

Master's degree in Aerospace Engineering

The **master's degree in Aerospace Engineering** aims to provide multidisciplinary training in science and technology based on a broad approach to aeronautical engineering.

Specialisations

- Aerospace Vehicles
- Airports
- Propulsion
- Space

GENERAL DETAILS

Duration and start date

Two academic years, 120 ECTS credits. Starting September and February

Timetable and delivery

Mornings and afternoons. Face-to-face

Fees and grants

Approximate fees for the master's degree, excluding degree certificate fee, €5,300 (€7,950 for non-EU residents).

[More information about fees and payment options](#)

[More information about grants and loans](#)

Language of instruction

The first year is taught in Catalan; the second year in English.

Location

[Terrassa School of Industrial, Aerospace and Audiovisual Engineering \(ESEIAAT\)](#)

Official degree

[Recorded in the Ministry of Education's degree register](#)

ADMISSION

General requirements

[Academic requirements for admission to master's degrees](#)

Places

60 in September + 60 in February

Pre-enrolment

Pre-enrolment period open.

[How to pre-enrol](#)

Enrolment

[How to enrol](#)

Legalisation of foreign documents

All documents issued in non-EU countries must be [legalised and bear the corresponding apostille](#).

DOUBLE-DEGREE AGREEMENTS

Double-degree pathways at a single school

- Master's degree in Aeronautical Engineering (any specialisation) (ESEIAAT) / Master's degree in Management Engineering (blended learning)

Further information on [this website](#)

With other Catalan universities

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

Double-degree pathways with universities around the world

- Master's degree in Aeronautics Engineering + one of the following master's degrees from the Cranfield University
 - *Master in Advanced Motorsport Engineering*
 - *Master in Aerospace Computational Engineering*
 - *Master in Aerospace Dynamics*
 - *Master in Aerospace Manufacturing*
 - *Master in Aerospace Materials*
 - *Master in Aerospace Propulsion*
 - *Master in Aerospace Vehicle Design*
 - *Master in Air Transport Management*
 - *Master in Aircraft Design option-Msc in Aerospace Vehicle Design*
 - *Master in Aircraft Engineering*
 - *Master in Airport Planning and Management*
 - *Master in Astronautics and Space Engineering*
 - *Master in Automotive Engineering*
 - *Master in Automotive Mechatronics*
 - *Master in Autonomous Vehicle Dynamics and Control*
 - *Master in Avionic Systems Design option MSc in Aerospace Vehicle Design*
 - *Master in Computational Fluid Dynamics*
 - *Master in Computer Aided Engineering*
 - *Master in Renewable Energy Engineering*
 - *Master in Renewable Energy Technology*
 - *Master in Structural Design option-Msc in Aerospace Vehicle Design*
 - *Master in Thermal Power*

ORGANISATION

UPC school

[Terrassa School of Industrial, Aerospace and Audiovisual Engineering \(ESEIAAT\)](#)

Academic coordinator

[Daniel Garcia Almiñana](#)

Academic calendar

[General academic calendar for bachelor's, master's and doctoral degrees courses](#)

Academic regulations

[Academic regulations for master's degree courses at the UPC](#)

CURRICULUM

Subjects

**ECTS
credits**

Type

FIRST SEMESTER

Subjects	ECTS credits	Type
Aerodynamics, Flight Mechanics and Orbital Mechanics	7	Compulsory
Aerospace Materials	5	Compulsory
Airport Engineering Fundamentals	3	Optional
Design and Behavior of Special Structures	3	Optional
Design and Construction of Airports	7	Compulsory
Fundamentals of Aircraft Design	3	Optional
Fundamentals of Propulsion	3	Optional
Fundamentals of Space Engineering	3	Optional
Geotechnical Engineering	3	Optional
Production and Design Aerospace	5	Compulsory
Project Management Key Agreements & Deals	3	Optional
Propulsion II	3	Optional
Resistant Elements in Aeronautics	3	Optional
Rockets Combustion and Propulsion	5	Compulsory
Specialisation in (Eng) Especialitat Aeroports		
Aerodynamics, Flight Mechanics and Orbital Mechanics	7	Compulsory
Aerospace Materials	5	Compulsory
Airport Engineering Fundamentals	3	Optional
Design and Behavior of Special Structures	3	Optional
Design and Construction of Airports	7	Compulsory
Fundamentals of Aircraft Design	3	Optional
Fundamentals of Propulsion	3	Optional
Fundamentals of Space Engineering	3	Optional
Geotechnical Engineering	3	Optional
Production and Design Aerospace	5	Compulsory
Project Management Key Agreements & Deals	3	Optional
Propulsion II	3	Optional
Resistant Elements in Aeronautics	3	Optional
Rockets Combustion and Propulsion	5	Compulsory

