

Bachelor's degree in Aerospace Technology Engineering + master's degree in Aerospace Engineering. Sequential academic programme (PARS): Aerospace Engineer

TERRASSA SCHOOL OF INDUSTRIAL, AEROSPACE AND AUDIOVISUAL ENGINEERING (ESEIAAT)

The **bachelor's degree in Aerospace Technology Engineering** provides solid multidisciplinary training in aerospace engineering. On the degree, you will acquire the versatility to adapt to new situations and assimilate future technological developments in the aerospace industry. Your career may involve any area related to aircraft and space vehicles, including their design, construction, operation and maintenance and the infrastructure needed for them to operate. You may also work in airport planning and construction projects, aeronautical company management, environmental and renewable energy projects, and aeronautics and space research.

GENERAL DETAILS

Duration

4 academic years (bachelor's) + 2 academic years (master's). Students can take this specific pathway to earn a bachelor's degree and a master's degree in less time if the programme they are taking allows it.

Study load

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

Delivery

Face-to-face

Admission mark 2025-2026 academic year

12,936

Timetables

The degree is taught in the mornings. Subjects may be repeated the following semester in the afternoons.

Language of instruction

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

Information on [language use in the classroom and students' language rights](#).

Fees and grants

Approximate fees per academic year: €1,061 (€1,800 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 Science, Innovation and Universities](#)

ADMISSION

Places

60

Pre-enrolment code

Places via a change of degree

3

Admission mark 2025-2026 academic year12,936. [Admission mark](#)**Weighting. University entrance examinations (PAU)**[Weighting. University entrance examinations \(PAU\)](#)**Registration and enrolment**[What are the requirements to enrol in a bachelor's degree course?](#)**CFGS credit transfer**[Consult the university studies search engine of the Universities Channel of the Generalitat de Catalunya](#)**Legalisation of foreign documents**All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).**CURRICULUM**

Subjects	ECTS credits	Type
FIRST SEMESTER		
Algebra	6	Compulsory
Business	6	Compulsory
Calculus I	6	Compulsory
Informatics	6	Compulsory
Physics I	6	Compulsory
SECOND SEMESTER		
Airspace, Air Navigation and Infrastructure	4.5	Compulsory
Calculus II	6	Compulsory
Chemistry	6	Compulsory
Engineering Drawing	7.5	Compulsory
Physics II	6	Compulsory
THIRD SEMESTER		
Aerospace Vehicles	6	Compulsory
Further Mathematics	6	Compulsory
Physics III	6	Compulsory
Statistics	6	Compulsory
Thermodynamics	6	Compulsory
FOURTH SEMESTER		
Electrical Circuits	6	Compulsory
Fluid Mechanics	7.5	Compulsory
Materials Science	7.5	Compulsory
Mechanics	4.5	Compulsory
Propulsion Systems	4.5	Compulsory
FIFTH SEMESTER		

Subjects	ECTS credits	Type
Aerodynamics	6	Compulsory
Automatic Control	4.5	Compulsory
Electronic Circuits	6	Compulsory
Mechanics II	6	Compulsory
Structural Theory	7.5	Compulsory
SIXTH SEMESTER		
Aerospace Structures	7.5	Compulsory
Avionics	4.5	Compulsory
Flight Mechanics	6	Compulsory
Gas Dynamics and Heat and Mass Transfer	6	Compulsory
Propulsion	6	Compulsory
Advanced Fluid Mechanics	3	Optional
Advanced Object-Oriented Programming	3	Optional
Air Pollution and Treatment Technologies	6	Optional
Android Mobile Programming	6	Optional
Applied UAV Control	3	Optional
Autonomous Vehicle Programming	3	Optional
Aviation Meteorology	3	Optional
Basic Robotics	6	Optional
Big Data Tools and Applications	3	Optional
BIM for Engineers	3	Optional
Building Energy Certification	3	Optional
Control and Guidance of Mobile Robots	6	Optional
Creative Lab	6	Optional
Creative Programming with Processing	3	Optional
Critical Thinking for 3D Printing	6	Optional
Design, Construction and Testing of Unmanned Aircraft	3	Optional
Electromobility and Electrical Aircraft Systems	3	Optional
Embedded System Programming	3	Optional
Energy Storage and Conversion	3	Optional
Experimental Aerodynamics	3	Optional
Experimental Fluid Laboratories	3	Optional
Finite Element Methods for Engineering	6	Optional
Flight Simulation for Aeronautical Engineering	3	Optional
Fundamentals of Cubesat Mission Design	3	Optional
Fundamentals of Lean Construction and Circular Economy	3	Optional
Generative UAV Design	6	Optional
High Performance Computing for Aerospace Engineering	3	Optional

