

Academic Year: (2019 / 2020)

Review date: 04-05-2020

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

In this section, the competences associated to the subject are presented:

CB1: That the students have demonstrated to possess and understand knowledge in an area of ¿¿study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply knowledge coming from the vanguard of their field of study.

CB2: That students know how to apply their knowledge to their work or vocation in a professional manner and have the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of ¿¿study.

CB3: That students have the ability to gather and interpret relevant data (usually within their area of ¿¿study) to make judgments that include a reflection on relevant social, scientific or ethical issues.

CB4: That the students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.

CB5: That the students have developed the necessary learning skills to undertake further studies with a high degree of autonomy.

CG1: Write, represent and interpret technical documentation related to Security.

CG4: Maintain a critical attitude and constant updating regarding knowledge about global security.

CE13: Know the basic computer systems and know how to manage document management tools, statistics, databases related to crime, social phenomena and preparation of operations.

CE23: Be able to understand the conception, deployment, organization and management of telecommunication systems, networks and infrastructures in the context of security, taking responsibility for their continuous improvement.

CT4: Motivation and ability to dedicate themselves to autonomous learning for life, which allows them to adapt to new situations.

The learning outcomes are the following:

RA1. The acquisition of normative, theoretical and basic conceptual knowledge that sustain and allow to properly guide the reflection and understanding of its activities with a scientific-technological base that allows to approach with rigor the situations related to their profession.

RA3. Train the graduate in a set of social, interpersonal, emotional and work competencies in a multidisciplinary and international environment.

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.

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.

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