

# Aeronautical Maintenance and Support

Accredited by the Conférence des Grandes Écoles



## Aims

The global and booming aviation market is characterized by low volumes, highly complex products with long lifecycles and high values, governed by restrictive regulatory requirements, with constant safety concerns and with a huge growth in the aircraft maintenance, repair and overhaul business (MRO). MRO plays a key role for defence and aviation industry encompassing a wide range of complex activities: engine overhaul, heavy checks, line maintenance, component maintenance, and major airframe modifications. Through regular maintenance, MRO ensures the continued airworthiness and operational safety of aircraft, and therefore the safety of passengers. Beyond, it ensures aircrafts meet the rigorous certification, safety, or standards set by international authorities such as ICAO, EASA and FAA.

Today, the aviation industry is facing tremendous challenges. To compete, aviation companies in all segments must strengthen their ability to increase productivity and production rates with products and services that meet customer demands, with a focus on continuous critical assessment of cost and performance. So, the continued support for MRO is an intrinsic part of aeronautical and maintenance manager, including service lifecycle management, service organizations, configuration management, reducing costs and improving service quality.

The objectives of the Master in Aeronautical Maintenance and Support are to provide students with up-to-date exposure to

modern techniques and methods, know-how, regulations and standards applied in aviation industry, putting the emphasis on life cycle cost management making services more profitable, available and reliable.

The master SM AMS aims at providing a wide range of knowledge from engineering basics to management of maintenance organisation in the respect of 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 worldwide business.

With the Master in Aeronautical Maintenance and Support, ISAE has made a significant improvement to answer to the current needs of manufacturers, design offices and customers support departments, airlines, MRO and authorities. SM AMS is the only one in Europe which addresses both Maintenance and Integrated Logistics Support for civil and military aviation business in an integrated program.

## Organization

**Head of Program:** Didier DELORME

**E-mail:** didier.delorme@isae.fr

**Duration of studies:** One year full time

**Beginning of classes:** September

**Location:** ISAE, Campus SUPAERO

**Teaching language:** English

## Pedagogical approach

**First semester:** academic session of courses from September to March.

More than 500 h of lectures, tutorials, practical sessions, CAD, visits of industries (AIRBUS, EADS Sogerma, Liebherr Aerospace, CEAT, etc.).

**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 organisation and from ISAE. The thesis is concluded by the preparation of a report and an oral dissertation in front of jury.

## Teaching staff

Teaching staff is composed of ISAE's permanent professors and experts from aerospace and aviation industry with aeronautical industrial background (Airbus, Air-France, AIA, CEAT, EADS, Turboméca, Safran, EADS Sogerma, Sogitec, etc.) or from airworthiness authorities (Bureau Veritas, DGAC) related to maintenance vouch for the quality of teaching dispensed.

## Syllabus

Introducing Integrated Logistics Support concepts, definitions and tools, the SM AMS syllabus offers a comprehensive teaching program with 2 options: structure, avionics. Beyond the two options, the program makes a focus on ILS to meet requirements and interests of the aviation Industry.

### Part 1 - Common program - 85 h

#### Fundamentals

CAD, Sensors and measuring systems, Control, Thermo propulsion, Flight dynamics

#### Part 2 - Aircraft knowledge - 125 h

Aircraft and airframe architecture, Airframe-linked systems, Avionics systems, Data transmission, Engine propulsion

#### Part 3 - Options

##### Option 3.1: Structure major - 247 h

Composites materials, Aeronautical materials, Fatigue, Aeronautical structures, NDT

##### Option 3.2: Avionics major - 282 h

CAD, Signal processing, Electrical engineering, Data transmission, Avionics systems, Automatic equipment tests

#### Part 4 - Maintenance and ILS (common program) - 353 h

Integrated logistics support, ILS-military aircrafts, Maintainability, Influence on design, ILS civil aviation, Quality, Reliability-Maintenability, Safety analysis, Maintenance methodology, Maintenance of military aircrafts, Development and evolution of a maintenance program, Organisation of a maintenance department (Airlines), Maintenance industrial strategy (Airlines), Managing a maintenance department (MRO, small airlines), Spare parts management, Air law and technical regulations (inc. airworthiness), Etops flights, Documentation, MCO, Customer support, Recycling and maintenance of aircrafts, Engines and propulsion systems maintenance, Avionics and systems trouble shooting maintenance, Help for onboard Maintenance

## Career opportunities

It is intended to students who envisage management position in aircraft manufacturers, airlines, and MRO organisations on civil market or military forces.

### Companies recruiting our students

AIRBUS, Aeroconseil, Air France, DGAC, Liebherr Aerospace, Safran-Snecma, Safran-Turbomeca, Mecachrome Canada, Embraer (Brazil), Hal (India), Lan Chile (Chile), Lot (Poland), PZL Swidnik (Poland), Portugal Air Force, Singapore Air Force, South Africa Airways, Denel (South Africa), SONAIR (Angola), Tunisair, Royal Air Maroc, China Airlines (Taiwan), Taiwan Air Force, COMAC (China), AVIC (China), Sh&E: International air transport consultancy (USA).



## Witness

### Arun Venkadesh SELVARAJ, Graduated in 2008

« I was lucky in the sense that I have found ISAE to do my Master's in aeronautical maintenance as it is one of the reputed university in Europe which helps the students to enter into the fast growing Aviation Industry in this modern world. The appealing factor of my university is its course contents and its best labs which are really advanced and well-equipped. The theoretical knowledge that I gained through different professional experts from the aviation industries and the practical knowledge obtained from my internship during the end of my course helped me to get placed as "Responsable Bureau Technique" in MAT AVIATION, Helicopters Maintenance, Repair and Overhaul station near Paris, taking in charge of preparing maintenance program and continued airworthiness of a fleet of aircrafts.»