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Cloud networking

Academic Year: (2019 / 2020)   Review date: 30-04-2020

Department assigned to the subject: Telematic Engineering Department

Coordinating teacher: BAGNULO BRAUN, MARCELO GABRIEL

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Advanced technologies for data transmission and data access

OBJECTIVES

Basic Competences

That the students can apply the acquired knowledge and ability to solve problems in new or unfamiliar environments within broader contexts related to their field of study

That students are able to integrate knowledge and handle complexity of formulating judgments

That the students can communicate their conclusions and the knowledge and rationale underpinning to specialists and non-specialists in a clear and unambiguous way.

That students have the learning skills that enable them to continue studying in a way that will be largely self-directed or autonomous.

Specific Competences

Understanding of the different technologies of a data center and their function

Capacity to design and operate a data center network

Capacity to solve problems in a data center networks

DESCRIPTION OF CONTENTS: PROGRAMME

1- Introduction to data centers

2- DC Virtualization

2.1- Virtualization of services, cloud services and distributed applications

2.2- Virtualization technologies for hosts, networks and storage

3- Data Center architectures

3.1- Computing systems for data centers

4- Data center communications

4.1- Data center traffic

4.2- Data center topologies

4.3- Network Protocolos for Data Centers. Addressing and routing

- Storage networks (FC, FCoE)

- Planning: assigment of task, resources and network bandwidth

- High availability mechanisms

- Data center management

- SDN (Software Defined Networking) for Data Centers

- Data Center security

LEARNING ACTIVITIES AND METHODOLOGY

Learning activities

Theoretical classes

Laboratory classes

Group assignments

Individual assignments

Methodology

Presentations in the class by the teacher with support of computer and audiovisual media, in which the main concepts of the subject are developed and the literature is provided to supplement student learning.

Critical reading of additional texts: Newspaper articles, reports, manuals and / or academic articles,

either for further discussion in class, either to expand and consolidate the knowledge of the subject.
Resolution of practical cases, problems, etc. posed by the teacher individually or in group
Presentation and discussion in class of topics related to the content of the course, as well as case studies
Preparation of papers and reports individually or in group

ASSESSMENT SYSTEM

Final exam

% end-of-term-examination:	100
% of continuous assessment (assigments, laboratory, practicals…):	100

BASIC BIBLIOGRAPHY

 - D. Abts et al. ¿   High Performance Datacenter Networks: Architectures, Algorithms, & Opportunities (Synthesis Lectures on Computer Architecture), , Morgan.
 - Y. Liu et al Data Center Networks: Topologies, Architectures and Fault-Tolerance Characteristics, Springer.