



# AERONAUTICAL MAINTENANCE AND SUPPORT ENGINEERING & MANAGEMENT

ADVANCED MASTER

## ONE YEAR FULL TIME

- 6 months of courses
- 6 months of professional thesis or internship.

## TEACHING LANGUAGE

- English

## START OF CLASSES

- End of September

## LOCATION

- ISAE-SUPAERO, Toulouse, France

## KEY POINTS

- Business-oriented program.
- Very strategic topic for companies as regards predictive maintenance challenges.

## HEAD OF PROGRAM

- ISAE-SUPAERO: Prof. Joël JEZEGOU  
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## CONTACT

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## OBJECTIVES

The aeronautical maintenance and support ecosystem is a highly competitive and dynamic international environment, facing exciting commercial, economic, strategic and technical challenges, with constant safety concerns.

Encompassing a wide range of complex activities (concurrent engineering, operability analysis, integrated logistics support, lifecycle management, line-base-shop maintenance, repair, modification, support services, supply chain services decommissioning), it plays a key role for defence and civil aviation. It aims at designing, managing and ensuring aircraft continuing airworthiness and safety at acceptable costs with the best availability, while benefiting from technological innovations to create added-value for stakeholders.

The Advanced Master AMS-E&M delivers:

- the appropriate high-level skills and know-how in aircraft architecture, maintenance and support delivered by experts,
- an exposure to the latest techniques and methods, know-how, innovation, regulations and standards applied throughout this value chain.
- It prepares students to enter the competitive and fast changing global Maintenance & Support industry.

## LEARNING APPROACH

### 1<sup>st</sup> semester:

Academic session from September to March, provided by the tenured professors at ISAE-SUPAERO and aeronautical industry experts with their updated knowledge and experience (Airbus Helicopters, Airbus Group, Safran/Turbomeca, Thales, etc.). Including: lectures, tutorials, and practical sessions.

### 2<sup>nd</sup> semester:

Students are required to conduct a 4 to 6 months professional thesis or internship

- with an aerospace company or in a laboratory
  - in France or Abroad
- supervised by a tutor from the host organization and from ISAE-SUPAERO.

The thesis concludes with the submission of a report and an oral dissertation in front of a thesis committee.

## CAREER OPPORTUNITIES

Engineering or management position in aircraft-engines-components manufacturers (OEM) and suppliers, airlines, approved maintenance organizations, continuing airworthiness management organization (CAMO), in-service support departments, OEM, supply chain organizations, authorities in civil or military aeronautical industry.

## CAREER OUTCOMES

- Maintenance engineer or manager
- Maintainability/operability engineer
- Product support engineer
- Logistic support engineer

### Companies recruiting our students

*Air France Industries, Airbus, Dassault Aviation, French Navy, Sabena Technics, ATR-Aircraft, Groupe ORTEC, Star Engineering, AKKA Technologies, SII, SAFRAN, Sopra Steria, COMAC, AVIC, Singapore Air Force, Air Calédonie, Air Archipels, DGA, UMLAUT, Accenture Group, Vallair...*

More information





## SYLLABUS

**Part 1: Aircraft General Familiarization**

- Aircraft architecture
- Aircraft General Systems
- Avionics
- Engines and Powerplants
- Structure & Materials

**Part 2: Maintenance and Support in Aircraft Design**

- Operability and Maintainability Influence on Design
- Configuration Management
- Development and evolution of a maintenance program (MSG-3)
- Integrated Logistic Support (ILS) and Logistic Support Analysis (LSA)

**Part 3: Maintenance & Health Management Analysis & Modelling**

- RAMS techniques and modelling
- PHM, Predictive maintenance and data analytics

**Part 4: Maintenance Execution & Management**

- Engine maintenance
- Equipment maintenance
- Organization and management of a maintenance department
- Military maintenance organization
- Project MRO
- Systems troubleshooting

**Part 5: Airworthiness, Safety & Human Factors**

- Aviation regulation, airworthiness and Safety analysis
- Continued & continuing airworthiness
- Human Factors and MRO Safety Management System

**Part 6: Support & Service**

- Customer support and services
- Aircraft financing and Stakeholders liability
- Supply chain and logistics
- Aircraft Decommissioning

## TESTIMONIES

**ALEN GEORGE**

Class of 2020-2021

I chose ISAE-SUPAERO because it is one of the leading names in Aerospace education and **it is situated right in the heart of Aerospace Valley (Toulouse)**. I chose this Advanced Masters because I had 5+ years of experience in Aircraft maintenance documentation and customer support activities but I wanted to dive deeper into the world of Aeronautical maintenance and support. My objectives were to gain maximum knowledge and skills related to the aeronautical maintenance industry which will eventually help me to explore more career opportunities. I was also looking forward to the learning experience in an international environment where you get to interact, explore and study with bright minds from all over the world.

- The course has been **designed meticulously with the current and future needs of the Aeronautical maintenance industry in mind.**
- The course **goes from basic aeronautical subjects to complex industrial topics.**
- Most of the study material and the professors are directly from industry. This helps students gain industrial knowledge as well as purely theoretical knowledge.
- This direct interaction between school and industry experts helps students build a stronger network in the industry.

**CASTILLE VILLAIS**

Class of 2022-2023

I wanted to specialize in aeronautics. My final choice fell on ISAE-SUPAERO, since it is a benchmark of excellence in aeronautics, and after realizing the wealth of courses I would be attending, as well as the extensive network it offers. I also chose ISAE-SUPAERO because it offered the possibility of applying for a permanent contract instead of an internship as early as the second semester. My aim was to gain a better understanding of the general operation of aircraft, their systems and regulations, as well as the maintenance procedures and methods put in place to keep them airworthy. My ultimate goal was to get a job as an aircraft maintenance engineer with an airline.

One of the strengths of this program is the diversity of the lecturers. They brought together all the players you come across in the world of aeronautical maintenance: aircraft manufacturers, equipment suppliers, airlines, maintenance companies, as well as the DGAC and many other players in this field. I also appreciated the structure of the semester. The first part of the semester consisted of rather technical courses on the functioning of the aircraft and its various systems. The second half was devoted to regulations, airworthiness, maintenance methods, management and support courses.