOPEZ, LOURDES**

**Type: Basic Core ECTS Credits : 6.0**

**Year : 2 Semester : 1**

**Branch of knowledge: Engineering and Architecture**

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction
   1.1. Information systems. Databases. Database Management Systems
   1.2. Modeling methodologies
   1.3. Management of semi structured and complex data; distributed and noSQL databases
2. Relational database
   2.1. Design of a database. Relational model
   2.2. Query languages. SQL language
   2.3. Introduction database management systems
3. NoSQL Databases
   3.1. Comparison of relational databases to new NoSQL stores
   3.2. NoSQL Databases Types
   3.3. NoSQL Database installation and, use and deployment

## LEARNING ACTIVITIES AND METHODOLOGY

AF1: THEORETICAL ¿ PRACTICAL CLASSES. The knowledge students must acquire will be presented. Students will receive the class notes and will be provided with basic reference texts in order for them to be better able follow the classes and carry out the subsequent projects. Students will solve exercises, tackle practical problems and workshops and assessment exams will be carried so that students can acquire the abilities needed.
AF3: STUDENTS¿ INDIVIDUAL OR GROUP WORK.
AF8: WORKSHOPS AND LABORATORIES.

MD1: THEORETICAL CLASS. The professor will give in-class presentations, including computer and audiovisual aids in which the course¿s main concepts are developed. Additional materials and literature will also be provided in order to supplement the student¿s learning.
MD2: PRACTICAL CASES. Students will be required to resolve case studies, problems, etc. posed by the professor both individually and in groups.

## ASSESSMENT SYSTEM

SE1: FINAL EXAM. The overall knowledge, skills, and abilities acquired throughout the entire course will be evaluated.
SE2: CONTINUOUS ASSESSMENT. Projects, presentations, participation in debates, in-class presentations, exercises, practical cases, and work carried out in the workshops throughout the entire course will be evaluated.

There will be a final exam. Besides, there will be projects which explore database design and management.

- Continuous assessment. projects (50%)
- Final Exam (50%)

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| **% end-of-term-examination:** | 40 |
| **% of continuous assessment (assigments, laboratory, practicals…):** | 60 |

## BASIC BIBLIOGRAPHY

- Connolly, Thomas M, Begg, Carolyn E Database systems : a practical approach to design, implementation, and management, Addison Wesley, 2015
- Elmasri, Ramez, Navathe, Sham Fundamentals of database systems, Pearson Addison Wesley, 2017
- Ramakrishnan, Raghu, Gehrke, Johannes Database management systems, McGraw-Hill, 2003

## ADDITIONAL BIBLIOGRAPHY

- Redmond, E. &Wilson Seven Databases in Seven Weeks: A Guide to Modern Databases and the NoSQL Movement , The Pragmatic Bookshelf, 2010
- Sadalage, P. & Fowler NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence, Pearson Education, 2013

## BASIC ELECTRONIC RESOURCES

- MongoDB . MongoDB Docs: https://docs.mongodb.com/?_ga=2.108260938.950754949.1556737455-926847938.1556737455
- ORACLE . Oracle Database Online Documentation: https://docs.oracle.com/cd/B19306_01/index.htm