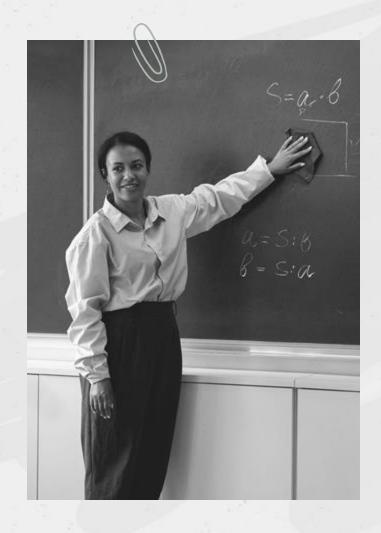
# Cloud Computing

MUCPD - DSIC - UPV



## **Contact**

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Tutorías bajo demanda

## **Course Objectives**

- Understand fundamental concepts of cloud computing
- Explore cloud deployment and service models
- Develop practical skills designing & deploying services
- Develop awareness of cloud challenges
  E.g., Security, resource optimization, application development

## **Grading**

Lab Project (60%)

Service deployable on Axebow multi-cloud Platform

Write up on project (40%)

Paper describing your implementation of the Lab project

**Deadline** 

January 17, 2025

## **Calendar & Classes**

2 credits Theory

2 credits Labs

4 hour sessions

#### In-classroom

All Wednesdays

Last class: November 6

Mixed theory/Labs:
Bring your laptop for labs

#### **On-line**

Fridays:

- Sept 27
- Oct 18

## **Theory Syllabus**

## **Topics**

01

Introduction

What is cloud computing

03

**Service Models** 

Types of services

02

Virtualization

Main enabling technology

04

**Deployment Models** 

Types of clouds

## **Topics**

05

**Key providers & services** 

Main hyper-scalars and their core services

07

**Networking & Storage** 

Service communication and persistent state handling

06

**Security** 

**Fundamentals** 

08

**Resource Management** 

Optimizing usage. SLA, scaling and elasticity

## **Topics**

09

**Advanced concepts** 

Serverless, containers, ...

**S-1** 

The Kumori Service Model

Specifying multi-cloud services

10

**Orchestrators** 

Container management solutions

**S-2** 

**Using The Axebow Platform** 

Deploying Kumori Services

# Labs

## Design, Implement, Deploy

#### What

- Simple illustrative service
- Integrate some software pieces
  - Queues
  - Inverse proxy
  - Authenticator
- Develop

#### How

- Groups of 3
- Develop in Typescript or Golang
- Specify for Kumori platform
- Deploy on Axebow service
- Use git
  - Hand in complete repo in tgz format
  - Repo contains paper too
    - In pdf

## **Technologies**

Typescript/Golang

Implementation

Docker

Packaging for deployment

Git

Project development

**VSCode** 

Editing

### Nice to know about

**Distributed Systems** 

**Scalability** 

Messaging queues

**Rest interfaces** 

# QUIZ

## Quienes

#### Informática

- Otros

- ...

#### **Typescript**

- Nivel

#### Git

- Requerido para Desarrollo y entrega

#### Trabajo

- Full time?

#### Golang

- Nivel

#### Linux

- Aconsejable para desarrollo