# Aeronautical Maintenance and Support

## Engineering & Management

### Objectives

Within a global aviation market characterized by a stable forecast growth in air traffic, aircraft-in-service and aftermarket demand, maintenance and support ecosystem is facing tremendous commercial, economical, strategic and technical challenges, with constant safety concerns and international regulatory requirements. In this context, innovative developments and services are key-drivers for manufacturers, suppliers, airlines to improve aircraft fleet availability, maintenance and operating costs, added-value for operators, through e.g. data analysis, digitalization, support-oriented design, new maintenance concepts, performance development and 4.0 industrial organization.

Maintenance, repair, overhaul (MRO) and support of aircraft, engines and components encompass, in a highly competitive and dynamic international environment, a wide range of complex activities: concurrent engineering of systems, maintenance and operability engineering, service lifecycle management, line and shop maintenance, heavy checks, repair, modification and upgrades, support services, supply chain services. Those activities play a key role for defence and civil aviation, and aim at designing, managing and ensuring aircraft continuing airworthiness and safety at acceptable costs with the best availability, while benefiting from technological innovations.

The objectives of the Master in Aeronautical Maintenance and Support - Engineering & Management (AMS-E&M) are to provide students with up-to-date exposure to modern techniques and methods, know-how, innovation, regulations and standards applied in aviation industry, putting an emphasis on life cycle cost management making services more profitable, available and reliable. The master aims at providing a wide range of knowledge from aeronautical engineering to management of maintenance organization in compliance with international regulations within Integrated Logistics Support methods. Merging academic teachings, up-to-date ILS and maintenance concepts delivered by experts from industry and authorities, it prepares attendees to face, successfully, the competitive and fast changing MRO and support worldwide business.

With the Master in Aeronautical Maintenance and Support - ISAE-SUPAERO addresses the current needs of manufacturers and suppliers, design offices and customers support departments, airlines, MRO and authorities. MS AMS-E&M is the only one in Europe which addresses both Maintenance and Integrated Logistics Support for civil and military aviation business in an integrated program.

### Learning approach

**First semester:**
academic session of courses from September to March.
More than 500 h of lectures, tutorials, practical sessions, projects, visits of aeronautical industries.

**Second semester:**
students have to conduct a professional thesis in aerospace industry or in laboratory, in France or abroad, supervised by a tutor from the host organization and a professor from ISAE-SUPAERO. The thesis is concluded by the preparation of a report and an oral dissertation in front of jury.

### Organization

**Head of program**
- Joël JEZEGOU
  joel.jezegou@isae-supaero.fr

**Course duration**
One year full time

**Course start date**
September

**Location**
ISAE-SUPAERO

**Teaching language**
English

### Syllabus

**Part 1 - Aircraft General Familiarization**

**Part 2 - Maintenance and Support in Aircraft Design**
Operability and Maintainability Influence on Design - Integrated Logistic Support (ILS) and Logistic Support Analysis (LSA) - Configuration Management - Development and evolution of a maintenance program (MSG-3) - Ground Support Equipment - Project.

**Part 3 - Maintenance & Health Management Analysis & Modelling**
RAMS techniques and modelling - PHM, Predictive maintenance and data analytics.

**Part 4 - Maintenance Execution & Management**
Engines and propulsion system maintenance - Avionics and systems maintenance and troubleshooting - Equipment maintenance and test - Organization and management of a maintenance department - Military maintenance organization - Project.

**Part 5 - Airworthiness, Safety & Human Factors**
- Aviation regulation, airworthiness and Safety analysis
- Continued & continuing airworthiness
- Human factors and SMS & SMS implementation in MRO.

**Part 6 - Customer Support**
- Customer support and services.

**Part 7 - Supply Chain & Recycling**
- Supply chain & recycling, logistic.
Teaching staff

Teaching staff is composed of ISAE-SUPAERO’s permanent professors and experts from aerospace and aviation industry with aeronautical industrial background (Airbus, Air France, Dassault Aviation, ATR, Safran, AKKA Technologies, Groupe Ortec, etc...).

Career opportunities

It is intended to students who envisage engineering or management position in aircraft-engines-components manufacturers and suppliers, airlines, MRO organizations, CAMO, in-service support departments, supply chain organizations, authorities in civil or military aeronautical industry.

Companies recruiting our students

Airbus, Air France, Aeroconseil, Liebherr Aerospace, Safran, Sogeti High Tech, Thales Aerospace, Thales Avionics, DGAC, , Corsairfly, South Africa Airways, Denel (South Africa), Embraer (Brazil), Mecachrome (Canada), Lan Chile (Chili), COMAC (China), AVIC (China), Philotech GmbH (Germany), Hal (India), Royal Air Maroc, Lot (Poland), PZL Swidnik (Poland), Portugal Air Force, Singapore Air Force, China Airlines (Taiwan), Taiwan Air Force, Tunisair, Sh&E: International air transport consultancy (USA), Sabena Technics, ATR-Aircraft, Groupe ORTEC, Star Engineering, Sopra Steria, ...

Testimonies

Why did you choose ISAE-SUPAERO and apply for the advanced master «Aeronautical Maintenance and Support»? What were your objectives?

Knowing that air traffic will grow for the next few years, it seemed to me that maintenance was a good choice for a future successful career. Technologies on aircraft equipment and structures are evolving over the years and there is an essential need on the market to find competences to support aircraft fleets. ISAE-SUPAERO’s Specialized Master was a great opportunity to develop competences within the aeronautical maintenance field.

I wanted to be trained on the aeronautical way of working, and adapt my skills on trouble shooting and maintenance team management to the aeronautical standards. My objectives were to transfer my former experience of service manager in other industry to Aeronautical Service Manager.

According to your experience, which are the strong assets of the advanced Master you did?

The strength of this Master is to allow experts from the aeronautical industry such as Airbus, Dassault Aviation, etc to teach different courses to students. This approach allowed me to clearly identify what was expected within the industry.

Regarding my internship, configuration management & MSG-3 analysis (on A320Neo CFM Nacelle until Maintenance Working Group).

Regarding my actual work, Ground Support Equipment (Project Leader for A320Neo AIRBUS US Mobile facility), then Trouble shooting, Human Factors and Organization of a maintenance department (Service Manager).

Which are your career plans?

I would like to build a strong technical background related to maintenance workshops in order to occupy Management positions.

YANN CHOULOT
France, Production Methods Engineer at Air France, Graduated in 2016

Build up a team and manage the Service Department concerning France, Spain and Belgium within the Broetje-Automation Group.

BERTRAND LAPORTE
France, Head of MTECH services - MTechnologie, Graduated in 2015
Admission procedures

Advanced Masters

Academic requirements
A master's degree, or an equivalent degree in science or engineering (or in management for advanced masters in management), or bachelor degree completed by 3 years of professional experience

Application website:

Selection and admission

Selection and admission are made by an admission committee:
Possible interviews can be organized if necessary

Deadlines for application:
Several admission committees scheduled from January to July, see schedule on our website

Language requirements for Masters in French

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

Language requirements for Masters in English

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

85 points or 785 points or 6.5 points or 170 points

Aeronautical Maintenance and Support
Your contacts

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