UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Escola d'Enginyeria de Telecomunicació
i Aeroespacial de Castelldefels

MASTEAM

Welcome meeting

Autumn 2019 intake

4th September 2019

Outline

- Institutional presentation
  - Your new university, campus, and schoool
- MASTEAM
  Course structure, academic details, internships, etc
- Practical information
  Legal aspects, information systems, etc
- Annex: summary of courses

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YOUR UNIVERSITY

UNIVERSITAT POLITÈCNICA DE CATALUNYA (UPC) - BARCELONATECH

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i Aeroespacial de Castelldefels

Facts & figures

https://www.youtube.com/watch?v=wDyRDtz-uho

- UPC, the Technical University of Catalonia
  - Founded in 1971, from century-old schools
  - 18 schools in 6 cities and 9 campuses

Facts & figures

- UPC Figures (course 2018/19)
  - 30000 students
    - of which 22800 at bachelor, 5200 at masters, and 2200 in PhD programs
    - 1400 incoming mobility students per year
  - 3100 teaching and research staff
  - 2000 administrative and service staff

    http://www.upc.edu/en/the-upc/the-institution/facts-figures

- Well positioned in rankings (specifically in the ICT field) and presence in European research projects

https://www.upc.edu/ranquings/en

Facts & figures – Rankings as of Feb 2019

Academic Ranking of World Universities (ARWU) - Shangai

In the 236-265 rank in Europe and the 18-20 rank in Spain

Times Higher Education (THE) WUR

In the 253-287 rank in Europe and the 10-11 rank in Spain

QS World University Rankings

120th in Europe and 7th in Spain

Academic Ranking of World Universities (ARWU) Shangai

Engineering, Technology and Computer Science (2016)

In the 76-100 rank globally and the 2nd rank in Spain

Best Global University Rankings (US News)

Engineering

13rd in Europe and 1st in Spain

Best Global University Rankings (US News)

Computer Science

6th in Europe and 1st in Spain

https://www.upc.edu/ranquings/en

Facts & figures – Rankings as of Feb 2019

Times Higher Education (THE) Young University Rankings

In the 61-88 rank in Europe and the 5-7 rank in Spain

ShanghaiRanking's Global Ranking of Academic Subjects

Instruments Science & Technology

28th globally and 1st in Spain

QS World University Rankings – Top 50 under 50

8th in Europe and 2nd in Spain

QS World University Rankings by Subject

Architecture and the Built Environment

8th in Europe and 1st in Spain

National Taiwan University Ranking by subject

Telecommunications, Electrical and Electronic Engineering

47th globally and 1st in Spain

QS World University Rankings by Subject

Civil and Structural Engineering

8-9 rank in Europe and 1st in Spain

UPC Facts & figures

Top Spanish university as recipient of funding from EU Horizon 2020 research projects, and among the first positions at the European level

5G Barcelona

- Local and EU H2020 research project – many MASTEAM professors involved
- **i2Cat**, **UPC**, **CTTC**, Atos, Telefonica, MWCapital, local & regional government, among other partners
- Presence of local partners in 22 out of the 37 5G-related H2020 EU projects

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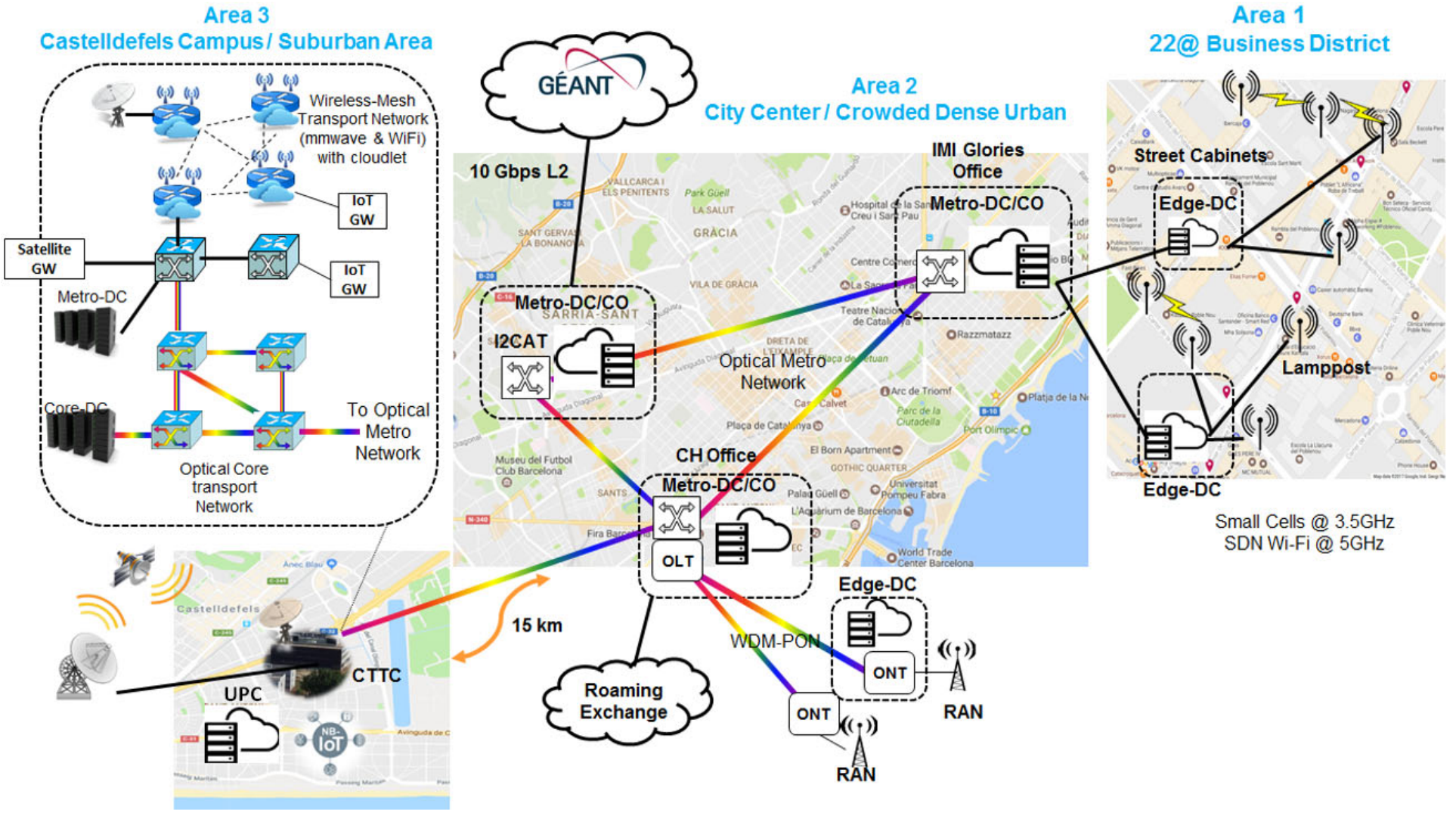
https://5gbarcelona.org/en-labs/

https://5gbarcelona.org/pilots/remote-surgeon-pilot/

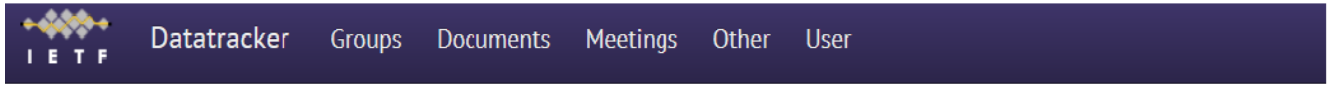
https://www.youtube.com/watch?v=jR18RemPaQE

5G Barcelona field trial



Faculty & Research

- World-class research in the areas of the master



Carles Gomez

Roles

Chair of IPv6 over Networks of Resource-constrained Nodes (6lo)	carlesgo@entel.upc.edu
Reviewer in Internet of Things Directorate (iotdir)	carlesgo@entel.upc.edu

RFCs

rfc6606	May 2012	Problem Statement and Requirements for IPv6 over Low-Power Wireless Personal Area Network (6LoWPAN) Routing
rfc7668	Oct 2015	IPv6 over BLUETOOTH(R) Low Energy
rfc8352	Apr 2018	Energy-Efficient Features of Internet of Things Protocols

Active Drafts

- draft-bormann-lwig-7228bis
- draft-gomez-frag-lpwan-considerations
- draft-ietf-lpwan-ipv6-static-context-hc
- draft-ietf-6lo-blemesh
- draft-gomez-lpwan-rto-considerations
- draft-gomez-tcpm-ack-pull
- draft-ietf-lwig-tcp-constrained-node-networks
- draft-ietf-lpwan-schc-over-sigfox
- draft-zuniga-lpwan-schc-over-sigfox

Faculty & Research

The IEEE Communications Society Charles Kao Award for Best Optical Communications & Networking Paper

Prize

Plaque and honorarium of US$500 per author (up to a maximum total of US$2,000). If there are more than four authors, the maximum of US$2,000 would be split between each author.

Description

Award to recognize the best paper published in the ***IEEE/OSA Journal of Optical Communications and Networking.***

2019 Award Recipients

Jordi Perelló, Joan M. Gené, Albert Pagès, Jose A. Lazaro, Salvatore Spadaro

"Flex-Grid/SDM Backbone Network Design with Inter-Core XT-Limited Transmission Reach", ***IEEE/OSA Journal of Optical Communications and Networking***, Vol.8, Issue: 8, pp. 540-552, August 2016.

Faculty & Research

- World-class research in the areas of the master

UPC patents system for cardiovascular pre-diagnosis—in under a minute—based on contact with user's hands or feet

The Universitat Politècnica de Catalunya (UPC) has patented an affordable, easy-to-use electrocardiograph that can provide a cardiovascular pre-diagnosis in less than a minute. It is the first system to measure both the electrical activity of the heart (electrocardiogram) and its mechanical activity (arterial pulse wave) based on data collected via two metal sensors in contact with the user's hands or feet. The prototype has already been granted patents in Spain, the United States and China, and applications have also been filed in Europe, Japan, Korea and India. The system will be presented next week at the Mobile World Congress, along with other projects that reflect the University's technological capabilities.

27/02/2017

Cardiovascular diseases caused three out of every ten deaths in 2012. According to the World Health Organization, that translates into a total of 17.5 million deaths. Many of these tragic outcomes could be prevented through early diagnosis, but the equipment used for cardiovascular diagnosis is usually complex to use and unaffordable for most people.

