62223 - Distributed Systems and Networking

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	534 - Master's in IT Engineering
ECTS	6.0
Course	1
Period	First semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The on-site teaching and learning activities are based upon:
1. Classroom: The instructor presents and explains the class contents, including demos.
2. Problem-Based Learning: Educational approach targeting learning and instruction in which students tackle real problems in small groups under the tutor supervision.
3. Practical classes: Any practical and collaborative activity taught in the class.
4. Laboratory classes: Activities done in laboratories with special equipment (computing and networking)
5. Tuition: Instruction period where few students discuss with the instructor the material presented in the classroom
6. Evaluation: Set of written, oral, practical, laboratory, project, class works, etc for evaluating the student.

The not on-site teaching and learning activities are based upon:
1. Theoretical work: Preparation of seminars, readings, small research projects, documents to be presented on the classroom or delivered to the instructor.
2. Practical works: Preparation of activities to be presented or delivered in the practical classes
3. Self theory study: Study of classroom related content (exam study, library work, readings, problem solving, etc)
4. Self practical study: Related to the practical works
5. Complementary activities: Non academic tuition and voluntary activities unrelated to the exams and grading such as readings, seminars, workshops, videos, etc

5.2.Learning activities

5.3.Program

Basic concepts: Architecture and components. Communication. Coordination. Consistency. Virtualisation
High availability: Fault detection. Quorums. Group Communication
Cloud systems: Unique image. Elasticity. Example PASS: Cloud Foundry. Example IAAS: Openstack.
Software Defined Networks: Architecture and Implementation. Abstractions. Network Virtualisation. SDN programming. Applications
Cloud distributed services: Scheduling. Storage. Security.
Administration of distributed systems.

5.4.Planning and scheduling

The planning at the Rio Ebro campus is organised as follows:
Classroom 2h/week
Problem and real cases studies 1h/week
Laboratory sessions 2h/every 2 weeks
The exact hours will be announced beforehand in the school and class web pages.
The class projects will be delivered at the end of the quarter, on the listed dates.
Student work:
The class is made of 6 ECT credits that assume a dedicated student work of 150 hours (60 on-site and 90 not on-site) distributed as follows:
55 hours, around, on-site activities (classroom, practical classes, seminars, problem classes, and laboratory classes)
45 hours group work
45 hours of self work and effective study
5 hours dedicated to exams

5.5.Bibliography and recomended resources