DOCTORAL PROGRAMME

IN

ELECTRICAL AND COMPUTER

ENGINEERING

2009-2010

Annual Annex to the Document
Programme Guidelines

Scientific Committee

Programme Director

Aurélio Campilho, Ph.D. (campilho@fe.up.pt)

José Carlos Príncipe, Ph.D. (principe@fe.up.pt)
Pedro Guedes de Oliveira, Ph.D. (pgo@fe.up.pt)
João Tomé Saraiva, Ph.D. (jsaraiva@fe.up.pt)
Aníbal Coimbra de Matos, Ph.D. (anibal@fe.up.pt)

CONTENTS

1 INTRODUCTION

This document is the 2009-2010 annex to the general document "PROGRAMME GUIDELINES". This annex presents relevant and specific information for the academic year 2009-2010, including:

- Important dates, fees and other information
- Calendar
- Streams and courses offered in 2009-2010

1.1 Important dates for application to the programme

For 2009 -2010 academic year, the application deadline is August 28, 2009. However, the application process is permanently opened through the academic year with monthly evaluations. The candidates will be informed of the admission to the programme within one month after the deadline. The accepted candidates should start the studies in the semester immediately after being notified.

1.2 Fees

The annual fee is 3.000,00 Euros.

1.3 How to apply

For application the candidates should submit electronically through the FEUP website http://www.fe.up.pt. The application should include the following documents:

- Education certificates
- Curriculum Vitae
- Copy of the passport or other identity document
- 2 letters of recommendation
- Photograph

The selection criterion is based on the CV of the candidate and on the overall marks in the undergraduate courses. A minimum of 16 out of 20 is required. All other cases will be evaluated by the PDEEC Scientific Committee in a case by case analysis. An overall mark in the range 14/20 to 16/20 will require a strong recommendation letter. The other cases can be exceptionally considered if strongly recommended by a Professor of the DEEC-FEUP.

For any additional information you may contact the PDEEC Secretariat.

PDEEC Secretariat:
Rosário Rebelo
Email: rrebelo@fe.up.pt; Tel.:+351.225081870

2 Streams and Courses offered in 2009-2010

PDEEC courses are organized in two semesters. First year students typically select two main streams plus two electives. Each main stream is composed of two courses (one course per semester). The electives are chosen within PDEEC or other doctoral programmes at FEUP. Seminars and Individual Topics are additional courses intended to help the student start the research work, and to prepare the thesis research plan under the supervision of a professor. Students must find a thesis supervisor during the first semester. The research plan needs to be discussed and approved by the Supervisory Committee at the end of the first year.

The general organisation of the programme is as follows:

1st Semester	2nd Semester
Seminars	Individual Topics
Main Stream 1 (two courses)	
Main Stream 2 (two courses)	
Elective 1	Elective 2

The PDEEC courses offered for 2009-2010 are shown in the following table. The student's course plan needs to be approved by the PDEEC Scientific Committee.

The streams opened in 2009-2010 are the following:

- Energy Markets (**ENMAR**)
- Power System Dynamics and Control (**PSDCO**)
- Systems and control (**SYCON**)
- Discrete Event and Hybrid Systems (**DEHSY**)
- Image Recognition and Machine Learning (**IMRML**)
- Microelectronics and Microsystems (**MICRO**)
- Test Technology and Design for Testability (**TTDTE**)
- Operations Research (**OPRES**)
- Robotics (**ROBOT**)
- Embedded Real-Time Systems (**ERTS**)

The students can select as Electives the courses in the other streams or from other Doctoral Programmes at FEUP with similar number of ECTS, namely:

1. Doctoral Programme on Sustainable Energy Systems (PDSSE)
   http://paginas.fe.up.pt/~pdsse/
2. Doctoral Programme in Informatics Engineering
   http://paginas.fe.up.pt/~prodei/site/presentation.php
3. Doctoral Programme in Telecommunications (MAP-TELE)
   http://www.map.edu.pt/tele

This selection needs approval from the PDEEC Scientific Committee and requires acceptance from the PhD Programme from which the student has selected the elective(s).

The courses offered in 2009-2010 are listed in the following table.

