Institutionally accredited
AINST-08070106-23
AQU Catalunya registered on EQAR

Pre-enrolment code: 21132

Vacancies: 50

Bachelor's degree in Automotive Engineering

This bachelor's degree will train you as an engineering professional capable of contributing to the improvement of the competitiveness of businesses from the automotive sector both comprehensively and holistically. You will be prepared to work across the value chain, especially in the areas of design, development, manufacturing and distribution logistics.

You also will be able to collaborate both in a big automobile manufacturer, and in the associated auxiliary industry, so that you will contribute to successfully achieving the main future challenges of this industry: digitalization, also known as Industry 4.0, vehicles running on alternative energy sources, connected vehicles and self-driving cars.

TEACHING PROPOSAL

After graduating, you will:

1. **Apply engineering and industry basic principles to the mobility and automotive sector.**
2. **Apply advanced manufacturing principles, processes, structural design of the vehicle, mechanical resistance, dynamic response and vibration, aerodynamics, component and vehicle electrical and electronic engineering, machines and engines, and power electronics.**
3. **Draft, develop and manage vehicle projects and their subsystems, as well as their corresponding manufacturing facilities, according to the legislation in force, applying quality principles and methods, considering their environmental impact and sustainability.**

CAREER OPTIONS

Develop and direct design and system integration projects in manufacturers of the automotive and vehicles sector in general, ancillary components industry and vehicle competitions.

Develop and manage manufacturing, logistics, test, quality control and maintenance projects in manufacturers of the automotive and vehicles sector in general, and the ancillary components industry.

Direct the production, quality control and logistics of a production plant of vehicles and components.

Develop consultancy in automotive engineering projects.

Technical personnel in the public administration with expertise in automotive and mobility.

Automotive

Study plan

Certificate: 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	18	138
Optional (OT)	-	-	-	42	42

1

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

2

1st semestre	OB	Business organization	3
	OB	Electronic systems	7
	FB	Statistics	6
	OB	Theory of machines and mechanisms	7
	OB	Automation and industrial control methods	7
2nd semestre	OB	Materials science and technology	6
	OB	Fundamentals of thermal and fluid engineering	6
	OB	Circuit theory	6
	OB	Technical office an project management	6
	OB	Strenght of materials	6

3

1st semestre	OB	Elasticity	6
	OB	Industrial manufacturing systems	3
	OB	Automotive aerodynamics	3
	OB	Automotive electronics	6
	OB	Dynamics and vibrations	6
	OB	Mechanical automotive subsystems	3
2nd semestre	OB	Structural vehicle design	3
	OB	Manufacturing processes	6
	OB	Heat and hybrid engines	6
	OB	Electric motors and power electronics	9
	OB	Truth, kindness and beauty	3
Annual	OB	Automotive engineering projects	6

4

OB	Bachelor's Degree Final Project	12
OT	Optimization of vehicle dynamic behaviour	6
OT	Race car aerodynamics	6
OT	Mobility science	6
OT	Autonomous driving and connected vehicles	6
OT	Occupant and automotive safety	6
OT	Race engineering and data analisys	6
OT	Data acquisition systems	6
OT	Didactics in automotive engineering	6
OT	Language - English	6
OT	Language - German	6

4th YEAR SPECIALISATIONS:

Specialisation in Automotive Manufacturing

OB	Supply chain management	6
OB	Robotic systems	6
OT	Product and process engineering	6
OT	Quality control and management systems	6
OT	Industrial automation	6
OT	Sustainable vehicles	3
OT	Electrical energy storage	3
OT	Work placement	12

Dual Specialisation

OT	Internship I	18
OT	Internship II	18
OT	Optional subject 1st semester*	6
OT	Vehicle intelligent subsystems	6
OB	Bachelor's Degree Final Project	12

*To be defined during the development of the formative project.
**A minimum of 20% of the degree's subjects are offered in English