Subjects	ECTS credits	Type
Highly Automated Production Systems	3	Optional
Hospital Engineering	6	Optional
Introduction to Big Data	3	Optional
Introduction to Cubesats	3	Optional
Introduction to Dynamical Systems and Ergodic Theory	3	Optional
Introduction to Forensic Practice for Technical Dispute Resolution	3	Optional
Introduction to Industrial Paper and Graphics Technologies	6	Optional
Introduction to Lean Construction	3	Optional
Introduction to Object-Oriented Programming	3	Optional
Introduction to Rockets	3	Optional
Key Factors for Professional Success	3	Optional
Leadership and Professional Development in Engineering	3	Optional
Mobile Programming	6	Optional
Modelling, Complexity and Sustainability	6	Optional
Numerical Tools in Machine Learning for Aeronautical Engineering	3	Optional
Planning, Simulation and Supervision of Industrial Processes	6	Optional
Polymers in Engineering	6	Optional
Professional Communication for Engineers Through Virtual Reality	3	Optional
Rethinking Airport Processes	3	Optional
Robotic Exploration of the Solar System	3	Optional
Robotics and Automation	3	Optional
Robotics Safety and Automation for Industry 4.0	3	Optional
Surface Chemistry for Industrial Application Design	3	Optional
Technology, Society and Globalisation. the Sustainability Challenge in the 21st Century	6	Optional
Towards Next Generation Cockpits for Commercial Aircraft	3	Optional
Turbulence in Aerospace Science and Engineering	3	Optional
Validating and Communicating Innovative Ideas	6	Optional
Vibroacoustics	3	Optional
Web Applications	3	Optional
SEVENTH SEMESTER		
Aircraft Design	6	Compulsory
Airport Engineering	7.5	Compulsory
Computational Aerospace Engineering	4.5	Compulsory
Projects	6	Compulsory
Space Engineering	6	Compulsory
EIGHTH SEMESTER		
Academic and Professional Communication Skills	3	Optional
Academic Writing Skills for Engineering	3	Optional

Subjects	ECTS credits	Type
Advanced Control Systems	3	Optional
Agrivoltaics: Photovoltaic Solar Energy for Sustainable Development	3	Optional
Air Navigation, Cartography, and Cosmography	3	Optional
Alternative Propulsion Vehicles	3	Optional
An Introduction to Space Systems	3	Optional
Application of Matlab-Octave to Thermal Engineering Problems	3	Optional
Application of Open-Source Cfd to Engineering Problems	3	Optional
Application of Python/Matlab/C++ to Thermal, Mechanical and Aeronautical Engineering Problems	3	Optional
Applied Research Methods in Engineering Science	3	Optional
Artificial Intelligence for UAV Video Object Recognition	3	Optional
Artificial Intelligence for Video and Audio Generation	3	Optional
Automobile Electronics	3	Optional
BIM Management	3	Optional
Characterisation of Materials and Surface Engineering	3	Optional
Characterisation Techniques for Metal Alloys	3	Optional
Complex Systems in Engineering	3	Optional
Decision Criteria: the Engineer as Employee or the Engineer as Entrepreneur	3	Optional
Design, Construction and Testing of Model Aerostructures	3	Optional
Digitalisation for Energy Systems	3	Optional
Electrical Project Design with Eplan	3	Optional
Energy Efficiency Systems	3	Optional
Engineering Materials: Learning from Disasters	3	Optional
Engines and Powertrains	3	Optional
Experimental Design	3	Optional
Experimental Methods for New and Sustainable Materials	3	Optional
Finite Elements in Structural Analysis	3	Optional
Fluid Dynamic Technologies in Vehicles	3	Optional
Fluid Mechanics II	3	Optional
Fundamentals of Rams Engineering in Aerospace Product Certification	3	Optional
Fundamentals of Robotics	3	Optional
Hydraulic Hybrid Machines	3	Optional
Industrial Organic Chemistry	3	Optional
Information and Communication Technologies	3	Optional
Innovation and Creativity: Tools for Engineering	3	Optional
International Promotion of Design	6	Optional
Introduction to Advanced Control Systems	6	Optional
Introduction to Reverse Engineering	3	Optional
Introduction to Robotics and Automation	3	Optional

