ISAE
Institut Supérieur de l'Aéronautique et de l'Espace
SUPAERO

EXECUTIVE EDUCATION

2025/26

Excellence with Passion

AM

ADVANCED MASTERS - 75 ECTS

1 semester Academic courses*	Professional thesis

PGDip **Post-Graduate Diplomas:**
1 semester courses - 45 ECTS
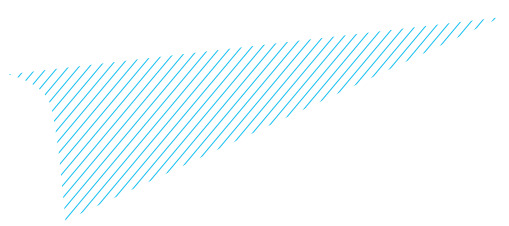
CAS
Certificate of Advanced Studies
Certificates of Advanced Studies:
from 50 to 100 hours - provide ECTS

Short courses:
from 10 to 50 hours

* Except for Artificial Intelligence & Business Transformation
Advanced Master (work/study rhythm)

ABOUT ISAE-SUPAERO EXECUTIVE EDUCATION

ISAE-SUPAERO has been at the forefront of aerospace innovation since 1909. We have trained more than 26,000 engineers, who are contributing to the development of the aeronautics and space sector around the world. Our engineers' vocation is to become future leaders in the aerospace industry and the world of tomorrow.

We have developed an integrated approach with training, research and innovation in partnership with industrial stakeholders and a network of the best international universities.
ISAE-SUPAERO Professional Education stems from our 14 Advanced Master Programmes. These one-year professionally-oriented advanced studies diplomas are built on close ties with industry professionals. They are therefore highly valued on the job market and graduates are unique because of their specialized knowledge and experience in a given field.

Thanks to its close links with the aerospace industry, ISAE-SUPAERO has developed an innovative training offer to prepare highly employable experts, in response to the growing demands from this industry.
Professionals from around the world come to ISAE-SUPAERO to experience our on- campus courses, including Certificates of Advanced Studies and short courses. Our professional development courses provide highly targeted learning to develop career-enhancing skills, which are dispensed by experts in the fields of Aeronautics, Space, Systems Engineering, Project Management and Digital Technologies. On-campus courses combine theoretical and research-based knowledge with practical hands-on experience through access to exceptional technical facilities. Learners also have access to unmatched networking opportunities.

Our certificates and short courses offer an opportunity for working professionals to enroll in traditional ISAE-SUPAERO classes. They select one of the tens of ISAE-SUPAERO courses available and learn alongside our other learners. Our courses explore wide-ranging topics and are dispensed by prominent ISAE-SUPAERO faculty staff who are renowned internationally in their respective fields.

ADVANCED MASTERS
(Mastère Spécialisé®)
& POSTGRADUATE DIPLOMAS

Some certifications are also accessible via Validation of Acquired Experience process

AERONAUTICS

AM PGDip / **TAS AERO**, Aeronautical Engineering, Aircraft Design & Flight test Engineering
Structures and materials, Flight physics, Avionics and systems, Aircraft design engineering.

AM PGDip / **HADA**, Helicopter, Aircraft and Drone Architecture
Aircraft structures, Aircraft architecture, Fixed-wing aircraft certification, Helicopters & drones.

AM PGDip / **AMS E&M**, Aeronautical Maintenance and Support, Engineering & Management *(with Airbus Helicopters)*
Aircraft general familiarization, Maintenance & health management analysis, Airworthiness, safety and human factors, Customer support, Supply chain and recycling.

AM / **ASAA**, Aviation Safety: Aircraft Airworthiness
(with ENAC & École de l'Air et de l'Espace)
Aeronautical techniques and study of aircraft systems, Air Transport safety, Airworthiness.

AM PGDip / **AES**, Aeronautical and Space Structures
Methods & tools for engineering & dynamics, Aerospace systems architecture, Dynamics & physics, Aerospace program & technologies.

