

# ANX-PR/CL/001-01

## LEARNING GUIDE

### SUBJECT

**103000854 - Cloud Computing And Big Data Ecosystems Design**

### DEGREE PROGRAMME

**10AZ - Master Universitario En Innovación Digital**

### ACADEMIC YEAR & SEMESTER

**2023/24 - Semester 1**

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## 1. Description

### 1.1. Subject details

<b>Name of the subject</b>	103000854 - Cloud Computing And Big Data Ecosystems Design
<b>No of credits</b>	4.5 ECTS
<b>Type</b>	Optional
<b>Academic year of the programme</b>	First year
<b>Semester of tuition</b>	Semester 1
<b>Tuition period</b>	September-January
<b>Tuition languages</b>	English
<b>Degree programme</b>	10AZ - Master Universitario en Innovación Digital
<b>Centre</b>	10 - Escuela Tecnica Superior De Ingenieros Informaticos
<b>Academic year</b>	2023-24

## 2. Faculty

### 2.1. Faculty members with subject teaching role

<b>Name and surname</b>	<b>Office/Room</b>	<b>Email</b>	<b>Tutoring hours *</b>
Ainhoa Azqueta Alzuaz		ainhoa.azqueta@upm.es	Sin horario. Please, send an email to set the date and time
Tonghong Li	2312	tonghong.li@upm.es	M - 14:00 - 16:00 W - 14:00 - 16:00 Th - 14:00 - 16:00 Please, send an email to set the date and time

Marta Patiño Martínez (Subject coordinator)	2313	marta.patino@upm.es	Tu - 12:00 - 14:00 Th - 10:00 - 12:00 Th - 14:00 - 15:00 Please, send an email to set the date and time
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\* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

### 3. Prior knowledge recommended to take the subject

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#### 3.1. Recommended (passed) subjects

The subject - recommended (passed), are not defined.

#### 3.2. Other recommended learning outcomes

- Java programming, concurrent programming, databases

### 4. Skills and learning outcomes \*

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#### 4.1. Skills to be learned

CE-CD05 - Capacidad para usar herramientas de procesamiento de big data tanto en online como en modo batch

CE-CD06 - Capacidad para extraer, integrar y consultar datos heterogéneos en diferentes escenarios

CG06 - Capacidad para gestionar la información.

## 4.2. Learning outcomes

RA35 - Ser capaz de procesar datos masivos.

\* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

## 5. Brief description of the subject and syllabus

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### 5.1. Brief description of the subject

This course presents the trade-offs of traditional data management systems their main properties and architectures for scalable distributed systems and data management systems: bigtable, data streaming, persistent queues

### 5.2. Syllabus

1. Introduction
2. Data management technologies
3. Data Streaming
4. HBase
5. Big Table. Dynamo

## 6. Schedule

### 6.1. Subject schedule\*

Week	Classroom activities	Laboratory activities	Distant / On-line	Assessment activities
1	<b>Introducción</b> Duration: 02:00 Lecture			
2	<b>Tema 1</b> Duration: 02:00 Lecture			
3	<b>Tema 1</b> Duration: 02:00 Lecture			
4	<b>Tema 1</b> Duration: 02:00 Lecture			
5	<b>Tema 2</b> Duration: 02:00 Lecture			
6	<b>Tema 2</b> Duration: 02:00 Lecture			
7	<b>Tema 3</b> Duration: 02:00 Lecture			
8	<b>Tema 3</b> Duration: 02:00 Lecture			
9	<b>Tema 4</b> Duration: 02:00 Lecture			
10	<b>Tema 4</b> Duration: 02:00 Lecture			
11	<b>Tema 5</b> Duration: 02:00 Lecture			
12	<b>Tema 5</b> Duration: 02:00 Lecture			
13	<b>Tema 6</b> Duration: 02:00 Lecture			
14	<b>Tema 6</b> Duration: 02:00 Lecture			

15	<b>Tema 6</b> Duration: 02:00 Lecture			
16	<b>Tema 6</b> Duration: 02:00 Lecture			
17				<b>Exam</b> Written test Continuous assessment and final examination Presential Duration: 03:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

\* The schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

## 7. Activities and assessment criteria

### 7.1. Assessment activities

#### 7.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Exam	Written test	Face-to-face	03:00	100%	5 / 10	CG06 CE-CD05 CE-CD06

#### 7.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Exam	Written test	Face-to-face	03:00	100%	5 / 10	CG06 CE-CD05 CE-CD06

#### 7.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Exam	Written test	Face-to-face	03:00	100%	5 / 10	CE-CD06

## 7.2. Assessment criteria

Exam 100%

## 8. Teaching resources

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### 8.1. Teaching resources for the subject

Name	Type	Notes
Bibliografía	Bibliography	NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence. P. Sadalage, M. Fowler. 2012.
Libro	Bibliography	Big Data Now: Current Perspectives from O'Reilly Radar. O'Reilly. 2011
libro2	Bibliography	Graph Databases. I. Robinson, J. Webber, E. Eifrem. O'Reilly. 2013
Presentations	Bibliography	Presentations
Papers	Bibliography	List of papers to be provided