ADVANCED MASTERS in AEROSPACE ENGINEERING & MANAGEMENT

Excellence with passion
The ISAE-SUPAERO is a public institution of higher education and research.

A world leader in aerospace engineering, ISAE-SUPAERO is a public institution of higher education and research. We have developed an integrated approach with training, research and innovation in partnerships with academic players, many industrial stakeholders and a network of the best 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.

ISAE - SUPAERO

At ISAE-SUPAERO, we are convinced that:

- Connect to the ISAE-SUPAERO alumni network of 24,100 graduates
- Acquire international experience in the leading aerospace companies
- Engage with the most advanced research technology curriculum
- Make your passion for aerospace become reality

TOULOUSE, EUROPEAN CAPITAL OF AERONAUTICS AND SPACE

- Nearly 90,000 direct jobs in aeronautics and space
- The leading region in France for aeronautics education and research
- 1st attractive city to study 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... 6 news student residences: 1000 housings, student housing and a dining hall.

TOULBOX

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 ‘3 stars’ certification which demonstrates the quality of its reception.
AIBT > Artificial Intelligence & Business Transformation
Apprenticeship, initial and executive education
RNCP certified N°35609 « Artificial Intelligence and Data science Project Manager (MS) »

- OBJECTIVES
The « Artificial Intelligence & Business Transformation » 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
- Artificial Intelligence Internals:
  - Data Integration and Exploration, Big Data Processing, Optimization
  - Topics for AI, Machine Learning and Data Analytics, Sequential Decision Making in AI, AI certification, Robustness and Dependability.
  - Business Aspects of Artificial Intelligence :

- 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

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

- CAREER OPPORTUNITIES
Employment as designer, developer, research engineer including project manager in design and development of innovative embedded systems
Partner: INP-ENSEEIHT.
**AERONAUTICS**

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

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

- **CONTENTS**

- **CAREER OPPORTUNITIES**
  Job research engineer, test engineer or design engineer, consultant Sector: Aerospace industry worldwide.

**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. 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 either in aircraft manufacturers, or in civil Aviation authorities and airlines: airworthiness inspector, certification manager, Airworthiness follow up, etc.

  **Partners:** ENAC, École de l’Air

**AES > Aeronautical and Space Structures**

- **OBJECTIVES**
  To ensure participants acquire an in-depth and multidisciplinary culture in mechanical engineering 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**

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

**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 aviation industry. To 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 organisations on civil market or military forces.

**HADA > Helicopter, Aircraft and Drone Architecture**

- **OBJECTIVES**
  To offer the acquisition of 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 offer a complete 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**
  This program prepares attendees to a wide range of professional opportunities from design, certification and operations of civil and military aircrafts, drones and helicopters in France and overseas.

  **Partners:** AIRBUS Helicopters

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

**IEVEX > Experimental Flight Test engineering**

- **OBJECTIVES**
  To prepare experienced pilots and engineers selected by EPNER to design, execute and analyze flight tests of 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
**SPACE**

**SPAPS > Space Applications and Services**

- **OBJECTIVES**
  Provide students with the technical knowledge required for the specification of space systems either for telecommunications, Earth observation or positioning services.
  Enable students to identify the specific constraints of satellite deployment and the key elements of the value chain and business model.
  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

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**MANUFACTURING**

**AMPAS > Advanced Manufacturing Processes for Aeronautical Structures**

- **OBJECTIVES**
  To prepare participants to take on high level responsibilities in airframe structure manufacturing plants.
  To 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

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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...)

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**ASAA > Aviation Safety**

- **OBJECTIVES**
  To give future managers a broad understanding of the management of aeronautical systems, or flight test competence in engineering science, neuro-ergonomics.
  To ensure participants to develop a high level of in-depth and multidisciplinary culture.

- **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

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**HADA > Helicopter, Drone Architecture**

- **OBJECTIVES**
  To offer a complete training from systems (architecture, certification and structures) to offer the acquisition of the basic knowledge.
  Generate alternatives, choose and implement the best solutions.

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

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**TAS ASTRO > Space Systems Engineering**

- **OBJECTIVES**
  To prepare systems engineers to work in various industrial sectors
  To manage various, interwoven and complementary activities.
  To maintain complex systems.

- **CAREER OPPORTUNITIES**
  Professionals equipped to specify, to design, to deploy and to manage various, interwoven and complementary activities.

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**AEROSONICS & MANAGEMENT**

- **OBJECTIVES**
  To train propulsion engineers, able to design advanced fluid dynamics, CFD, aeroelasticity and propulsion systems.

- **CAREER OPPORTUNITIES**
  Engineer positions in all aerospace engine major aerospace companies.

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**ASAA > Aviation Safety**

- **OBJECTIVES**
  To help participants acquire a wide range of latest techniques and methods, regulation and certification while encouraging the development of aeronautical systems, or flight test competence in engineering science, neuro-ergonomics.

- **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.

**Partner:** AIRBUS Defence and Space

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**TAS ASTRO > Space Systems Engineering**

- **OBJECTIVES**
  To provide high level inter-disciplinary training in space science, space systems engineering and space project management.
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  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...)
PROJECT
MANAGEMENT

MGPIE > 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 to technological projects management (from the origin of the project to its commercialization), with new methods of management on innovative projects with "Intrapreneurial" spirit.

- CONTENTS
  Large range of new technologies (aerial 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.

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 conception and management of complex projects with permanent care of costs and risks control in Aerospace companies or in defense institutions.

Partners: École de l’Air - ENAC
ADVANCED MASTER’S PROGRAM (MASTÈRE SPÉCIALISÉ®)

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

The Advanced Master’s program, taught in English, is a one-year course of professionally-oriented advanced studies, undertaken after completion of a Master’s degree.

ADVANCED MASTERS ARE PERFECTLY DESIGNED TO

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

EXCITING CAREER PERSPECTIVES

BUSINESS AREAS

- Space: 20%
- Aeronautics: 29%
- Transportation: 5%
- Defense: 12.5%
- Others: 33.5%

ACTIVITIES

- Research and Development: 6%
- Studies, Advisory and Expertise: 6%
- IT: 4%
- Maintenance and Support: 8%
- Administration, Management Dpt, Finance, Accounting: 6%
- Methods, Production Control: 9%
- Supply Chain: 6%
- Marketing: 49%
- Others: 4%

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 ISAE-SUPAERO renowned experts from industry and research
- Leverage our ongoing partnerships with the leading aerospace companies
- Acquire international experience in the European aerospace capital
- Connect to the ISAE-SUPAERO alumni network of 24,100 graduates around the world

MAIN RECRUITERS

AIRBUS · SAFRAN · THALES · CAPGEMINI ENGINEERING
ARIANEGROUP · MBDA · CNES · DASSAULT AVIATION

LARGE JOB OPPORTUNITIES

- 82%
- 74%
- 62%

Source: ISAE-SUPAERO job placement survey graduates 2020
ADMISSION REQUIREMENTS AND APPLICATION

ACADEMIC REQUIREMENTS
A master’s degree, or an equivalent degree in science or engineering, or a bachelor degree completed by 3 years of professional experience

SELECTION AND ADMISSION

Deadlines for application:
Several admission committees are scheduled from January to July 2022, see schedule on our website: https://www.isae-supaero.fr/en/academics/advanced-masters/admissions/

Funding:
Information on tuitions fees and funding can be found on our website:

ENGLISH LANGUAGE REQUIREMENTS

TOEFL (IBT) or TOEIC or IELTS or CAE/FCE or Linguaskill

88 points or 785 points or 6.5 points or 170 points or 170 points

YOUR CONTACTS

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