



European Universities for a Clean Energy Future: Interdisciplinary Education, Training and Research

University of Lorraine
21-22 March 2018

Insights from innovative practices in industry-education
collaboration

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The **Universitat Politècnica de Catalunya – BarcelonaTech** is a public institution of **Higher Education and Research**, specialised in the areas of **Architecture, Engineering, Science and Technology**.





Teaching:

72

Master's programs 硕士项目

13个Erasmus Mundus奖学金项目
26 fully in English 个全英语授课项目
(2014-2015)

50

PhD programs 博士项目

5 Erasmus Mundus
5 奖学金项目
25 Programs with excellence label of the
Spanish Ministry of Education
25个被西班牙教育部认可的重点学科

68

Undergraduate degrees

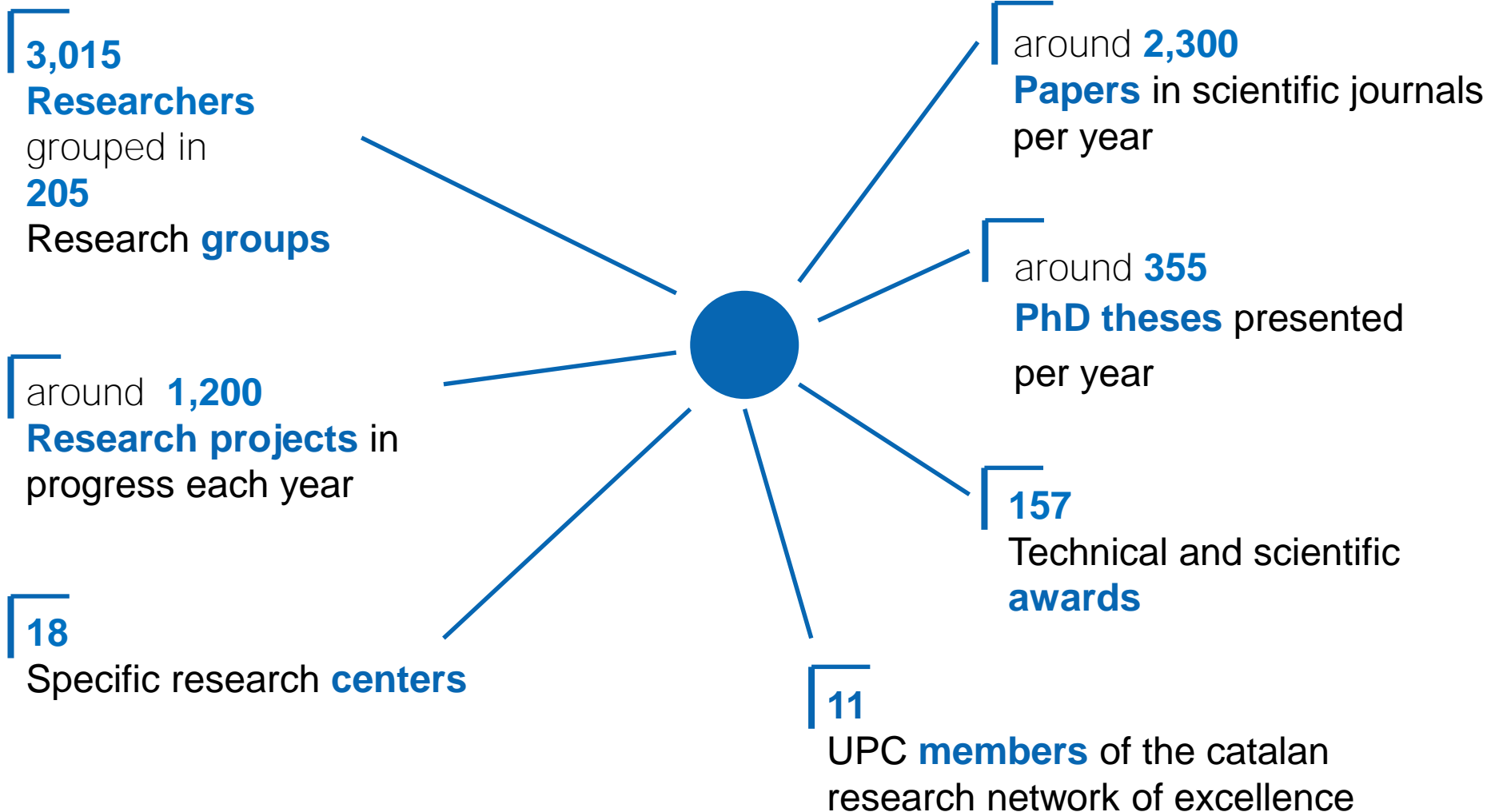
68个本科学位
(2014-2015)

