ESCOLA UNIVERSITÀRIA D'ENGINYERIA TÈCNICA INDUSTRIAL DE BARCELONA
ENGINYER TÈCNIC INDUSTRIAL.

Subject:	**TELECOMMUNICATIONS AND INTERNET**	**Acronym:** T **Code:** **Version:** 2010

Type: **Optional**	**Total ECTS Credits:**	**6**	**Total hours/week:**	**4**
	Presential Credits (Theory):	**1,5**	**Presential hours/week (Theory):**	**1**
	Presential Credits (Problems):	**1,5**	**Presential hours/week (Problems):**	**1**
Term: Q**4**	**Laboratory Credits:**	**2,25**	**Laboratory hours/week:**	**1,5**
	Non-presential Credits:	**0,75**	**Non-presential hours/week:**	**0,5**

Areas of knowledge (BOE):

Descriptors (BOE):

Coordinator: Antoni Pérez-Poch

Prerequisites: None

Co-requisites:

Objectives: To introduce the basic concepts involved in data communications and computer networks. Learning the possiblitices of networking and long-haul communications. Getting to know the social and economic main issues related to the Information and Communication Technologies. Being able to design, build and configure a local area network.

Syllabus:

Chapter 1: History of telecommunications. (2h)

Chapter 2: Telecommuncations Fundamentals. (2h)

Sources and data consumers. Data transfer. Modulations. Shannon equation.

Chapter 3: General concepts of Telecommunications. (2h)

Terminology. Basic concepts.

Chapter 4: Transmission Media and Access Protocols (2h)

Features of cables and data transmission media. Medium accesss mechanisms.

Chapter 5: Transmission systems (2h)

Coding systems. Modulation.

Chapter 6: Mobile communications (2h)

GSM, GPRS, UMTS. Latest technologies.

Chapter 7: Computer networks (2h)

OSI and Internet protocols. TCP/IP. Packet analysis.

Chapter 8: Local area networks and Wide area Networks. (4h)

Features of a Local area network. Basic elements. Internet architecture. High-speed networks. Backbones. ATM and latest high output technologies.

Chapter 9: Wireless data networks.

Description of the main wireless data communication technologies. Bluetooth, Infrared, IR, WiFi, Wimax and applications development. Security issues.

Chapter 10: Social and economic implications related to these technologies. (4h)

Social and economic changes. Current trends and future outcomes.

Laboratory.

1. Network simulations.
3. Configuration of a local area network. Switches and hubs. Cable building.
4. Routers configuration. Internet connexion of a local area network.
5. Technical visit.
6. Design of a local area network. Conceptual design.

Non Presential Project:

1. Design of a local area network for a specified company.

Bibliography:

1. STALLINGS, W. "Communications and data networks". Prentice Hall.
2. FIGUEIRAS, A.R. (Coord.) "Una panorámica de las telecomunicaciones". Prentice Hall.

Other bibliography:

1. Academia de networking de Cisco SysChapter: guía de primer año. 2ª ed. Ciscopress.
2. TANENBAUM. "Computer networks". Ed. Prentice Hall.
3. CABALLERO, J.M. "Redes de banda ancha". Ed. Marcombo.

Asssessment: Continuous Assessment. There is no final exam.

Controls: First: 25%		
Non-presential work: 30%	Laboratory 20%	Other 25%