Bachelor's degree in Audiovisual Systems Engineering

The **bachelor's degree in Audiovisual Systems Engineering** provides the necessary cross-disciplinary skills to conceive, design, implement and operate products, systems and services in the field of audiovisual systems engineering, particularly acoustics, image, audio, video and multimedia. You will tackle the fundamentals and applications of audio, video and multimedia systems and acquire techniques for the analysis and synthesis of electrical and electronic circuits and digital and analogue communications. You will specialise in acoustics and sound systems, digital signal processing, communication systems, electronic equipment and devices and multimedia techniques.

GENERAL DETAILS

Duration
4 years

Study load
240 ECTS credits (including the bachelor's thesis). One credit is equivalent to a study load of 25-30 hours.

Delivery
Face-to-face

Language of instruction

Check the language of instruction for each subject (and timetable) in the course guide in the curriculum.

Information on language use in the classroom and students' language rights.

Fees and grants
Approximate fees per academic year: €1,107 (€2,553 for non-EU residents). Consult the public fees system based on income (grants and payment options).

Location
Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

Official degree
Recorded in the Ministry of Education's degree register

ADMISSION

Places
60

Registration and enrolment
What are the requirements to enrol in a bachelor's degree course?

Legalisation of foreign documents
All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Design and development of audio and video capture, processing, transmission and reception systems.
- Maintenance of television, audio and video systems, equipment, headers and installations.
- Maintenance of electronic and computer equipment for the audiovisual sector.

- Development of storage, management, transmission and dissemination systems for audiovisual content.
- Creation, programming, management and dissemination of multimedia applications and content following usability and accessibility criteria.
- Design and development of acoustic engineering projects: acoustic design, PA systems, measuring systems, noise and vibration analysis and control, and environmental and underwater acoustics.
- Freelance work: consultancy and advisory services.
- Teaching and research.

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

Academic calendar

General academic calendar for bachelor's, master's and doctoral degrees courses

Academic regulations

Academic regulations for bachelor's degree courses at the UPC

Language certification and credit recognition

Queries about language courses and certification

Terrassa School of Industrial, Aerospace and Audiovisual Engineering (ESEIAAT)

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Algebra	6	Compulsory
Calculus	6	Compulsory
Environmental Technologies and Sustainability	6	Compulsory
Foundations of Computing	6	Compulsory
Physics I	6	Compulsory
SECOND SEMESTER		
Data Structures and Object Orientation	6	Compulsory
Digital Electronics	6	Compulsory
Electronic Devices and Circuits	6	Compulsory
Fourier Analysis and Differencial Equations	6	Compulsory
Physics II	6	Compulsory
THIRD SEMESTER		
Analogue Electronics	6	Compulsory
Data Bases	6	Compulsory
Economics and Business Administration	6	Compulsory
Probability and Stochastic Processes	6	Compulsory
Signals and Systems	6	Compulsory
FOURTH SEMESTER		
Acoustics I	6	Compulsory
Analogue and Digital Communications	6	Compulsory

Subjects	ECTS credits	Type
Control and Guidance of Mobile Robots	6	Optional
Digital Processors	6	Compulsory
Foundations of Telematic Networks	6	Compulsory
Implementation of Audiovisual Systems	6	Compulsory
Uav Research & Development	3	Optional
Uav Research & Development Project	3	Optional
FIFTH SEMESTER		
Audiovisual Signal Management and Distribution	6	Compulsory
Digital Audio Processing	6	Compulsory
Digital Image Processing	6	Compulsory
Sound Equipment	6	Compulsory
Telematic Applications and Services	6	Compulsory
SIXTH SEMESTER		
Acoustics II	6	Compulsory
Advanced Programming Oriented Towards Goals	3	Optional
Algorithms and Audiovisual Programming	6	Compulsory
Autonomous Vehicle Programming	3	Optional
Big Data Tools and Applications	3	Optional
Creative Lab	6	Optional
Creative Programming with Processing	3	Optional
Critical Thinking for 3D Printing	6	Optional
Decision Criteria - Engineer as Employee or Engineer as Entrepreneur	3	Optional
Energy Efficiency Systems	3	Optional
Experimental Design	3	Optional
Fundamentals of Robotics	3	Optional
Highly Automated Production Systems	3	Optional
Hospital Engineering	6	Optional
Information and Communication Technology	3	Optional
Introduction to Big Data	3	Optional
Introduction to Dynamical Systems and Ergodic Theory	3	Optional
Introduction to Forensic Expert for Technique Dispute Resolution	3	Optional
Introduction to Object-Oriented Programming	3	Optional
Introduction to Reverse Engineering	3	Optional
Leadership and Professional Development in Engineering	3	Optional
Mathematical Models in Engineering	3	Optional
Mathematics and Computing Engineering	3	Optional
Mobile Programming	6	Optional
Motorbikes Design and Secrets	3	Optional

Subjects	ECTS credits	Type
Multimedia Encoding	6	Compulsory
Professional Communication for Engineers Through Virtual Reality	3	Optional
Real-Time Programming and Database Systems	3	Optional
Robotics and Automation	3	Optional
Surface Chemistry for Industrial Applications Design	3	Optional
Transmitters and Receivers	6	Compulsory
Uav Generative Design	6	Optional
Validating and Communicating Innovative Ideas	6	Optional
Vibroacoustics	3	Optional
Video Equipment	6	Compulsory
Web Applications	3	Optional
Written Academic Skills for Engineering	3	Optional
SEVENTH SEMESTER		
Advanced Programming	6	Optional
Audio and Video Production	6	Optional
Computer Vision	6	Optional
Engineering Project Design	6	Compulsory
Initiation to Paper and Graphic Industrial Tecnologies	6	Optional
Internship	12	Optional
Modelisation, Complexity and Sustainability	6	Optional
Multimedia Content	6	Compulsory
Programming of Mobiles Android	6	Optional
Quality Measurement of Audio-Visual Signals	6	Optional
Speech Technology	6	Optional
EIGHTH SEMESTER		
Agrivoltaics: Photovoltaic Solar Energy for Sustainable Development	3	Optional
Application of Python/Matlab/C++ to Thermal Engineering Mechanical and Aeronautical Problems	3	Optional
Applied Research Methods in Engineering Science	3	Optional
Basic Robotics	6	Optional
Digitalization Applied to Energy Systems	3	Optional
Electrical Project Design with Eplan	3	Optional
Fundamentals of Rams Engineering in the Certification of Aerospace Products	3	Optional
Hydraulic Hybrid Machines	3	Optional
Hydrogen's Future: Technologies and Applications	3	Optional
Interactive Electronic Musical Systems	6	Optional
Introduction to Robotics and Automation	3	Optional
Life Cycle Assessment	3	Optional
Multimedia Communications	6	Optional

Subjects	ECTS credits	Type
Numerical Methods for Engineers	6	Optional
Photonics. Optics Applied to Engineering	6	Optional
Professional Communication for Engineers Through Virtual Reality II	3	Optional
R&D in Engineering	3	Optional
Sports Engineering	3	Optional
Technological Projects I	6	Optional
Technological Projects II	6	Optional
Technology, Society and Globalization: the Sustainability Challenge in the XXIth Century	6	Optional
Thermal Analysis Techniques Applied to Engineering Materials	3	Optional
UAV Introduction to Drone Flight (Uas)	3	Optional
Bachelor's Thesis	24	Project