Now, researchers with the UPC's Instrumentation, Sensors and Interfaces (ISI) Group, led by Ramon Pallàs, have patented an electrocardiograph that provides a cardiovascular pre-diagnosis in less than 60 seconds. The results are more accurate than those offered by existing devices and can be communicated to medical professionals from any place where there is mobile phone coverage.

Faculty & Research

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27/02/2017

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have patented an
ore accurate than
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coverage.

The UPC participates in a European trial of a treatment to reduce mortality of cardiogenic shock

The EURO SHOCK trial includes the main cardiovascular hospitals in nine European countries. The UPC is participating in the project with CardioSense, a device that provides an early cardiovascular diagnosis in less than 60 seconds. Over 400 patients will participate in the trial, which will begin on 1 February and continue for 34 months.

Jan 16, 2019

Download

Download

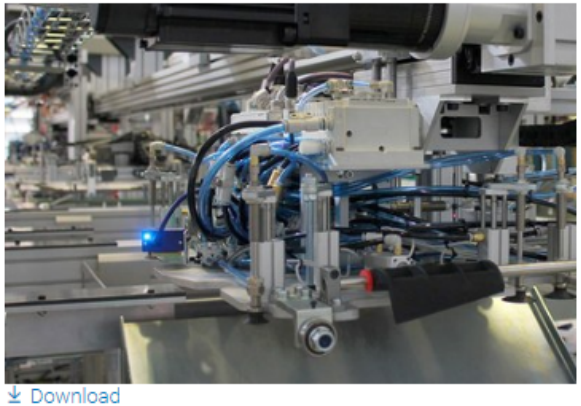
CardioSense measures two cardiovascular indicators (the electrocardiogram and the arterial pulse wave velocity), which can be displayed on the screen of a mobile device.

Cardiogenic shock is a very complex clinical condition that entails a reduction of blood flow in the most important organs of the human body due to a massive myocardial infarction. More than 50,000 patients are diagnosed this condition in Europe every year, and women and elderly patients have the worst prognosis. The last major breakthrough in this field was around 20 years ago, when it was shown that the prognosis could be improved by urgent reopening of the occluded coronary artery that causes the myocardial infarction and leads to the cardiogenic shock. However, despite several recent attempts to improve the survival of patients with this condition, no significant improvement in mortality has yet been achieved. Most patients with cardiogenic shock end up with multiple organ dysfunction syndrome, **which has a mortality rate of around 50% during the first 30 days after its appearance.**

The EURO SHOCK project funded by the European Union's Horizon 2020 Research and Innovation programme is the **first large-scale clinical trial to investigate the early application of extracorporeal membrane oxygenation (ECMO) to reduce mortality associated with cardiogenic shock**. ECMO is a type of mechanical circulatory support with which deoxygenated blood is extracted from the patient's veins, enriched with oxygen and administered directly to the arterial system, thus preserving the body's critical organs during the most serious stage of the disease. In the European trial scheduled to begin on 1 February, patients will receive an immediate revascularisation to open the occluded artery (a stent angioplasty). If they give their informed consent, they will be randomised to receive either a standard treatment or the same treatment with the application of ECMO in the first few hours after the diagnosis of cardiogenic shock.

A team of researchers from the **Universitat Politècnica de Catalunya · BarcelonaTech (UPC)** and the August Pi i Sunyer Biomedical Research Institute (IDIBAPS) - Hospital Clínic de Barcelona are participating in the project with **CardioSense**, a cardiovascular monitor that **provides an early diagnosis with more accurate results than the current ones in less than 60 seconds. The results can be transmitted from anywhere with cell phone coverage**. This "heart watchman" patented by the UPC detects both the electrocardiogram (the conventional signal of the heart's electrical activity) and the arterial pulse wave velocity (related to blood pressure and arterial elasticity) through sensors touched by the patient's hands or feet. The sensors can be placed on cell phone cases, tablets, watch straps, scales, steering wheels, handlebars or any other object that can be touched with both the user's hands or feet at once. This system, developed by researchers of the UPC's Instrumentation, Sensors and Interfaces Group (ISI), headed by

The UPC, a major player in the development of Industry 4.0



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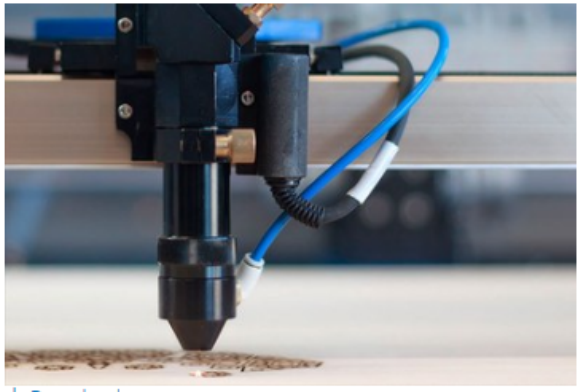

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Of students now attending primary school, 63% will end up working in a job that does not yet exist. This disturbing fact is closely related to what is known as the fourth industrial revolution, Industry 4.0, which is transforming industry through a combination of production methods and advanced information technologies to make manufacturing adaptive and flexible. The main challenge is to make all the information available in real time by integrating the entities that make up the value chain.

Jan 09, 2019

Industry 4.0, recognised as an emerging sector in Catalonia and elsewhere, will interconnect people, machines and systems in a different way. Governments of countries and regions are striving to consolidate this transformation by promoting skills-building, training and new professional profiles in order to minimise the social disruption that it may cause.

The **Universitat Politècnica de Catalunya (UPC)** is one of the main agents for the development of Industry 4.0 in Catalonia, and a large part of its academic activity is directly or partially linked to valorising and capitalising on existing knowledge and accelerating knowledge creation. In fact, the UPC is already working to identify the lines of research and knowledge transfer and course offerings that will provide knowledge and talent for the technological bases of Industry 4.0.

In total, one hundred of the UPC's research groups are related to the principles of Industry 4.0, and around fifty of them are participating directly in relevant projects. Also, about 40 of the UPC's master's degrees cover all the technologies involved in this field. In this scenario, **"the UPC must be a scientific and technological hub of this new paradigm of industrial production in the digital age"**, explains Professor Luis Romeral, co-director of the Motion Control and Industrial Applications Research Centre (MCIA), which specialises in predictive maintenance for the industrial sector, technology based on the industrial internet of things, and big data analytics. The MCIA aims to predict failures and defects in the operation of industrial machinery, avoid emergency stoppages and dead times, and gain efficiency and productivity.

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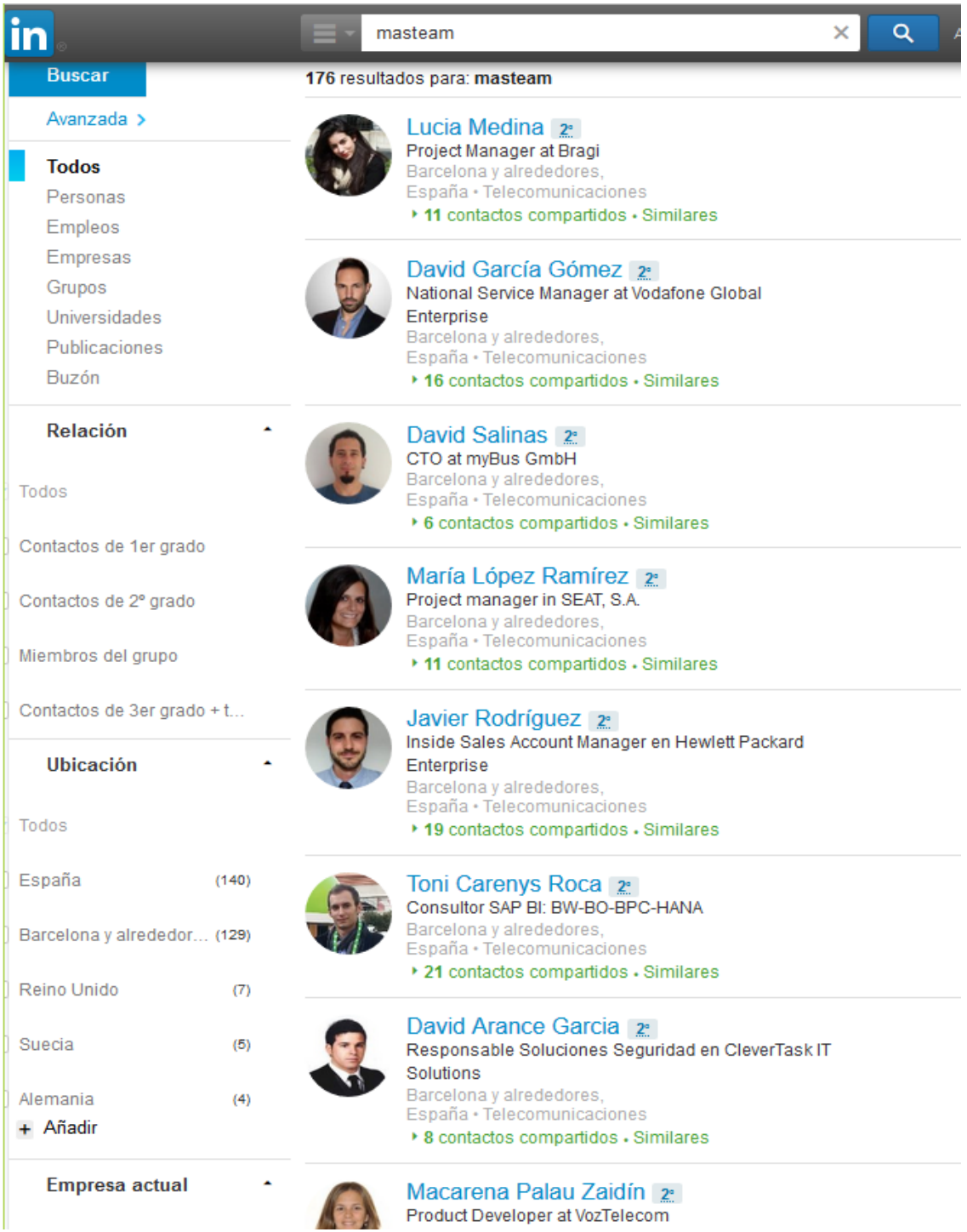
Alumni

- 93% of employed alumni
- 76% find a job in less than 3 months
- LinkedIn: 170+ contacts