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Espai	Aerodynamics, Flight Mechanics and Orbital Mechanics	7	Compulsory
	Aerospace Materials	5	Compulsory
	Airport Engineering Fundamentals	3	Optional
	Design and Behavior of Special Structures	3	Optional
	Design and Construction of Airports	7	Compulsory
	Fundamentals of Aircraft Design	3	Optional
	Fundamentals of Propulsion	3	Optional
	Fundamentals of Space Engineering	3	Optional
	Geotechnical Engineering	3	Optional
	Production and Design Aerospace	5	Compulsory
	Project Management Key Agreements & Deals	3	Optional
	Propulsion II	3	Optional
	Resistant Elements in Aeronautics	3	Optional
	Rockets Combustion and Propulsion	5	Compulsory
Specialisation in (Eng) Especialitat en Propulsió	Aerodynamics, Flight Mechanics and Orbital Mechanics	7	Compulsory
	Aerospace Materials	5	Compulsory
	Airport Engineering Fundamentals	3	Optional
	Design and Behavior of Special Structures	3	Optional
	Design and Construction of Airports	7	Compulsory
	Fundamentals of Aircraft Design	3	Optional
	Fundamentals of Propulsion	3	Optional
	Fundamentals of Space Engineering	3	Optional
	Geotechnical Engineering	3	Optional
	Production and Design Aerospace	5	Compulsory
	Project Management Key Agreements & Deals	3	Optional
	Propulsion II	3	Optional
	Resistant Elements in Aeronautics	3	Optional
	Rockets Combustion and Propulsion	5	Compulsory

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Vehicles Aeroespacials	Aerodynamics, Flight Mechanics and Orbital Mechanics	7	Compulsory
	Aerospace Materials	5	Compulsory
	Airport Engineering Fundamentals	3	Optional
	Design and Behavior of Special Structures	3	Optional
	Design and Construction of Airports	7	Compulsory
	Fundamentals of Aircraft Design	3	Optional
	Fundamentals of Propulsion	3	Optional
	Fundamentals of Space Engineering	3	Optional
	Geotechnical Engineering	3	Optional
	Production and Design Aerospace	5	Compulsory
	Project Management Key Agreements & Deals	3	Optional
	Propulsion II	3	Optional
	Resistant Elements in Aeronautics	3	Optional
	Rockets Combustion and Propulsion	5	Compulsory
SECOND SEMESTER			
(Ang) Direcció de Projectes d'Aeronaus i Vehicles Aeroespacials		5	Compulsory
(Ang) Sistemes de Propulsió d'Aeronaus		5	Compulsory
Advance Course Heat and Mass Transfer		5	Optional
Advanced Cubesat Mission Design		3	Optional
Advanced Design of the Movement Area		3	Optional
Aerospace Vehicles		7	Compulsory
Agile Methodologies and Processes for the Creation of Innovative Solutions		3	Optional
Air Transport and Navigation Systems		7	Compulsory
Data Mining and Machine Learning for Engineers		3	Optional
Facilities Management		3	Optional
High Performance Computing Projects for Aerospace Engineering		3	Optional
Implementation and Testing of Metaheuristics for Optimization Problems		3	Optional
Infrared Thermography for Building Diagnostics		3	Optional
Introduction to Metaheuristics for Optimization Problems		3	Optional
Introduction to Planetary Atmospheres		3	Optional
Management and Operation of Terminal Buildings		3	Optional
Numerical Methods in Heat and Mass Transfer		5	Optional
Photonics Sensors and Laser Technology		3	Optional
Programming Interfaces and Applications		3	Optional
Radiofrequency and Communication Systems		5	Compulsory
Smart Textiles		3	Optional
Space Resources & Planetary Settlements		3	Optional
Spaceports, Airports for Spaceflights		3	Optional