Subjects	ECTS credits	Type
Introduction to Sailplanes	3	Optional
Introduction to UAV Flight	3	Optional
Knowledge of Aerospace Companies and Professional Practice	3	Optional
Lasers and Photonic Technologies for Engineering	3	Optional
Learning from Mechanical Failure in Engineering	3	Optional
Life Cycle Assessment	3	Optional
Lightweight Materials for Engineering Applications	3	Optional
Lignocellulosic Biorefineries	3	Optional
Materials Chemistry	3	Optional
Mathematical Models in Engineering	3	Optional
Mathematics and Informatics Engineering	3	Optional
Mechanical Optimisation and Automotive Manufacturing	3	Optional
Mechanics of Robotic Manipulation	3	Optional
Motorbikes. Design and Secrets	3	Optional
Non-Linear Systems, Chaos and Control in Engineering	3	Optional
Numerical Optimisation with Applications in Machine Learning and Aeronautical Engineering	3	Optional
Optimisation of Industrial Processes	3	Optional
Photography for Science and Technology	3	Optional
Plug-In Hybrid Electric Vehicles. Concept and Design of Electric Propulsion Systems	3	Optional
Professional Communication for Engineers Through Virtual Reality II	3	Optional
R&D in Engineering	3	Optional
Real-Time Programming and Databases	3	Optional
Solving Thermofluid Problems in Industrial and Aeronautical Systems and Equipment	3	Optional
Sports Engineering	3	Optional
Structural Analysis of Cubesats: Will IT Withstand Launch Conditions?	3	Optional
Sustainability in the Built Environment	3	Optional
Sustainable Manufacturing Technologies	3	Optional
Technological Projects I	6	Optional
Technological Projects II	6	Optional
Telemetry and Smart Electronics Projects	3	Optional
The Future of Hydrogen: Technologies and Applications	3	Optional
Thermal Analysis Techniques for Engineering Materials	3	Optional
Thermodynamics of Materials	3	Optional
UAV Fundamentals and Operations	3	Optional
UAV Guidance and Autonomous Control	3	Optional
UAV Hardware and Programming	3	Optional
UAV Research and Development	3	Optional
UAV Research and Development Project	3	Optional

Subjects	ECTS credits	Type
UAV Sensors and Applications	3	Optional
Unit Operations in Engineering	3	Optional
Vehicle Dynamics	3	Optional
Wind Turbine Design	3	Optional
Bachelor's Thesis	12	Project

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Design, manufacture, maintenance and operation of aerospace vehicles (aircraft and spacecraft) and aeronautical engineering works.
- Planning, construction and management of airport infrastructure.
- Control and supervision of ground facilities, airport terminals, signalling systems and structures used in air navigation.
- Management of aeronautical companies.
- Management of environmental and security projects related to relevant areas of expertise.
- Teaching and research.

DOUBLE-DEGREE AGREEMENTS

With other universities or centers of higher education in Catalonia

- Bachelor's degree in Aerospace Technology Engineering + Master's degree in Aeronautical Engineering + Bachelor's degree in Business Administration and Management (UOC)
- Bachelor's degree in Aerospace Technology Engineering + Master's degree in Aeronautical Engineering + Bachelor's degree in Economics (UOC)

Further information on [this website](#)

Within the framework of the courses offered by the Interdisciplinary Higher Education Centre (CFIS)

You can also take an interdisciplinary double degree coordinated by the CFIS at two UPC schools.

Further information on the [CFIS website](#)

QUALITY ACCREDITATION

Check the degree's main quality indicators in the University Studies in Catalonia portal of the Catalan University Quality Assurance Agency. Find information on topics such as degree evaluation results, student satisfaction and graduate employment data.

[Further information](#)

ACADEMIC ORGANISATION

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 Universitat Politècnica de Catalunya \(UPC\).](#)

Language certification and credit recognition

Queries about [language courses and certification](#)