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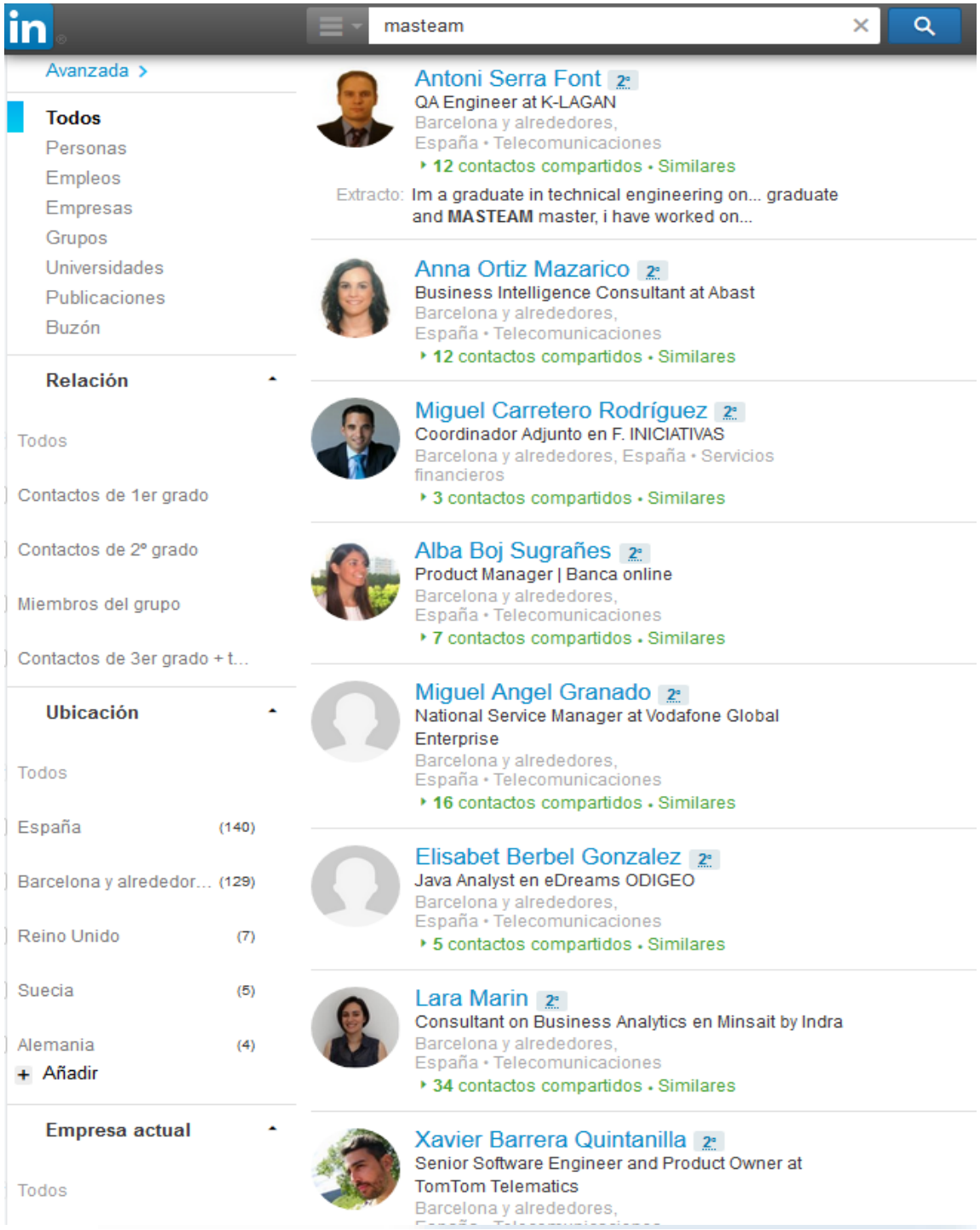

YOUR CAMPUS

CAMPUS DEL BAIX LLOBREGAT (CBL)
PARC MEDITERRANI DE LA TECNOLOGIA (PMT)

gettyimages
By LTCE
122404803

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A Campus (CBL) embedded in a Technological Park (PMT)

The PMT

Website http://www.pmt.es/front-page/not_available_lang?set_language=en&cl=en

Video: https://www.youtube.com/watch?v=tXwZwET0tlo

What is the PMT?

- The PMT is a nerve centre for research and innovation that aims to foster relations between:
- **University** engineering schools (CBL - Campus del Baix Llobregat of the UPC, and UOC – Open University)
- Public **research centres**
- Private **companies** involved in technological innovation
- Technology-based **spin-off** companies

Topic Areas

- **Information and Communication Technologies**
- **Aeronautics and Space Engineering**
- **Biological Engineering**
- **Agri-Food Engineering and Biotechnology**
- **Photonic Technologies**
- **Geo-Information and Remote Sensing**
- **Environmental Technologies**
- **Numerical Methods in Engineering**

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European Space Agency - Bussiness Incubator (BIC)

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ICFO
Institut
de Ciències
Fotòniques

Institute of Photonic Sciences

Telecommunications Technology Centre of Catalonia

School of Agricultural Engineering of Barcelona - UPC

UOC
Universitat Oberta de Catalunya

Universitat Oberta de Catalunya (UOC, Open University)

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CIMNE

International Center for Numerical Methods in Engineering (UPC, building shared with EETAC)

i2cat Foundation (Internet 2 Catalonia)

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Companies established at the PMT

- 4M Iberoamérica
- OBJECTIU COMUNICACIÓ
- Technology Assistance BCNA 2010, S. L. (TAB)
- REVERTIS
- Signadyne
- Alteraid
- Almodis Solutions
- Rokubun
- Smooth Bytes
- SATCONXION
- MAR TRADUCCIONES
- Ecococon
- Hemav
- DAPCOM
- FOOD & MUSIC
- FROM BCN
- IRIS
- bound4blue
- MakeMailing
- BCN3D Technologies
- Isigma
- Cosingo - Imagine Optic Spain
- Thrombotargets Europe
- GeoNumerics
- rr-consult

D7 or Campus building – common services

Campus Library (D7)

Some figures:

- Covered area: around 3000 m^2, on 3 floors
- Seats: 300
- Computers: 77
- Laptops: 40
- Collections:
  - 16000 volumes at the room,
  - 1400 magazines,
  - 6000 volumes on warehouse
  - 20000 volumes in process of catalogue
- Global WiFi coverage
- Self-service printer machines

Canteen (D7)

- 7:30 AM – 8 PM during the course
- Breakfast, lunch
- Study room (open after hours and exam weekends)

Residence

Pius Font i Quer Accommodations in Castelldefels – Opened in September 2011.

- 187 rooms which include **single** studios, each with bathroom and kitchen, and **apartments** for two people, with a living-dining room, kitchen and bathroom, all fully equipped for habitation.
- Designed to accommodate **university students, grant holders, researchers, guest lecturers** and other users visiting the **CBL and PMT**, as well as general members looking for **accommodation in Castelldefels**.

http://www.resa.es

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YOUR SCHOOL

CASTELLDEFELS SCHOOL OF TELECOMMUNICATIONS AND AEROSPACE ENGINEERING (EETAC)

EETAC

- Founded in 1991 as EUPBL in Sant Just Desvern
  - Bachelor in Telecommunications Systems Engineering
  - Bachelor in Networks Engineering (Telematics)
- 2001 – Changes its name to EPSC
  - Becomes a graduate school and starts the master program in telecommunications
  - Moves to Castelldefels Campus
- 2002 – Bachelor in Aeronavigation Engineering
- 2006 – MASTEAM (2 years)
- 2007 – MAST – Master in Aerospace Engineering
- 2009 – Adaptation to the Bologna process (4 year BSc programs)
- 2010 – Changes its name to EETAC
- 2015 – MASTEAM (1 year)

C4 building: classrooms, labs, teacher offices, research

C3 building: teacher offices, research labs + CIMNE

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C3 & C4 buildings

Academic Programs

Bachelor degrees (4 years)	
	Bachelor's degree in Telecommunication Systems Engineering
	Bachelor's degree in Network Engineering
	Bachelor's degree in Aerospace Engineering (specialization in Air Navigation and Airports)
	Double degrees (Telecom+Network, Aerospace+Telecom, or Aerospace+Network) in 5.5 years

Academic Programs

Master degrees	
	Master of Science in Telecommunication Engineering & Management (MASTEAM) – 1 year
	Master in Aerospace Science And Technology (MAST) – 1.5 years
	Master in Air Navigation and Airports (Air Traffic Controller habilitation – temporarily discontinued)
	Master in Unmanned Aircraft (Drones) Systems Engineering, MUASED – 1 year
Doctoral courses	
	EETAC professors collaborate, among others, in the following PhD programs at UPC: • Electronic Engineering • Network Engineering (Telematics) • Signal Theory and Communications • Computer Science • Management and Business Organization • Aerospace Science and Technology

University Departments and Faculty

DEPARTMENT			DEPARTMENT	
Computer Architecture	**20**			
Electronics Engineering	**12**		Physics and Nuclear Engineering	1
Network Engineering (Telematics)	**20**		Institute of Energy Technology	2
Management and Business Organization	**15**		Applied Mathematics I	1
Signal Theory and Communications	**35**		Applied Mathematics III	1
Construction Engineering	1		Applied Mathematics IV	15
Applied Physics and Aeronautics Engineering	34		Graphical Expression in Engineering	11
Materials and Structure Engineering	2		Agri-Food Engineering and Biotechnology	2
Geotechnical Engineering and Geo-Sciences	4		Control theory and industrial computers	1
TOTAL			**165**	

EETAC Research Groups

- **Advanced Materials and Technologies for Communications**
- **Audio-visual Systems**
- **Broadband Networks and Services**
- **Control, Monitoring and Communications**
- **Distributed Systems Architectures**
- **Instrumentation, Sensors and Interfaces**
- **Intelligent Communications and Avionics for Robust Unmanned aerial Systems**
- **Mobile and Radio Communications**
- **Optical Communications**
- **Wireless Networks**
- Astronomy and Astrophysics
- Combinatorial & Graph Theory and Applications
- Materials group
- Microgravity and Modelization group
- Non Linear Dynamic of Fluids group

