

Master's degree in Industrial Engineering

BARCELONA SCHOOL OF INDUSTRIAL ENGINEERING (ETSEIB)

This master's degree, which **qualifies graduates to practise the regulated profession of industrial engineer**, aims to provide multidisciplinary scientific and technical training based on an overview of industrial engineering combined with specialisation in a particular branch of industry.

At the UPC, the **master's degree in Industrial Engineering** and the bachelor's degree in Industrial Technology Engineering form an integrated programme.

More information on [the web page of this master's degree](#).

SPECIALISATIONS

- Automation and Robotics
- Biomedical Engineering
- Construction and Structures
- Electrical Engineering
- Electronics
- Energy
- Industrial Organization
- Information Technologies for Industry
- Mechanical Engineering
- Nuclear Engineering
- Process Greening

GENERAL DETAILS

Duration and start date

2 academic years, 120 ECTS credits. Starting September and February

Timetable and delivery

Mornings | Afternoons. Face-to-face

Fees and grants

Approximate fees for the master's degree, **excluding other costs** (does not include non-teaching academic fees and issuing of the degree certificate):

€2,122 (€5,400 for non-EU residents).

[More information about fees and payment options](#)

[More information about grants and loans](#)

Language of instruction

Check the language of instruction for each subject in the course guide in the curriculum.

Information on [language use in the classroom and students' language rights](#).

Location

[Barcelona School of Industrial Engineering \(ETSEIB\)](#)

Official degree

[Recorded in the Ministry of Science, Innovation and Universities](#)

ADMISSION

General requirements

[Academic requirements for admission to master's degrees](#)

Admission criteria

English level B2 and Spanish level B2.2 are required (foreign students). The university of origin and the first degree will be considered, particularly the appropriateness of the scientific and technological content of the basic curriculum, the shared industrial engineering module and the specific technology module of the first degree. The academic committee of the master's degree will assign a mark to candidates that is weighted in the following way:

- 50% of the mark reflects the correspondence between the competencies of the first degree and the competencies of the master's degree.
- 40% of the mark reflects the weighted average of the marks on the academic transcript (the marks for the thesis and optional subjects are not included).
- 10% of the mark reflects the candidate's professional experience.

New intake places

200 places in September + 150 in February

Pre-enrolment

Pre-enrolment period open.

Expected deadline: 17/05/2026.

[How to pre-enrol](#)

Enrolment

[How to enrol](#)

Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Applications of Electrical and Energy Technology	2.5	Compulsory
Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
Electrical Technology	2.5	Compulsory
Energy Technology	2.5	Compulsory
Implementation of Electronic Systems for Industry	2.5	Compulsory
Industrial Logistics	2.5	Compulsory
Organisation of Production Systems	5	Compulsory
State-Space Control	2.5	Compulsory
Structural Design and Analysis	5	Compulsory
Cyathlon M1	5	Optional
Cyathlon M2	5	Optional
Cyathlon M3	5	Optional
Formula Student M1	5	Optional
Formula Student M2	5	Optional
Formula Student M3	5	Optional
Forum M1	5	Optional
Forum M2	5	Optional

Subjects	ECTS credits	Type	
Moto Student M1	5	Optional	
Moto Student M2	5	Optional	
Moto Student M3	5	Optional	
Service-Learning Project in the Stem Field M1	5	Optional	
Service-Learning Project in the Stem Field M2	5	Optional	
Service-Learning Project in the Stem Field M3	5	Optional	
Specialisation in (Eng) Especialitat en Construcció i Estructures	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
Moto Student M3	5	Optional	
Service-Learning Project in the Stem Field M1	5	Optional	
Service-Learning Project in the Stem Field M2	5	Optional	
Service-Learning Project in the Stem Field M3	5	Optional	

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Automàtica i Robòtica	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Electrònica	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Energia	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Enginyeria Elèctrica	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Enginyeria Mecànica	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Enginyeria Nuclear	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Organització Industrial	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Process Greening	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
	Service-Learning Project in the Stem Field M3	5	Optional

Subjects	ECTS credits	Type	
Specialisation in (Eng) especialitat en Tecnologies de la Informació per a la Indústria	Applications of Electrical and Energy Technology	2.5	Compulsory
	Control Systems and Industrial Electronics Laboratory	2.5	Compulsory
	Design and Construction of Industrial Plants and Complementary Services	2.5	Compulsory
	Electrical Technology	2.5	Compulsory
	Energy Technology	2.5	Compulsory
	Implementation of Electronic Systems for Industry	2.5	Compulsory
	Industrial Logistics	2.5	Compulsory
	Organisation of Production Systems	5	Compulsory
	State-Space Control	2.5	Compulsory
	Structural Design and Analysis	5	Compulsory
	Cyathlon M1	5	Optional
	Cyathlon M2	5	Optional
	Cyathlon M3	5	Optional
	Formula Student M1	5	Optional
	Formula Student M2	5	Optional
	Formula Student M3	5	Optional
	Forum M1	5	Optional
	Forum M2	5	Optional
	Moto Student M1	5	Optional
	Moto Student M2	5	Optional
	Moto Student M3	5	Optional
	Service-Learning Project in the Stem Field M1	5	Optional
	Service-Learning Project in the Stem Field M2	5	Optional
Service-Learning Project in the Stem Field M3	5	Optional	

