Universidad Zaragoza

Academic Year/course: 2024/25

62223 - Distributed Systems and Networking

Syllabus Information

Academic year: 2024/25
Subject: 62223 - Distributed Systems and Networking
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 534 - Master's Degree in Informatics Engineering
ECTS: 6.0
Year: 1
Semester: First semester
Subject type: Compulsory
Module:

1. General information

The subject and its expected results respond to the following approaches and objectives:

This subject is mainly practical. The fundamental objective is for students to understand, analyse, design, evaluate and manage modern distributed systems such as those found under the description of Cloud systems.

2. Learning results

Upon completion of this subject, the student will be able to:

1. Understand concepts, models, methods and advanced technologies of networks and distributed systems that adapt to the resolution of current and future problems.

2. Analyse, design, develop and evaluate complex networks and distributed systems.

3. Organize and present in a synthetic way the theoretical and practical solutions and results in the field of networks and distributed systems.

3. Syllabus

- Basic Concepts: architecture and components. Communication. Coordination. Consistency. Virtualization
- High availability: fault detectors. Quorums. Group communication.
- Cloud Systems: unique image. Elasticity. PAAS example: Cloud Foundry. IAAS example: Openstack.
- Software defined networks: architecture. Abstractions. Network virtualization. SDN programming. Applications.
- Distributed services in Cloud: scheduling. Data warehouses. Security.
- Aspects of distributed systems management

4. Academic activities

The program offers the students help to achieve the expected results and comprises the following activities:

- Master class: presentation of contents by the teaching staff, external experts or by the students themselves, to all the students of the subject: 25 hours.
- Problem solving and case studies (practical exercises with all students of the subject): 10 hours
- Laboratory practices (practical exercises in small groups of students): 15 hours
- Completion of practical application or research work: 20 hours
- Personalized teacher-student tutoring: 5 hours
- Theory study: 70 hours
- Assessment tests: 5

5. Assessment system

In order to pass the subject, the student must demonstrate they has acquired the foreseen learning results by the following assessment activities:

Final written open-response test. [70%] Learning results: 1, 2 and 3

Project as directed work [30%]. Learning results: 1, 2 and 3

The student who does not opt for the evaluation procedure described above , does not pass these tests during the teaching period or who would like to improve their grade will be entitled to a global test that will be scheduled within the exam period corresponding to the first or second call.

6. Sustainable Development Goals

9 - Industry, Innovation and Infrastructure