

# ADVANCED MASTERS IN AEROSPACE ENGINEERING & MANAGEMENT



*Post-graduate Education  
for Aeronautics & Space · 2025*



**Excellence with Passion**

# ISAE-SUPAERO

## A world leader in Aerospace Engineering higher education

### A public institution of higher education and research

At ISAE-SUPAERO, we have developed an integrated approach with training, research, and innovation in partnership with academic players, many industrial stakeholders, and a network of the finest international universities.

Our training and research activities have adopted sustainable development targets, participate in reducing air transport's environmental footprint and thus contribute to the transformation of the aeronautics sector.

The high scientific and technical levels of our multidisciplinary programs prepare future generations of engineers and managers for a wide variety of fields in aeronautics and space, as well as other areas such as autonomous systems, Artificial Intelligence (AI), and energetics innovation...

### The ecological transition at the heart of ISAE-SUPAERO's commitment

We are convinced that Aviation connects people together, that Space is essential for communicating between continents and evaluating the condition of the planet. Both are at the cutting edge of technology, and their progress spills over into many other areas.

This is why we conduct research and train engineers and doctors so they can invent the aeronautics and space of the 21st century, and more generally build the sustainable world of tomorrow.

Aerospace engineers are now taking up a new extraordinary challenge: decarbonizing the aviation sector.

To do so, new air transport systems will have to be invented, combining every aspect of technology and our engineer's creativity.

### A wide range of degrees in aerospace engineering

3	MASTERS PROGRAMS
14	ADVANCED MASTERS PROGRAMS
6	DOCTORAL PROGRAMS (PHD)
17	CERTIFICATES

1897	STUDENTS
40%	OF FOREIGN STUDENTS
65	NATIONALITIES ARE PRESENT ON CAMPUS
30,000	ALUMNI, AN ACTIVE INTERNATIONAL NETWORK

### A campus located in Toulouse, European capital of aeronautics and space

Welcome to an exceptional environment in the heart of Toulouse.

Teaching, living and sports facilities – we have it all.

Wide range of sports facilities: pool, a gym, tennis and squash courts, football and rugby fields, rock climbing walls, fitness center...

6 new student residences: 1,000 lodgings, student accommodation and dining hall.

#### Cutting edge equipment:

- ▶ Autonomous system platform for micro-drones and robots,
- ▶ Flight simulators and neuroergonomics platform,
- ▶ Wind tunnels, aeroacoustics wind tunnel,
- ▶ Satellite command and control center,
- ▶ Fleet of 8 Aircraft...

- ▶ Nearly 90,000 employees in aeronautics and space, in Occitanie region
- ▶ Toulouse, one of the most attractive city for students in France

Discover videos of our equipment



The ISAE-SUPAERO Toul'box

A student welcome kit to make life easier right from day one: formalities, setting up a bank account, housing, language courses, cultural activities-find out all you need to know and get started right away!

ISAE-SUPAERO is awarded a ★★ certification which demonstrates the quality of its hosting facilities.





# 7 REASONS TO CHOOSE an ISAE-SUPAERO Advanced Master's program

The «MASTÈRE SPÉCIALISÉ®» is a collective trademark and label owned by the «Conférence des Grandes Ecoles» or CGE, a network of some of the finest French engineering and business schools. The highly rigorous accreditation process is a guarantee of program content excellence.

Advanced Master programs, taught in English or French, are one-year postgraduate courses (6 months of classes and projects, and 6 months of thesis) of professionally-oriented advanced studies.

## 1 Expertise

Increase your expertise in the fields of aeronautics, space, innovation, project management, complex systems, I.A. and digital.

## 2 Management skills

Acquire dual management skills in order to be able to manage teams and manage complex and technical projects.

## 3 Innovation

Expand your knowledge in technology and innovation domains which are at the heart of ISAE-SUPAERO's courses.

## 4 Research

Engage with the most advanced research driving our innovative science and technology curriculum. Six teaching and research departments cover both specialized and multi-disciplinary scientific topics.

## 5 International experience

Acquire international experience in Toulouse, the European aerospace capital. Students and lecturers come from all over the world.

## 6 Professional and alumni network

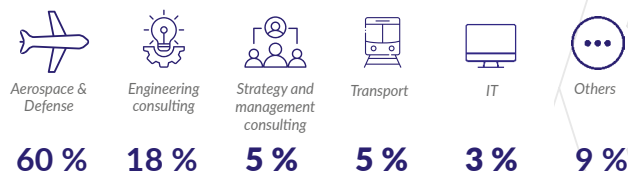
Connect with the ISAE-SUPAERO alumni network of 30,000 graduates worldwide. Benefit from our ongoing partnerships with the leading aerospace companies. (More than 250 companies support ISAE-SUPAERO's development and 35 partnerships with companies.)

