



**DOCTORAL PROGRAMME
IN
ELECTRICAL AND COMPUTER
ENGINEERING**

2010-2011

**Annual Annex to the
Programme Guidelines**

Scientific Committee

Programme Director

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CONTENTS

1	INTRODUCTION.....	2
1.1	IMPORTANT DATES FOR APPLICATION TO THE PROGRAMME.....	2
1.2	FEEES	2
1.3	HOW TO APPLY	2
2	STREAMS AND COURSES OFFERED IN 2010-2011	3
3	LECTURERS IN 2010-2011	5

1 INTRODUCTION

This document is the 2010-2011 annex to the general document "PROGRAMME GUIDELINES". This annex presents relevant and specific information for the academic year 2010-2011, including:

- Important dates, fees and other information
- Calendar
- Streams and courses offered in 2010-2011

1.1 Important dates for application to the programme

For 2010 -2011 academic year, the important dates are the following:

1st PHASE

Application.....	05.APR to 07.JUL.2010
Results	23.JUL.2010
Registration	16.SEP to 21.SEP.2010

2nd PHASE

Application	04.OUT a 02.DEZ.2010
Results	06.DEZ a 10.DEZ.2010
Registration	03.JAN to 07.JAN.2011

The selected 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:

1. GRE Document (Optional Document in the 1st phase in 2010; mandatory for the 2nd phase, 2010 and for the following academic years).
2. TOEFL Document.
3. Grade Transcripts (Mandatory).
4. Motivation letter (Mandatory).
5. Curriculum Vitae (Mandatory).
6. Recommendation letters (two recommendation letters are mandatory; a third is optional). The recommendation letters should be sent directly to PDEEC secretariat (pdeec@fe.up.pt) by their authors.

For the evaluation of the applications, the PDEEC Scientific Committee will take into consideration the following items:

1. GRE – Graduate Record Examinations (<http://www.ets.org/gre/>).
2. TOEFL – Test of English as a Foreign Language (<http://www.ets.org/>).
3. Overall grades in the MSc and BSc degrees. The minimum value for this item is 14 out of 20 (70%).
4. Grades less than 70% can be exceptionally considered if the candidate has an explicit support of a FEUP Professor.
5. Motivation letter
6. Curriculum Vitae
7. The recommendation letters.

The PDEEC Scientific Committee may require an interview to the candidate. For any additional information you may contact the PDEEC Secretariat.

PDEEC Secretariat:

José António Nogueira (jan@fe.up.pt) ; Tel.:+351.225081870

2 Streams and Courses offered in 2010-2011

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:

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

The PDEEC courses offered for 2010-2011 are shown in the following table. The student's course plan needs to be approved by the PDEEC Scientific Committee.

The streams opened in 2010-2011 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 2010-2011 are listed in the following table.

STREAM	COURSES	
	Course coordinator, Other lecturers (the list of course professors will be updated briefly)	
	1 st Semester	2 nd Semester
Energy Markets (ENMAR)	Markets and Regulation J. Tomé Saraiva	Market Simulation <i>to be defined</i>
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
	Special Topics Do not open this semester	Reliable and concurrent software Mário Sousa, Paulo Portugal Miguel Pinho (ISEP)
		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 2010-2011

(the list of course professors will be updated briefly)

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