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MASTEAM

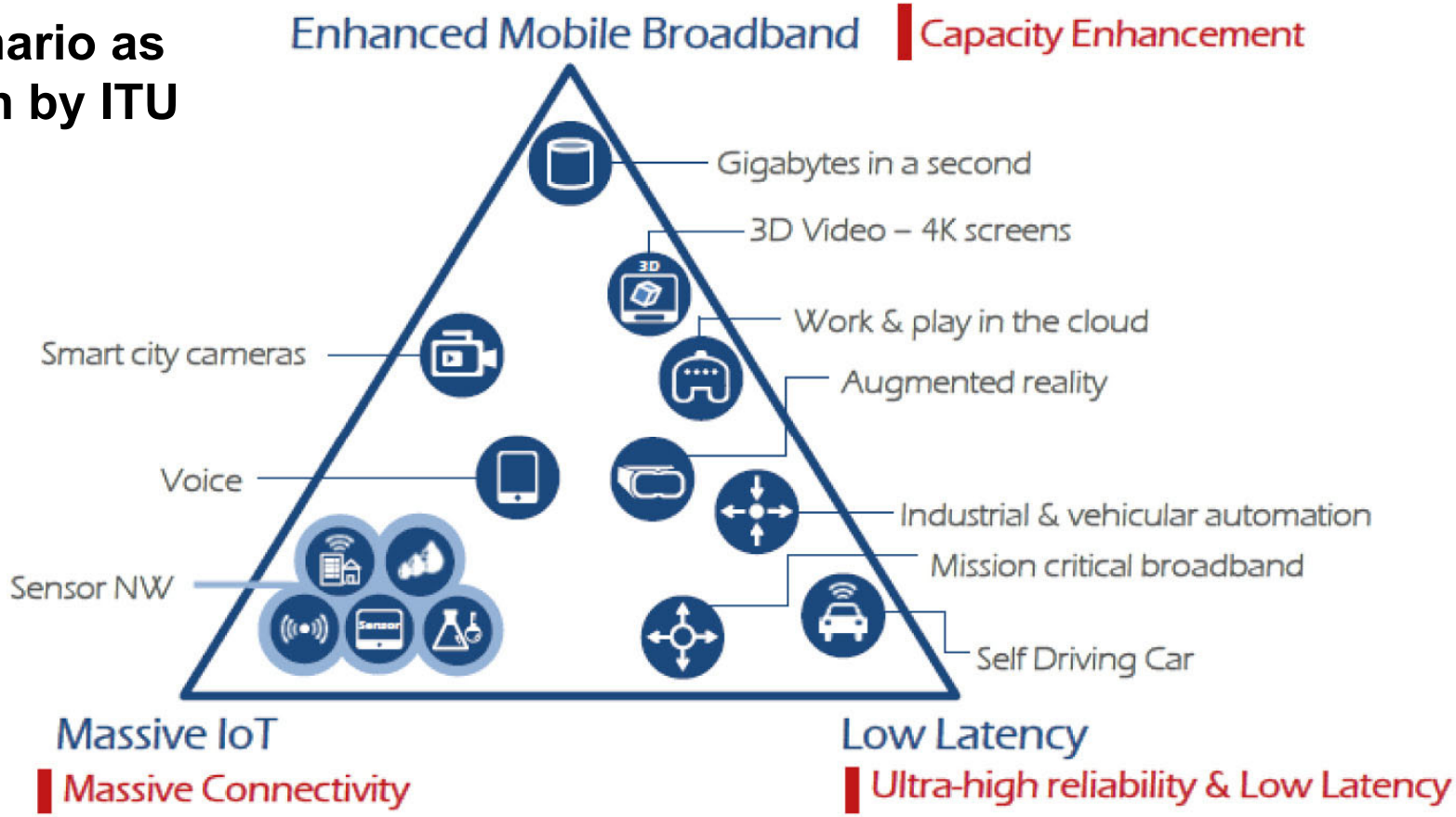
MASTER IN APPLIED TELECOMMUNICATIONS AND ENGINEERING MANAGEMENT

Scope and Objectives

- Telecommunication has evolved from audio and video communication for personal information exchange and entertainment to **pervasive data communication** in the **Mobility** and **Internet-of-Things** era.
- This master degree is intended for those willing to acquire the skills that will enable them to **conceive**, **design** and **implement cutting-edge engineering solutions** based on the latest telecommunication and Internet technologies in order to improve people's welfare in a sustainable economy.

Scope and Objectives – 5G

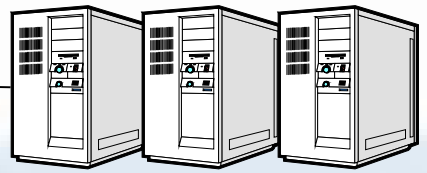
5G Scenario as foreseen by ITU



Scope and Objectives – Internet of Things

Optical networks,
IP protocols, SDN

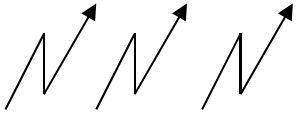
IP networks



Data centers,
networks, protocols,
SDN, NFV, Big Data

IoT gateway

Radiocomms,
protocols, SDR



Sensors

Electronics,
low-power

Business models,
service management

Approach/Strategy

- Courses cover a broad spectrum of topics including sensors to obtain data, wireless and optical technologies for data communication, advanced data-processing methods, algorithms for design optimization and the strategies to translate ideas into new devices and services.
- Yet other courses delve into cutting-edge applications such as the Internet of Things, smart objects, Body Area Networks, specialised tools such as image processing, or security, and aspects such as management and service engineering
- Finally, students will consolidate their knowledge by applying it to a challenging problem during the master thesis
- Teaching resources largely involve student participation in lectures, laboratory work and hands-on projects

Structure of the program

- Workload: 60 ECTS credits = 1500h

  https://es.wikipedia.org/wiki/European_Credit_Transfer_and_Accumulation_System

  - At UPC masters, 1 ECTS = 25h of student activities = **9h** at **classroom** + **16h** of **autonomous** learning
- Mandatory contents: 15 ECTS
  - 1A1 courses
- Optional contents: 33 ECTS
  - 1A2, 1B1, 1B2
  - Total optional offer: 42 ECTS
- Master Thesis: 12 ECTS

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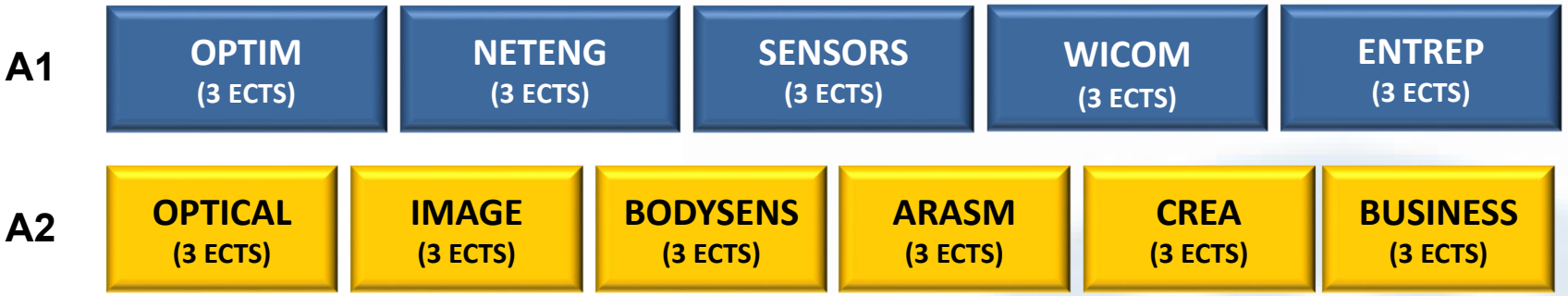
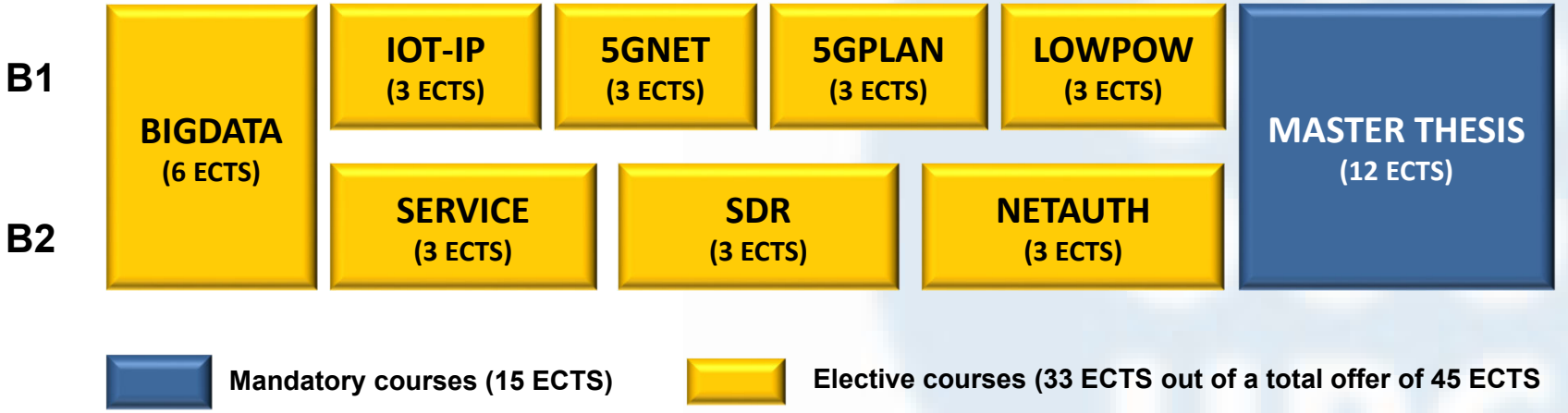
Structure of the program

First semester (7 weeks A1 courses + 7 weeks A2 courses)



Second semester (7 weeks B1 courses + 7 weeks B2 courses)



Mandatory courses (15 ECTS)