AM PGDip / **SPA**, Systèmes de Propulsion Aérospatiale
(Taught in French)
Propulsion systems, Energetics and aerodynamics, Aerothermal and all types of propulsion technologies.

AM / **IEVEX**, Experimental Flight Test Engineering
(taught in French, with EPNER)
Flight mechanics, Automatic control and aircraft control, Mathematics, Aerospace technics, Propulsion tests, Embedded-systems tests, Flight safety tests.

PROJECT MANAGEMENT

AM / **APM**, Aerospace Project Management
(with ENAC & École de l'Air et de l'Espace)
Aerospace sector overview, economics and finance, Knowledge management in multicultural team project.

AM PGDip / **IEM**, Innovation Entrepreneurship & Management
Project management (including agile & scrum methods), strategic planning, Lean methods, leadership, market studies, business model design, intrapreneurship, creativity and open innovation.

SPACE

AM PGDip / **TAS ASTRO**, Space Systems Engineering & Space Exploration
Missions & systems, Space programs sub-systems: satellites & launchers.

AM PGDip / **SPAPS**, Space Applications and Services *(with Airbus Defence & Space)*
Satellite-based earth observation applications and services, Space telecommunications and services, Navigation, Space legal and business issues.

Next session on October 2025.

DIGITAL

AM / **AIBT**, Artificial Intelligence and Business Transformation *(with TBS Education & IRT Saint Exupéry)*
Data integration, Machine learning, AI certification, Business data and Project Management.

AM / **EMS,** Embedded Systems
(with INP-ENSEEIHT)
Embedded Systems core, Energy, Networks, Embedded Systems design, Applications.

SYSTEMS ENGINEERING

AM PGDip / **SEN**, Systems Engineering
Systems modelling and analysis, Systems engineering data technical management, Systems dependability, Systems performance assessments & management, Systems design and Architecture.

RÉPUBLIQUE FRANÇAISE · *Liberté Égalité Fraternité* · ENAC · ÉCOLE DE L'AIR & DE L'ESPACE · INP ENSEEIHT · EPNER · tbs EDUCATION · IRT SAINT EXUPÉRY · AIRBUS

OUR EXECUTIVE EDUCATION TEAM

Our team is here for you, let's discover who you can contact depending on your needs.

• You want to discuss a new training need for your staff members.

• You are looking for tailor-made collaborations between your company & ISAE-SUPAERO.

Thibault Brémaud
Head of Executive Education B2B development & ECATA administrator

• You are a professional and want information on our training programs (Advanced Masters, Certificates, short courses...).

• You need help to understand which course/ certificate you can take.

Mathias Ben Aioun Loras
Executive Education Senior Advisor & Promotion Manager

info.exed@isae-supaero.fr

• You need help with funding and administrative issues for your training.

Laetitia Biscarros
Executive Education coordinator

• You are a company or a professional and you are looking for information on the ECATA European program.

• You need help with administrative and logistics issues for your ECATA training.

Theodora Nikolitsopoulou
ECATA Programm coordinator

SUMMARY

AERONAUTICS

PROJECT MANAGEMENT

SPACE

DIGITAL

SYSTEMS ENGINEERING

HUMAN FACTORS

At ISAE-SUPAERO, I belong to a lab of experts in Human Factors and Neuroergonomics. We have been carrying out cutting edge research since 2015 using machine learning and algorithms to recognize stress and fatigue, in order to develop real-time crew monitoring methods and innovative systems for designing adapting cockpits. Our research is closely linked to professional applications and the short courses we offer can be a good opportunity for professionals to better understand human behavior and performance. We use flight simulators and assess pilots' brain activity but the structure of these courses enables a multi-disciplinary approach to be taken that goes far beyond the aerospace sector.

