

Mechanical Engineering

Study plan

Qualification: Official Bachelor's Degree

Duration: 4 years

Total credits: 240 ECTS

	1st year	2nd year	3rd year	4th year	TOTAL (ECTS)
Basic Training (FB)	54	6	-	-	60
Compulsory (OB)	6	54	60	12	132
Optional (OT)	-	-	-	48	48

		ECTS
1st period	FB Physics	8
	FB Mathematics	7
	FB Computer Science	6
	FB Introduction to Business Management	6
	OB Anthropology	3
2nd period	FB Chemistry ¹	6
	FB Calculus	8
	FB Engineering Design Graphics	6
	FB Electrical Physics	7
	OB Environmental Engineering ¹	3

		ECTS
1st period	OB Business Organization	3
	OB Electrical and Electronic Technology	7
	FB Statistics	6
	OB Theory of Machines and Mechanisms	7
	OB Automation and Industrial Control Methods ¹	7
2nd period	OB Materials Science and Technology ¹	6
	OB Fundamentals of Thermal and Fluid Engineering	6
	OB Circuit Theory	6
	OB Technical Office and Project Management	6
	OB Strength of Materials ¹	6

		ECTS
1st period	OB Elasticity ²	6
	OB Industrial Manufacturing Systems	3
	OB Mechanical Technology	6
	OB Advanced Engineering Design Graphics	6
	OB Fluids and Thermal Engineering	6
2nd period	OB Truth, Kindness and Beauty	3
	OB Design of Machines and Mechanisms	6
	OB Theory of Structures and Industrial Constructions	6
	OB Heat Engines and Motors	6
	OB Manufacturing Processes	6
Year	OB Mechanical Engineering Projects	6

OB	Bachelor's Degree Final Project	12
OT	Work Placement	12
OT	Foreign Language (English)	6
OT	Foreign Language (German)	6

4th YEAR SPECIALIZATIONS:

SPECIALIZATION: Industrial Processes

		ECTS
OT	Advanced Manufacturing Methods ²	6
OT	Information Systems for Design and Manufacture	6
OT	CNC Manufacture and Simulation	6
OT	Automation of Industrial Processes	6
OT	Design of Hydraulic and HVAC Installations	6
OT	Product Ecodesign and Carbon Footprint ²	6
OT	Quality Control and Management Systems	6

SPECIALIZATION: Integrated Design

		ECTS
OT	Mechanical Design and Virtual Reality ²	6
OT	Computer-Aided Engineering (CAE) ²	6
OT	Material Selection for Design	6
OT	Advanced Strength of Materials	6
OT	Quality Control and Management Systems	6
OT	Product Ecodesign and Carbon Footprint ²	6
OT	Design of Hydraulic and HVAC Installations	6

(1) Tuition in English available
(2) Tuition only in English



AQU Catalunya registered on EQAR

Pre-enrolment code: 21026

Vacancies: 40

BACHELOR'S DEGREE IN MECHANICAL ENGINEERING

DESCRIPTION

As a graduate in Mechanical Engineering you will specialise in the manufacturing of industrial-related products (machinery, structures, auto parts, etc.), taking into account the need for a design which surpasses existing problems, know and choose the ideal materials, plan the manufacturing, and control the quality of the finished product, while at the same time taking into account its environmental impact. You will conduct this process thanks to a series of advanced simulation tools for circuits, computer - assisted 3D designs, numerical

simulations, and simulations of computer-assisted manufacturing (CAM) processes. You will also be capable of organising and directing the production of a company and its commercial and technical sectors, as well as being officially recognised as having the professional attributes of a Technical Industrial Engineer.

This bachelor's degree has been officially recognised as having the professional attributes of a Technical Industrial Engineer. (AQU) (2500896-70106-17).

TEACHING PROPOSAL

After graduating, you will:

- 1 Be proficient in science and material technology, technologies related to design, development and production of mechanical systems and structures, machines and thermal motors...
- 2 Analyze, diagnose and solve mechanical engineering problems in real professional environments.
- 3 Collect and interpret relevant data on mechanical engineering, through measurements, calculations and simulations to provide judgments, studies or reports.
- 4 Write and direct projects in the field of mechanical engineering, in compliance with the mandatory specifications, regulations and rules.
- 5 Develop a degree of autonomy that will allow them to undertake high-level specialized studies, and subsequent further learning.

CAREER OPTIONS

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, organization of production, planning, quality, facilities, environmental consultancy services and sales in companies operating in this field.