



Year : 2018/19

30221 - Distributed Systems

Syllabus Information

Academic Year:	2018/19
Subject:	30221 - Distributed Systems
Faculty / School:	110 - 326 -
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:	443 - Bachelor's Degree in Informatics Engineering: 3 439 - Bachelor's Degree in Informatics Engineering: 3 330 - Complementos de formación Máster/Doctorado:
Semester:	Indeterminate
Subject Type:	Compulsory
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

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

Methodology, learning tasks, syllabus and resources

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.

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.

Syllabus

The syllabus of this course is:

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 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.

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 (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

Bibliography and recommended resources

[BB: Bibliografía básica / BC: Bibliografía complementaria]

- Zaragoza:
- [BB] Distributed systems : concepts and design / George Coulouris, Jean Dollimore, Tim Kindberg, Gordon Blair . 5th ed. Boston, [etc.] : Addison-Wesley, 2012
- [BB] Tanenbaum, Andrew Stuart. Sistemas distribuidos : principios y paradigmas / Andrew S. Tanenbaum, Maarten Van Steen ; traducción Jorge Octavio García Pérez, Rodolfo Navarro Salas ; revisión técnica Aarón Jiménez Govea . - 2ª ed. Naucalpan de Juárez (Estado de México) : Pearson Educación, 2008
- Teruel:
- [BB] Coulouris, George F.. Distributed systems : concepts and design / George Coulouris, Jean Dollimore, Tim Kindberg . 4th ed., 5th print. Harlow (England) : Addison-Wesley, 2009
- [BB] Tanenbaum, Andrew Stuart. Sistemas distribuidos : principios y paradigmas / Andrew S. Tanenbaum, Maarten Van Steen ; traducción Jorge Octavio García Pérez, Rodolfo Navarro Salas ; revisión técnica Aarón Jiménez Govea . - 2ª ed. Naucalpan de Juárez (Estado de México) : Pearson Educación, 2008