Elective courses (33 ECTS out of a total offer of 45 ECTS

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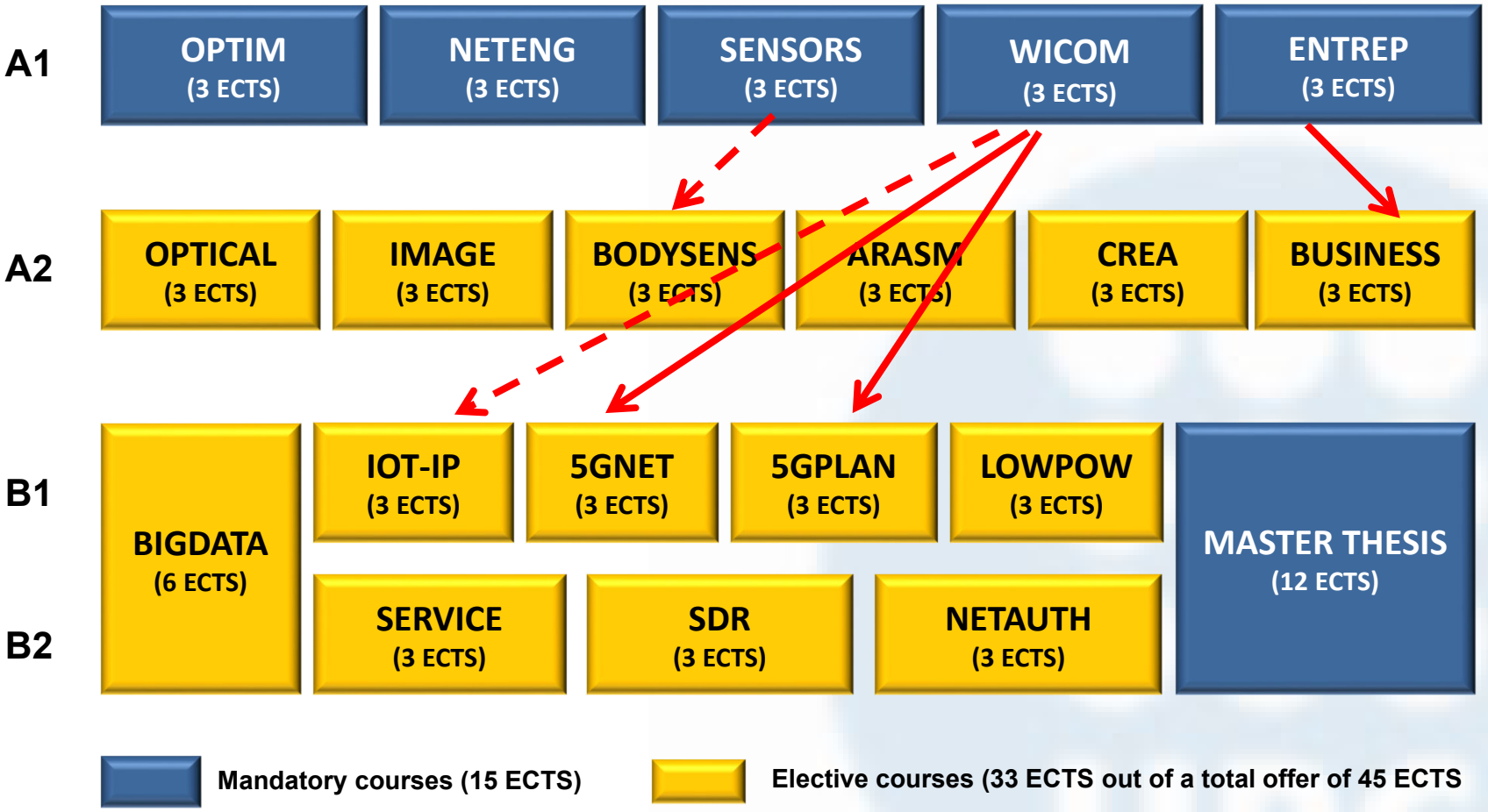
Sequence constraints



Calendar and Course Schedule

- Published in both the current website and Atenea's MASTEAM course
  - Organized in 13 or 14 weeks – check the calendar
  - Holidays
  - Adjustments such as "Thursday Sept 26th becomes a Tuesday"
- Exam weeks, mid-semester and end of semester– check the exam calendars
- Lectures will take place mainly in classroom C4-021B
  - Ground floor, blue tower, in the middle of the C4 building
  - Laboratories: 334-5G, 331G (yellow tower), 127B and 129B (blue tower), among others
- Weekly talks / meetings on Wednesdays 17:30h
  - Research talks, companies, academic meetings
  - Attendance is **mandatory** – they are part of the program

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Academic Calendar (Autumn 2019)

September 2019

	Mo	Tu	We	Th	Fr	Sa	Su
							1
	2	3	4	5	6	7	8
w1	9	10	11	12	13	14	15
w2	16	17	18	19	20	21	22
w3	23	24	25	26	27	28	29
w4	30						

October 2019

	Mo	Tu	We	Th	Fr	Sa	Su
w4		1	2	3	4	5	6
w5	7	8	9	10	11	12	13
w6	14	15	16	17	18	19	20
w7	21	22	23	24	25	26	27
	28	29	30	31			

November 2019

	Mo	Tu	We	Th	Fr	Sa	Su
					1	2	3
w8	4	5	6	7	8	9	10
w9	11	12	13	14	15	16	17
w10	18	19	20	21	22	23	24
w11	25	26	27	28	29	30	

December 2019

	Mo	Tu	We	Th	Fr	Sa	Su
							1
w12	2	3	4	5	6	7	8
w13	9	10	11	12	13	14	15
w14	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31					

January 2020

	Mo	Tu	We	Th	Fr	Sa	Su
			1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31		

- School day
- Non school day
- Holiday
- September 26th: **Tuesday** schedule
- Exams
- Marks publication deadline (12h)
- Deadline for revision of marks (12h)

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Academic Calendar (Spring 2019)

February 2020

	Mo	Tu	We	Th	Fr	Sa	Su
						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
w1	17	18	19	20	21	22	23
w2	24	25	26	27	28	29	

March 2020

	Mo	Tu	We	Th	Fr	Sa	Su
							1
w3	2	3	4	5	6	7	8
w4	9	10	11	12	13	14	15
w5	16	17	18	19	20	21	22
w6	23	24	25	26	27	28	29
	30	31					

April 2020

	Mo	Tu	We	Th	Fr	Sa	Su
			1	2	3	4	5
	6	7	8	9	10	11	12
w7	13	14	15	16	17	18	19
w8	20	21	22	23	24	25	26
w9	27	28	29	30			

May 2020

	Mo	Tu	We	Th	Fr	Sa	Su
					1	2	3
w10	4	5	6	7	8	9	10
w11	11	12	13	14	15	16	17
w12	18	19	20	21	22	23	24
w13	25	26	27	28	29	30	31

June 2020

	Mo	Tu	We	Th	Fr	Sa	Su
w14	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30					

- School day
- Non school day
- Holiday
- Exams
- Marks publication deadline (12h)
- Deadline for revision of marks (12h)
- Castelldefesta. Non school day
- Half school day (29/04 Forum AeroTelecom):
  April 28th **Wednesday**, school day from 11h to 18h
  April 29th school day from 8h to 11h and from 18h to 21h
  (April 28th and April 29th together are one Wednesday)

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Course schedules (Autumn 2019)

OPTIM	Optimization for Applied Engineering Design
NETENG	Network Engineering
WICOM	Next Generation Wireless Communications and IoT
SENSORS	Sensors and Interfaces
ENTREP	ICT-based Entrepreneurship

1A1 courses - Weeks 1 to 7 + exams week in October/November 2019

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
15:00-15:30					
15:30-16:00	SENSORS 021B	NETENG 021B	OPTIM 021B / 334G	WICOM 021B	ENTREP 021B
16:00-16:30					
16:30-17:00					
17:00-17:30				SENSORS 021B	
17:30-18:00	OPTIM 021B / 334G	WICOM 021B	Talks/meetings		NETENG 021B
18:00-18:30					
18:30-19:00			ENTREP 021B		
19:00-19:30					
19:30-20:00		WICOM (only on week 4)			
20:00-20:30					

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IMAGE	Applied Image Processing
OPTICAL	Next-Generation Optical Network Infrastructures for Future Cloud-Based Services
ARASM	Augmented Reality & Smart Objects
BODYSENS	Body Sensor Nodes
BUSINESS	Project on ICT-based business models
CREA	Creativity and Engineering

1A2 courses - Weeks 8 to 14 + exams week in January 2020

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
14:30-15:00		IMAGE 021B / 127B (14:30-17:00 on weeks 9 & 10, 15:00- 17:00 on weeks 11,12,13,14)			
15:00-15:30	BODYSENS 021B / 226B			BODYSENS 021B / 226B	OPTICAL 021B (15:00 to 17:30 on weeks 8, 10 and 13, 15:30 to 17:30 on weeks 9, 11 and 14)
15:30-16:00			CREA 021B		
16:00-16:30					
16:30-17:00					
17:00-17:30	IMAGE 021B / 127B	CREA 021B		OPTICAL 021B	BUSINESS 021B
17:30-18:00			Talks/meetings		
18:00-18:30					
18:30-19:00					
19:00-19:30	ARASM 021B		ARASM 021B	BUSINESS 021B	
19:30-20:00					
20:00-20:30					
20:30-21:00					

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BIGDATA	Big Data and Data Mining
IOT-IP	Internet of Things and Ubiquitous IP
5GPLAN	5G Mobile Network Planning
5GNET	Network Support for 5G
LOWPOW	Low-power Systems with Energy Harvesting

1B1 courses - Weeks 1 to 7 + exams week in October/November 2019

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-9:00					
9:00-9:30	IOT-IP 021B / 331G	5GNET 021B / 334G	BIGDATA 021B	LOWPOW 021B / 230B	5GPLAN 021B / 127B
9:30-10:00					
10:00-10:30					
10:30-11:00					
11:00-11:30	LOWPOW 021B / 230B	5GPLAN 021B / 127B		IOT-IP 021B / 331G	5GNET 021B /334G
11:30-12:00					
12:00-12:30					
12:30-13:00					
13:00-13:30	Talks/meetings				
13:30-14:00					

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SERVICE	Service Engineering
BIGDATA	Big Data and Data Mining
NETAUTH	Network Security - Authentication and Authorization
SDR	Software-Defined Radio

1B2 courses - Weeks 8 to 14 + exams week in January 2019

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-9:00					
9:00-9:30	NETAUTH 021B	Free for Master Thesis	BIGDATA 021B	SERVICE 021B / 235G	SDR 021B / 330B
9:30-10:00					
10:00-10:30					
10:30-11:00					
11:00-11:30	SDR 021B			NETAUTH 021B	SERVICE 021B
11:30-12:00					
12:00-12:30					
12:30-13:00					
13:00-13:30	Talks/meetings				
13:30-14:00					

Enrolment & Qualification

- Enrolment takes place on February and September
  - First enrolment (today!) is face-to-face, presential, but the next ones can be done remotely via e-secretaria.
- You must enrol the 1x1 and 1x2 (where x = A or B) subjects – one enrolment per semester
- Marks are numerical, scale 0-10
  - You need at least a 5 to pass the course
  - In case you obtain a 9 or more, you can be elligible for “with honors” distinction (“Matrícula d’Honor”, MH).
    - Limited to the best 5% students in each course
    - But it is up to the professors to decide if any student deserves it
    - Discount in the next enrolment