Raphaëlle Roy,
Course Director

From the AM
Aeronautical
Engineering
(TAS AERO)

" ISAE-SUPAERO Human Factors training programs in aviation are of very high quality. "

EAAP Board

EAAP
European Association for
Aviation Psychology

The price list and schedule are available upon request.

CAS Certificate of Advanced Studies

Human factors and neuroergonomics for aeronautics & transportation - HF1
Raphaëlle Roy
4 short courses: HF400, HF410, HF420, HF430

Objectives: *Multi-disciplinary approach to understand human behavior and performance. Master concepts to design safer and more efficient systems that take the human operator into account.*

HF1 - Human Factors

Understanding human behavior - HF400
Course supervisor: Raphaëlle Roy, ISAE-SUPAERO

Key contents: *Nervous system; Vigilance, Fatigue & Rhythms; Perception; Attention & Executive Control; Emotions, Memory & Learning, Decision Making; Application Focuses: Pilot/Autopilot Conflict, Airline Pilot Experience.*

Humans at work - HF410
Course supervisor: Raphaëlle Roy, ISAE-SUPAERO

Key contents: *Cognitive and Physical Ergonomics; Activity Analysis; Crew Resource Management and Reasoning Biases, Social Psychology; Application Focuses: Cockpit Design, Airbus, Dassault and DSNA Human Factors perspective.*

Experimentation and measures - HF420
Course supervisor: Raphaëlle Roy, ISAE-SUPAERO

Key contents: *Initiation to Experimentation; Ethics; Eye-tracking; Electrocardiography; Electroencephalography; Near Infra-Red Spectroscopy; Application Focus: Certification, Aviation/Aerospace psychology & medicine.*

Advanced techniques - HF430
Course supervisor: Raphaëlle Roy, ISAE-SUPAERO

Key contents: *Signal processing for physiological data; Statistical Analysis of Experimental Data; Passive Brain Computer Interfaces as tools for Neuroergonomics; Simulator studies; Application Focuses: Experimental work using real light airplanes; Accidentology.*

HELICOPTER, AIRCRAFT AND DRONE ARCHITECTURE

The Helicopter, Aircraft and Drone Architecture (HADA) Advanced Master Programme has been jointly designed and developed by ISAE-SUPAERO and Airbus Helicopters. It provides a high-level of engineering and technical skills for careers in the aircraft, helicopter and drone industries.
Our courses and certificates provide skills required for aeronautical engineers (architecture, certification and structures) and specific skills to identify and implement solutions for aircraft, helicopter and drone projects. This programme prepares participants for a wide range of professional opportunities from design, certification and operation of civil and military aircraft, drones and helicopters in France and abroad.

Jean-Marc Moschetta,
Programme Head

From the AM Helicopter, Aircraft and Drone Architecture (HADA)

The price list and schedule are available upon request.

CAS Certificate of Advanced Studies

UAV Systems - HAD1
Jean-Marc Moschetta
4 short courses: HAD500, HAD501, HAD502, HAD503
Objectives: *Understanding Unmanned Aerial Systems from design to operations.*

