Excellence with passion

ISAE
Institut Supérieur de l'Aéronautique et de l'Espace
SUPAERO

ADVANCED MASTERS IN AEROSPACE ENGINEERING & MANAGEMENT

Post-graduate education for Aeronautics & Space · 2019

A WORLD LEADER
IN AEROSPACE ENGINEERING HIGHER EDUCATION

We have already trained more than 22 000 engineers who are contributing to the development of the aeronautics and space sector in France and around the world. Our engineers' vocation is to become future leaders in the aerospace industry and the world of tomorrow. That is why 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.

ISAE-SUPAERO

IS A PUBLIC INSTITUTION OF HIGHER EDUCATION AND RESEARCH

A WIDE RANGE OF DEGREE PROGRAMS IN AEROSPACE ENGINEERING

THE "INGÉNIEUR ISAE-SUPAERO" (MSC) DEGREE
ENGINEERING DEGREE - APPRENTICESHIP PROGRAM
MASTER OF SCIENCE IN AEROSPACE ENGINEERING
***14** ADVANCED MASTERS PROGRAMS*
***6** DOCTORAL PROGRAMS (PHD)*
***5** CERTIFICATES*
***1700** STUDENTS : **1500** MASTERS AND **200** PhDs*
***30%** FOREIGN STUDENTS*
***60** 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*
- *4th city and university of France: one of the most desirable places to live 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

TOUL BOX

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!
Find out more at: https://toulbox.univ-toulouse.fr (Our Packages > Special packs > ISAE-SUPAERO)

ADVANCED MASTER'S PROGRAM (MASTÈRE SPÉCIALISÉ®)

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

CERTIFICATES (CERTIFICATS)

A post-graduate certificate is a short program (one month) leading to a diploma from the institute.. This kind of program matches perfectly with professional constraints. Participants may earn ECTS credits upon completion of courses.

6

REASONS TO CHOOSE AN ISAE-SUPAERO MASTERS PROGRAMS

- *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 22 100 graduates around the world*

ADVANCED MASTERS AND CERTIFICATES ARE PERFECTLY DESIGNED TO

Increase your expertise

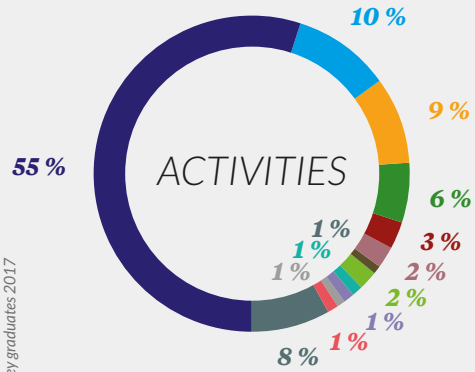
Acquire Management skills

Expand your knowledges in technology and innovating domains

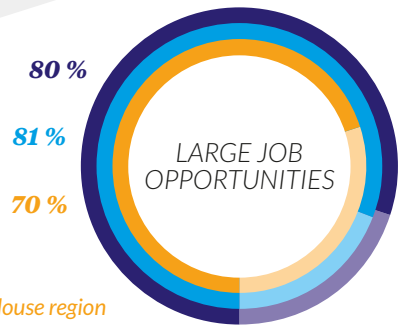
EXCITING CAREER PERSPECTIVES

BUSINESS AREAS

Aeronautics and Space	Teaching & Research	IT services	Transports	Defence	Telecommunications	Others areas
88 %	**3 %**	**3 %**	**2 %**	**2 %**	**1 %**	**1 %**



- *Research & development*
- *Survey-expertise and consulting*
- *Quality & Security*
- *Research & development (PhD)*
- *Maintenance & Support*
- *IT maintenance & support*
- *Telecommunications, I.T Networks*
- *Methods, production management & manufacturing*
- *Administration & Finance*
- *Experimental research*
- *Industrial property, certification*
- *Marketing*
- *Others*



- *Permanent contract*
- *Hired less than 2 months after obtaining the degree*
- *Started their career in France. More than 30% work in Toulouse region*

Source: ISAE-SUPAERO job placement survey graduates 2017

MAIN RECRUITERS

AIRBUS · SAFRAN · THALES · ALTRAN · AKKA · ARIANEGROUP

ADVANCED MASTERS

MASTÈRES SPÉCIALISÉS®

AERONAUTICS

TAS AERO > AERONAUTICAL ENGINEERING MAJORS AIRCRAFT DESIGN /FLIGHT TEST

■ 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

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

NEW

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.