Academic Performance

- If you do not pass 15 credits in your first year (2 semesters), you cannot continue your studies
  - You can request a (justified) one-time exception to the rule
- Alpha factor = credits passed / credits enrolled
  - If alpha < 0.5, your next enrolment will be limited to 24 credits
  - If alpha < 0.3 for 3 times, you cannot continue your studies
    - You can request a (justified) one-time exception to the rule

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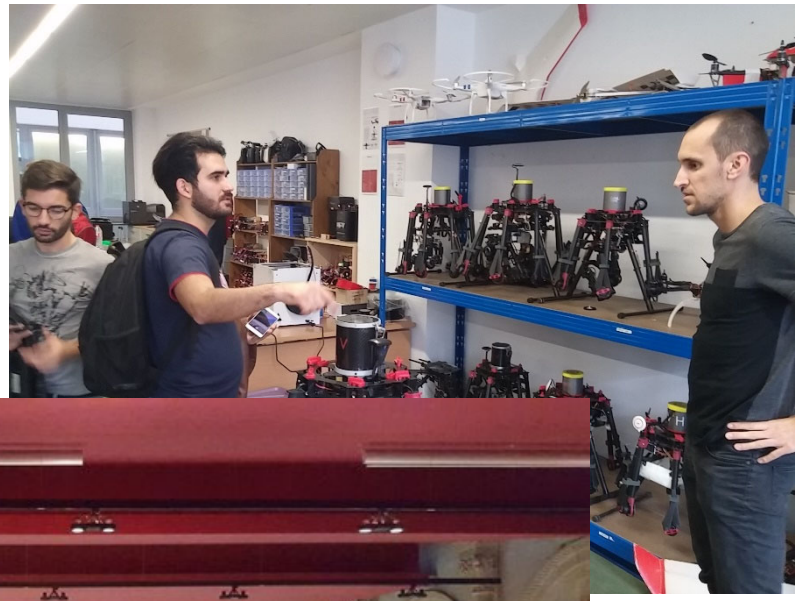
Weekly talks, seminars, visits



BSC-CNS supercomputer

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MASTEAM talks - Building...

eetac.upc.edu/ca/esdeveniments/masteam-talks-building-qua

Buscar

MASTEAM talks - Building Quantum Technologies - Carlos Abellán

Wednesday 9 November, 17:30h, C4-001 (Sala de Actos / Main Hall), Campus Castelldefels UPC.

The Master's degree in Applied Telecommunications and Engineering Management (**MASTEAM**) organizes a weekly series of activities (talks, technical visits, discussion pannels) that complement the academic activities with real-world experiences from companies, research centres and institutions in the main topics of the master: Internet of Things. Smart Cities, 5G mobile communications, Software-Defined Networking (SDN) and Radio (SDR), cloud computing, among others.

This week's activity will be a **talk** from **Mr Carlos Abellán** (ICFO, Institute of Photonic Sciences).

Quan	09/11/2016 de 17:30 a 18:30
On	C4-001
Persona de contacte	David Rincón
Telèfon de contacte	37056
Afegeix un esdeveniment al calendari	iCal

Title: Building Quantum Technologies

Abstract: In this talk we will review the state of quantum technologies at the industry level as well as current challenges and efforts towards creating scalable products. Following a pragmatic and intuitive approach, we will also discuss about those quantum effects that motivates the development of technologies. Finally, I will present a new worldwide scientific collaboration that will perform, on November 30th, several fundamental quantum physics experiments using the contribution of thousands of people like us.

Bio: BSc in Telecom engineering and MSc in Photonics Science. Experienced on bringing state-of-the-art technology from concept to customer validation. PhD student at ICFO, the Institute of Photonic Sciences, and trained at the Haas School of Business (UC Berkeley).

LinkedIn: https://www.linkedin.com/in/carlosabellan
Twitter: @cabellan

Master Thesis

- Research / development work, to be defended.
  - Advised / directed by a EETAC teaching staff member
  - Written report + public presentation, evaluation committee
  - Outcome: research paper (journal, conference) + divulgative poster/blog entry
- Can be done at:
  - EETAC research groups
  - Research institutes (only those with a UPC agreement)
  - Companies (only those with a UPC agreement)

  External theses require an academic tutor-supervisor from EETAC
- Thesis proposals are published in the EETAC website
  https://mitra.upc.es/SIA/PFC_PUBLICA.LLISTAT_OFERTS?w_codi_programa=1142
- Collection of MASTEAM theses from previous years
  https://upcommons.upc.edu/handle/2117/89303?locale-attribute=en

Internships

- You can do internships at companies (provided they have an agreement with EETAC), but you cannot obtain MASTEAM credits
- Maximum of 600h during the whole program
- When?
  - After having passed at least 15 ECTS credits
  - My advice: wait until the second semester or after 30 ECTS
- Your academic tutor must review and approve the work plan, considering your workload and academic records
- If you are older than 28 years, the School insurance does not cover the internship, and you should contract one. UPC has an agreement with CONFIDE
- More info: https://eetac.upc.edu/ca/els-estudis/practiques-academiques-externes

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ERASMUS+
2014 - 2020 programme for Education, Training, Youth, and Sport

Mobility and Double Degrees

- Master Thesis in more than 30 partner institutions in Europe https://eetac.upc.edu/ca/fitxers/mobility-opportunities-masteam.pdf
- Double Degree agreements
  - 1 year MASTEAM + 1 year abroad = 2 master degrees
  - *Master in Telecommunications Engineering, Università dell'Aquila (UNIVAQ), Italy. More details here.*
  - *Cranfield University (UK):*
    - *Digital Signal and Image Processing, Autonomous Vehicle Dynamics and Control, Knowledge Management for Innovation, Automotive Mechatronics, Software Engineering for Technical Computing, Aerospace Computing (new program), Computer Aided Engineering, Geographical Information Management. More details here.*
  - Negotiations ongoing with IST Lisbon and Karlstad University

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Access to PhD programs

- To be admitted in a PhD program in the European Higher Education Area (EHEA), you must have:
  - An official Bachelor Degree and at least an official Master Degree
  - At least 300 ECTS credits between Bachelor and Master
- MASTEAM is an official Master degree recognized by Spanish and European authorities.
- Therefore, combined with a 240 ECTS Bachelor Degree (equivalent to 4 years full-time), it allows you to access an oficial PhD program
  - Foreign students must legalize/convalidate their Bachelor Degrees in the Spanish Ministry of Education

Doctoral School — UPC. U...

doctorat.upc.edu/en?set_language=en

upc phd

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Search

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Doctoral School

Courses | New doctoral students | Grants | Enrolment | Thesis | Academic Information | School | Files

You are here: Home

Industrial Doctorates Plan of the Government of Catalonia in wich the UPC participates

List of authorized thesis for reading

DOCTORAL DEGREE IN BUSINESS ADMINISTRATION AND MANAGEMENT

News

Interdisciplinary Meeting of Predoctoral Researches
Dec 12, 2016

SENER Foundation award for the best PhD dissertation
Nov 03, 2016

Training sessions in information resources
Nov 02, 2016

Beques de investigació del INFN. (Institut Nacional de

Cross training

e-Secretaria

Suggestions

UPC Today

UPC researchers, in collaboration with the companies COMSA and GMN, create a new material from textile fibres of old tyres

Brazil, Spain and Australia join forces to revolutionise biodiversity monitoring in the Amazon

Programmes — Doctoral ...

doctorat.upc.edu/en/programmes/re:

upc phd

2016/2017 Academic Year

Research area | Erasmus Mundus | Excellence Mention | Decree | Research groups | Management unit | A-Z

Doctoral programmes by subject area

- ARCHITECTURE, URBANISM AND CONSTRUCTION
- CIVIL ENGINEERING
- INDUSTRIAL ENGINEERING
- INFORMATION AND COMMUNICATIONS TECHNOLOGIES ENGINEERING
  - ARTIFICIAL INTELLIGENCE
  - COMPUTER ARCHITECTURE
  - COMPUTING
  - ELECTRONIC ENGINEERING
  - ERASMUS MUNDUS IN DISTRIBUTED COMPUTING
  - ERASMUS MUNDUS IN INFORMATION TECHNOLOGIES FOR BUSINESS INTELLIGENCE (IT4BI – DC)
  - ERASMUS MUNDUS IN INTERACTIVE AND COGNITIVE ENVIRONMENTS
  - NETWORK ENGINEERING
  - SIGNAL THEORY AND COMMUNICATIONS
- SCIENCES

Ethics

- As a UPC master student, **we expect you to**
  - Have a strong sense of **ethics**: cheating, copying & pasting, etc are not an option neither here nor in the professional world
  - **Academic Regulations for Bachelor and Master's Degrees at the UPC**

    Section 3.1.2. Students' rights and obligations during the assessment process

    (…) Irregular actions potentially leading to a significant variation of the marks obtained by one or more students will be considered a breach of the assessment regulations. Such behaviour will result in a descriptive mark of "Fail" and a numerical mark of 0 for the examination in question **and** the subject, without prejudice to any disciplinary proceedings that may result from that behaviour (…)

https://www.upc.edu/sga/es/shared/fitxers-normatives/AcademicRegulations_EN/NAGRAMA/nagrama-18-19_en_definitiva.pdf/

Ethics

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    (…) The total or partial reproduction of academic and research works, or their use for any other purpose, must have the express permission of the author or authors of the works (…)

https://www.upc.edu/sga/es/shared/fitxers-normatives/AcademicRegulations_EN/NAGRAMA/nagrama-18-19_en_definitiva.pdf/

Work load & Competences

- As a UPC master student, **we expect you to**
  - **Work hard**: a master student must demonstrate ability to produce good results and excel – be self-demanding!
  - Demonstrate **research**-oriented and **management skills**
  - Acquire and demonstrate **competences**
    - **Cooperative work** – working in teams
    - **Autonomous learning** – not everything will be provided
    - **Critical thinking** and self-evaluation of your work
    - Good **oral and written skills**
    - **Communication** – both with instructors and fellow students
  - Our mission is to help you discover **how far you can go**

PRACTICAL INFORMATION

Foreign (non-EU) students

- NIE / TIE card
  - Foreign visitor's ID card
  - You MUST obtain your NIE / TIE as soon as possible
  - Visit
    - External relationships office at Castelldefels Campus
    - International and Corporate relations Bureau at Campus Nord Barcelona
      https://www.upc.edu/sri/en/students/international-students

