Databases and Data Modeling

Academic Year: (2020 / 2021)　　　　　　　　　　　　　　　　**Review date: 08/07/2020 11:54:42**

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

OBJECTIVES

CB1. Students should demonstrate to possess and understand knowledge in an area of ¿¿study that starts from the fundamentals of secondary education, and it is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply knowledge coming from the forefront of his field of study.
CB3. Students will gain the ability to gather and interpret relevant data (usually within their area of ¿¿study) to make judgments that include a reflection on relevant issues of social, scientific or ethical nature.
CG3. Be able to manage, identify, gather and interpret relevant information on issues related to business in the digital age.
CT3. Be able to assess the reliability and quality of information and its sources using such information in an ethical manner, avoiding plagiarism,
CE12. To know information technology foundations from mechanisms of information representation.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Data Life cycle
2. Data modelling: describing data at different levels
3. Components of a database management system (DBMS)
4. Relational data model
5. Use of a declarative query language: SQL
6. Information management roles
8. Managing unstructure data: SQL and NoSQL databases

LEARNING ACTIVITIES AND METHODOLOGY

AF1. THEORETICAL-PRACTICAL LECTURES. These lectures will present the knowledge that students should acquire. They will receive the lecture notes and will have basic texts of reference to facilitate the follow-up of the classes and the development of the subsequent work. Exercises, practical problems on the part of the student will be solved, and workshops and evaluation tests will be carried out to acquire the required skills.
AF2. TUTORIES. Individualized assistance (individual tutorials) or group (collective tutorials) to students given by the teacher.
AF3. INDIVIDUAL OR GROUP STUDENT WORK.
MD1 THEORY LECTURE. Talks with support of computer and audiovisual media, in which the main concepts of the subject are developed and the materials and bibliography are provided to complement the students' learning process.
MD2. PRACTICES. Resolution of practical cases, problems, etc. organized by the teacher individually and/or in groups.
MD3. TUTORIES. Individualized assistance (individual tutorials) or group (collective tutorials) to students given by the teacher. For 6 credits subjects, 4 hours will be dedicated with 100% of attendance required.

ASSESSMENT SYSTEM

% end-of-term-examination/test: 40

% of continuous assessment (assigments, laboratory, practicals…):   60

SE1. FINAL EXAMINATION. This test will globally assess the knowledge, skills and abilities acquired throughout all the term (40%)
SE2. CONTINUOUS ASSESSMENT. Two mid term exams (20% each) and evaluation of a mandatory final project (20%).

BASIC BIBLIOGRAPHY

 - Dolores Cuadra, Elena Castro, Ana Mª Iglesias, Paloma Martínez, Fco. Javier Calle, Cesar de Pablo, Harith Al-Jumaily, Lourdes Moreno Desarrollo de Bases de Datos: Casos prácticos desde el análisis a la implementación, RA-MA, 2012

 - Gaurav Vaish Getting Started with NoSQL, Packt Publishing, 2013

 - Henry Korth, S. Sudarshan, Abraham Silberschatz Database System Concepts, 6th edition, McGraw-Hill Education, 2010

 - Ramez Elmasri, Shamkant B. Navathe Fundamentals of Database Systems , Pearson, 2017