Universidad Zaragoza

Year : 2019/20

30221 - Distributed Systems

Syllabus Information

Academic Year: 2019/20
Subject: 30221 - Distributed Systems
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel
Degree: 330 - Complementos de formación Máster/Doctorado
443 - Bachelor's Degree in Informatics Engineering
439 - Bachelor's Degree in Informatics Engineering
ECTS: 6.0
Year: 3
Semester: 439 - First semester
439 - First semester
439 - First semester
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443 - First semester
Subject Type: Compulsory
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodologies used in this course are :

- Theoretical lectures explaining the concepts and design of Distributed Systems.
- Problem solving lectures where students apply theoretical knowledge.
- Practical sessions in labs with smaller groups where students design and implement, in computers , different solutions to basic problems.

4.2.Learning tasks

The course includes the following learning tasks:

- Study of Distributed Systems concepts.
- Analysis of architectures and technologies.
- Problem-based learning.
- Design and implementation of Distributed System solutions in a lab.

4.3.Syllabus

The course will address the following topics:

- Basic concepts: Architectures. Processes and threads. Interprocess communication. Interface definition languages. Client-Server model. Management of events. Timing. Logical time. Group communication.
- Resource management: Assignment of the resource. Scheduling. Virtualization. Migration. Mutual exclusion. Leader election. Locks.
- Technologies: Messaging systems. File systems. Objects systems. Web systems. P2P systems.
- Fault Tolerance: Consensus. Distributed transactions. Replication.
- Security: Cryptographic services. Kerberos. Digital certificates. Public key infrastructures.

4.4.Course planning and calendar

Schedule of sessions and presentation of works

The educational organization of the course is as follows:

- Lectures and lessons of problems: 3 hours a week
- Computer lab sessions

Escuela de Ingeniería y Arquitectura de Zaragoza: 2 hours every two weeks

Escuela Universitaria Politécnica de Teruel: 1 hour a week

In computer lab sessions students work in small groups supervised by a teacher.

Student Work

To achieve the objectives of this subject, students have to spend about 150 hours distributed as follows:

- 56 hours approximately, during learning activities (lectures, problems and practical lab sessions)
- 91 hours of personal study (the study of notes and texts, problems solving, preparation for classes and practices, and learning of the software development process)
- 3 hours for the written final exam

4.5.Bibliography and recommended resources

EINA:

http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30221&Identificador=14670

EUPT:

http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=30221&Identificador=13593