Course Unit Description - (ROMOV)

(Mobile Robotics)

(Mestrado em Engenharia Electrotécnica e de Computadores)

Academic year: 2009/2010

Subject group: Automação e Robótica

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

ECTS 3

Objectives

This course intends to provide the theoretical and practical background for the usage, selection, application or development of mobile robots and control architectures for autonomous systems.

Course Contents

Control Architectures for mobile robots
Hierarchical
Behavioral
Hybrids
Introduction to Navigations Systems
Languages and tools for robots programming
Simulation of Robotic Systems
Land Mobile Robots
Autonomous Aerial Vehicles
Surface and Submarine Vehicles

Recommended reading

Introduction to Autonomous Mobile Robots, Roland Siegwart, Illah R. Nourbakhsh, MIT Press 2004.
Algorithmic Foundations of Robotics V, J D Boissonnat, J Burdick, K Goldberg , Srpinger Verlag 2003
Sensors for Mobile Robots, H. R. Everett, AK Peters Publishers, 1995
An Behavior-based Robotics, Ronald C. C. Arkin, MIT Press, 1998
Embedded Robotics,Thomas Braunl, Springer Verlag, 2004
Autonomous Mobile Robots: Vehicles With Cognitive Control, A. Meystel, World Scientific, 1991

Teaching Methods

Exposition of basic concepts, methods and techniques in the mobile robotics area will be complemented by practical exercises (both individual questions and group work), with work presentations, theoretical concepts and survey works presentations and robotics projects development and implementation.

Assessment methods

The assessment will comprise: evaluation of problems in laboratory classes, and the evaluation of two works with respective presention.

	Name
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Lecturer:	Alfredo Manuel Oliveira Martins (AOM)