Master's degree in Automotive Engineering

The master's degree in Automotive Engineering aims to provide multidisciplinary training for automotive engineers. Students develop high-level competencies that allow them to easily adapt to positions of responsibility in companies or research centres in the sector. The objective is for students to acquire knowledge of the theoretical and practical fundamentals of automotive engineering and technology related to the production of automotive vehicles. The subjects on the programme allow students to acquire knowledge and develop skills related to body engineering, components, electricity and electronics, assisted driving, management, etc.

According to the specialisation they choose, students will gain in-depth knowledge of some of these areas.

- Engines and Mechanics (taught at the ETSEIB)
- Electromobility (taught at the ETSEIB)
- Connected Vehicles and Assisted Driving (taught at the ETSETB)

Specialisations

- Engines and Mechanics
- Electromobility
- Connected Vehicles and Assisted Driving

GENERAL DETAILS

Duration and start date
Two academic years, 120 ECTS credits. Starting September

Timetable and delivery
Afternoons. Face-to-face

Fees and grants
Approximate fees for the master's degree, excluding degree certificate fee, €6,535 (€9,802 for non-EU residents).
More information about fees and payment options
More information about grants and loans

Language of instruction
80% of the subjects are taught in Spanish and 20% in Catalan.

Location
Barcelona School of Industrial Engineering (ETSEIB)
Barcelona School of Telecommunications Engineering (ETSETB)

Official degree
Recorded in the Ministry of Education's degree register

ADMISSION

General requirements
Academic requirements for admission to master's degrees

Specific requirements
Applicants seeking admission to this master's degree should be university graduates with one of the following scientific...
or technical degrees:

- A pre-EHEA degree in Industrial Engineering; Industrial Engineering with a concentration in Mechanics, Manufacturing Technologies or Transports and Vehicles; Materials Engineering; Telecommunications Engineering; Automatic Control and Industrial Electronics; Electronic Engineering; or Physics.
- A pre-EHEA diploma in Mechanical Engineering, Electrical Engineering or Electronic Engineering.

**Admission criteria**

- English level B2.2 and Spanish level B2 (foreign students) are required.
- Academic record.
- First degree and university of origin.
- Professional experience.

**Places**

- 40

**Pre-enrolment**

- Pre-enrolment period open.

**Enrolment**

- How to enrol

**Legalisation of foreign documents**

- All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

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**DOUBLE-DEGREE AGREEMENTS**

**Double-degree pathways at a single school**

- Master's degree in Automotive Engineering + Master's degree in Industrial Engineering (ETSEIB)

**Double degrees with foreign universities**

- Bachelor's degree in Industrial Technology Engineering + Master's degree in Automotive Engineering and Diplôme d’ingénieur from one of the Écoles Centrales (Lille, Lyon, Marseille, Nantes, Supélec).

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**PROFESSIONAL OPPORTUNITIES**

**Professional opportunities**

Grades may pursue careers in the automotive sector—with automotive manufacturers or in the supplier industry—or at RDI centres. The training provided enables students to develop a strong technological profile and prepares them to fill positions related to a wide range of activities and departments, including product engineering and development; design and management of production and logistics; technological management and innovation; RDI; development and innovation in products, processes and methods; new technologies and new management systems; automotive project management; strategic consulting, etc.

**Competencies**

**Generic competencies**

Generic competencies are the skills that graduates acquire regardless of the specific course or field of study. The generic competencies established by the UPC are capacity for innovation and entrepreneurship, sustainability and social commitment, knowledge of a foreign language (preferably English), teamwork and proper use of information resources.

**Specific competencies**

On completion of the course, students will:

- Know the principles of calculation and design of automotive bodywork.
• Know the principles of aerodynamics.
• Have acquired a theoretical and practical grounding in steering, suspension and brake systems and their effect on the dynamic behaviour of vehicles.
• Be familiar with the various transmission systems used in the driveline.
• Be familiar with the power and injection systems of reciprocating internal combustion engines (RICE) and their combustion processes.
• Be able to analyse the environmental impact of RICE and apply techniques to control and minimise pollution.

ORGANISATION

UPC school
Barcelona School of Telecommunications Engineering (ETSETB)
Barcelona School of Industrial Engineering (ETSEIB)

Academic coordinator
Joaquim Bautista Valhondo
Juan Manuel Moreno Eguilaz

Academic calendar
General academic calendar for bachelor's, master's and doctoral degrees courses

Academic regulations
Academic regulations for master's degree courses at the UPC

CURRICULUM

Subjects

March 2019. UPC. Universitat Politècnica de Catalunya · BarcelonaTech