3,160

Students **Internships**
名学生在实习



Research to Innovate





From 1998 to 2015:

291 spin-off and **start-up**

455

Patent licenses

(from 2009 to 2015)

62,507,381 €

Research income (2016)

18,679,000 € of which coming
from contracts with companies

ESA (European Space Agency)

Business Incubation Center

Located in the UPC and supported by
the UPC

2,494

Sponsoring and **collaborating**
companies

University-Industry collaboration

New model: Open innovation

More complex and network system.
Collaborative research and
development



Challenge:

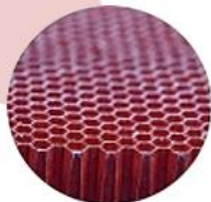
Coordinate the INNOVATION HUB Labs for diverse companies



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International Campus of Excellence

UPC Technologies



**MATERIALS
TECHNOLOGIES**



**ADVANCED
MANUFACTURING
TECHNOLOGIES**



**ENERGY AND
ENVIRONMENTAL
TECHNOLOGIES**



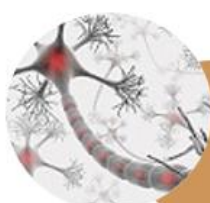
**URBANISM AND
SUSTAINABILITY
TECHNOLOGIES**



**INFRASTRUCTURE
TECHNOLOGIES**



**INFORMATION &
COMMUNICATION
TECHNOLOGIES**



**BIOMEDICAL
ENGINEERING
TECHNOLOGIES**



**CHEMICAL AND FOOD
INDUSTRY
TECHNOLOGIES**



**LOGISTICS AND MOBILITY
TECHNOLOGIES**



KEYS FOR A NEW ENERGY PARADIGM

Analysis of the situation and trends.

Future areas of work of the UPC for the transition to a new Energy Model (TEM)
October 2017



<http://www.upc.edu/ca/sala-de-premsa/noticies/la-upc-proposa-claus-per-avancar-cap-a-un-nou-model-energetic>



UPC INNOVATION HUB Labs



Diagnosis Programs of the technological situation of the company and proposals for the improving productivity, encouraging research through the integration of UPC scientific and technological capabilities. Offer of Labs and scientific equipment to promote **open innovation**.



Internship programs, development of **graduate tailor-made courses** for companies and **programs of identification of talent** through real projects of the company.



Programs for the development of sector **technological entrepreneurship projects**, for the **incubation and mentoring** of new business ideas and innovative projects. Access to a broad portfolio of **patents** and to **investment** forums of the best start-ups generated by UPC



Diagnosis Programs of the technological situation of the company and proposals for the improving productivity, encouraging research through the integration of UPC scientific and technological capabilities. Offer of Labs and scientific equipment to promote **open innovation**.

UPC Technological Diagnosis Pills

Technological needs Diagnosis Program for the improvement of the technological position of the company.

UPC Innovation course for companies

Training courses for that companies (SME's) that wants to know about innovation.

UPC Technological Ramp UP

Program for bilateral development and advances in TRL for technology and patents with business interest

Industrial Doctorate Program

The industrial doctorate Program focusses in a **research project** carried out at a **company**, where doctoral students will further develop their research training (as a doctoral thesis PhD) in collaboration with a **university**. Therefore, the industrial doctorates act as a bridge for **knowledge transfer** and encourage closer ties between Catalan industry, universities and research centers.