Subjects	ECTS credits	Type
Turbulence: Phenomenology, Simulation, Aerodynamics	5	Optional
Workshops for Innovation in Automotive Industries	6	Optional
Specialisation in (Eng) Especialitat Aeroports (Ang) Direcció de Projectes d'Aeronaus i Vehicles Aeroespacials	5	Compulsory
(Ang) Sistemes de Propulsius d'Aeronaus	5	Compulsory
Advance Course Heat and Mass Transfer	5	Optional
Advanced Cubesat Mission Design	3	Optional
Advanced Design of the Movement Area	3	Optional
Aerospace Vehicles	7	Compulsory
Agile Methodologies and Processes for the Creation of Innovative Solutions	3	Optional
Air Transport and Navigation Systems	7	Compulsory
Data Mining and Machine Learning for Engineers	3	Optional
Facilities Management	3	Optional
High Performance Computing Projects for Aerospace Engineering	3	Optional
Implementation and Testing of Metaheuristics for Optimization Problems	3	Optional
Infrared Thermography for Building Diagnostics	3	Optional
Introduction to Metaheuristics for Optimization Problems	3	Optional
Introduction to Planetary Atmospheres	3	Optional
Management and Operation of Terminal Buildings	3	Optional
Numerical Methods in Heat and Mass Transfer	5	Optional
Photonics Sensors and Laser Technology	3	Optional
Programming Interfaces and Applications	3	Optional
Radiofrequency and Communication Systems	5	Compulsory
Smart Textiles	3	Optional
Space Resources & Planetary Settlements	3	Optional
Spaceports, Airports for Spaceflights	3	Optional
Turbulence: Phenomenology, Simulation, Aerodynamics	5	Optional
Workshops for Innovation in Automotive Industries	6	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Espai	(Ang) Direcció de Projectes d'Aeronaus i Vehicles Aeroespacials	5	Compulsory
	(Ang) Sistemes de Propulsius d'Aeronaus	5	Compulsory
	Advance Course Heat and Mass Transfer	5	Optional
	Advanced Cubesat Mission Design	3	Optional
	Advanced Design of the Movement Area	3	Optional
	Aerospace Vehicles	7	Compulsory
	Agile Methodologies and Processes for the Creation of Innovative Solutions	3	Optional
	Air Transport and Navigation Systems	7	Compulsory
	Data Mining and Machine Learning for Engineers	3	Optional
	Facilities Management	3	Optional
	High Performance Computing Projects for Aerospace Engineering	3	Optional
	Implementation and Testing of Metaheuristics for Optimization Problems	3	Optional
	Infrared Thermography for Building Diagnostics	3	Optional
	Introduction to Metaheuristics for Optimization Problems	3	Optional
	Introduction to Planetary Atmospheres	3	Optional
	Management and Operation of Terminal Buildings	3	Optional
	Numerical Methods in Heat and Mass Transfer	5	Optional
	Photonics Sensors and Laser Technology	3	Optional
	Programming Interfaces and Applications	3	Optional
	Radiofrequency and Communication Systems	5	Compulsory
	Smart Textiles	3	Optional
Space Resources & Planetary Settlements	3	Optional	
Spaceports, Airports for Spaceflights	3	Optional	
Turbulence: Phenomenology, Simulation, Aerodynamics	5	Optional	
Workshops for Innovation in Automotive Industries	6	Optional	

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Propulsió	(Ang) Direcció de Projectes d'Aeronaus i Vehicles Aeroespacials	5	Compulsory
	(Ang) Sistemes de Propulsius d'Aeronaus	5	Compulsory
	Advance Course Heat and Mass Transfer	5	Optional
	Advanced Cubesat Mission Design	3	Optional
	Advanced Design of the Movement Area	3	Optional
	Aerospace Vehicles	7	Compulsory
	Agile Methodologies and Processes for the Creation of Innovative Solutions	3	Optional
	Air Transport and Navigation Systems	7	Compulsory
	Data Mining and Machine Learning for Engineers	3	Optional
	Facilities Management	3	Optional
	High Performance Computing Projects for Aerospace Engineering	3	Optional
	Implementation and Testing of Metaheuristics for Optimization Problems	3	Optional
	Infrared Thermography for Building Diagnostics	3	Optional
	Introduction to Metaheuristics for Optimization Problems	3	Optional
	Introduction to Planetary Atmospheres	3	Optional
	Management and Operation of Terminal Buildings	3	Optional
	Numerical Methods in Heat and Mass Transfer	5	Optional
	Photonics Sensors and Laser Technology	3	Optional
	Programming Interfaces and Applications	3	Optional
	Radiofrequency and Communication Systems	5	Compulsory
	Smart Textiles	3	Optional
Space Resources & Planetary Settlements	3	Optional	
Spaceports, Airports for Spaceflights	3	Optional	
Turbulence: Phenomenology, Simulation, Aerodynamics	5	Optional	
Workshops for Innovation in Automotive Industries	6	Optional	