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

Aircraft general familiarization- Maintenance and Support in Aircraft Design - Maintenance & health management analysis & modelling- maintenance execution & management- airworthiness, safety and human factors - Customer support - Supply chain and recycling

■ CAREER OPPORTUNITIES

Management position in aircraft manufacturers, airlines, and MRO organisations on civil market or military forces

ASAA > AVIATION SAFETY AND 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. - ***Partners:*** ***ENAC, École de l'Air***

■ 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.

SYSTEMS

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 modeling & 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

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

TAUGHT IN FRENCH

■ OBJECTIVES

To prepare experienced pilots and engineers selected by EPNER to design, execute and analyze flight tests of aircraft, equipment and airborne systems. - ***Partner:*** ***EPNER***

■ 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

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

SYSTEMS ENGINEERING

■ OBJECTIVES

To provide the international aerospace industry with skilled professionals equipped to specify, design, deploy and 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 Assesments & 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 defence systems, cars, or other industries developing and producing smaller high technology products (cameras, mobile phones, printers, computers, etc.).

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.
Partner: ***INP-ENSEEIHT***

■ 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

SPACE

NEW

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
***Partner:* Airbus Defence and Space.**

■ 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.

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.
***Partner:* IMT Mines Albi**

■ 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

PROJECT MANAGEMENT

MGP > MANAGEMENT DE GRANDS PROJETS

TAUGHT IN FRENCH

■ OBJECTIVES

To develop high level skills to manage complex projects in an international environment.
To provide modern methods and practices that allow future leaders to oversee large projects and to estimate performances, risks, quality and costs. - ***Partner:* HEC Paris**

■ CONTENTS

Project management tools and methods - Economics and finance - Intercultural management and negociation

■ CAREER OPPORTUNITIES

Project leader, business engineer, consulting manager, expert in logistics, etc.

APM > AEROSPACE PROJECT MANAGEMENT

■ OBJECTIVES

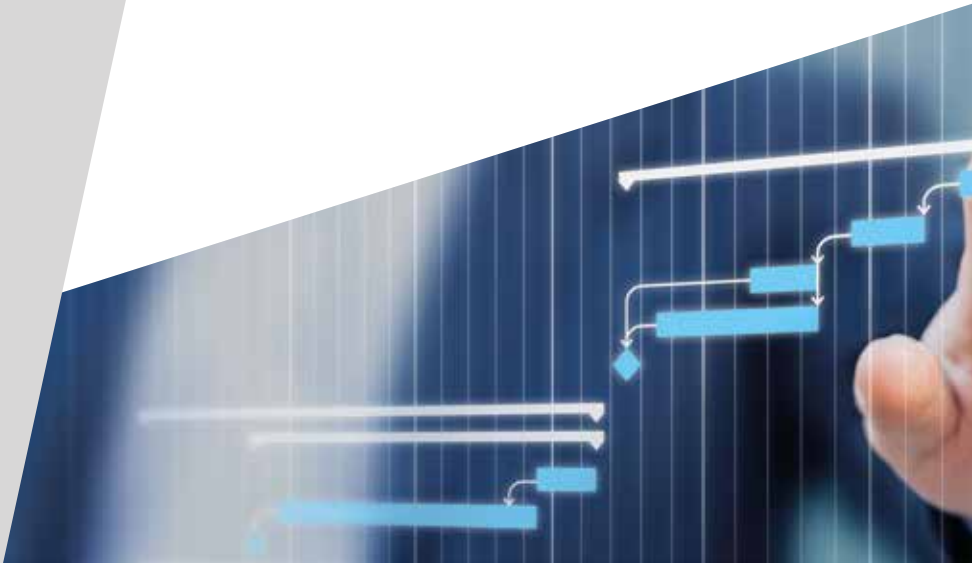
To prepare participants for an international project management career in the global aerospace and defense industry.
To develop the latest management skills, knowledge and skills to lead international project teams. - ***Partners:* École de l'Air - ENAC**

