

Course Unit Description - (REPUT)

(Public Telecommunications Networks)

(Mestrado em Engenharia Electrotécnica e de Computadores)

Academic year: 2009/2010



Subject group: Electrónica e Telecomunicações

	Semestral	Compulsory	
Mode of study	Diurno	Hours/Week	T-Teórica 2
Year	2 ^o		PL-Prática-Laboratorial 2
Semester	1 ^o		OT-Orientação Tutorial 1

ECTS 6

Objectives

This course provides an understanding of systems and technologies used in the public telecommunication networks. After the course students shall be able to understand, plan and select the most appropriate technologies for a real application scenario.

Course Contents

Introduction
- The public switched telephone network (PSTN)
- Network and Services
- Functional architecture of network
Transmission technologies
- Temporal Multiplexing Hierarchies
Signaling systems
- V5 and SS7 systems
Marks of technological evolution
- ISDN
- Frame Relay
Core Technologies
- ATM
- MPLS
Digital de Access Network
- xDSL
- Cable systems
Mobile networks
- GSM
- GPRS
- UMTS
- WiMax
Services
- VoIP
- IPTV

Recommended reading

Digital Telephony, John Bellamy, Wiley Series in Telecommunications, 2000
ATM for Public Networks, Ronald Davis, McGraw-Hill Telecommunications, 1999
Modern Cable Television Technology, 2nd Edition, W. Ciciora, J. Farmer, D. Large, M. Adams, Morgan Kaufmann, 2004
Implementation and Application of DSL Technology, P. Golden et al., Auerbach Publications, 2008
Mobile Communications, 2nd Ed, Jochen Schiller, Addison Wesley, 2003
GSM Architecture, Protocols and Services, J. Eberspacher et al., John Wiley & Sons, 2009
UMTS Networks and Beyond, Cornelia Kappler, John Wiley & Sons, 2009
Fundamentals of WiMAX, J. Andrews et al., Prentice Hall, 2007
Voice-Enabling the Data Network: H.323, MGCP, SIP, QoS, SLAs and Security, James F. Durkin, Cisco Press, 2003.

Teaching Methods

Lectures are of 3 types: theoretical, exercises and laboratorial.
The theoretical lectures consist on the oral presentation and discussion of the subjects.
In the exercise lectures several problems are presented that students shall solve.
In the laboratorial lectures students develop two types of work. The former is a research work about technological themes, and the latter consists in a small project of implementation and configuration of a specific telecommunications scenario.

Assessment methods

The assessment is achieved in two different instants, parts A and B, named PA and PB assessment components, respectively. Part A is a midterm assessment and part B is realized at the course term.
The grades of Px (PA and PB) components result from the assessments obtain in an exam (PE), lab reports (LR) and oral presentation and discussion (PD) of the work solutions of each student:
 $Px = PE.72\% + LR.12\% + PD.16\%$

The grade of the final assessment (FA) is achieved by
 $FA = PA.45\% + PB.55\%$

	Name
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Lecturer:	Jorge Botelho da Costa Mamede (JBM)