

UPC Virtual Postgraduate Fair

From 3 to 7 March



UPC Virtual Postgraduate Fair

Master in Electric Power Systems and Drives ETSEIB-UPC



The UPC







The **UPC**







* Campus for initial vocational and continuing education in automotive engineering, sustainable mobility and advanced industry.











Much more than studying



Students associations

Cooperation projects

Awards and competitions

Sports

Cultural activities



Master in Electric Power Systems and Drives ETSEIB-UPC



Oriol Gomis-Bellmunt oriol.gomis@upc.edu



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH Escola Tècnica Superior d'Enginyeria Industrial de Barcelona



Modern power systems challenges

- Wind and solar power plants
- Electrical mobility (electrical vehicle engineering and charging infrastructure)
- Industry electrification
- Renewables integration in power systems
- Systems dominated by power electronics
- Modern regulation and energy markets
- New toolboxes to be applied: data science, artificial intelligence

Structure

- 60 ECTS 1 year
- Mandatory courses (15 ECTS) Foundations of electrical power engineering: Energy markets, Electric power converters, Power systems
- Optative courses (30 ECTS) Three tracks:
 - 1. Electrical machines, equipment and drives
 - 2. Electrical systems
 - 3. Energy economics, management and electrical markets
 - Possibility of not following any specific track and freely choose the courses.
- Master thesis (15 ECTS)

Main characteristics

- Research and development oriented
- 100 % in English
- Possibility of participate in R&D in UPC groups:
 - Working in collaboration with industry (operators, developers, manufacturers, administrations)
 - Developing national and international research projects (Horizon 2020, Horizon Europe, others)
- Possibility to do additional internships and theses in relevant companies (manufacturers, developers, operators, consultants)
- In the environment of ETSEIB-UPC, with substantial participation of international students

External opportunities

Board of companies and centers providing support. Board members provide support in some of the following items:

- Offer scholarships to students while working in the university in projects related to the company interests.
- Offer internships at the company to conduct the Master thesis or to work in a R&D project.
- Offer future employment in the company.
- Present the company to the Master students including examples of R&D activities in industry.
- Organize visits of the students to the company.
- Advise on Master contents
- Additional contributions

We plan to organize a virtual and face-to-face events to present the companies, their opportunities and to discuss directly with students.



Examples of Master theses

- Design of wind turbine converters for large type 4 wind turbines with multiple converter sections
- Design and testing on micro-grid controllers
- Optimization of the planning of the transmission systems of an island with plans to install renewables
- Design of HVDC transmission systems for offshore wind
- Design of the motor for an electrical bike
- Bidirectional chargers for vehicle-to-grid applications
- Supergrids for offshore wind integration
- Future energy markets for renewables integration
- Application of Artifical Intelligence techniques for failure detection in power systems
- Design of battery management system (BMS) algorithms for maximizing the useful life of batteries
- Minimizing the risk of discharges in high voltage systems

Additional information

- Doubts admission <u>admissions.etseib@upc.edu</u>
- <u>Admission and enrollment process</u>
- General info
- <u>Academic Calendar</u>
- Academic requirements for admission
- <u>Courses</u>
- <u>General information on studying in UPC and living in</u> <u>Barcelona and Catalonia</u>
- Minimum English level required: B2

Master in Electric Power Systems and Drives ETSEIB-UPC



Oriol Gomis-Bellmunt oriol.gomis@upc.edu



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH Escola Tècnica Superior d'Enginyeria Industrial de Barcelona







How to apply

→ Academic Programmes → How to apply to ETSEIB'S academic programmes

• Application:

Round 1 (February 24th to March 23th) Round 2 (April 21th to May 18th)

* Recommentation to apply on the first round. In case we don't open second round.

Provisional list of accepted people:

Round 1: End of April 2025 Round 2: End of June 2025

- People seat acceptance: Up to 7 days from the pubication list
- Definitive list of accepted people: Mid July 2025
- Enrollment: September 2025



How to apply

Applications Round 1 February 24th to March 23th of 2025 Applications Round 2 April 21th to May 18th of 2025

General Information, Admission and access requirements and syllabus @

Required documentation for the application @

https://etseib.upc.edu/en/Academic%20programmes/academic-procedures/acces/documentation

How to apply



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Contact information