- Legalisation of Academic documents
  - Spanish Ministry of Education
  - Must be started as soon as possible, in order to have it finished by the end of your studies, and must include the average qualification
  - Visit the Teaching Office cbl.oficina.docencia@upc.edu

Transport tips

- The Campus can be reached by
  - Train - fastest option from Barcelona
    - All R2sud and R2 lines stop at Castelldefels – do NOT take regional trains (R13, R15, R16)
    - 6 trains/h from/to Barcelona at peak hours, 4 otherwise
    - 20-25 mins from/to Sants-Estació (central station), 25-30 mins from/to Passeig de Gràcia, 35-40 mins from/to Estació de França
  - Buses
    - L95 has a stop just outside the campus, L94 a bit farther. Approx 1 h to/from Barcelona center.
    - Also, from any bus that stops at Castelldefels
    - L99: Direct bus Castelldefels center - Airport Terminal 1
  - Car
    - Parking area close to the Olympic Canal
- Check map and details here

  http://eetac.upc.edu/en/the-school/how-to-arrive

Transport tips

- Fares & tickets
  - Castelldefels belongs to Zone 1 (cheapest fare)
  - Buy integrated tickets (1h15 mins changing between train, metro, bus, and tram). Avoid single tickets – they are much more expensive.
  - If you do at least 2 trips/day (14 per week) the monthly and 3-months passes (T-mes and T-trimestre, unlimited trips for 30 or 90 days) are the best option.
  - Train delays of more than 15 minutes entitle you to obtain a refund.
  - More info rergarding fares: http://www.amb.cat/mobilitat/Principales/Tarifas.aspx?idioma=3
- Apps & Twitter for service notifications
  - Apps:
    - ADIF (real-time train schedule)
    - Rodalies de Catalunya (train issues)
    - Próximo Bus Barcelona (real-time bus schedule)
  - Twitter:
    - @rodalies, @rodalia2, @rod2sudcat
    - @avisosrodalies (personalized warnings)
    - @TMB_barcelona, @TMBinfo

EETAC information systems

- ATENEA https://atenea.upc.edu/
  - An intranet for each course, with materials, assignments, etc
  - Generic courses: EETAC (Catalan), MASTEAM (English) with administrative information (normative, schedules, etc)
- SIA / NetArea https://mitra.upc.es/SIA/MAPA.INICI
  - Qualifications, transcript of records, schedules
- e-Secretaria https://esecretaria.upc.edu/
  - Personal / academic data
  - Administrative processes: enrolment, academic requests, etc

- All the systems share the same login/password credentials, activated 24h after your enrolment
- The three platforms are accesible from EETAC's website

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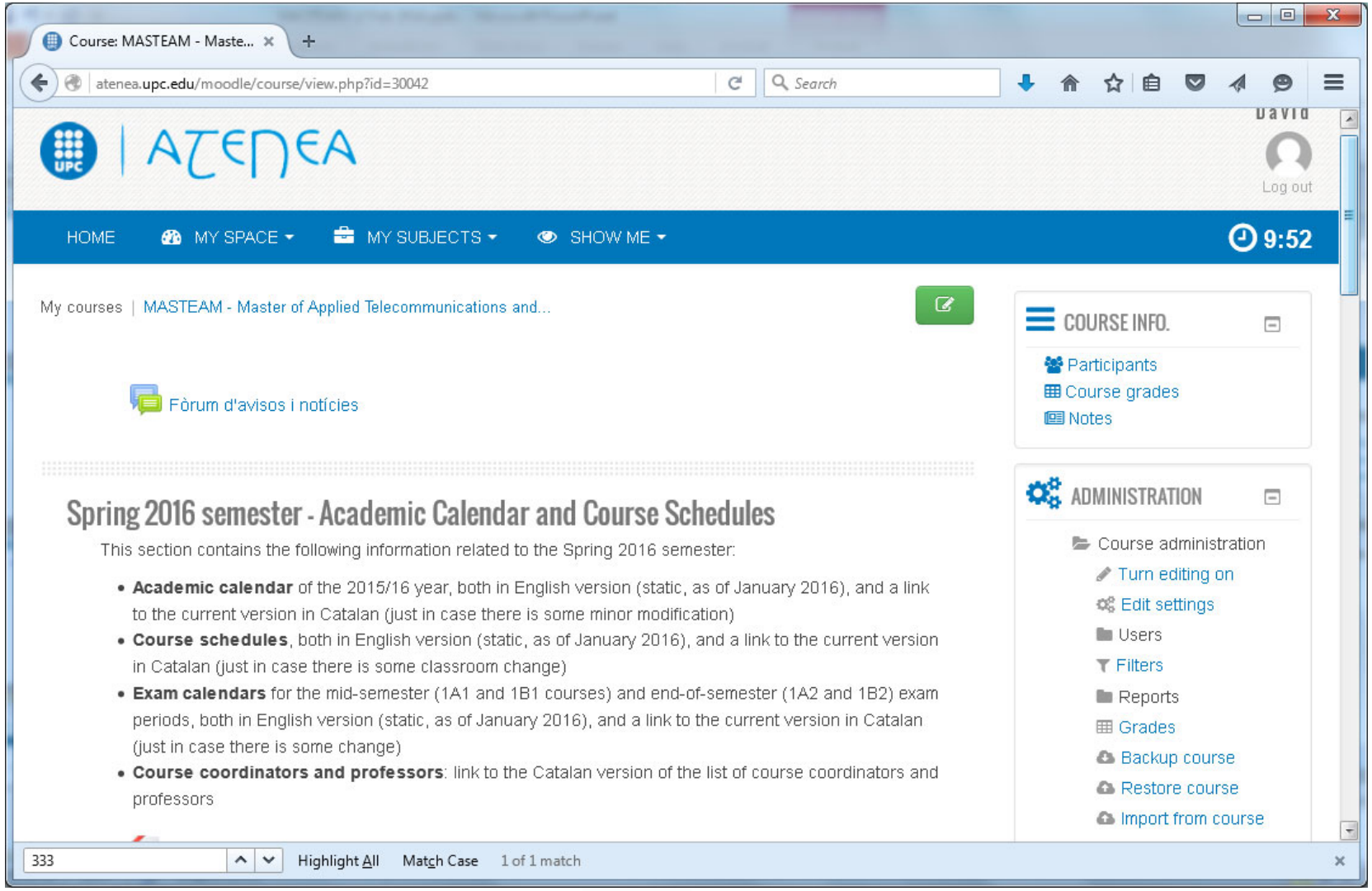
MASTEAM Atenea course



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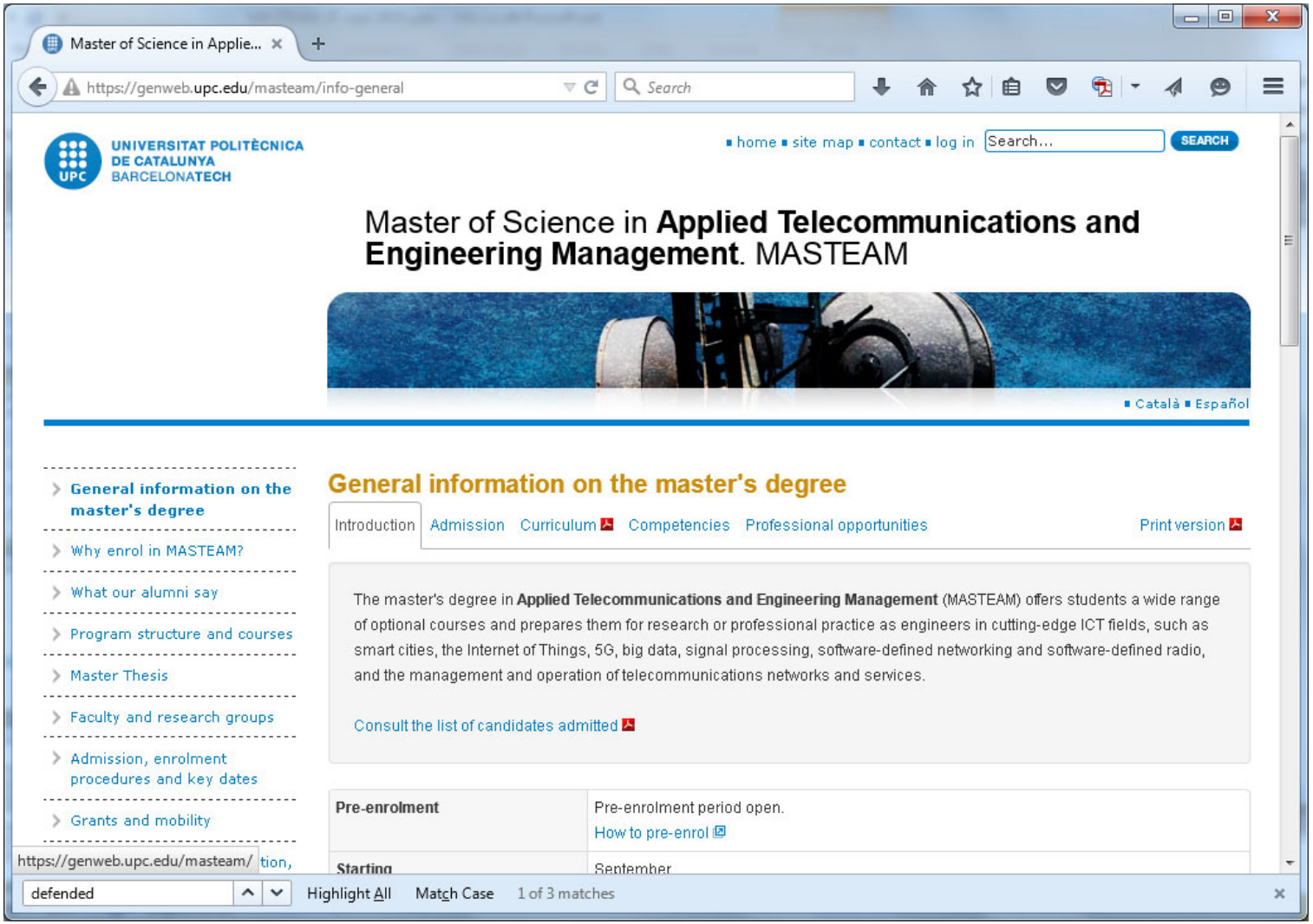
MASTEAM's new website – under construction



