

Academic Year: (2022 / 2023)

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Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MORENO PELAYO, VALENTIN MIGUEL

Type: Compulsory ECTS Credits : 3.0

Year : Semester : 2

OBJECTIVES

- Identify security objectives and vulnerabilities, threats and risks of a given information system in a defined operational environment.
 - Evaluate the security services to be implemented in a given system and design and implement mechanisms and subsequent protocols.
 - Evaluate and implement appropriate authentication mechanisms to access a specific system.
 - Use the signature and certification systems in a particular environment.
 - Design a security plan, developing the various parts of it, assessing their compliance over time and correcting deviations. Analyze and manage the risks of a particular installation.
 - Develop a comprehensive recovery plan for an actual installation. Conduct a compliance audit of files and systems containing personal data.
 - Use the tools that allow control of operating systems, mainly Windows and Linux.
 - Manage the main techniques of collection, identification and analysis of events, guaranteeing the assurance testing and preserving the chain of custody of them. 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.
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- 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)

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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

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

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