

Academic Year: (2012 / 2013)

Review date: 09/06/2011 12:22:56

Department assigned to the subject:

Coordinating teacher: IGLESIAS MAQUEDA, ANA MARIA

Type: Electives ECTS Credits : 6.0

Year : 4 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Files and Data bases

OBJECTIVES

General competences:

- Abstraction (PO a)
- Analysis and Synthesis (PO a)
- Organize and Planning (PO a)
- Communication of conclusions (PO g)
- Problem solving in new or known environments (PO c)
- Capacity of differentiate and make critical analysis of problem's solutions (PO c)
- Teamwork (PO d)
- Capacity of applying theoretical concepts (PO c)
- Capacity of integrating concepts and making critical analysis (PO c)

Specific competences

- Cognitive (PO a)
 1. Theoretical knowledge about database methodologies and data models
 2. Theoretical knowledge about conceptual, logical and physical database design.
 3. Basic theoretical knowledge about database administration: system security, data integrity, backup and data recovery.
 4. Theoretical knowledge about monitoring and optimization of the performance of the database and selects.
 5. Theoretical knowledge about databases paradigms, technologies and architectures.
- Procedimental/Instrumental (PO a, g, k)
 1. Use of Database Design Methodologies
 2. Conceptual Design, Standard Logical Design and Specific Logical Design based on data models.
 3. Analysis of data redundancy or insert, delete or updates anomalies.
 4. Administration of databases, physical design and database tuning using a commercial Database Management System (DBMS) as Oracle.
 5. Use of administration tools and tuning tools in a commercial DBMS
 6. Practical cases guaranteeing data integrity, availability and consistency in databases
- Attitudinal (PO c, d, f)
 1. Creativity: Discover new ideas and solve problems in new environments
 2. Capacity to make diagrams, structuring knowledge
 3. Interest for the quality of the work
 4. Motivation for the success
 5. Interest for investigating and finding solutions to new problems
 6. Capacity to differentiate and make critical analysis of problem's
 7. Capacity of setting out and discuss different solutions to the same problem, contrasting and comparing different solutions.
 8. Capacity of communication

DESCRIPTION OF CONTENTS: PROGRAMME

Database methodologies, data models, basics about database administration (security and confidentiality; tuning and recovery; data integrity; concurrency and consistency), database design, database tuning and query optimization.

LEARNING ACTIVITIES AND METHODOLOGY

- 1) Theoretical lectures: 1 ECTS. To achieve the specific cognitive competences of the course (PO a).
- 2) Practical lectures: 1,5 ECTS. To develop the specific instrumental competences and most of the general competences, such as analysis, abstraction, problem solving and capacity to apply theoretical concepts. Besides, to develop the specific attitudinal competences. During the practical lectures, practical cases are developed incorporating all studied techniques and methods (PO a, c, d, f, g, k).
- 3) 0.5 ECTS. Critical analysis of problems; solutions. (PO a, c, d, g)
- 4) Guided academic activities (absent teacher): 1.5 ECTS. Exercises, Documentation of practical activities and complementary readings (PO a, c, d, f, g).
- 5) Exercises and examination: 0,5 ECTS. To complete the development of specific cognitive and procedural capacities (PO a, c).

ASSESSMENT SYSTEM

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

Exercises and examinations are both learning and evaluation activities. The evaluation system includes the assessment of guided academic activities and practical cases, with the following weights:

- 1) Practical cases: 30% (PO a, c, d, f, g, k). Documentation of practical activities + individual defense
- 2) Guided academic activities (Individual practical exercises)
 - Present teacher: 3% (PO a, c, d, g). Defense and discussion in the classroom
 - Absent teacher: 7% (PO a, c, f, g). Practical exercise + Evaluation and correction of other practical exercise
- 3) Ordinary Exam: 60% (PO a,c)
- 4) Extraordinary Exams: 100% (PO a,c)

BASIC BIBLIOGRAPHY

- D. Cuadra, E. Castro, A. Iglesias, P. Martínez, F.J. Calle, C. de Pablo, H. Al-Jumaily y L. Moreno Desarrollo de bases de datos : casos prácticos desde el análisis a la implementación, RA-MA, 2007
- Date, C.J. An Introduction to Database Systems, 8th Edition, Pearson, 2004
- De Miguel, A., Piattini, M. y Marcos, E. Diseño de bases de datos relacionales, RA-MA (1999).
- Oracle Database Lite Administration and Deployment Guide , http://download-uk.oracle.com/docs/cd/B19188_01/doc/B15921/toc.htm.

ADDITIONAL BIBLIOGRAPHY

- A. de Miguel, P. Martínez, E. Castro, J.M: Caverio, D. Cuadra, A. Iglesias, C. Nieto Diseño de Bases de Datos: Problemas Resueltos, RA-MA (2001).
- De Miguel, A. y Piattini, M. Fundamentos y Modelos de Bases de Datos, RA-MA (1999).
- Elmasri y Navathe Fundamentals of Database Systems, fourth edition, Pearson Addison Wesley, (2003).
- Levene, M. y Loizou, G. A Guided Tour of Relational Databases and Beyond, Springer Verlag (1999).

- Silberschatz, A.; Korth, H.; Sudarshan, S. Database System Concepts (6th Edition), McGraw-Hill, 2008