ADVANCED MASTERS
in AEROSPACE ENGINEERING & MANAGEMENT
Post-graduate education for Aeronautics & Space · 2022

Excellence with passion
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

IS A PUBLIC INSTITUTION OF HIGHER EDUCATION AND RESEARCH

A WIDE RANGE OF DEGREE PROGRAMS IN AEROSPACE ENGINEERING

- 3 MASTERS PROGRAMS
- 15 ADVANCED MASTERS PROGRAMS
- 6 DOCTORAL PROGRAMS (PHD)
- 17 CERTIFICATES
- 1800 STUDENTS: 1500 MASTERS AND 260 PhDs
- 30% FOREIGN STUDENTS
- 59 NATIONALITIES ARE PRESENT ON CAMPUS

AN ACTIVE INTERNATIONAL ALUMNI NETWORK

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 housing, student housing and a dining hall.

ISAE-SUPAERO is awarded a ‘3 stars’ certification which demonstrates the quality of its reception.
**NEW**

**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 valuations, 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.

**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

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**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.
**TAS AERO > Aeronautical Engineering**

**majors**: Aircraft Design / Flight Test Engineering

- **OBJECTIVES**
  To ensure participants 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.

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**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.

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**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

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**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

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

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**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

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...)

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.

- 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
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 “Intrapreneural” spirit.

CONTENTS
Large range of new technologies (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.

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
- Studies, Advisory and Expertise
- IT
- Maintenance and Support
- Administration, Management Dept, Finance, Accounting
- Methods, Production Control
- Supply chain
- Marketing
- Others

- Permanent contract: 82%
- Hired less than 2 months after obtaining the degree: 74%
- Started their career in France: 62%

MAIN RECRUITERS

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

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 to 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 will have to be invented, working with all aspects 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 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-supao.fr/en/academics/advanced-masters/admissions/

Funding:
Information on tuitions fees and funding can be found on our website: https://www.isae-supao.fr/en/academics/advanced-masters/financing/

ENGLISH LANGUAGE REQUIREMENTS

TOEFL (IBT)
88 points

TOEIC
785 points

IELTS
6.5 points

CAE/FCE
170 points

Linguaskill
170 points

YOUR CONTACTS

Caroline ARMANGE - Senior Admission Advisor / Advanced Masters - Phone: + 33 (5) 61 33 80 25
Philippe GALAUP - Head of recruitment and contractual relations - Phone: +33 (5) 61 33 80 27
Info-masters@isae-supao.fr

Address
ISAE-SUPAERO
10, avenue E. Belin,
BP 54032
31055 Toulouse CEDEX 4
France

Telephone
33 (0)5 61 33 80 80

Website
www.isae-supao.fr/en