




## Course Unit Description - (comau)

(Audio and Video Communication)

(Mestrado em Engenharia Electrotécnica e de Computadores)

Academic year: 2007/2008

### Subject group: Electrónica e Telecomunicações

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

ECTS 6

### Objectives

The main objective of this course is to introduce the area of Audiovisual Communication Systems. The main concepts, architecture models, technologies and solutions will be presented.

### Course Contents

- 1 - Introduction to audiovisual signal processing
  - a) Basic concepts
  - b) Representation techniques
  - c) Distortion measures
- 2 - Coding Techniques
  - a) Entropy coding
  - b) Transform coding
  - c) Compression
- 3 - International Standards
  - a) JPEG
  - b) MPEG
  - c) H261/263
- 4 - Audiovisual Communication Systems
  - a) Architectures and Protocols
  - b) Tools
  - c) Digital Television
- 5 - Content Management

### Recommended reading

- Rafael Gonzalez and Richard Woods, "Digital Image Processing," 2nd edition (2002), published by Prentice Hall
- Artur Lugmayr, Samuli Niiranen, Seppo Kalli, Digital Interactive TV and Metadata, Springer, 2004
- The guide to digital television, 3rd edition, <http://www.digitaltelevision.com/dtvbook>
- Keith Jack, Video Demystified: a Handbook for the Digital Engineer, 3rd Edition, LLH Technology Publishing
- Jerry Whitaker and Blair Benson, Video and Television Engineering, 4th Edition, McGraw-Hill
- Hervé Benoit, Digital Television: MPEG-1, MPEG-2 and principles of the DVB system, 2nd Edition, Focal Press
- Adolfo Rodriguez, John Gatrell, John Karas, Roland Peschke, TCP/IP Tutorial and Technical Overview, IBM Red Books, <http://www.redbooks.ibm.com/redbooks>
- RFCs

### Teaching Methods

The course has three different types of classes: T, OT and L.  
In the T classes the students will be presented theoretical topics with practical examples. Some extra pointers will be provided to enable students to enlarge their knowledge autonomously.  
In the OT and L classes, the concepts presented in the theoretical classes will be looked in depth. Moreover, new topics will be introduced so that students can do some research in advanced areas.

### Assessment methods

- Three components will be assessed:
- a) Development, presentation and discussion of class assignments
  - b) Class participation: Presentation of assignment 1 will be followed by a Q&A session where all the students are expected to participate. Moreover, for each of the assignments the week-by-week evolution will be considered.
  - c) Final examination: Covering all the topics presented including the papers prepared as assignment 1

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	<b>Name</b>
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