STREAM	COURSES	
	Course coordinator, Other lecturers	
	1st Semester	**2nd Semester**
Energy Markets (**ENMAR**)	**Markets and Regulation** J. Tomé Saraiva	**Market Simulation** *to be defined*
Power System Dynamics and Control (**PSDCO**)	**Signals, Dynamics and Control** J. Peças Lopes Maria Helena Vasconcelos	**Systems with Renewables** J. Peças Lopes Cláudio Monteiro
Systems and Control (**SYCON**)	**Vector Space Methods** Maria do Rosário Pinho Aníbal Matos	**Measure Theory and Stochastic Processes** Paulo Lopes dos Santos, Fernando Fontes
Discrete Event and Hybrid Systems (**DEHSY**)	**Discrete Event Systems** Fernando Lobo Pereira	**Hybrid Systems** Fernando Lobo Pereira João Sousa
Image Recognition and Machine Learning (**IMRML**)	**Machine Learning** Jaime Cardoso Aurélio Campilho	**Image Analysis and Recognition** Aurélio Campilho Pedro Quelhas
Microelectronics and Microsystems (**MICRO**)	**Microelectronic and Microelectromechanical Technologies** José Machado Silva Luís Rocha (UM)	**Advanced Microelectronic Systems Design** José Carlos Alves João Canas Ferreira
Test Technology and Design for Testability (**TTDTE**)	**Test and Design for Testability** José Martins Ferreira José Machado Silva, Hélio Mendonça	**Instrumentation and Systems Testing** José Machado Silva José Martins Ferreira
Operations Research (**OPRES**)	**Decision Support** Maria Antónia Carravilla José Fernando Oliveira	**Optimization Techniques** José Fernando Oliveira Maria Antónia Carravilla Maria Cristina Ribeiro
Robotics (**ROBOT**)	**Robotic Manipulators** António Paulo Moreira Paulo Costa	**Mobile Robotics** Paulo Costa António Paulo Moreira, Aníbal Matos
Embedded Real-Time Systems (**ERTS**)	**Real-Time Embedded Systems** Luís Almeida Stefan Petters, Arvind Easwaran (ISEP)	**Parallel and Distributed Embedded Systems** Pedro Souto Eduardo Tovar, Bjorn Andersson (ISEP)

ELECTIVES	
Computational Intelligence and Power Systems Vladimiro Miranda	**Grid Computing** A. Pimenta Monteiro
Signal Analysis, Classification and Processing José Carlos Príncipe, Aníbal Ferreira, Diamantino Freitas	**Non-linear Control** Fernando Lobo Pereira Maria Paula Malonek
Ubiquitous Embedded Systems João Barros Mário Alves, Shashi Prabh (ISEP)	**Hardware/Software System Development** José Carlos Alves, João Canas Ferreira, João Cardoso
	Reliable and concurrent software Mário Sousa, Paulo Portugal Miguel Pinho (ISEP)
Special Topics Do not open this semester	**Special Topics** Aurélio Campilho

INDIVIDUAL TOPICS	
Seminars Jaime Cardoso, Ricardo Morla	**Individual Topics** Aníbal Matos

ISEP – Instituto Superior de Engenharia
UM – Universidade do Minho

3 Lecturers in 2009-2010

PROFESSORS	
Ana Maria Mendonça – amendon@fe.up.pt	José Carlos Príncipe – principe@fe.up.pt
Aníbal Ferreira – ajf@fe.up.pt	José Fernando Oliveira - jfo@fe.up.pt
Aníbal Matos – anibal@fe.up.pt	José Machado Silva - jms@fe.up.pt
António Pimenta Monteiro – apm@fe.up.pt	Luís Almeida – lda@fe.up.pt
António Paulo Moreira - amoreira@fe.up.pt	Luís Rocha (UM) – lrocha@dei.uminho.pt
Arvind Easwaran (ISEP) – aen@isep.ipp.pt	Margarida Ferreira – mmf@fe.up.pt
Aurélio Campilho – campilho@fe.up.pt	Maria Antónia Carravilla - mac@fe.up.pt
Bjorn Andersson (ISEP) – bandersson@isep.ipp.pt	Maria do Rosário Pinho - mrpinho@fe.up.pt
Cristina Ribeiro - mcr@fe.up.pt	Maria Paula Malonek - mprocha@fe.up.pt
Eduardo Tovar - emt@dei.isep.ipp.pt	Mário Alves - mjf@isep.ipp.pt
F. Maciel Barbosa – fmb@fe.up.pt	Mário Sousa - msousa@fe.up.pt
Fernando Fontes - faf@fe.up.pt	Miguel Pinho (ISEP) – lmp@isep.ipp.pt
Fernando Lobo Pereira – flp@fe.up.pt	Paulo Costa - paco@fe.up.pt
Helena Vasconcelos – mhv@fe.up.pt	Paulo Portugal - pportugal@fe.up.pt
Hélio Mendonça – hsm@fe.up.pt	Pedro Quelhas – pedro.quelhas@gmail.com
J. Tomé Saraiva – jsaraiva@fe.up.pt	Pedro Souto - pfs@fe.up.pt
Jaime Cardoso – jsc@fe.up.pt	Ricardo Morla - rmorla@fe.up.pt
João Barros – jbarros@fe.up.pt	Shashi Prabh (ISEP) – ksph@isep.ipp.pt
João Cardoso - jmpc@fe.up.pt	Stefan Petters (ISEP) – smp@isep.ipp.pt
José Carlos Alves – jca@fe.up.pt	Vladimiro Miranda - vmiranda@fe.up.pt