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Vehicles Aeroespacials	(Ang) Direcció de Projectes d'Aeronaus i Vehicles Aeroespacials	5	Compulsory
	(Ang) Sistemes de Propulsius d'Aeronaus	5	Compulsory
	Advance Course Heat and Mass Transfer	5	Optional
	Advanced Cubesat Mission Design	3	Optional
	Advanced Design of the Movement Area	3	Optional
	Aerospace Vehicles	7	Compulsory
	Agile Methodologies and Processes for the Creation of Innovative Solutions	3	Optional
	Air Transport and Navigation Systems	7	Compulsory
	Data Mining and Machine Learning for Engineers	3	Optional
	Facilities Management	3	Optional
	High Performance Computing Projects for Aerospace Engineering	3	Optional
	Implementation and Testing of Metaheuristics for Optimization Problems	3	Optional
	Infrared Thermography for Building Diagnostics	3	Optional
	Introduction to Metaheuristics for Optimization Problems	3	Optional
	Introduction to Planetary Atmospheres	3	Optional
	Management and Operation of Terminal Buildings	3	Optional
	Numerical Methods in Heat and Mass Transfer	5	Optional
	Photonics Sensors and Laser Technology	3	Optional
	Programming Interfaces and Applications	3	Optional
	Radiofrequency and Communication Systems	5	Compulsory
	Smart Textiles	3	Optional
	Space Resources & Planetary Settlements	3	Optional
	Spaceports, Airports for Spaceflights	3	Optional
Turbulence: Phenomenology, Simulation, Aerodynamics	5	Optional	
Workshops for Innovation in Automotive Industries	6	Optional	
THIRD SEMESTER			
	Acoustics	3	Optional
	Applications for Planetary Exploration	3	Optional
	Applied Robotics	3	Optional
	Biomedical Instrumentation	3	Optional
	Business Law	3	Optional
	Computational Engineering	5	Compulsory
	Demolitions and Soil Preparation	3	Optional
	Design and Use of Uav for Remote Sensing of the Environment	3	Optional
	Designing Innovative Products and Business	3	Optional
	Dynamic Analysis of Structures	3	Optional
	Extension of Space Propulsion	3	Optional
	Fundamentals of Nuclear Engineering	3	Optional

Subjects	ECTS credits	Type
Game Theory	3	Optional
Introduction to Active Flow Control	3	Optional
Mobile Robots	3	Optional
Quality Management	3	Optional
Railway Systems	3	Optional
Research Seminars	3	Optional
Science and Technology Communication Through Media	3	Optional
Structures of New Generation Materials	3	Optional
Surface Engineering	3	Optional
Thermal Turbomachinery and Combustion	3	Optional
Specialisation in (Eng) Especialitat Aeroports Air Transport	5	Compulsory
Airport Building Systems	5	Compulsory
Airport Infrastructure Management	5	Compulsory
Airport Operations	5	Compulsory
Business Management Aeronautics	5	Compulsory
Acoustics	3	Optional
Applications for Planetary Exploration	3	Optional
Applied Robotics	3	Optional
Biomedical Instrumentation	3	Optional
Business Law	3	Optional
Computational Engineering	5	Compulsory
Demolitions and Soil Preparation	3	Optional
Design and Use of Uav for Remote Sensing of the Environment	3	Optional
Designing Innovative Products and Business	3	Optional
Dynamic Analysis of Structures	3	Optional
Extension of Space Propulsion	3	Optional
Fundamentals of Nuclear Engineering	3	Optional
Game Theory	3	Optional
Introduction to Active Flow Control	3	Optional
Mobile Robots	3	Optional
Quality Management	3	Optional
Railway Systems	3	Optional
Research Seminars	3	Optional
Science and Technology Communication Through Media	3	Optional
Structures of New Generation Materials	3	Optional
Surface Engineering	3	Optional
Thermal Turbomachinery and Combustion	3	Optional