Helicopter Engineering 1 - HE1
Jean-Marc Moschetta
3 short courses: THE1, THE2, THE3
Objectives: *Understanding helicopter flight dynamics, vibration and construction technics.*
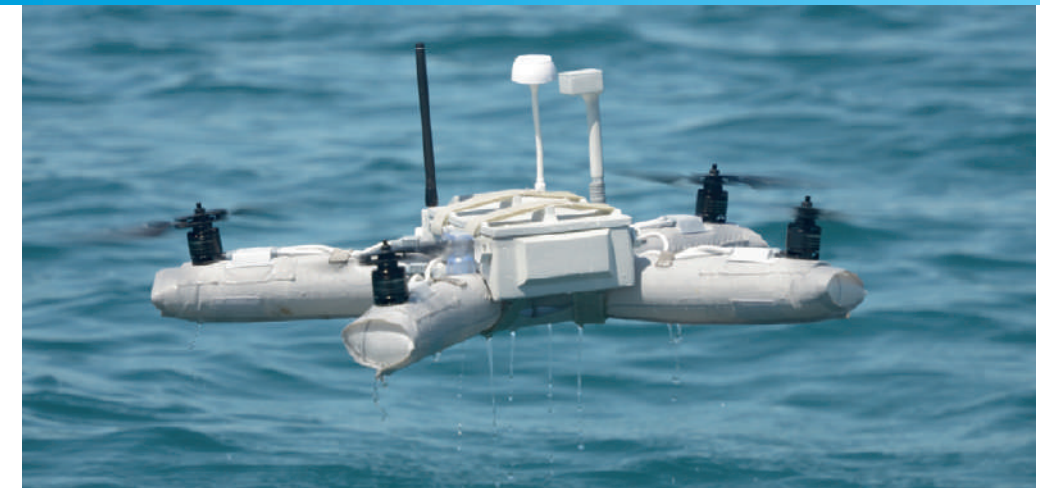
Helicopter Engineering 2 - HE2
Jean-Marc Moschetta
2 short courses: THE4, THE5
Objectives: *Mastering helicopter embedded systems, flight tests and production quality.*

HAD1 - UAV Systems

Drones systems: design and mission - HAD500
Course supervisor: Hervé Poincelet, THALES
Key contents: *Introduction to Unmanned Aerial Systems; Concepts and use cases: military and civil operations; regulations; air vehicle classification and main vehicles description; systems architecture and certification; payloads description and interest; trends: market, roadmaps, programs, studies and future needs.*

Payload and sensors for UAVs - HAD501
Course supervisor: Nicolas Rivière, ONERA
Key contents: *Review of sensors and payloads for UAVs: EO/IR sensors, radars, laser range finders, LiDAR. Image processing. Introduction to navigation through vision, SLAM.*

Drone safety and airworthiness - HAD502
Course supervisor: Catherine Ronflé-Nadaud, DGAC
Key contents: *UAS (Unmanned Aircraft System) operations are risk-based while access to the airspace is performance-based. This module presents how UAS airworthiness is managed depending on the operation and how the air risk could be mitigated with UAS traffic management.*

Drone guidance and navigation - HAD503
Course supervisor: Yves Brière, ISAE-SUPAERO
Key contents: *Architecture of embedded systems as applied to drones: autopilots, sensors, Inertial Measurement Unit (IMU), modems. Basic concepts of guidance and navigation for drones. Practical lab work sessions on quadrotors.*

VTOL Drones - HAD506
Course supervisor: Damien Chevrey, AIRBUS HELICOPTERS - Marignane
Key contents: *Introduction to VTOL Drones, autonomy levels, navigation in hostile environment, communication performance, ship-deck landing. Military and civil architectures, artificial-intelligence-based autonomous architecture.*

MAINTENANCE & SUPPORT

The Aeronautical Maintenance and Support Engineering and Management - AMS E&M - Advanced Master Programme delivers the appropriate high-level competencies and know-how in aircraft architecture, maintenance and support dispensed by experts. The course provides exposure to the latest techniques and methods, regulations and standards that apply throughout this value chain. The certificates and short courses we offer will help participants increase their skills to perform in the fast-changing global Maintenance & Support industry.

Joël Jezegou,
Programme Head

From the AM Aeronautical Maintenance and Support Engineering and Management (AMS E&M)

The price list and schedule are available upon request.

