

# 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)
<b>Basic Training (FB)</b>	54	6	-	-	<b>60</b>
<b>Compulsory (OB)</b>	6	54	60	12	<b>132</b>
<b>Optional (OT)</b>	-	-	-	48	<b>48</b>

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

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

## 4th YEAR SPECIALIZATIONS:

### SPECIALIZATION: Industrial Processes

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

### SPECIALIZATION: Integrated Design

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

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

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

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

## 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).

#### Degree Indicators:

Academic performance:	77,0%
Graduation rate:	31,6%
Dropout rate:	36,4%
Satisfaction rate:	8,0
Occupancy rate:	93,3%

## 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.