Institutionally accredited

AQU Catalunya registered on EQAR

Pre-enrolment code: 21127

Vacancies: 30

Bachelor's degree in Engineering Renewable Energies and Energy Efficiency

You will become an engineer capable of designing renewable energy systems and have skills needed to use energy efficiently in order to minimize any environmental impacts.

As a graduate in Renewable Energy and Energy Efficiency, you will discover current renewable energy sources, such as hydrolic, eolic, photovoltaic, geothermal, solar thermal, concentrated solar power (CSP) and biomass. What is more, you will be oriented towards the search of new clean energy sources and the technologies they may imply, in order to design, implement and maintain energy systems producing electricity and related to the network, transport and storage of electrical energy, thereby providing solutions which can optimize the process with ways to economize and efficiently use energy.

Our engineers are trained in the most advanced fields: intelligence of microgrids, Internet of things, electric vehicles, micro energies and harvesting.

TEACHING PROPOSAL

After graduating, you will:

1. Apply advanced principles of machines and electrical installations, power electronics, automatic regulation, instrumentation, as well as define energy-efficiency features of buildings and installations.
2. Know the nature of wind, water resources, biomass and solar energy.
3. Design renewable energy systems.
4. Write, develop and manage energy generation and efficiency projects in conformity with the legislation in force, quality methods and taking into account the environmental impact and sustainability.
5. Develop a degree of autonomy that will allow them to undertake high-level specialized studies, and subsequent further learning.

CAREER OPTIONS

Electricity production center projects design and implementation based on renewable energies.

Design, implementation, rehabilitation and maintenance of efficient facilities.

Energy efficiency and resource optimization consultancy; environmental, economic and social impact studies.

Collaboration with companies that produce renewable energy, distribute and commercialize energy.

Technical personnel in the public administration with expertise in renewable energies and energy efficiency.

Renewable Energies and Energy Efficiency

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	12 (TFG)	132
Optional (OT)	-	-	-	48	48

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

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1st semester	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 semester	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

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1st semester	OB	The energy market and energy management	3
	OB	The internet of things for energy systems	6
	OB	Solar energy	6
	OB	Electrical machines	6
	OB	Controls systems	6
	OB	Electrical energy generation	3
2nd semestre	OB	Truth, kindness and beauty	3
	OB	Wind and biomass energy	6
	OB	Energy efficiency	6
	OB	Power electronics	9
	OB	Engineering projects	6

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OB	Bachelor's Degree Final Project	12
OT	Sustainable vehicles	3
OT	Electrical energy storage	3
OT	Hydraulic, geothermal and tidal energy	6
OT	Microenergies and harvesting	6
OB	Smart buildings	6
OT	Didactics in renewable energies	6
OT	Language - English	6
OT	Language - German	6

4th YEAR SPECIALISATIONS:

Specialisation in Electrical Engineering

OT	Industrial production systems	3
OT	Low voltage electrical installations	6
OT	Electrical power systems	6
OT	Medium and high voltage electrical installations	9
OB	Thermal installations in buildings	6
OT	Distributed energy generation	6
OT	Work placement	12

Dual Specialisation

OT	Internship I	18
OT	Internship II	18
OT	Optional subject 1st semester*	6
OT	Optional subject 2nd semester*	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