## 7 Exciting career prospects

Get high level responsibilities in the industry with the support of our Career Center. The Career Center has a key role to help students to make the most of their skills. It helps students to prepare their career path (Resume, motivation letter, interview...). It gives an access to ISAE-SUPAERO's job board. It organizes many events all year long such as lectures, recruitment days, recruitment forums, company visits...

## Close-up on the class of 2023

### Business areas



### Job opportunities for our graduates



### Main recruiters



Survey on 1st jobs, graduating class 2023

*Make your passion for aerospace engineering a reality  
thanks to our worldclass Masters programs!*



# ADVANCED MASTERS

MASTÈRE SPÉCIALISÉ®

## SYSTEMS ENGINEERING



### SEN > Systems ENgineering

RNCP Certified N°36470 - Professional certification Architect - Manager in Systems Engineering (MS)

#### ■ OBJECTIVES

- ◆ To provide the international aerospace industry with skilled professionals equipped to specify, to design, to deploy and to maintain complex systems.
- ◆ To develop a system approach with the capacity to federate and manage various, interwoven and complementary activities.
- ◆ To prepare systems engineers to work in various industrial sectors including space, aeronautics, air traffic control, land transport systems, etc.

#### ■ CONTENTS

Systems Engineering - Systems Modelling and Analysis - Systems Engineering Data Technical Management - Human factors - Systems Dependability - Systems Performance Assessments & Management - Systems design and Architecture - ILS.

#### ■ CAREER OPPORTUNITIES

Jobs in Engineering Systems Team within industries in different economic sectors, either in major companies or consulting companies in aircraft, ships, military and defense systems, automotive or other industries developing and producing smaller high technology products (cameras, mobile phones, printers, computers, etc.).



## DIGITAL



### AIBT > Artificial Intelligence & Business Transformation

\*RNCP renewal in progress

#### ■ OBJECTIVES

This Advanced Master is part of the necessary transformation of data valuation, particularly by Artificial Intelligence. This program targets new jobs by offering part-time training for technical managers or high-potential managers.

#### ■ CONTENTS

Project Management - Artificial Intelligence Internals - Business Aspects of Artificial Intelligence - Hands-on practice.

#### ■ CAREER OPPORTUNITIES

Data Evangelist, Project manager in Artificial Intelligence, Manager of data engineers, data analysts, data miners and data scientists etc.

Partner: [IRT St Exupéry](#), [TBS education](#)



### EMS > Embedded Systems

#### ■ OBJECTIVES

- ◆ To prepare embedded systems experts with both system level and functional level design skills.
- ◆ To develop a system approach through integrated projects to master methods & tools used in aeronautics, space and the automotive sector.

#### ■ CONTENTS

Embedded Systems core - Energy - Networks - Embedded Systems design - Embedded Systems applications.

#### ■ CAREER OPPORTUNITIES

Employment as designer, developer, research engineer including project manager in design and development of innovative embedded systems.

Partner: [INP-ENSEEIH](#)





## TAS AERO > Aeronautical Engineering majors Aircraft Design / Flight Test Engineering

### ■ OBJECTIVES

To develop a high skills level in engineering science, neuro-ergonomics for human factors, current technologies, design and management of aeronautical systems, or flight test methodologies.

### ■ CONTENTS

Structures and materials - Flight physics - Avionics and systems - Flight test engineering - Aircraft design engineering.

### ■ CAREER OPPORTUNITIES

Job research engineer, test engineer or design engineer, consultant Sector: Aerospace industry worldwide.

## SPA > Systèmes de Propulsion Aérospatiale

TAUGHT IN FRENCH 

### ■ OBJECTIVES

- ◆ To train propulsion engineers, able to design and operate gas turbines, specialized in internal aerodynamics, with a multidisciplinary knowledge of propulsion systems.
- ◆ To provide with expert knowledge in energetics, fluid dynamics and aerothermodynamics applied to propulsion systems.

### ■ CONTENTS

- Propulsive systems and architectures - Advanced fluid dynamics, CFD, aeroelasticity and aeroacoustics - Turbomachinery aerodynamics and design - Combustion and multiphase flows.

### ■ CAREER OPPORTUNITIES

Engineer positions with aerospace engine manufacturers in: design, research and development, and testing facilities. Possibility to pursue with PhD.