HE1 - Helicopter Engineering 1

Understanding helicopters - THE1
Course supervisor: Didier Casolaro, AIRBUS HELICOPTERS - Marignane
Key contents: *Rotor aerodynamics, helicopter flight qualities, helicopter performance, noise analysis and pre-design methods.*

Helicopter dynamics - THE2
Course supervisor: Rémi Coisnon, AIRBUS HELICOPTERS - Marignane
Key contents: *Rotor dynamics, helicopter internal noise, structural dynamics and aero elasticity, fatigue and safety.*

Helicopter materials and technology - THE3
Course supervisor: Marc-Antoine Celli, AIRBUS HELICOPTERS - Marignane
Key contents: *Helicopter production materials and technologies, composite materials, blade technology, rotor hub technology, gear box mechanisms, fatigue phenomenon, finite element methods as applied to helicopters.*

HE2 - Helicopter Engineering 2

Helicopter avionics systems - THE4
Course supervisor: Erwan Guillanton, AIRBUS HELICOPTERS - Marignane
Key contents: *Radio communication, navigation and guidance. Helicopter Fly By Wire. Cockpit ergonomics, system integration, reliability and safety analysis. Human-machine interface.*

Helicopter: Prototypes, tests, production, quality - THE5
Course supervisor: Erwan Guillanton, AIRBUS HELICOPTERS - Marignane
Key contents: *Helicopter flight test and integration. Value analysis and production methods. Aeronautical regulation and quality. Computer aided production management, helicopter maintenance.*

CAS
Certificate of Advanced Studies

Airworthiness & human factors for maintenance - AMS1
Joël Jézégou
2 short courses: AMS500, AMS600
Objectives: *Understand continuing and continued airworthiness regulations, complemented by ETOPS operational approval and aircraft transfer. Understand safety aspects through human factors concepts and tools for a practical implementation of Safety Management System in an MRO environment.*

AMS1 - Airworthiness & human factors for maintenance

Continuing and continued airworthiness - AMS500
Course supervisor: Joël Jézégou, ISAE-SUPAERO
Key contents: *EASA Part-21 Continued airworthiness process and in-service occurrence reporting EASA Continuing airworthiness regulations (Part-M, Part-145, Part-147, Part-66); ETOPS operations (approval, maintenance requirements and practices); aircraft transfer.*

Human factors and Safety Management System in Aeronautical Maintenance - AMS600
Couse supervisor: Christine Garces-Zylawski, AIR FRANCE
Key contents: *Human factors (individual and collective human performance and limitations, role of management); Safety Management System (SMS) concept, organization and responsibilities; risk management techniques in aeronautical maintenance environment (strategies, models: bowtie/ Reason/PEAR, techniques: MEDA/MLOSA); safety culture promotion.*

Aircraft structure and materials for aircraft maintenance engineer - AMS103a

Course supervisor: Jean-Fred Begue, DGA

Key contents: *Flight and ground loads; fatigue and ageing aircraft (fatigue phenomena, endurance-initiation propagation, fracture mechanics, widespread fatigue damage, fatigue and damage tolerance for composite structures) airframe and engines materials (performance criteria, properties, applications); non-destructive tests (processes, techniques); introduction to additive layer manufacturing.*

Structural repairs - AMS103b

Course supervisor: Jean-Fred Begue, DGA

Key contents: *Structural repairs (damage, repair scenarios and criteria, methodologies, justification, approval, SRM).*

Aviation regulation and airworthiness - AMS107a

Course supervisor: Joël Jézégou, ISAE-SUPAERO

Key contents: *Aviation safety objectives; international conventions and ICAO; European regulations and EASA; airworthiness regulation (initial type certification, certification of changes, continued airworthiness); overview of operations regulation.*

Aircraft safety analysis - AMS107b

Course supervisor: Joël Jézégou, ISAE-SUPAERO

Key contents: *Safety of complex system principles; safety and reliability studies (FHA, PSSA, SSA); common cause analysis (PRA, ZSA, CMA).*

Predictive maintenance and data analytics - AMS301

Course supervisor: Fabrice Lebeau, DASSAULT AVIATION

Key contents: *Prognostics and health management (PHM) and predictive maintenance concepts; applications in aeronautics from aircraft data generation to development of added-value services; introduction to data science and machine learning techniques; usage of data analytics for maintenance purposes.*

AVIATION SAFETY & AIRCRAFT AIRWORTHINESS

The Aviation Safety: Aircraft Airworthiness – ASAA – Advanced Master Programme aims at giving future managers a broad understanding of the issues and priorities in Airworthiness. We focus on providing skills that are essential to air transport safety and range from design to operations, within the international legal environment. Our certificates and short courses stemming from this Advanced Master course cover both aspects of certification and legal and economic implications.

