

DTC-GITT-411 Switching and Data Transmission

SEMESTER: Fall
CREDITS: 4.5 ECTS (3 hrs. per week. 2h Theory + 1h Lab)
LANGUAGE: Spanish
DEGREES: 4º GITT

Course overview

The Switching and Data Transmission course aims to introduce students to the concepts and techniques that underpin data transmission systems. Students will learn to consider network technologies, tele-traffic demands, quality of service, scalability, and performance to develop requirements and architectures. Examples will be drawn from emerging underlying technologies and applications.

Prerequisites

Basic knowledge of computer-network technologies and protocols.

Course contents

Theory:

1. Circuit-switched networks: PSTN and Intelligent Network.
2. MPLS: Technology basics and services. VPNs and MPLS traffic engineering. MPLS and Metro-Ethernet.
3. Cellular mobile communications: principles, cellular system architecture and technologies.
4. Principles of Synchronous Digital Hierarchy (SDH) and Plesiochronous Digital Hierarchy (PDH).

Laboratory:

There will be ten 1-hour sessions between the third and the last lecture week.

Textbook

- Harry G. Perros. "Connection-oriented networks: SONET/SDH, ATM, MPLS and optical networks". John Wiley & Sons, 2005
- Huidobro Moya, José Manuel. "Telecomunicaciones. Tecnologías, redes y servicios". RA-MA, 2015.

Grading

The following conditions must be accomplished to pass the course:

- A minimum grade in the final exam of 5 over 10.

The overall grade is obtained as follows:

- Final exam 60%.
- Other exams 10%. Typically there is 1 mid-term exam.
- Laboratory practice 10%.
- Final practice work 20%.