SECOND SEMESTER

Administration and Management	10	Compulsory
Building Installation Design	5	Compulsory
Chemistry Technology	2.5	Compulsory
Heat Engines	2.5	Compulsory
Incompressible Flow Turbomachines	2.5	Compulsory
Integrated Manufacturing Systems	2.5	Compulsory
Machine Technology	2.5	Compulsory
Machines, Processes and Manufacturing Project	2.5	Compulsory

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Construcció i Estructures	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Automàtica i Robòtica	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Electrònica	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Energia	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Enginyeria Elèctrica	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Enginyeria Mecànica	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Enginyeria Nuclear	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory
Specialisation in (Eng) especialitat en Organització Industrial	Administration and Management	10	Compulsory
	Building Installation Design	5	Compulsory
	Chemistry Technology	2.5	Compulsory
	Heat Engines	2.5	Compulsory
	Incompressible Flow Turbomachines	2.5	Compulsory
	Integrated Manufacturing Systems	2.5	Compulsory
	Machine Technology	2.5	Compulsory
	Machines, Processes and Manufacturing Project	2.5	Compulsory

Subjects		ECTS credits	Type	
Specialisation in (Eng) especialitat en Process Greening	Administration and Management	10	Compulsory	
	Building Installation Design	5	Compulsory	
	Chemistry Technology	2.5	Compulsory	
	Heat Engines	2.5	Compulsory	
	Incompressible Flow Turbomachines	2.5	Compulsory	
	Integrated Manufacturing Systems	2.5	Compulsory	
	Machine Technology	2.5	Compulsory	
	Machines, Processes and Manufacturing Project	2.5	Compulsory	
Specialisation in (Eng) especialitat en Tecnologies de la Informació per a la Indústria	Administration and Management	10	Compulsory	
	Building Installation Design	5	Compulsory	
	Chemistry Technology	2.5	Compulsory	
	Heat Engines	2.5	Compulsory	
	Incompressible Flow Turbomachines	2.5	Compulsory	
	Integrated Manufacturing Systems	2.5	Compulsory	
	Machine Technology	2.5	Compulsory	
	Machines, Processes and Manufacturing Project	2.5	Compulsory	
THIRD SEMESTER				
Cyathlon		10	Optional	
Formula Student		15	Optional	
Moonshot		10	Optional	
Moto Student		15	Optional	
Specialisation in (Eng) Especialitat en Construcció i Estructures	Advanced Structural Analysis	5	Compulsory	
	Concrete Structures	5	Compulsory	
	Construction Project Management	5	Compulsory	
	Data Science and Artificial Intelligence Applied to Construction and Structures	5	Compulsory	
	Mixed Metal Structures	5	Compulsory	
	Smart Buildings and Installations	5	Compulsory	
	Cyathlon		10	Optional
	Formula Student		15	Optional
	Moonshot		10	Optional
	Moto Student		15	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Automàtica i Robòtica	Advanced Control I	5	Compulsory
	Advanced Control II	5	Compulsory
	Advanced Robotics Techniques	5	Compulsory
	Fundamentals of Robotics	5	Compulsory
	Implementation of Control Systems	5	Compulsory
	Perception	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Electrònica	Cybersecurity in Integrated Electronic Systems	5	Compulsory
	Data Science and Artificial Intelligence for Industry - Electronics	5	Compulsory
	Design of Advanced Electronic Systems	5	Compulsory
	Energy Management Systems	5	Compulsory
	Industrial Project	5	Compulsory
	Sensors and Communications	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Energia	Energy Sector	10	Compulsory
	Energy Use and Management	10	Compulsory
	Integrated Energy Engineering Project	10	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Enginyeria Elèctrica	Analytical Methods and Techniques for Modern Electrical Systems	5	Compulsory
	Data Science and Artificial Intelligence for Industry - Electrical	5	Compulsory
	Design of Electrical Machines and Drives	5	Compulsory
	Electrical System Control and Protection	5	Compulsory
	Power Converters	5	Compulsory
	Transmission and Distribution of Electrical Energy	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Enginyeria Mecànica	Machine Calculus	5	Compulsory
	Machine Elements	5	Compulsory
	Machine Testing	5	Compulsory
	Mechanical Design	5	Compulsory
	Mechanical Vibrations	5	Compulsory
	Parts Forming Systems	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Enginyeria Nuclear	Fuel Cycle and Environmental Impact	5.5	Compulsory
	Fundamentals of Nuclear Engineering and Radiological Protection	8	Compulsory
	Project I	3	Compulsory
	Reactor Physics and Thermal Hydraulics	7.5	Compulsory
	Systems, Components and Materials	6	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Organització Industrial	Cost Analysis and Control	5	Compulsory
	Data Science and Artificial Intelligence for Industry - Is	5	Compulsory
	Operations Management in Production and Logistics	5	Compulsory
	Quantitative Methods in Industrial Scheduling	10	Compulsory
	Supply Chain Design	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
Specialisation in (Eng) especialitat en Process Greening	Data Science and Artificial Intelligence for Industry	5	Compulsory
	Efficient and Sustainable Use of Materials in Engineering	7.5	Compulsory
	Environmental Impact Minimisation in Industry	7.5	Compulsory
	Practical Application of Efficient and Sustainable Use of Materials in Engineering	5	Compulsory
	Practical Application of Environmental Impact Minimisation in Industry	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Tecnologies de la Informació per a la Indústria	Data Processing and Communication	5	Compulsory
	Data Science and Artificial Intelligence for Industry	5	Compulsory
	Industrial Automation	5	Compulsory
	Predictive Safety and Maintenance	5	Compulsory
	Sensors and Communications	5	Compulsory
	Supply Chain Management	5	Compulsory
	Cyathlon	10	Optional
	Formula Student	15	Optional
	Moonshot	10	Optional
	Moto Student	15	Optional
FOURTH SEMESTER			
Technical Writing for Engineers		5	Optional
Technology, Ethics and Society		5	Optional
Master's Thesis		15	Project
Specialisation in (Eng) Especialitat en Construcció i Estructures	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Automàtica i Robòtica	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Electrònica	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Energia	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Enginyeria Elèctrica	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Enginyeria Mecànica	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Enginyeria Nuclear	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Organització Industrial	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project