Institutional e-mail address

- Format:

  name.surname(s)@estudiant.upc.edu

  - **IMPORTANT!!** You will receive there all the institutional messages from the School and the professors, and course notifications

  - There is no mailbox – it is an alias that forwards messages to your personal e-mail address
    - Send a message to yourself to check it – it is important
    - Check/update your data at https://esecretaria.upc.edu/

  - If you need to send e-mails with your institutional address:

    https://serveistic.upc.edu/ca/correuUPC/faq/correu/enviament-est-upc-edu

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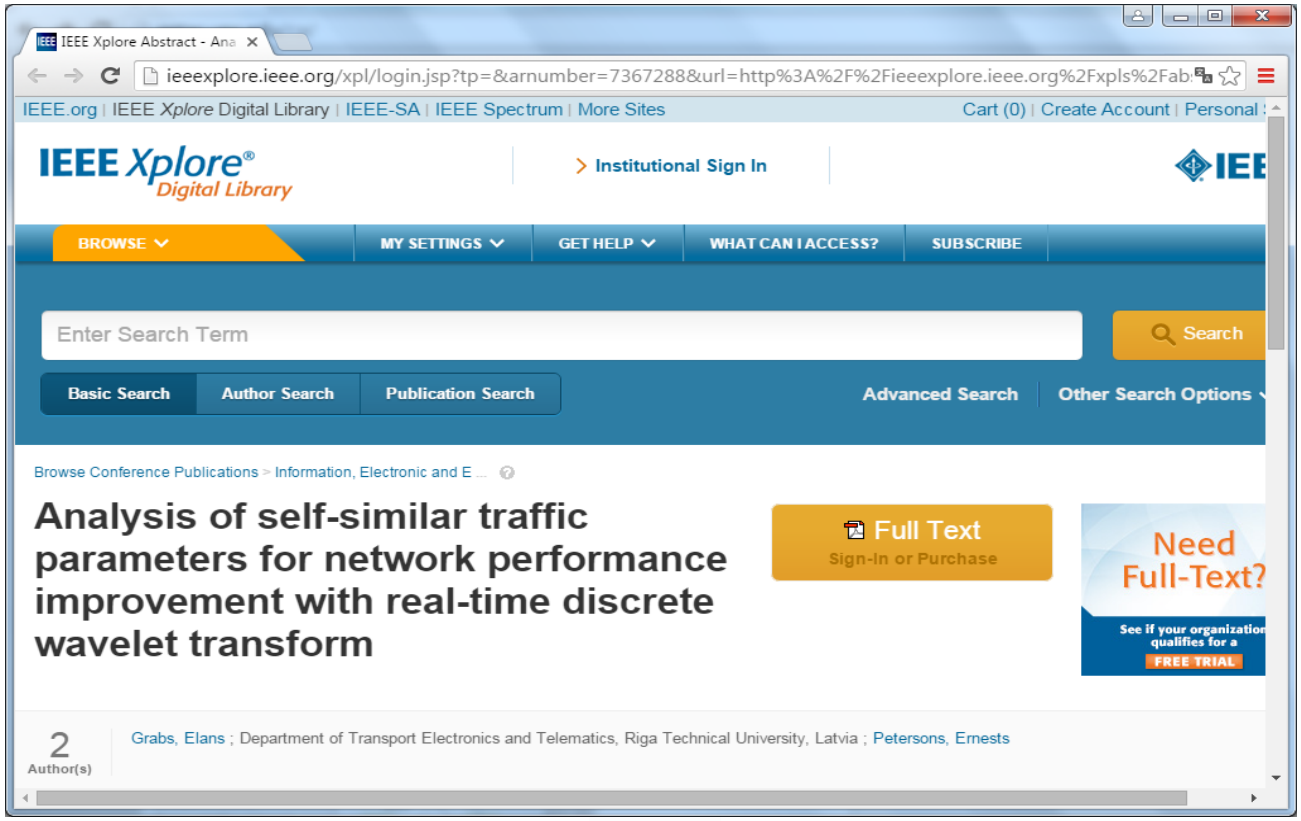
Access to research databases

IEEExplore, Springer, etc from UPC or remotely via eBIB UPC
http://bibliotecnica.upc.edu/colleccions/ebib-eng



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UPC ID card

- Useful for
  - Library loans
  - Access to School after hours
  - Museum & shop discounts
  - …

- Apply for it **as soon as possible**, after enrollment
  - Make sure you have updated your **address in Barcelona** and upload a digital picture to https://identitatdigital.upc.edu/myid
  - You should receive it at the designated address in 10-15 days
  - More information at https://www.upc.edu/identitatdigital/ca/carnetupc

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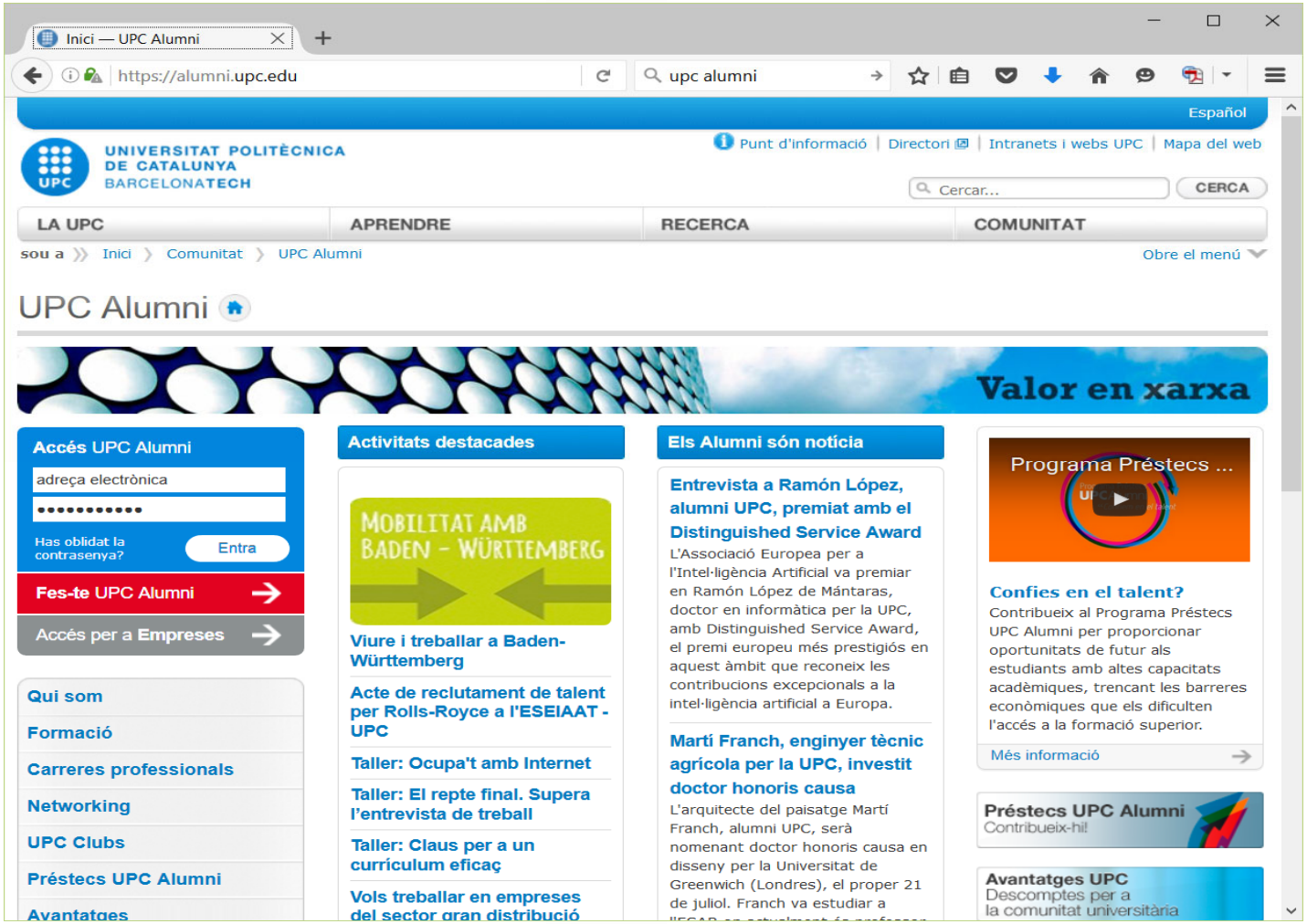
UPC alumni

Courses, resources for your professional career, job opportunities – free for last year students like you – Join!



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FORUM AEROTELECOM
BUSINESS | AERONAUTICS | TELECOMMUNICATIONS | MEETING POINT

- Business forum organized for and by EETAC students
  - Conferences and presentations by companies
  - Recruitment actions
  - Get involved – more info at the Student Union

Entidades Organizadoras :

AEAC ASSOCIACIÓ D'ESTUDIANTS AERONÀUTICS DE CATALUNYA

D@BL

AESTE

eetac Escola d'Enginyeria de Telecomunicació i Aeroespacial de Castelldefels
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Work hard, play harder

- Castelldefesta https://www.youtube.com/watch?v=mH0nj585feQ
- Culture
  - Language courses (Catalan, Spanish)
    https://www.upc.edu/slt/en/
  - Campus Choir
    https://cbl.upc.edu/ca/el-campus/viure-el-campus/la-coral
  - Catalan Traditions and Folklore
    - Main festivities
      - Santa Eulàlia (Barcelona), Feb 12th
      - Sant Jordi, April 23rd
      - Sant Joan, June 24th
    - *Castells* https://www.facebook.com/GRILLATSCBL/
- Sports
  - UPC Sport Service http://www.upc.edu/esports
  - Castelldefels Olympic Canal – Gym

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http://meet.barcelona.cat/en/
http://lameva.barcelona.cat/en/

Interesting links

- UPC Welcome guide
  https://www.upc.edu/en/the-upc/institutional-publications/guiaacollida_upc_eng.pdf
- Barcelona City Hall Digital Strategy
  https://www.youtube.com/watch?v=nDzBH8No9GE
- 5G Barcelona initiative
  - CTTC - Barcelona aspires to be an European Open Lab of 5G
    http://www.cttc.es/barcelona-aspires-to-be-an-european-open-lab-of-5g/
  - Barcinno - Barcelona Sets Its Sights On Becoming a European 5G Open Lab - http://www.barcinno.com/barcelona-5g-open-lab/

QUESTIONS ?