Internship programs, development of **graduate tailor-made courses** for companies and **programs of identification of talent** through real projects of the company.

Internships

Attracting talent through educational cooperation agreements through apprenticeships at companies or the development of Bachelor or Master's Thesis in topics of common interest and defined by the company.

Millennial UPC challenges

Identification of talent programme through real projects for the company.

Master and Graduate Programmes

Participation in Master's degree Programmes and development of graduate tailor-made courses for companies with the possibility of In Company training through qualified teachers and company own staff.

Talent UPC-Enterprise scholarships

Scholarships Programme for students developing part of their Master or Graduate training programme in collaboration with the company and under supervision of an external tutor

Forums of Enterprise

UPC offers some forums to connect companies with last-year students and alumni.



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LET- Technological Entrepreneurship Lab

Program for the UPC-Industry bilateral development of technological entrepreneurship projects in pre-seed phase of an idea in order to become a company project, developed by Students, Phd candidates, Researchers, external Entrepreneurs with a technological project solving present problems.

Sector Technology Incubation Program

Bilateral UPC-Industry development of Corporative Incubation of Technology Entrepreneurship projects in the sector of interest of the company at an advanced stage of development.

UPC Technological Patents

Access to a broad portfolio of patents

ACCEL UPC - Investor's Day

Investment Readiness Program for high potential industrial projects (UPC environment).



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KIC InnoEnergy Iberian node

Formal partners:

ESADE

Gas Natural FENOSA

Institut de Recerca de l'Energia de
Catalunya-IREC

Instituto Superior de Lisboa

Universitat Politècnica de Catalunya

Associate partners:

Ciemat

Energías de Portugal

Iberdrola

Tecnalia Research and Innovation



Renewables
CC IBERIA



Intelligent, Energy-efficient Buildings and Cities
CC BENELUX



Sustainable Nuclear & Renewable Energy Convergence
CC ALPS VALLEYS



Clean Coal Technologies
CC POLAND PLUS



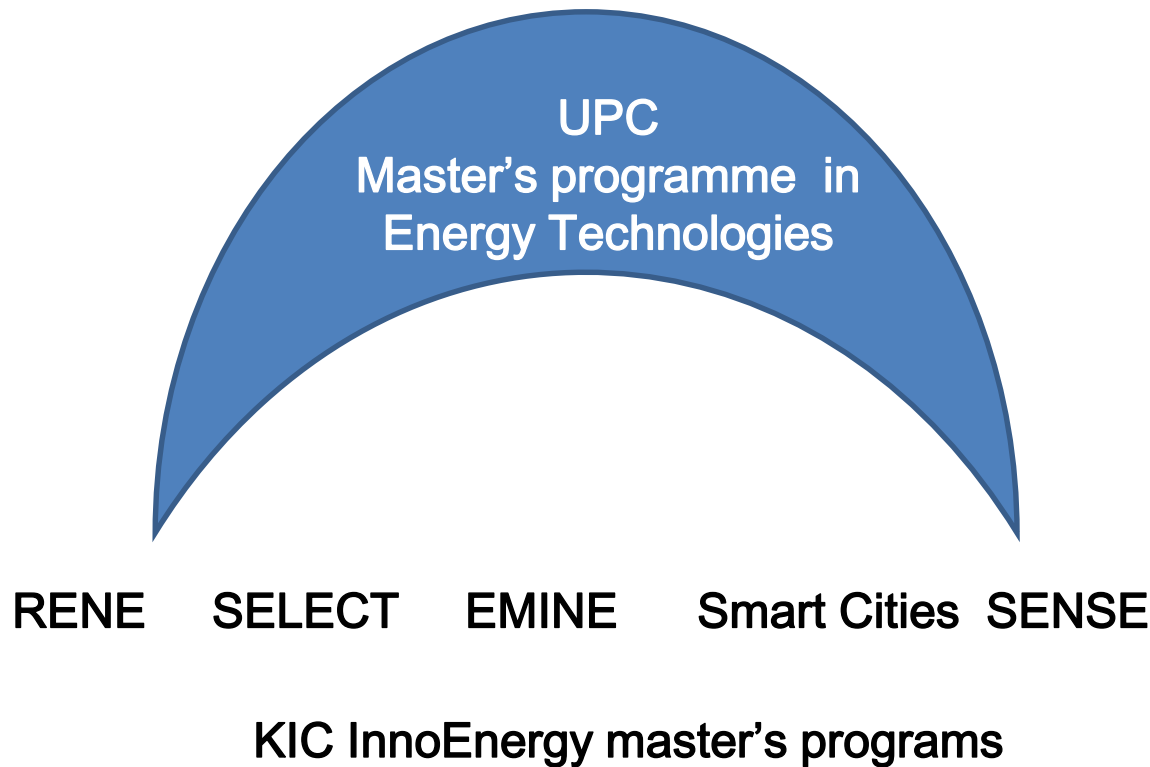
European Smart Electric Grid & Electric Storage
CC SWEDEN

