

DTC-TEL-512 Network Planning and Operation

SEMESTER: Fall

CREDITS: 6 ECTS (4 hrs. per week. 2h Theory + 2h Lab)

LANGUAGE: Spanish

DEGREES: 1º MIT

Course overview

The aim of the course is to provide students with the basics to decisions allowing network design in an enterprise environment, so the requirements of traffic and bandwidth requirements are met to be scalable as anticipated business growth and allow optimize the combined investment and operating cost.

Prerequisites

- Generic notions on communication networks (LAN).
- Generic notions on the TCP/IP architecture.

Course contents

Theory:

1. Overall architecture of a communications network. Analysis of the organization and operation of the Internet. Trends, new technologies and protocols.
2. Access networks. XDSL, HFC, FTTx and wireless local loop technologies.
3. Aggregation and distribution networks. Interconnection of heterogeneous networks. Metropolitan networks. Carrier Ethernet.
4. Backbones. MPLS technology and its variations. IP next-generation networks. Transport networks based on fiber optics.
5. Operation in heterogeneous networks. Distribution networks for audiovisual content to the home. Network service providers.

Laboratory:

Units 1-5 described previously have at least two associated lab practices in 2 hours sessions.

Textbook

- Leonid G. Kazovsky , Ning Cheng , Wei-Tao Shaw , David Gutierrez and ShingWa Wong , Broadband Optical Access Networks (Wiley-Interscience, 2011).
- Luc De Ghein, MPLS Fundamentals (Cisco Press, 2006).

Grading

The overall grade is obtained as follows:

- Final exam accounts for 50% of the final grade.
- Continuous evaluation and mid-term exam account for 15% of the grade.
- Lab reports account for 35% of the grade.