Subjects		ECTS credits	Type
Specialisation in (Eng) especialitat en Process Greening	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
Specialisation in (Eng) especialitat en Tecnologies de la Informació per a la Indústria	Technical Writing for Engineers	5	Optional
	Technology, Ethics and Society	5	Optional
	Master's Thesis	15	Project
PROFESSIONAL OPPORTUNITIES			

Professional opportunities

Graduates of this master's degree will acquire a multidisciplinary overview of technology that will enable them to contribute to any kind of industrial endeavour. They will be qualified for employment in engineering firms and in technical, R&D, production and sales departments. Their broad skills will also allow them to work for companies offering consultancy services in the fields of technology, management, industrial plant design and project management. The master's degree enhances the employability of its graduates by making them versatile, flexible and able to develop and lead projects across all sectors of industry. The training they receive in organisation and management techniques prepares them to take on leadership roles in industrial and service company management, project management, public administration, institutions and multidisciplinary teams.

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, teamwork, proper use of information resources, knowledge of a foreign language (preferably English) and gender perspective.

Specific competencies

On completion of this course, students will be able to:

- Understand, analyse and design electrical energy generation, transport and distribution systems.
- Understand, draft, calculate and design integrated manufacturing systems.
- Design and test machines.
- Analyse and design chemical processes.
- Design and analyse thermal machines and heat engines, hydraulic machines and industrial heat and cold facilities.
- Understand, analyse, use and manage sources of energy.
- Design electronic systems and industrial instrumentation.
- Design and draft automated production systems and advanced control processes.
- Organise and run businesses.
- Work out strategies and plans for a range of organisational structures.
- Understand business and employment law.
- Understand financial and cost accounting.
- Understand information systems for management, industrial organisation, production, logistics and quality management.
- Organise production systems, logistics and quality management systems.
- Organise work and human resource management in keeping with the principles of occupational health and safety.
- Practise integrated project management.
- Manage research, development and technological innovation.
- Design, build and use industrial plants.
- Understand building construction, facilities, infrastructure and urban development for industrial engineering.
- Calculate and design structures.
- Draft and design electrical and fluid facilities, lighting, air conditioning and ventilation, energy saving and efficiency

systems, acoustics, communications, home automation and smart buildings, and safety facilities.

- Understand transport and industrial maintenance methods and techniques.
- Check and control facilities, processes and products.
- Draw up certificates, audits, verifications, tests and reports.
- Write, present and defend to university examiners an original, individually authored piece of work consisting of a professional industrial engineering project that displays all of the competencies acquired during the master's degree course.

DOUBLE-DEGREE AGREEMENTS

Double-degree pathways at a single school

- **Master's degree in Industrial Engineering (MUEI)** + one of the following master's degrees:
 - Master's degree in Automatic Control and Robotics / Master's degree in Automotive Engineering / Master's degree in Management Engineering / Master's degree in Nuclear Engineering / Master's degree in Energy Engineering

Double-degree pathways with other universities in Spain

- MUEI + Master's degree in Business Management (Management of Organisations in the Knowledge Economy) (UOC)
- Bachelor's degree in Industrial Technology Engineering + MUEI + Bachelor's degree in Business Administration and Management (UOC)

QUALITY ACCREDITATION

Check the degree's main quality indicators in the University Studies in Catalonia portal of the Catalan University Quality Assurance Agency. Find information on topics such as degree evaluation results, student satisfaction and graduate employment data.

[Further information](#)

ACADEMIC ORGANISATION

UPC school

[Barcelona School of Industrial Engineering \(ETSEIB\)](#)

Academic coordinator

[Esteve Jou Santacreu](#)

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](#)

MASTER'S DEGREE WEBSITE

May 2026. [UPC](#). Universitat Politècnica de Catalunya · BarcelonaTech