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Espai	Astrodynamics	5	Compulsory
	Composite Materials	5	Compulsory
	Hypersonic Aerodynamics	5	Compulsory
	Space Propulsion	5	Compulsory
	Spacecraft Design	5	Compulsory
	Acoustics	3	Optional
	Applications for Planetary Exploration	3	Optional
	Applied Robotics	3	Optional
	Biomedical Instrumentation	3	Optional
	Business Law	3	Optional
	Computational Engineering	5	Compulsory
	Demolitions and Soil Preparation	3	Optional
	Design and Use of Uav for Remote Sensing of the Environment	3	Optional
	Designing Innovative Products and Business	3	Optional
	Dynamic Analysis of Structures	3	Optional
	Extension of Space Propulsion	3	Optional
	Fundamentals of Nuclear Engineering	3	Optional
	Game Theory	3	Optional
	Introduction to Active Flow Control	3	Optional
	Mobile Robots	3	Optional
	Quality Management	3	Optional
	Railway Systems	3	Optional
	Research Seminars	3	Optional
	Science and Technology Communication Through Media	3	Optional
Structures of New Generation Materials	3	Optional	
Surface Engineering	3	Optional	
Thermal Turbomachinery and Combustion	3	Optional	

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Propulsió	Advanced Propulsion	5	Compulsory
	Composite Materials	5	Compulsory
	Extension of Jet Engines	5	Compulsory
	Extension of Rocket Engines	5	Compulsory
	Internal Aerodynamics and Aeroelasticity of Turbomachines	5	Compulsory
	Acoustics	3	Optional
	Applications for Planetary Exploration	3	Optional
	Applied Robotics	3	Optional
	Biomedical Instrumentation	3	Optional
	Business Law	3	Optional
	Computational Engineering	5	Compulsory
	Demolitions and Soil Preparation	3	Optional
	Design and Use of Uav for Remote Sensing of the Environment	3	Optional
	Designing Innovative Products and Business	3	Optional
	Dynamic Analysis of Structures	3	Optional
	Extension of Space Propulsion	3	Optional
	Fundamentals of Nuclear Engineering	3	Optional
	Game Theory	3	Optional
	Introduction to Active Flow Control	3	Optional
	Mobile Robots	3	Optional
	Quality Management	3	Optional
	Railway Systems	3	Optional
	Research Seminars	3	Optional
Science and Technology Communication Through Media	3	Optional	
Structures of New Generation Materials	3	Optional	
Surface Engineering	3	Optional	
Thermal Turbomachinery and Combustion	3	Optional	

Subjects		ECTS credits	Type
Specialisation in (Eng) Especialitat en Vehicles Aeroespacials	Advanced Aerodynamics	5	Compulsory
	Advanced Aeroelasticity	5	Compulsory
	Aerospace Laboratories	5	Compulsory
	Architecture and Aircraft Systems	5	Compulsory
	Composite Materials	5	Compulsory
	Acoustics	3	Optional
	Applications for Planetary Exploration	3	Optional
	Applied Robotics	3	Optional
	Biomedical Instrumentation	3	Optional
	Business Law	3	Optional
	Computational Engineering	5	Compulsory
	Demolitions and Soil Preparation	3	Optional
	Design and Use of Uav for Remote Sensing of the Environment	3	Optional
	Designing Innovative Products and Business	3	Optional
	Dynamic Analysis of Structures	3	Optional
	Extension of Space Propulsion	3	Optional
	Fundamentals of Nuclear Engineering	3	Optional
	Game Theory	3	Optional
	Introduction to Active Flow Control	3	Optional
	Mobile Robots	3	Optional
	Quality Management	3	Optional
	Railway Systems	3	Optional
	Research Seminars	3	Optional
Science and Technology Communication Through Media	3	Optional	
Structures of New Generation Materials	3	Optional	
Surface Engineering	3	Optional	
Thermal Turbomachinery and Combustion	3	Optional	
FOURTH SEMESTER			
	Master's Thesis	12	Project
Specialisation in (Eng) Especialitat Aeroports	Master's Thesis	12	Project
Specialisation in (Eng) Especialitat en Espai	Master's Thesis	12	Project
Specialisation in (Eng) Especialitat en Propulsió	Master's Thesis	12	Project

Subjects	ECTS credits	Type
Specialisation in (Eng) Especialitat en Vehicles Aeroespacials Master's Thesis	12	Project