



MASTERS IN ADVANCED SCIENCES OF MODERN TELECOMMUNICATIONS

General Information	
Academic Area:	<input type="checkbox"/> Experimental Science <input checked="" type="checkbox"/> Technical Education <input type="checkbox"/> Health Sciences <input type="checkbox"/> Social Sciences and Law <input type="checkbox"/> Humanities
Organised by:	Escuela Técnica Superior de Ingeniería
Participating Universities:	Universidad de Pompeu Fabra (UPF), University of Valencia (UV)
Length of course:	1 academic year. Possibility of part-time.
ECTS credits:	60
Fees:	In accordance with official rates pending publication. Indicative tuition fees: 29,87 € / ECTS
Taught at:	UVEG Campus, Valencia or UPF Campus, Barcelona (student's choice)
Modes of Study:	On campus [video-conference system for students physically present on a different campus to that of the professor]
Languages:	English
Contact for administrative queries	etse@uv.es
Contact for academic queries:	mscasmt-info@uv.es
Web page:	http://www.uv.es/mscasmt
Constitutes the taught phase of a Doctoral Programme:	Yes
Name of Doctoral Programme:	Information and Communication Technologies, and Computational Mathematics (INFOMATH)
Further Information on Doctoral Programme:	http://www.uv.es/postgrau/pdfDO/tecnologiasdelainformacion.pdf

Programme Description

This Masters has been designed and is coordinated by internationally recognized researchers from the Universities of Valencia (UVEG) and Pompeu Fabra (UPF), with extensive academic and professional experience in the international arena, especially the United States.

It provides coherent and comprehensive advanced training in line with the state of the art in modern telecommunications. The course aims to maximise research, innovation and technology transfer at universities, research institutes, and science and technology parks and companies within Spain and Europe. Moreover the Master offers graduate courses of a level similar to those of other prestigious universities in the United States and



Europe, including courses that are not currently offered at any other Spanish institution.

Advanced training that is in total synchrony with the latest advances in international research will prepare students to generate novel theoretical and practical discoveries of international scientific importance, favouring at the same time the creation of new research areas, and strengthening other areas in which Spain is lagging behind. The Masters will also attract funding, as well as researchers and technologists from all over the world, increasing visibility and international impact. Finally, this Masters will help create new technological SMEs and increase collaboration between technological companies from Spain and abroad.

The Masters, which will be **taught wholly in English**, has received formal endorsement from several highly prestigious institutions within the field of Telecommunications, such as **Berkeley, Massachusetts Institute of Technology (MIT), University of California, Los Angeles (UCLA), University of Southern California (USC), Princeton University, Stanford University, EPFL, ETHZ, Technical University of Munich**, and companies such as **Alcatel-Lucent (Bell Labs), Deutsche Telekom and Telefónica**. The Masters also forms part of the programme activities of the "Foundations and Methodologies for Future Communication and Sensor Networks" Consolidating Project, with an Advisory Board made up of ten IEEE Fellows. For more information, see the web page: www.uv.es/mscasmt

This Masters is targeted at a) telecommunications engineers, b) computer engineers and scientists, c) physicists, d) mathematicians (specialised in applied maths or statistics), e) electronic engineers, f) technical engineering in telecommunications RD 1393 adapted to the EHEA, and g) graduates coming from other Masters programmes in the telecommunications area.

The programme offers three areas of specialisation: Advanced Communications, Advanced Networks and Multimedia Communications.

Objectives

This Masters offers a competitive postgraduate option with quality criteria equal to those of other prestigious institutions:

1. To provide comprehensive training in all aspects linked to telecommunications, from the standpoint of: a) fundamental research, aimed at influential theoretical discoveries, such as new areas of research, b) applied research, geared towards high quality technology transfer.
2. To facilitate the entry of graduates of the course, as scientists or technologists, to international research and work groups in technology parks and innovative companies, universities and research institutes.
3. To provide the student with the knowledge needed to disseminate information on research findings, thus improving technology transfer in both a business and a research ambit.