■ 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



CERTIFICATES

AIRCRAFT ENGINEERING FOR CONTINUED AIRWORTHINESS & MAINTENANCE

■ OBJECTIVES

To provide students with a deep understanding of aircraft technologies and associated safety issues, in order to properly understand and apply airworthiness rules and offer any pertinent amendment to new or unusual features.

■ CONTENTS

Flight Structures
Engines and Powerplant Avionics
Aircraft General Systems
Qualification tests for on-board systems and equipments (DO 160)

■ DURATION

2 certificates of 100-120 hours

HELICOPTER ENGINEERING

■ OBJECTIVES

To provide high-level of engineering and technical skills for careers in the helicopter business.

■ CONTENTS

Helicopter Engineering 1 – 90 h
Aerodynamics & flight qualities
Helicopter dynamics
Helicopter construction materials & technics
Helicopter Engineering 2 – 60 h
Helicopters systems
Prototypes - Tests - Production quality assurancec

■ DURATION

Helicopter Engineering 1 – 90 h
Helicopter Engineering 2 – 60 h
Marignane

AIRWORTHINESS & HUMAN FACTORS FOR MAINTENANCE

■ OBJECTIVES

To provide a comprehensive knowledge of maintenance and support activities and methods, throughout the entire product life-cycle, with a wide cover of technical, operational, management, logistic support, regulatory and safety aspects.
To give attendees the necessary knowledge to efficiently work in the competitive and fast-changing MRO worldwide business.

■ CONTENTS

Continuing & continued airworthiness – 35h
Safety management system in MRO – 20 h

■ DURATION

55h

HUMAN FACTORS AND NEUROERGONOMICS FOR AERONAUTICS & TRANSPORTATION

■ OBJECTIVES

To provide participants with a high-level multi-disciplinary approach to understand human behavior and performance. This course focuses on fundamental and applied concepts to design safer and more efficient systems that integrate the human operator into the loop.

■ CONTENTS

Understanding human behaviourHumans at work
Experimentation & Measures
Advanced Techniques

■ DURATION

100 hours

UAV SYSTEMS

■ OBJECTIVES

To provide participants with a full understanding of Unmanned Aerial Systems from design of the system to operation of the system.

■ CONTENTS

Drone systems: design & mission
Payload & sensors for UAVs
Drone safety & airworthiness
Drone guidance & navigation

■ DURATION

82 hours

PREPARATION TO PMI CERTIFICATIONS

60 hours of training (in March) taught by experts of PMBOK reference to prepare CAPM or PMP exams

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

ENGLISH LANGUAGE REQUIREMENTS

TOEFL (IBT)	or	TOEIC	or	IELTS	or	CAE/FCE
85 points		785 points		6.5 points		170 points

SELECTION AND ADMISSION

Connect you to:
http://admissionsmasters.isae-supaero.fr

Deadlines for application: *Several admission committees are scheduled from February to July 2019, see schedule on our website: https://candidatures.isae-supaero.fr*

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

YOUR CONTACTS

Philippe GALAUP, Head of recruitment and Contractual Relations – Phone: +33 (0)5 61 33 80 27
Catherine DUVAL - Senior Admission Advisor, Aeronautical & Space sector - Phone: +33 (5) 61 33 80 37
Info-masters@isae-supaero.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-supaero.fr/en

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