Research Technologies II

Academic Year: (2020 / 2021)   **Review date: 10/07/2020 09:57:25**

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 modell
    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 orientes to knowledge acquisition ana 50% is oriented to practical skills.

Due to the uncertainty about the teaching format to which the health circumstances will take us during the next academic year, it is expected to start in the blended modality, and may lead to 100% face-to-face or 100% on-line training as the spread or the control over the pandemic and the hygiene-sanitary norms that the Authorities of the sector dictate.

ASSESSMENT SYSTEM

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

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

In the event that teaching passes definitively to the online modality, the weight of the continuous evaluation will be 100%

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