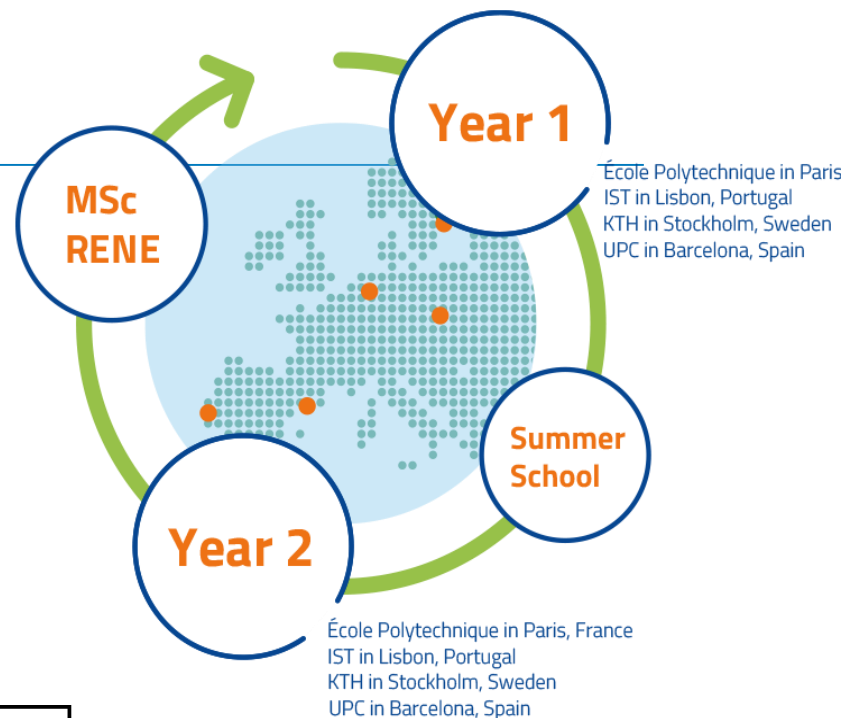


Energy from Chemical Fuels
CC GERMANY

Collaboration with KIC Innoenergy involves education, innovation and entrepreneurship

