ADVANCED MASTERS IN AEROSPACE ENGINEERING & MANAGEMENT

Post-graduate education for Aeronautics & Space · 2020
DATA EVANGELIST, PROJECT MANAGER IN ARTIFICIAL INTELLIGENCE, MANAGER OF CHANGE MANAGEMENT.

INTRODUCTION TO MODERN AI, THE BUSINESS OF DATA, DATA VALUE CREATION, DATA INTEGRATION AND EXPLORATION, BIG DATA PROCESSING, OPTIMIZATION ARTIFICIAL INTELLIGENCE INTERNALES: training for technical managers or high-potential managers.

IS PART OF THE NECESSARY TRANSFORMATION OF DATA VALUATION, PARTICULARLY BY THE «ARTIFICIAL INTELLIGENCE & BUSINESS TRANSFORMATION» ADVANCED MASTER

CAREER OPPORTUNITIES

OBJECTIVES
The «Artificial Intelligence & Business Transformation» Advanced Master is part of the necessary transformation of data valuation, particularly by Artificial Intelligence. This program targets new jobs by offering part-time training for technical managers or high-potential managers.

CONTENTS

CAREER OPPORTUNITIES
Data Evangelist, Project manager in Artificial Intelligence, Manager of data engineers, data analysts, data miners and data scientists etc. Partner: IRT St Exupéry

SEMS > SYSTEMS ENGINEERING

OBJECTIVES
To provide the international aerospace industry with skilled professionals equipped to specify, to design, to deploy and to 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

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.

CONTENTS

CAREER OPPORTUNITIES
Employment as designer, developer, research engineer including project manager in design and development of innovative embedded systems Partner: INP-ENSEEIHT.
**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**

- **CAREER OPPORTUNITIES**
  Job research engineer, test engineer or design engineer, consultant Sector: Aerospace industry worldwide.

**ASAA > AVIATION SAFETY : 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.

- **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.

**SPA > SYSTÈMES DE PROPULSION AÉROSPATIALE**

- **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 aeracoustics.  
  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.

**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**

- **CAREER OPPORTUNITIES**
  Management position in aircraft manufacturers, airlines, and MRO organisations on civil market or military forces.

**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 modelling & simulation methods for aircraft and spacecraft structure analysis.

- **CONTENTS**

- **CAREER OPPORTUNITIES**
  Associate professional in the context of systems design and integration, Manufacturing Process Optimization, systems architect, change leader, in major aerospace companies.

**IEVEX > EXPERIMENTAL FLIGHT TEST ENGINEERING**

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

- **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.

**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.

**Partners:** AIRBUS Helicopters
**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.

**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.
*Partner: AIRBUS Defence and Space*

**MANUFACTURING**

**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.

**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.
*Partner: IMT Mines Albi*

**SPACE**

**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...)

**HADA > EXPERIMENTAL HELICOPTER, DRONE**

**OBJECTIVES**
To train specialists in design, optimization and certification of structures.
To train propulsion engineers, able to design, analyze flight tests of aircraft, equipment and systems.
To offer a complete training from systems design and integration, for human factors, current technologies, design and operation gas turbines, specialized in internal combustion and multiphase flows.

**CAREER OPPORTUNITIES**
Aircraft structures, Aircraft architecture and certification of structures.
Aircraft general familiarization - flight dynamics and certification while analyzing flight tests of aircraft, equipment and systems.

**IEVEX > AERONAUTICAL SYSTEMS DESIGN AND ARCHITECTURE**

**OBJECTIVES**
To train propulsion engineers, able to design aircraft structures, Aircraft architecture and certification of structures.
To ensure participants acquire an in-depth and multidisciplinary culture for engineering & dynamics - Aerospace techniques and study of aircraft systems - Flight test engineering - Aircraft design methodologies.
To offer the acquisition of the basic skills required for aeronautical engineering.

**CAREER OPPORTUNITIES**
Positions in subcontracting companies (aircraft manufacturers, supply chain structure and organization.

