

Advanced Master AMPAS

An Advanced Master of IMT Mines Albi Graduate School of Engineering in France

Accredited and labelled by the 'Conférence des Grandes Écoles'



With an ever-increasing backlog the aeronautical sector requires engineers with the ability to develop management strategies for manufacturing and technology transfer. The Advanced Master AMPAS provides an in-depth understanding of the materials and manufacturing processes coupled with supply chain and quality management. The program takes place in IMT Mines Albi and ISAE-Supaero campuses.

SKILLS ACOUIRED

- General scientific and technical knowledge of aircraft constraints and forming processes
- Scientific and technical expert level skills in the following fields
 - Fiber reinforced thermoset composite material processes based on autoclave and liquid RTM/infusion
 - Metallic (aluminum and titanium alloys) sheet forming processes at ambient and high temperature and related surface treatment processes
 - Machining, trimming and drilling of metallic and composite structures
- Knowledge of the aeronautical supply chain structure and its communication rules
- Understanding of the aeronautic dedicated quality and management requirements
- Knowledge and practice of lean manufacturing tools

CAREER **OPPORTUNITIES**

- Manufacturing engineer
- Supply chain engineer
- Method & process engineer
- Sales and operations planning manager

Aircraft manufacturers

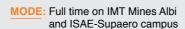
Aeronautical maintenance companies



The program includes many company visits and seminars.







LOCATIONS: Albi (70%) and Toulouse (30%), France

ACCOMMODATION: For all students



TUITION FEES:

9500€ to 15000€

APPLICATION DEADLINE:

from January to June more info on ISAE-SUPAERO website



DURATION: 1 year including a

semester-intership

INTAKE: September

LANGUAGE: English

The academic course consists of modules aiming to provide a deep knowledge of the three main material families used in airframe structures and their related forming routes in aeronautical industries. It is also devoted to gain knowledge in aircraft architecture, on aeronautical supply chain specificities, lean manufacturing and quality management required to be able to take over technical and organisational responsibilities in industry.

A team project will demonstrate the ability to address an aeronautical part manufacturing, putting into practice the theoretical and professional skills gained over this course.

SEMESTER 1

1. AIRCRAFT, MATERIAL AND PROCESS BASIC SCIENTIFIC KNOWLEDGE

- ▲ Flight Dynamics Aircraft and airframe architecture
- ▲ Computer Aided Design (CATIA)
- Aluminium and titanium alloys
- ▲ Epoxy and thermoplastic composites Assembly processes
- Material and processes qualification NDT for metallic and composite materials
- Optical techniques for assembly aid

2. COMPOSITE STRUCTURE FORMING AND **MACHINING PROCESSES**

- Physical phenomena description and modelling related to thermoset based manufacturing
- Raw material and composite quality control LCM/ RTM processes
- Autoclave Vacuum Bagging (monolithic sandwich)
- Composite material trimming, drilling and assembly
- RTM/Infusion Simulation

3. METALLIC STRUCTURE FORMING AND **MACHINING PROCESSES**

- Material behaviour and mechanical models
- Cold and hot sheet forming processes
- Surface treatments
- Machining additive manufacturing
- Sheet forming simulation

4. INDUSTRIAL ORGANISATION AND **MANAGEMENT**

- Supply chain structure and Organisation
- Materials management and Lean manufacturing
- Supply chain improvement and collaborative processes
- Quality requirement, management and tools

5. INTEGRATED TEAM PROJECT

SEMESTER 2

6-month Internship and professional thesis in industry and/or research laboratory

ADMISSION REOUIREMENTS

Master degree, or an equivalent degree in sciences or engineering, or bachelor degree completed by 3 years of professional experience

English: B2, IELTS 6.5, TOEIC 785 or equivalent.





I think the strength of this Advanced Master is that it covers the entire aspect of the manufacturing field. Actually, there is a good balance between theory and practical use, thanks to the several transverse projects, and a constant support from the teachers within a very friendly environment.

Katerina, Czech alumni

CONTACT

admission.ampas@mines-albi.fr

candidatures.isae-supaero.fr





WEBSITE

www.isae-supaero.fr/en