ADVANCED MASTERS
IN AEROSPACE ENGINEERING
& MANAGEMENT

Post-graduate education
for Aeronautics & Space · 2023
The Advanced Master programs, taught in English, are one-year courses (6 months of classes & 4 to 6 months Professional thesis) of professionally-excellence. The «MASTÈRE SPÉCIALISÉ®» is a collective trademark and label owned by French engineering schools. Acquire Management skills and knowledge Expand your expertise Increase your skills

Acquire Management skills Expand your expertise Increase your skills

We have developed an integrated approach with training, research and innovation in partnerships 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 and energetics.

TOULOUSE, EUROPEAN CAPITAL OF AERONAUTICS AND SPACE

- Nearly 90,000 direct jobs in aeronautics and space
- The European capital for space and aeronautics
- The most attractive university city in France

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

Cutting edge equipment:

- Autonomous system platform
- Flight simulators and neuroergonomics platform
- Wind tunnels, aeroacoustics wind tunnel
- Satellite command and control center
- Fleet of 9 aircraft
- Clean rooms for satellite integration
- Additive manufacturing machine
- Turbofan test bed etc.

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.
**AIBT > Artificial Intelligence & Business Transformation**

*Apprenticeship, initial and executive education*

**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*

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**EMS > Embedded Systems**

**OBJECTIVES**
- Prepare embedded systems experts with both system level and functional level design skills.
- Develop a system approach through integrated projects to master methods & tools used in aeronautics, space and the automotive sector.

**CONTENTS**

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

*Partner: INP-ENSEEIHT.*
TAS AERO > Aeronautical Engineering majors Aircraft Design / Flight Test Engineering

- **OBJECTIVES**
  Have participants develop a high level of competences in the field of aeronautics, structural mechanics, and design of aeronautical systems.

- **CONTENTS**

- **CAREER OPPORTUNITIES**
  - Job research engineer, test engineer, or design engineer, consultant for aerospace industry worldwide.

HADA > Helicopter, Aircraft and Drone Architecture

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

- **CONTENTS**

- **CAREER OPPORTUNITIES**
  - This program prepares participants for a wide range of professional opportunities from design, certification and operations of civil and military aircrafts, drones and helicopters in France and abroad.

Partner: AIRBUS Helicopters

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

- **OBJECTIVES**
  - Prepare participants to face the competitive and fast changing MRO business within the international regulatory framework.
  - Expose participants to the latest techniques and methods, regulation and standards applied in the aviation industry.
  - Help participants acquire a wide range of knowledge from engineering fundamentals to maintenance organization management.

- **CONTENTS**

- **CAREER OPPORTUNITIES**
  - Management position in aircraft manufacturers, airlines, and MRO organizations in civil or military sectors.

Partner: ENAC, École de l’Air

ASAA > Aviation Safety: Aircraft Airworthiness

- **OBJECTIVES**
  - 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. This program covers 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.

Partner: ENAC, École de l’Air

SPA > Systèmes de Propulsion Aérospatiale

- **OBJECTIVES**
  - Train propulsion engineers, able to design and operate gas turbines, specialized in internal aerodynamics, with a multidisciplinary knowledge of 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.

AES > Aeronautical and Space Structures

- **OBJECTIVES**
  - Ensure participants acquire an in-depth multidisciplinary culture in mechanical engineering as applied to structures.
  - Train specialists in design, optimization and certification of structures.

- **CONTENTS**

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

IEVEX > Experimental Flight Test engineering

- **OBJECTIVES**
  - 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
TAS ASTRO >
Space Systems Engineering
Space exploration optional pathway

■ OBJECTIVES
◆ Provide high level inter-disciplinary training in space science, space systems engineering and space project management.
◆ Acquire and develop technical skills specific to space systems design.
◆ 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

AMPAS > Advanced Manufacturing
Processes for Aeronautical and Space Structures

■ OBJECTIVES
◆ Prepare participants to take on high level responsibilities in airframe structure manufacturing plants.
◆ Develop technical knowledge of materials science and processes related to supply chain structure and organization.

■ CONTENTS
Aircraft, material and process basic scientific knowledge
Composite structure forming and machining processes
Metallic structure forming and machining processes
Industrial, Organization and management.

■ CAREER OPPORTUNITIES
Positions in subcontracting companies (aircraft manufacturers, aeronautical maintenance companies) as process, industrialization, production, quality, research and innovation engineering, product, project and production manager.

Partner: IMT Mines Albi

Aerospace Project Management
**MGIPIE > Management de Projets Innovants & Entrepreneuriat**

**TAUGHT IN FRENCH**

- **OBJECTIVES**
  The aim of the “Management de projets Innovants et Entrepreneuriat” Advanced Master is to simultaneously develop an innovation and entrepreneurial spirit. This program also trains 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 as aircraft disciplines as propulsion or structure, additive manufacturing, machine learning & artificial Intelligence, Big data,...), project management tools & methods, economics & finance, entrepreneurship, innovative projects...

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

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**APM > Aerospace Project Management**

**TAUGHT IN FRENCH**

- **OBJECTIVES**
  - Prepare participants for an international project management career in the global aerospace and defense industry.
  - 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*
ADVANCED MASTER (MASTÈRE SPÉCIALISÉ®)

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The Advanced Master programs, taught in English, are one-year courses (6 months of classes & 4 to 6 months Professional thesis) of professionally-oriented advanced studies, undertaken after completion of a Master’s degree.

6 REASONS TO CHOOSE AN ISAE-SUPAERO ADVANCED MASTER PROGRAM

- Make your passion for aerospace engineering a reality thanks to our world-class Masters programs
- Engage with the most advanced research driving our innovative science and technology curriculum
- Collaborate with renowned ISAE-SUPAERO experts from industry and research
- Leverage our ongoing partnerships with the leading aerospace companies
- Acquire international experience in the European aerospace capital
- Connect with the ISAE-SUPAERO alumni network of 24,500 graduates around the world

EXCITING CAREER PERSPECTIVES

BUSINESS AREAS

- Space 17%
- Aeronautics 58%
- Energy 5%
- Defense 4%
- Others 16%

JOB OPPORTUNITIES for our graduates

- 91% started their career in France
- 90% have a permanent contract
- 86% hired less than 2 months after obtaining their degree

MAIN RECRUITERS

AIRBUS • SAFRAN • THALES • CAPGEMINI ENGINEERING • ARIANE GROUP • MBDA • CNES • GROUPE DASSAULT SII • ALTEN • AKKA...

ADVANCED MASTERS ARE PERFECTLY DESIGNED TO

- Increase your expertise
- Acquire Management skills
- Expand your knowledge in technology and innovating domains

THE ECOLOGICAL TRANSITION AT THE HEART OF ISAE-SUPAERO’S COMMITMENT

At ISAE-SUPAERO, 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 engineers’ creativity.
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. Diplomas are also accessible via the validation of prior learning and experience (VAE).

LANGUAGE REQUIREMENTS FOR THE MASTERS IN FRENCH only

Language qualification requested
Score B2-Common - European Framework of Reference for Languages

ENGLISH LANGUAGE REQUIREMENTS for all masters

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<th>IELTS</th>
<th>CAE/FCE</th>
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Only tests taken after January 1st, 2020 are acceptable.

SELECTION AND ADMISSION

Open in October 2022
Deadlines for application:
From January to July 2023, see schedule on our website

Tuition Fees

People with disabilities, assistance is available at:
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YOUR CONTACTS

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