## IEVEX > Experimental Flight Test engineering

TAUGHT IN FRENCH 

### ■ OBJECTIVES

To prepare experienced pilots and engineers selected by EPNER to design, execute and analyze flight tests on aircraft, equipment and airborne systems.

### ■ CONTENTS

Aerospace techniques performance tests - propulsion test - handling tests - embedded systems tests... 110 flight hours on fixed wing or rotary wing aircraft.

### ■ CAREER OPPORTUNITIES

Experimental flight test pilot or engineer performing flight tests.

Partner: EPNER



## HADA > Helicopter, Aircraft and Drone Architecture

### ■ OBJECTIVES

- ◆ To acquire the basic skills required for aeronautical engineers (architecture, certification and structures) and specific skills to identify problems, generate alternatives, choose and implement solutions on aircraft, helicopters and drones.
- ◆ To get comprehensive training from systems to structures through aerodynamics, flight dynamics and certification while encouraging and taking into account the diversity of the profiles of the selected students.

### ■ CONTENTS

Aircraft structures, Aircraft architecture and Certification Fixed-wing Aircraft - Helicopter Drone.

### ■ CAREER OPPORTUNITIES

Job opportunities in design, certification and operations of civil and military aircrafts, drones and helicopters in France and abroad.

Partner: AIRBUS Helicopters

**AIRBUS**

## AES > Aeronautical and Space Structures

### ■ OBJECTIVES

- ◆ To ensure participants acquire an in-depth and multi-disciplinary culture in mechanical engineering as applied to structures.
- ◆ To train specialists in design, optimization and certification of structures.
- ◆ To provide expert knowledge in modelling & simulation methods for aircraft and spacecraft structure analysis.

### ■ CONTENTS

Aerospace structures: methods & tools for engineering & dynamics - Aerospace systems architecture - Aerospace structures: dynamics & physics - Aerospace program & technologies.

### ■ CAREER OPPORTUNITIES

Associate professional in the context of systems design and integration, Manufacturing Process Optimization, systems architect, change leader, in major aerospace companies.





## AMS - E&M > Aeronautical Maintenance and Support- Engineering & Management

### ■ OBJECTIVES

- ◆ To prepare participants to face the competitive and fast changing MRO business within the international regulatory framework.
- ◆ To expose participants to the latest techniques and methods, regulation and standards applied in the aviation industry.
- ◆ To help participants acquire a wide range of knowledge from engineering fundamentals to maintenance organization management.

### ■ CONTENTS

Aircraft general familiarization- Maintenance and Support in Aircraft Design - Maintenance & health management analysis & modelling- maintenance execution & management- airworthiness, safety and human factors - Support & services.

### ■ CAREER OPPORTUNITIES

Management position in aircraft manufacturers, airlines, and MRO organizations in civil or military sectors.

## ASAA > Aviation Safety: Aircraft Airworthiness

### ■ OBJECTIVES

- ◆ To give future managers a broad understanding of the issues and priorities in Airworthiness with a focus on air transport safety from design to operations within the international legal environment.
- ◆ To cover both technical aspects of certification and the legal and economic implications.

### ■ CONTENTS

Aeronautical techniques and study of aircraft systems - Air Transport safety - Airworthiness.

### ■ CAREER OPPORTUNITIES

Various job opportunities with aircraft manufacturers, or civil Aviation authorities and airlines: airworthiness inspector, certification manager, Airworthiness follow up, etc.

Partners: *ENAC, École de l'Air et de l'Espace*



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## SPACE

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## TAS ASTRO > Space Systems Engineering Space exploration optional pathway

### ■ OBJECTIVES

- ◆ To provide high level inter-disciplinary training in space science, space systems engineering and space project management.
- ◆ To acquire and develop technical skills specific to space systems design.
- ◆ To understand the international, economic and legal aspects of space programs.

### ■ CONTENTS

- Missions & systems - Space programs - sub-systems: satellites & launchers - SEEDS optional pathway (space exploration).

### ■ CAREER OPPORTUNITIES

Research and design engineers in space industry, agencies or laboratories, leading to system or management position of various space applications programs (Earth Observation, Telecommunications, Navigation, Science, Human Spaceflight...).

## SPAPS > SPace APplications and Services

### ■ OBJECTIVES

- ◆ To provide students with the technical knowledge required for telecommunications, Earth observation or positioning services.
- ◆ To enable students to identify the specific constraints of satellite deployment and the key elements of the value chain and business model.
- ◆ To provide students with a broad understanding of space systems to enable them to analyze client needs and design new services.

