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UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Master's degree in Automatic Systems and Industrial Electronics Engineering

VILANOVA I LA GELTRÚ SCHOOL OF ENGINEERING (EPSEVG)

The aim of the **master's degree in Automatic Systems and Industrial Electronics Engineering** is to produce top-level professionals in automation and industrial electronics. Automatic control and industrial electronics are crucial to the development of a society that is increasingly focused on information and knowledge as a basis for decision making, and essential for the functioning of any automatic or robotic control system. Graduates will be able to respond to the needs of sectors dealing with production processes and systems for generating, distributing and storing energy; the transport sector; and the logistics sector.

The aim of the specialisation in **Intelligent Systems** is to produce professionals who are capable of managing the entire life cycle of intelligent systems, from their design to their development, implementation and verification, in any sphere of application in which detection, actuation and control functions are required. Intelligent systems enable factories to be automated following the Industry 4.0 concept, which allows technical integration of cyber-physical systems (CPS) in production and logistics, as well as the use of the internet in industrial processes.

Intelligent systems allow machines, storage systems and equipment to work together in a network, leading to a “smart factory” in which intelligent machines exchange information and are constantly adapting to new production requirements. This reduces costs, increases productivity and saves a considerable amount of energy.

The "intelligence" of a system may be understood as its autonomous operation based on control with the aim of increasing energy efficiency, reducing costs and maximising performance. This specialisation emphasises the integration of different technologies, different component sizes and different materials in a single system. Graduates will have an interdisciplinary work focus that will enable them to come up with integrated technological solutions.

More information on the **web site of this master's degree.**

SPECIALISATIONS

- Intelligent systems

GENERAL DETAILS

Duration and start date

1.5 academic years, 90 ECTS credits. Starting September

Timetable and delivery

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):
€1,743 (€4,050 for non-EU residents).
More information about fees and payment options
More information about grants and loans

Language of instruction

Spanish

Information on language use in the classroom and students' language rights.

Location

Vilanova i la Geltrú School of Engineering (EPSEVG)

Official degree

Recorded in the Ministry of Education's degree register

ADMISSION

General requirements

Academic requirements for admission to master's degrees

Places

30

Pre-enrolment

Pre-enrolment period open.
Expected deadline: 01/07/2026.

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			
Advanced Control Systems		5	Compulsory
Advanced Electronic Systems and Integration of Electrical Energy Sources		5	Compulsory
Applied Dynamics		5	Compulsory
Modelling and Control of Electrical Machines		5	Compulsory
Simulation and Optimisation		5	Compulsory
Specialisation in Specialisation in Intelligent Systems	Advanced Control Systems	5	Compulsory
	Advanced Electronic Systems and Integration of Electrical Energy Sources	5	Compulsory
	Applied Dynamics	5	Compulsory
	Modelling and Control of Electrical Machines	5	Compulsory
	Simulation and Optimisation	5	Compulsory
SECOND SEMESTER			
Artificial Intelligence		5	Optional
Control for Intelligent Microgrids		5	Optional
Model Predictive Control for Intelligent Systems		5	Optional

Subjects		ECTS credits	Type
Robotics and Vision		5	Optional
Specialisation in Specialisation in Intelligent Systems	Digital Systems	5	Compulsory
	Environmental Intelligence	5	Compulsory
	Sensors and Mems	5	Compulsory
	Artificial Intelligence	5	Optional
	Control for Intelligent Microgrids	5	Optional
	Model Predictive Control for Intelligent Systems	5	Optional
	Robotics and Vision	5	Optional
THIRD SEMESTER			
Automation and Industrial Digitalisation		5	Optional
Machine Learning		5	Optional
Microgrid Control		5	Optional
Model Predictive Control for Industrial Applications		5	Optional
Master's Thesis		15	Project
Specialisation in Specialisation in Intelligent Systems	Communication Networks	5	Compulsory
	Embedded and Real Time Systems	5	Compulsory
	Energy Management	5	Compulsory
	Automation and Industrial Digitalisation	5	Optional
	Machine Learning	5	Optional
	Microgrid Control	5	Optional
	Model Predictive Control for Industrial Applications	5	Optional
	Master's Thesis	15	Project

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

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

UPC school
Vilanova i la Geltrú School of Engineering (EPSEVG)

Academic coordinator
Ramon Guzman Solà

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