

SUBJECT TEACHING GUIDE

G657 - Databases

Degree in Computer Systems Engineering
Degree in Mathematics

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Degree in Computer Systems Engineering Degree in Mathematics			Type and Year	Compulsory. Year 2 Optional. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: Software and Information Systems Engineering Mention in Computer Science Compulsory Module				
Course unit title and code	G657 - Databases				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA				
Name of lecturer	MARTA ELENA ZORRILLA PANTALEON				
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Other lecturers	MIGUEL ANGEL GUTIERREZ LECUE DIEGO GARCIA SAIZ				

3.1 LEARNING OUTCOMES

- Learn the terminology of relational data bases
- Understand relational data bases and programme its creation, update and query
- Use tools that help us to create and manage relational data bases
- Develop data base applications

4. OBJECTIVES

Learn the terminology of data bases.
 Understand the concept of physical and logical data independence.
 Understand the concept of transaction and its implications.
 Know the architecture of a relational database management system and understand the need and function of each of its elements.
 Learn the relational data model and SQL.
 Know the main functions and tasks of the database administrator to ensure the confidentiality, security, availability and integrity of information.
 Study the essential elements to build data base applications and the current technologies for their implementation.
 Introduction to other data models: multidimensional, object-relational, etc.

6. COURSE ORGANIZATION

CONTENTS	
1	Introduction to data bases. From files to data bases. Levels of abstraction, Relational model. SQL. Transaction. DBMS architecture. Type of users
2	Relational data model. Basic elements. Relational schemas. ANSI-SPARC architecture. Phases of data base design: conceptual, logical and physical models. CASE tools
3	SQL language. Data types. Data definition language. Data manipulation language. Views. Index. Transactions. PSM. Triggers
4	Administration of data bases. Functions of data administrator and data base administrator. Issues related with security, encryption, availability and integrity of information
5	Design and development of data base applications. Languages and tools. Reports and forms. Architectures. Technologies
6	Other data models: object-relational model, multidimensional model, semi-structured model, etc.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Written exam. Relational design.	Written exam	No	Yes	15,00
Written exam. SQL	Written exam	No	Yes	15,00
Team project: design and development of a Web data base application	Work	No	Yes	15,00
Final exam: questions and exercises	Written exam	Yes	Yes	25,00
SQL final exam in lab	Laboratory evaluation	No	Yes	30,00
TOTAL				100,00
Observations				
<p>Final mark will be computed as weighted-sum of all learning activities. Qualification can be increased up to 1 point by performing activities during the semester, as long as the final mark is higher than 4,5.</p> <p>The evaluation in september will be: - Written exam: 55% - Lab exam: 30% - Team project: 15%</p>				
Observations for part-time students				
<p>Part time students will be assessed according to: - Written exam: 55% - Lab exam: 30% - Team project: 15%</p> <p>Qualification can be increased up to 1 points by performing activities during the semester, as long as the final mark is higher than 4,5</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Elmasri, R., Navathe, S.B., Fundamentals of database systems. 7th edition. Pearson Education, 2017.

Silberschatz, A., Korth, H.F., Sudarshan, S., Database system concepts, 6ª edición, New York : McGraw-Hill, 2011