Specific Admission Requirements

To take this Masters course, the student must have prior knowledge of:

- Algebra for engineers
- Linear systems and/or transforms
- Statistics and probability
- Communication theory
- Basic knowledge of signal processing
- Basic knowledge of networks



- Programming techniques

The tutor assigned to each student will decide whether there is a need for bridging courses (maximum of 30 credits), which will correspond to degree subjects that guarantee the student gains the prerequisite knowledge.

It is also necessary to demonstrate a level of English advanced enough to follow a postgraduate course in the language, through either a personal interview, or possession of one of the following certificates: a) First Certificate in English, b) Certificación de Aptitud from the Escuela Oficial de Idiomas (official spanish language school), c) Certificate of Competency in English (ECCE), University of Michigan, d) A score of 213 in the Test of English as a Foreign Language (TOEFL), e) score of 6.5 in the International English Language Testing System (IELTS), or having successfully completed Level 4 in the Escuela Oficial de Idiomas in Spain.

Selection Criteria

In the selection procedure the following will be assessed:

- 80% Academic record, evaluated in accordance with the regulations of the Universities of Valencia and Pompeu Fabra
- 20% Additional academic or professional experience. A personal interview may be held to assess these items. Priority will be given to students who meet the requirements in the June before the course they are applying for begins.

Documents for submission:

- A degree certificate, or in its place a signed declaration that the student will be in possession of the certificate at the beginning of the academic year. Entry to the Masters course is conditional on presentation of the corresponding certificate (or proof of entitlement to the degree) before the start of the academic year.
- Proof of level of English advanced enough to follow a Postgraduate course in the language, through a personal interview. The level can also be proved with the following documents: a) First Certificate in English, b) Certificación de Aptitud from the Escuela Oficial de Idiomas (official spanish language school), c) Certificate of Competency in English (ECCE), University of Michigan, d) A score of 213 in the Test of English as a Foreign Language (TOEFL), e) score of 6.5 in the International English Language Testing System (IELTS), or having successfully completed Level 4 in the Escuela Oficial de Idiomas
- Academic record
- Certificates of academic, professional or research training (if available)

Career Opportunities

Scientists or technologists with the capacity to become an effective part of international research and work groups in technology parks and innovative companies, universities and research institutes.

Study Programme in ECTS credits

QUALIFICATION	COURSE NAME	CREDITS
2027	ADVANCED SCIENCES OF MODERN TELECOMMUNICATIONS	60

CORE MODULES

35

41108	Core Curriculum Training	20
41110	Research Methodology	5
41109	Masters final project	10

ELECTIVES. PATHWAY 1: ADVANCED COMMUNICATIONS

25

41111	⁽¹⁾ Advanced Communications	15
41112	Estimation Theory	5
41113	Antennas and RF systems for Communication	5
41114	Fiber-Optic Communication Systems	5
41125	Research Seminars	5

⁽¹⁾ Required course for pathway 1.

ELECTIVES. PATHWAY 2: ADVANCED NETWORKS

25

41115	⁽²⁾ Advanced Networks	15
41116	Cryptography and Security in Communication Networks	5
41117	Models and Tools for Ad-Hoc Networks	5
41118	Network Performance Improvement	5
41119	Computability and Complexity	5
41125	Research Seminars	5

⁽²⁾ Required course for pathway 2.

ELECTIVES. PATHWAY 3: MULTIMEDIA COMMUNICATIONS

25

41120	⁽³⁾ Multimedia Communications	15
41121	3D Multimedia for Internet and Mobile Networks	5
41122	Visual Recognition and Perception	5
41123	Data Analysis and Machine Learning	5
41124	Linear and Non-linear Time Series Analysis	5
41125	Research Seminars	5

⁽³⁾ Required course for pathway 3.