**AES > SPACE SYSTEMS ENGINEERING**

**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...)

**AEROSPACE PROJECT MANAGEMENT**

**OBJECTIVES**
To develop the latest management skills, knowledge and skills to lead international projects in the aerospace industry.

**CAREER OPPORTUNITIES**
Consulting jobs to identify and define requirements, and implement application solutions using satellites.
Jobs related to new space challenges.

**AERONAUTICS**

**OBJECTIVES**
To offer a complete training from systems design and integration, for human factors, current technologies, design and operation gas turbines, specialized in internal combustion and multiphase flows.

**CAREER OPPORTUNITIES**
Aircraft structures, Aircraft architecture and certification of structures.
Aircraft general familiarization - flight dynamics and certification while analyzing flight tests of aircraft, equipment and systems.

**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.

**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.
*Partner: IMT Mines Albi*

**SPACE**

**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...)

**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.

**CONTENTS**
- Space systems
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- Space telecommunications and related services
- Space legal, regulatory and economic/business issues

**CAREER OPPORTUNITIES**
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Consulting jobs to identify and define requirements, and implement application solutions using satellites.
Jobs related to new space challenges.
*Partner: AIRBUS Defence and Space*
PROJECT MANAGEMENT

NEW
MGPIE > MANAGEMENT DE PROJETS INNOVANTS & ENTREPRENEURIAT
TAUGHT IN FRENCH

■ OBJECTIVES
The aim of the « Management de projets Innovants et Entrepreneuriat » advanced Master is to simultaneously develop an innovation and entrepreneurial spirit. This program also trains to technological projects management (from the origin of the project to its commercialization), with new methods of management on innovative projects with “Intrapreneurial” spirit.

■ CONTENTS
Large range of new technologies (aircraft disciplines as propulsion or structure, additive manufacturing, machine learning & artificial Intelligence, Big data...), project management tools & methods, economics & finance, entrepreneurship, innovative projects...

■ CAREER OPPORTUNITIES
Startuper, head of innovative project, head of innovative and technologic development (CTO in charge of technical innovation and technologies deployment), 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.

■ 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.
Partners: École de l’Air - ENAC
ADVANCED MASTER’S PROGRAM
(MASTÈRE SPÉCIALISÉ®)

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

ADVANCED MASTERS ARE PERFECTLY DESIGNED TO

Increase your expertise
Acquire Management skills
Expand your knowledge in technology and innovating domains

EXCITING CAREER PERSPECTIVES

BUSINESS AREAS

- Space 17%
- Aeronautics 69%
- Transportation 8%
- Consulting 2%
- Miscellaneous 2%
- Teaching & Research 1%
- Telecommunications 1%

ACTIVITIES

- Research and Development 76%
- Studies, Advisory and Expertise 78%
- Quality and Security, Operational Safety 10%
- Maintenance and Support 9%
- Telecommunications, Information Technology, Networks 5%
- Methods, Production Control 5%
- Administration, Management Dpt, Finance, Accounting, 1%
- Industrial Property, Patents, Standardization, Certification 1%
- Informatics Information Technology Research & Development 1%
- Business Engineering Manufacturing Others

MAIN RECRUITERS

AIRBUS · SAFRAN · THALES · ALTRAN · AKKA · ARIANEGROUP

REASONS TO CHOOSE AN ISAE-SUPAERO ADVANCED MASTER PROGRAM

- 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 22,700 graduates around the world

Source: ISAE-SUPAERO, replacement survey, June 2018
ISAE-SUPAERO

IS A PUBLIC INSTITUTION OF HIGHER EDUCATION AND RESEARCH

A WIDE RANGE OF DEGREE PROGRAMS IN AEROSPACE ENGINEERING

3 MASTERS PROGRAMS
15 ADVANCED MASTERS PROGRAMS
6 DOCTORAL PROGRAMS (PHD)
16 CERTIFICATES
1700 STUDENTS: 1500 Masters and 200 PhDs
31% FOREIGN STUDENTS
66 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.
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:

Deadlines for application:
Several admission committees are scheduled from February to July 2020, see schedule on our website:

Funding:
Information on tuitions fees and funding can be found on our website:

YOUR CONTACTS

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