

## GENERAL INFORMATION

Data of the subject	
Subject name	Fundamentals of telematic systems
Subject code	DTC-GITT-124
Main program	<a href="#">Bachelor's Degree in Engineering in Telecommunication Technologies</a>
Involved programs	Grado en Ing. en Tecnologías de Telecom. y Grado en Análisis de Negocios/Bachelor in Busi. Analytics [First year]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	7,5 ECTS
Type	Básico
Department	Department of Telematics and Computer Sciences
Coordinator	Israel Alonso Martínez

Teacher Information	
Teacher	
Name	Israel Alonso Martínez
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## DESCRIPTION OF THE SUBJECT

Contextualization of the subject
Prerequisites
Computer Basics and Programming.

## Course contents

Contents
1: INTRODUCTION TO OPERATING SYSTEMS.
2: THEORETICAL CONCEPTS OF DATABASES. (Relational Model and Logical Design)
3: SQL DATABASES (SQL Language and Programming)
4: NoSQL DATABASES (MongoDB)

## EVALUATION AND CRITERIA



Evaluation activities	Evaluation criteria	Weight
Exams:	Inter-semester test (20%) Final Exam (60%)	80 %
Continuous evaluation:	Participation in class and completion of short tests are evaluated (5%)	5 %
Experimental work evaluation:	Laboratory Reports (15%)	15 %

## Grading

### Ordinary Exams:

The percentage for the final grade will be:

- Exam (60%)
- Inter-semester test (20%)
- Laboratory Reports + Continuous evaluation (15%+5%)

### ExtraOrdinary Exams:

The percentage for the final grade will be:

- Exam (80%)
- Inter-semester test (10%)
- Laboratory Reports + Continuous evaluation (10%)

## WORK PLAN AND SCHEDULE

Activities	Date of realization	Delivery date
Introduction to the Linux Operating System and Weekly Labs	week 1	week 2
Introduction to the theory of Normalization and Design of Relational Databases + Practical Design Exercises.	week 4	week 5
Relational Databases: SQL Language + Weekly Labs.  <ul style="list-style-type: none"> <li>• SQL Introduction.</li> <li>• Predicates.</li> <li>• Scalar and Column Functions.</li> <li>• Grouping.</li> </ul>	week 6	week 11



<ul style="list-style-type: none"> <li>• Yunctions.</li> <li>• Creation of BD's and access by program.</li> </ul>		
<p>NoSQL Databases + Weekly Labs.</p> <ul style="list-style-type: none"> <li>• Introduction DB's NoSQL.</li> <li>• Basic MongoDB. (CRUD operations).</li> <li>• Advanced MongoDB. (Use of indexes, performance and aggregation operations).</li> </ul>	week 12	week 14

## BIBLIOGRAPHY AND RESOURCES

### Basic References

- Bases de datos Relacionales: Fundamentos y Diseño Lógico. Enrique Rivero, Israel Alonso, Luis Martinez. Publicaciones UPCo, 2005.
- Introducción al SQL para usuarios y programadores. Rivero, E., Martínez, L., Reina, L., Benavides, J., Olaizola, J. M<sup>a</sup>. Paraninfo, 2002.
- Keir, Thomas. Beginning Ubuntu Linux: From Novice to Professional. ISBN 1590596277.
- Mako Hill, Benjamin; Bacon, Jono; Burger, Corey; Jesse, Jonathan; Krstic, Ivan. The Official Ubuntu Book. p. 320. ISBN 0132435942.
- Grant, Rickford. Ubuntu Linux for Non-Geeks. p. 464. ISBN 1593271182.
- Dan Sullivan. NoSQL for Mere Mortals. Addison-Wesley Educational Publishers Inc; (2015) ISBN-10: 0134023218 ISBN-13: 978-0134023212
- Kristina Chodorow. MongoDB: The Definitive Guide. O'Reilly Media; (2013) ISBN-10: 1449344682 ISBN-13: 978-1449344689

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