

Course Unit Description - (RECIN)

(Instrumentation and Field Networks)

(Mestrado em Engenharia Electrotécnica e de Computadores)

Academic year: 2009/2010



Subject group: Ciências Básicas da Electrotecnia

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

ECTS 6

Objectives

The objectives of this course are to introduce fundamental concepts on networks for distributed computer-controlled systems (DCCS), namely fieldbus, instrumentation and sensor/actuator networks.

Current and emergent standard protocols and commercial technologies are analysed, such as PROFIBUS, IEEE 802.15.4 and ZigBee.

Some important concepts on Quality-of-Service and on the interoperability in heterogeneous networks are also addressed, namely in what concerns network interconnection at different protocol layers (repeaters, bridges, routers e gateways).

Course Contents

1. OUTLINE OF COMMUNICATION NETWORKS AND PROTOCOLS FOR DISTRIBUTED COMPUTING SYSTEMS
2. GENERAL ASPECTS ON FIELDBUS NETWORKS
3. INTERCONNECTING HETEROGENEOUS NETWORKS
4. FIELDBUS NETWORKS - PROTOCOLS AND TECHNOLOGIES
5. WIRELESS SENSOR NETWORKS

Recommended reading

http://www.dee.isep.ipp.pt/~mjf/act_lect/RECIN/RECIN.html

Teaching Methods

The teaching/learning approach relies on two main components:

- keynote talks
- research works

There is a diverse set of talks from both the course responsible and invited speakers, addressing different topics .

Students are supposed to analyse and discuss scientific papers in a set of themes, in order to trigger a transversal knowledge.

Students must also focus on a specific subject and develop a written report, culminating with a presentation and defense at the end of the semester.

Course web site:

http://www.dee.isep.ipp.pt/~mjf/act_lect/RECIN/RECIN.html

Assessment methods

Assessment is based on two components:

- a project developed along the semester representing 75% of the final grade (15 in 20); written report and oral presentation and defense will be considered;
- reading assignments (roughly weekly periodicity) and assessment of the student performance along the semester, representing 25% of the final grade (5 in 20).

	Name
Teacher responsible:	Mário Jorge de Andrade Ferreira Alves (MJF)
Lecturer:	Mário Jorge de Andrade Ferreira Alves (MJF) Andre Vaz da Silva Fidalgo (ANF)

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