Institutionally accredited

AINST-08070106-23

AQU Catalunya registered on EQAR

Pre-enrolment code: 21112

Vacancies: 15

Double bachelor's degrees:

Bachelor's degree in Automation and Industrial Electronic and Mechanical

Mechatronics, as this discipline is known, aims to endow products and materials with intelligence. All "smart" products require materials, components, etc. that incorporate sensors, actuators, communications that provide them with intelligence within more complex systems.

The degree in Automation and Industrial Electronic Engineering provides the training necessary for the application of electronic and microelectronic devices to the automation of production processes.

The Bachelor's Degree in Mechanical Engineering provides the training necessary to create a design which solves existing problems, to know and select the ideal materials, plan the manufacturing and control the quality of the product obtained considering, while at the same time taking into account its environmental impact.

That is why engineers graduating with these two degrees are capable of taking on the design, assembly, manufacture, production, implementation and planning of systems, projects, quality control, commercialization, processes and machinery in sectors that combine mechanics, electronics, computing and automation.

TEACHING PROPOSAL

After graduating, you will:

1. Be proficient in materials technology related to design, development and production of mechanical systems and structures, machines and thermal motors ..., and also technologies related to automation and industrial electronics, as well as industrial electronics, production and company management and organization.
2. Analyze, diagnose and solve automation and industrial electronics and mechanical engineering problems with a high degree of professionalism.
3. Collect and interpret relevant data on automation, and industrial electronics, and mechanical engineering through measurements, calculations and simulations to provide judgments, studies or reports.
4. Write and direct projects in the field of mechanical engineering, automation, and industrial electronics according to specifications, regulations and standards, as well as to communicate information, ideas, problems, and solutions to the audience effectively.
5. Develop a degree of autonomy that will allow them to undertake high-level specialized studies, and subsequent further learning.

CAREER OPTIONS

Design, analysis, projection, and maintenance of electronic and microelectronic systems.

Management and commercial organization of electronic product and system companies.

Control of electric machines, as well as electric drives.

Creation, design, manufacturing, and maintenance of instrumentation systems, automatons and robots.

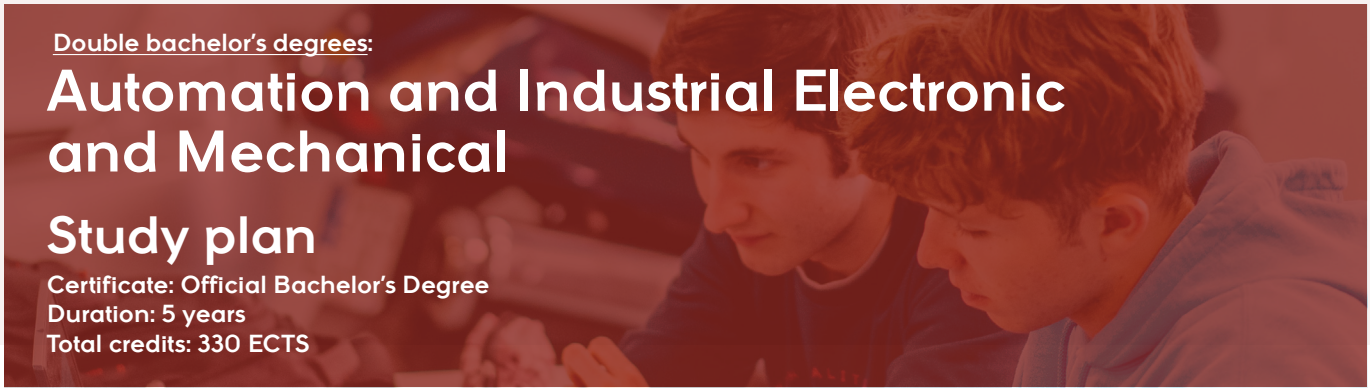
Construction, assembly and maintenance of any industrial installation in the mechanical and thermal area.

Design and testing of new products or machine parts using CAD programs.

Study using finite elements and CAE programs, simulations and the manufacture of special and prototype pieces.

Programming of robots and obtaining numerical control programs using CAM systems.

Consultancy, logistics, management, organisation of production, planning, quality, facilities, environmental consultancy services and sales in companies operating in this field.



Double bachelor's degrees:

Automation and Industrial Electronic and Mechanical

Study plan

Certificate: Official Bachelor's Degree
Duration: 5 years
Total credits: 330 ECTS

	1st Year	2nd Year	3rd Year	4th Year	5th Year	TOTAL (ECTS)
Basic Training (FB)	54	6	-	-	-	60
Compulsory (OB)	6	54	60	48	24 (TFG)	198
Optional (OT)	-	-	6	12	48	72

1st year

1st semestre	FB	Calculus	6
	FB	Physics	6
	FB	Introduction to Business Management	6
	FB	Computer Science	6
	OB	Anthropology	3
	OB	Environmental Engineering	3
2nd semestre	FB	Mathematical analysis	6
	FB	Engineering Design Graphics	6
	FB	Electrical Physics	6
	FB	Chemistry	6
	FB	Applied Mathematics	6

2nd year

1st semestre	OB	Organización de empresas	3
	OB	Sistemas electrónicos	7
	OB	Estadística	6
	OB	Teoría de máquinas y mecanismos	7
	OB	Automatismos y métodos de control industrial	7
	OB	Sistemas de producción industrial	3
2nd semestre	OB	Ciencia y tecnología de materiales	6
	OB	Fundamentos de ingeniería térmica y fluidos	6
	OB	Teoría de circuitos	6
	OB	Oficina técnica y gestión de proyectos	6
	OB	Resistencia de materiales	6
	OB	Verdad, bondad y belleza	3

3rd year

1st semestre	OB	Electronic technology	3
	OB	Digital electronics and microprocessors	3
	OB	Electronic engineering project I	9
	OB	Electrotechnics	6
	OB	Automatic control	6
	OB	Language (English or German)	6
2nd semestre	OB	Industrial computing and communications	3
	OB	Industrial automation	6
	OB	Power electronics	9
	OB	Electronic instrumentation	3
	OB	Electronic engineering project II	6
	OB	Manufacturing processes	6

4th year

1st semestre	OT	Industrial communications	6
	OB	Mechanical technology	6
	OB	Advanced engineering design graphics	6
	OB	Fluids and thermal engineering	6
	OB	Elasticity	6
2nd semestre	OB	Design of machines and mechanisms	6
	OB	Theory of structures and industrial constructions	6
	OB	Heat engines and motors	6
	OT	Work Placement	12
An	OB	Mechanical engineering projects	6

5th year

OB	Bachelor's Degree Final Project	24
OT	Electronical optional credits	24
OT	Mechanical optional credits	24

Optional credits

	Industrial Electronics and Automation Block	
OT	Advanced control techniques	6
OT	Industrial internet of things	6
OT	Industrial electronics applications	6
OT	Signal processing and data analysis	6
OT	Information and communications technology	6
OT	Robotic systems	6
OT	Advanced robotics	6
	Mechanical Block	
OT	Information systems for design and manufacture	6
OT	CNC Manufacture and simulation	6
OT	Advanced manufacturing methods	6
OT	Design of hydraulic and HVAC installations	6
OT	Quality control and management systems	6
OT	Product ecodesign and carbon footprint	6
OT	Computer-Aided Engineering (CAE)	6
OT	Material selection for design	6
OT	Advanced strength of materials	6
OT	Mechanical design and virtual reality	6
	Didactic Block	
OT	Didactics in electronic engineering	6
OT	Didactics in mechanical engineering	6

*A minimum of 20% of the degree's subjects are offered in English