### ■ CONTENTS

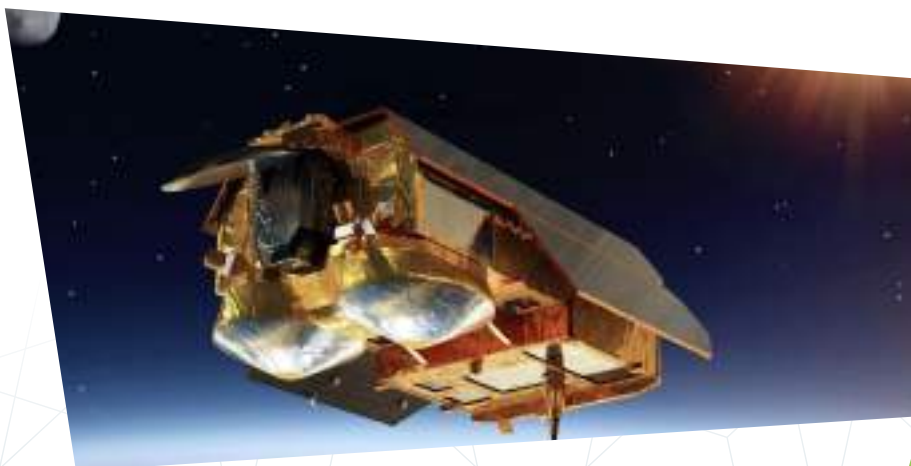
- Space systems - Satellite-based Earth observation applications and services - Space telecommunications and related services - Space legal, regulatory and economic/business issues.

### ■ CAREER OPPORTUNITIES

- Jobs related to cross disciplinary use of space data in complex information systems,
- Consulting jobs to identify and define requirements, and implement application solutions using satellites,
- Jobs related to new space challenges.

Partner: *AIRBUS Defence and Space*

**AIRBUS**





## IEM > Innovation, Entrepreneurship & Management

### ■ OBJECTIVES

- ◆ To develop an innovation and entrepreneurial spirit.
- ◆ To train for technological project management (from the origin of the project to its commercialization), with new methods of management on innovative projects with an "Intrapreneurial" spirit.

### ■ CONTENTS

Large range of new technologies (such aircraft disciplines as propulsion or structure - additive manufacturing, machine learning & artificial Intelligence, Big data, etc.) - project management tools & methods, economics & finance - entrepreneurship - innovative project, etc.

### ■ CAREER OPPORTUNITIES

Startuper, head of innovative project, head of innovative and technologic development (CTO in charge of technical innovation and technologies deployment), etc.

### ■ SCHOLARSHIPS

Scholarships, in partnership with SAFRAN, are offered to students joining the IEM Advanced Master. These scholarships cover full tuition fees.

## APM > Aerospace Project Management

### ■ OBJECTIVES

- ◆ To prepare participants for an international project management career in the global aerospace and defense industry.
- ◆ To develop the latest management skills, knowledge and skills to lead international project teams.

### ■ CONTENTS

Overall overview of aerospace industry - Methodology - Economic and financial aspects - Knowledge management in multicultural team project.

### ■ CAREER OPPORTUNITIES

Head of Aerospace program team, in charge of designing and managing complex projects overseeing costs and risks with Aerospace companies or in defense institutions.

Partners: *École de l'Air et de l'Espace - ENAC*



# ADMISSION REQUIREMENTS AND APPLICATION

## ACADEMIC REQUIREMENTS

A master's degree,  
or an equivalent degree in science or engineering,  
or a bachelor degree supplemented by 3 years of professional experience

RNCP are also accessible via the validation of prior learning and experience. (VAE)

Advanced Masters can also be accessed from 5 years of professional experience (VAPP)



Apply

## LANGUAGE REQUIREMENTS






### for Advanced masters in French only

Language qualification requested

Score B2-Common - European Framework of Reference for Languages

### for all Advanced masters

English qualification requested

<b>TOEFL (IBT)</b>	or	<b>TOEIC</b>	or	<b>IELTS</b>	or	<b>CAE/FCE</b>	or	<b>Linguaskill</b>
								
<b>88 points</b>		<b>785 points</b>		<b>6.5 points</b>		<b>170 points</b>		<b>170 points</b>

Only tests taken after January 1<sup>st</sup>, 2022 are accepted.

## SELECTION AND ADMISSION

**Open in October 2024**  
**Deadlines for application:**

From January to July 2025,  
see schedule on our website



Admission requirements



Tuition Fees

People with disabilities, assistance is available at:  
+33 (5) 61 33 89 88  
[laurence.ballarin@isae-supero.fr](mailto:laurence.ballarin@isae-supero.fr)

## YOUR CONTACTS

Young graduates with less than 1 year of professional experience:  
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