

Appendix C:**Dual Degree Agreement between****Instituto Superior Técnico (IST) and Universitat Politècnica de Catalunya (UPC)****Duration: Academic Year 08/09 to 10/11**

Degree programme at IST:	Electrical and Computer Engineering (MEEC) Major: Telecommunications or Electronics (120 ECTS)
Degree awarded:	M.Sc.
Language of instruction	English
Entrance admission criteria:	Bachelor of Science in Electrical and Computer Engineering Sciences
Degree programme at UPC:	Information and Communication Technologies (MINT) (120 ECTS)
Degree awarded:	Master of Science in Information and Communication Technologies
Language of instruction	English
Entrance admission criteria:	Bachelor of Science in Electrical and Computer Engineering Sciences
Number of students	2

Schematic Study Plan

Option 1			
Year	Institution	Studies	Remarks
1	UPC	Compulsory and elective courses	60 ECTS
2	IST	Courses + Master Thesis (co-supervised)	30+30 ECTS
Option 2			
Year	Institution	Studies	Remarks
1	IST	Compulsory and elective courses	60 ECTS
2	UPC	Courses + Master Thesis (co-supervised)	30+30 ECTS
The schematic study plan is applicable to students originated from UPC or IST indifferently. The detailed study plan must be defined by the academic coordinators for each student.			

Contacts:

<i>Academic responsible for the programme (MEEC):</i> Prof. António Rodrigues	<i>Academic responsible for the programme (MINT):</i> Prof. Eduard Alarcon
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Signatures:

Date: November 30 th , 2007	Date: November 30 th , 2007
For IST	For UPC
Prof. Carlos Matos Ferreira President, Instituto Superior Técnico	Prof. Elisa Sayrol Dean, Escola Tècnica Superior d'Enginyeria de Telecomunicació de Barcelona (ETSETB)

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FIRST YEAR STUDIES	
IST	UPC
Autumn Semester (minimum of 30 ECTS)	
Major Telecommunications	
Radio Wave Propagation (6 ECTS)	Electromagnetic Fields (6 ECTS)
Wireless Telecommunications Systems (6 ECTS)	Probability and Stochastic Processes (6 ECTS)
Digital Transmission (6 ECTS)	Signals and Systems II (6 ECTS)
Data Coding and Compression (6 ECTS)	Network Architecture (6 ECTS)
Optional Courses Students must take 6 ECTS among these courses	Computer Architecture and Operating Systems (13 ECTS)
Telecommunications Systems (6 ECTS)	Circuit and Electronic Systems Design (3 ECTS)
Telecommunication Electronics (6 ECTS)	
Microwaves (6 ECTS)	
Integrated Services Networks (6 ECTS)	
Entrepreneurship, Innovation and Technology Transfer (6 ECTS)	
Major Electronics	
Power Electronics (6 ECTS)	Electromagnetic Fields (6 ECTS)
Computer Electronics (6 ECTS)	Probability and Stochastic Processes (6 ECTS)
Computer Networks (6 ECTS)	Signals and Systems II (6 ECTS)
Digital and Analog Filters (6 ECTS)	Network Architecture (6 ECTS)
Optional Courses Students must take 6 ECTS among these courses	Computer Architecture and Operating Systems (13 ECTS)
Telecommunication Electronic Systems (6 ECTS)	Circuit and Electronic Systems Design (3 ECTS)
Instrumentation Supported in Personal Computers (6 ECTS)	
Project of Digital Systems (6 ECTS)	
Entrepreneurship, Innovation and Technology Transfer (6 ECTS)	

FIRST YEAR STUDIES	
IST	UPC
<u>Spring Semester</u> (minimum of 30 ECTS)	
Major Telecommunications	
Telecommunications Systems and Networks (6 ECTS)	Advanced Programming and Distributed Applications (11645 - APDA) (5 ECTS)
Computer Networks (6 ECTS)	Communication Theory (11580 - CT) (5 ECTS)
Signal Processing Electronic Systems (6 ECTS)	Communications Systems, Networks and Services (11684 - CSNS) (5 ECTS)
Mobile Communication Systems (6 ECTS)	Digital Logic Design (11595 - DLD) (5 ECTS)
Optional Courses Students must take 6 ECTS among these courses	Lectures on Information Technology and Society (11689 - LITS) (2.5 ECTS)
Antennas (6 ECTS)	Propagation and Radiowaves (11687 - PR) (5 ECTS)
High Frequency Electronics (6 ECTS)	Topics in New Technologies and Business (11572 - TNTB) (2.5 ECTS)
Audio and Video Communications (6 ECTS)	
Communication Theory (6 ECTS)	
Wireless Mobile Networks (6 ECTS)	
Photonics (6 ECTS)	
Engineering Management Projects (6 ECTS)	
Major Electronics	
High Frequency Electronics – 6 ECTS	Advanced Programming and Distributed Applications (11645 - APDA) – 5 ECTS
Microelectronics (6 ECTS)	Communication Theory (11580 - CT) – 5 ECTS
Sensors and Actuators (6 ECTS)	Communications Systems, Networks and Services (11684 - CSNS) – 5 ECTS
Signal Processing Electronic Systems (6 ECTS)	Digital Logic Design (11595 - DLD) – 5 ECTS
Optional Courses Students must take 6 ECTS among these courses	Lectures on Information Technology and Society (11689 - LITS) – 2.5 ECTS
Electronics of Interfaces (6 ECTS)	Propagation and Radiowaves (11687 - PR) – 5 ECTS
Object Oriented Programming (6 ECTS)	Topics in New Technologies and Business (11572 - TNTB) -2.5 ECTS
Audio and Video Communications (6 ECTS)	
Engineering Management Projects (6 ECTS)	