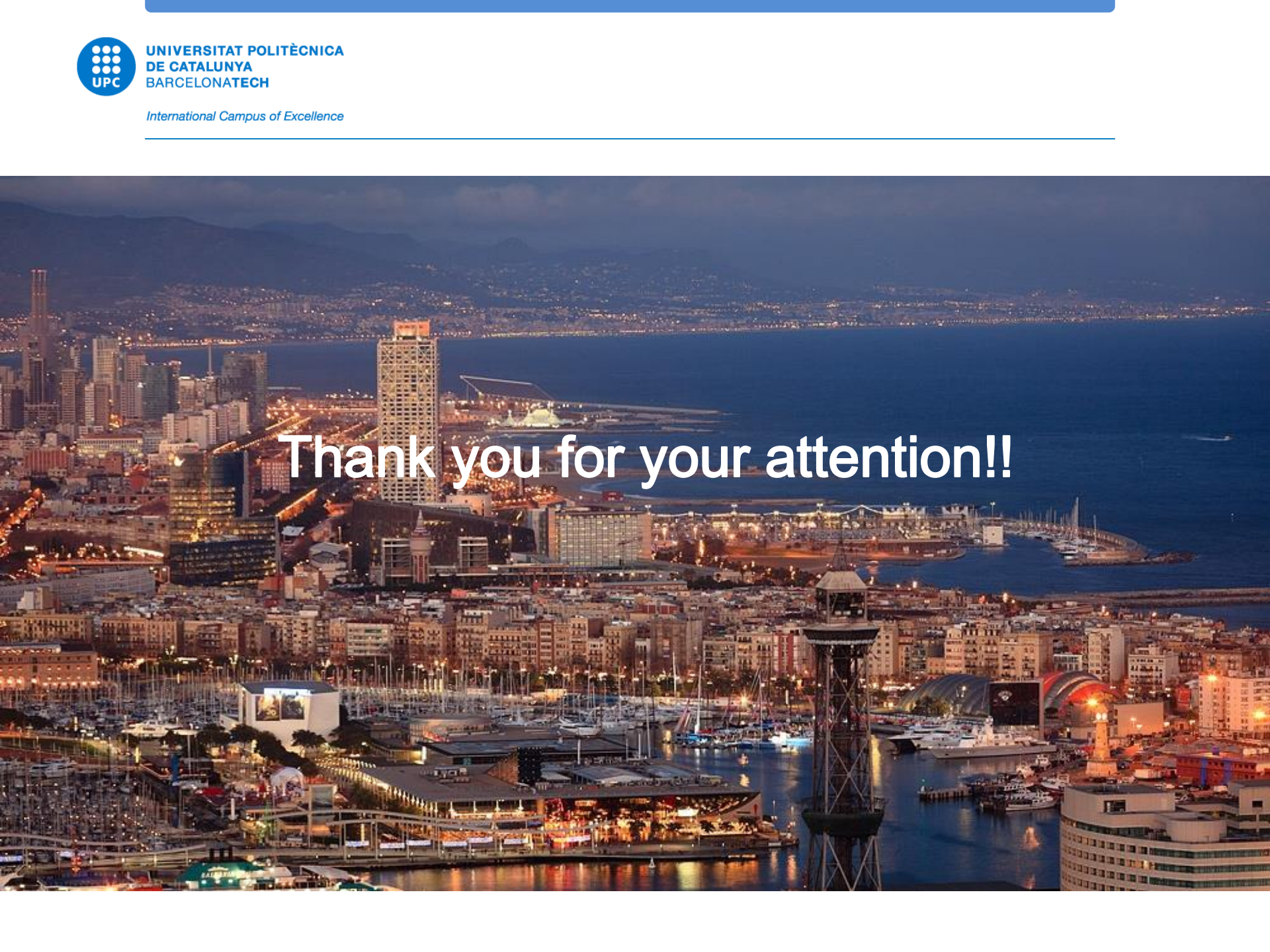
Present implementation includes a UPC master in Energy Technologies that acts as umbrella for the divers KIC Innoenergy programs





Student flow

Estudiants UPC 2017 Y1+Y2				
	UE	No UE	TOTAL	Temàtica
EMINE	9	2	11	Nuclear
RENE	24	2	26	Renovables
SELECT	21	8	29	Transversal
EFSC	9	2	11	Smart Cities
SENSE	9	2	11	Smart Grids
TOTAL	72	16	88	

A wide-angle, nighttime photograph of Barcelona, Spain. The city's lights are reflected in the water of the harbor. The Guggenheim Museum's distinctive white, curved facade is prominent in the center. To the right, the Torre Agbar stands out with its unique, bulbous shape. The background shows the city extending to the mountains under a dark sky.

Thank you for your attention!!