

SUBJECT TEACHING GUIDE

M1707 - Storage Technologies of non-related data

Master's Degree in computing engineering

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Master's Degree in computing engineering			Type and Year	Optional. Year 2
Faculty	Faculty of Sciences				
Discipline	Optional Subjects				
Course unit title and code	M1707 - Storage Technologies of non-related data				
Number of ECTS credits allocated	3	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA				
Name of lecturer	DIEGO GARCIA SAIZ				
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Other lecturers	ALFONSO DE LA VEGA RUIZ				

3.1 LEARNING OUTCOMES

- Learn and apply the basis, technologies and tools for the design and implementation of data bases oriented to the management of huge quantities of data (big data)

4. OBJECTIVES

Learning the different data management paradigms under the term NoSQL , its advantages and differences with respect to the object-relational model.

Learn the principles of data base design of these new data models.

Analyse and evaluate the technology that best suits to the needs of a problem of massive data volumes (big data)

Implement and query NoSQL database.

Know cloud platforms that offer services to host and manage large volumes of data

6. COURSE ORGANIZATION

CONTENTS

1	Data management: historical review. NoSQL: background, characteristics and differences with respect to relational management. Taxonomy of solutions. NewSQL vs NoSQL.
2	NoSQL Paradigms: Key-value, Column-store, documental and graph data bases. Architecture and data models. Query languages. Design principles. Case studies.
3	Cloud environment. Cloud computing services: management and analysis of data. Technologies and tools for ingestion, query, analysis and visualisation of masive quantities of data.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Classroom participation, topic discussion, oral presentations about techniques and tools	Activity evaluation with Virtual Media	No	Yes	50,00
Project: The student will carry out one of the following types of work: a) a database design under the NoSQL paradigm, b) a data management and analysis process (pipeline) using big technologies data; c) a deployment of a NoSQL data base on the cloud.	Work	No	Yes	50,00
TOTAL				100,00
Observations				
There is only one exam period. Student must get a qualification higher than the minimum established in each assessable activity. The final qualification will be computed as the weighted-sum of all assessable activities.				
Observations for part-time students				
Part time students will be assessed according to: - Written exam: 50% - Project: 50%				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Eric Redmond. Seven Databases in Seven Weeks: A Guide to Modern Databases and the NoSQL Movement. 2012 (free book)

Lee Chao. Cloud Database Development and Management. 2013. Auerbach Publications