SECOND YEAR STUDIES	
IST	UPC
<u>Autumn Semester</u> (minimum of 30 ECTS)	
Major Telecommunications	
<i>Students must take at least 30 ECTS from these courses, each course corresponding to 6 ECTS:</i>	
<u>Entrepreneurship, Innovation and Technology Transfer</u>	<i>Students must take at least 30 ECTS from these courses, each course corresponding to 5 ECTS:</i>
<u>Engineering Management Projects</u>	Broadband Networks and Services (11570 - XSBA)
<u>Energy Systems for Telecommunications</u>	Cellular Access Networks (11569 - XAC)
<u>Radio Wave Propagation</u>	Cryptography and Network Security (11557 - CRIPT)
<u>Wireless Telecommunications Systems</u>	E-Commerce (11555 - CE)
Digital Transmission	Network Intelligence (11561 - IX)
<u>Autonomous Systems</u>	Protocols in Telecommunications Networks (11658-PRXT)
<u>Telecommunication Electronics</u>	Telecommunications Networks Planning (11661 - PLXT)
<u>Radio Wave Propagation</u>	Image and Video Communication (11671 - TEI)
<u>Telecommunications Systems</u>	Multimedia Mobile Communications (11554 - CMM)
Data Coding and Compression	Optical Fibre Telecommunications (11673 - TELFIB)
<u>Microwaves</u>	RF and Microwaves Circuits in Communications (11536-RF)
<u>Telecommunications Management and Public Policies</u>	Radionavigation Systems (11672 - SISRAD)
<u>Mechanisms for Quality of Service Support in the Internet</u>	Speech Processing (11667 - PVEU)
<u>Integrated Services Networks</u>	Digital Systems (11577 - DS)
Elective course	Energy Management for Information and Communication Systems (11599 - EMICS)
	MEMS Technology and Devices (11602 - MEMS)
	RF Communication System-on-chip (11591 - RFCS)
	Sensors and Signal Conditioning (11589 - SSC)
	VLSI Digital Design (11578 - VDD)
	Management and Innovation in Telecommunication Companies (32036 - MITC)
	Industry Internship
The courses are chosen in accordance with student's mentor	
<u>Spring Semester</u> (minimum of 30 ECTS)	
Thesis related activities 30 ECTS supervised by both partners	

SECOND YEAR STUDIES	
IST	UPC
<u>Autumn Semester</u> (minimum of 30 ECTS)	
Major Electronics	
Students must take at least 30 ECTS from these courses, each course corresponding to 6 ECTS:	
Entrepreneurship, Innovation and Technology Transfer (6 ECTS)	Broadband Networks and Services (11570 - XSBA) -5 ECTS
Engineering Management Projects (6 ECTS)	Cellular Access Networks (11569 - XAC)
Advanced Computer Architectures – 6 ECTS	Criptography and Network Security (11557 - CRIPT) -5 ECTS
Analog Integrated Systems -6 ECTS	E-Commerce (11555 - CE) -5 ECTS
Simulation and Test of Electronics Systems (6 ECTS)	Network Intelligence (11561 - IX) -5 ECTS
Measurement Systems in Radiofrequency (6 ECTS)	Protocols in Telecommunications Networks (11658 - PRXT) -5 ECTS
Information Systems and Databases (6 ECTS)	Telecommunications Networks Planning (11661 - PLXT) -5 ECTS
Data Coding and Compression (6 ECTS)	Image and Video Communication (11671 - TEI) -5 ECTS
Elective course – 6 ECTS	Multimedia Mobile Communications (11554 - CMM) -5 ECTS
The courses are chosen in accordance with student's mentor	Optical Fibre Telecommunications (11673 - TELFIB) -5 ECTS
	RF and Microwaves Circuits in Communications (11536 - RF) -5 ECTS
	Radionavigation Systems (11672 - SISRAD) -5 ECTS
	Speech Processing (11667 - PVEU) -5 ECTS
	Digital Systems (11577 - DS) -5 ECTS
	Energy Management for Information and Communication Systems (11599 - EMICS) -5 ECTS
	MEMS Technology and Devices (11602 - MEMS) -5 ECTS
	RF Communication System-on-chip (11591 - RFCS) -5 ECTS
	Sensors and Signal Conditioning (11589 - SSC) -5 ECTS
	VLSI Digital Design (11578 - VDD) -5 ECTS
	Management and Innovation in Telecommunication Companies (32036 - MITC) -5 ECTS
	Industry Internship -5 ECTS
<u>Spring Semester</u> (minimum of 30 ECTS)	
Thesis related activities 30 ECTS supervised by both partners	