Joël Jezegou,
Head of Programme

From the AM Aviation Safety & Aircraft Airworthiness (ASAA)

The price list and schedule are available upon request.

CAS Certificate of Advanced Studies

Aircraft Engineering for Certification of Avionics & Systems - AEC1

Joël Jézégou
2 short courses: AW9, AW10

Objectives: *Acquire a comprehensive understanding of aircraft avionics, general systems and cabin, with due consideration given to technical skills for an airworthiness engineer and relevant certification requirements.*

CAS Certificate of Advanced Studies

Aircraft Engineering for Certification of Flight and Structure - AEC2

Joël Jézégou
2 short courses: AW7, AW8

Objectives: *Acquire a comprehensive understanding of aircraft flight dynamics, structure and materials, with due consideration given on technical skills for an airworthiness engineer and on relevant certification requirements.*

AEC1 Aircraft Engineering for Certification of Avionics & Systems

Environmental certification - AW4
Course supervisor: Fabrice Tristant, DASSAULT AVIATION

Key contents: *Aircraft engine emissions; aircraft noise; lightning phenomena and protection; icing and ice protection; electro-magnetic hazards (EMH).*

Normal-category aircraft and unconventional products certification - AW6
Course supervisor: Joël Jézégou, ISAE-SUPAERO

Key contents: *Understanding Regulation proportionality and CS-23; Technological innovation and certification; electrical and hybrid vehicles; UAVs; New air mobility challenges.*

Avionics - AW9
Course supervisor: Lionel Bertin, AIRBUS

Key contents: *Airplane avionics functions and systems: communication, navigation and surveillance, autoflight system, flight management system, electronic centralized aircraft monitoring; Integrated Modular Avionics (IMA) architecture and certification; connected aircraft and related certification challenges.*

General Systems and cabin - AW10
Course supervisor: Joël Jézégou, ISAE-SUPAERO

Key contents: *Airplane general systems and cabin architecture, certification requirements: covering electrical systems, hydraulic systems, flight controls, landing gear, pneumatic systems and ice protection systems, fuel systems, oxygen systems, fire protection, cabin and cargo arrangement and safety.*

AEC2 Aircraft Engineering for Certification of Flight and Structures

Flight - AW7
Course supervisor: Jacques Verrière, pilot & flight safety expert

Key contents: *Jet airplane principles of straight and steady level flight; high speed cruise performance; climb and acceleration performance; maneuvering performance; take-off and landing performance; handling qualities; stability and control; dynamic stability; certification requirements.*

Structure - AW8
Course supervisor: Laurent Michel, ISAE-SUPAERO

Key contents: *Airplane airframe architecture; Materials performance criteria and properties; Flight and ground loads; Fatigue of aircraft structure; Ageing aircraft; Certification of composite structures; Applicable certification requirements and compliance demonstration.*

Engine and powerplant - AW11
Course supervisor: Xavier Carbonneau, ISAE-SUPAERO

Key contents: *Engine thermodynamics; engine control, engine certification; turboshaft and turbopropeller; Auxiliary Power Units (APU); powerplant integration and certification.*

AEROSPACE STRUCTURES

The Aeronautical & Space Structures Advanced Master Programme prepares engineers for a future career in design, R&D, or certification, in connection with mechanical engineering applied to structures. Our Master programme is a European reference in the field and we have identified 4 short courses that can be taken by professionals. You can thus increase your skills in numerical calculation for the most advanced structures, your knowledge of materials, as well your understanding of how they interact with the environment, in particular loads and fluid-structure interactions.

Yves Gourinat,
Programme Head

From the AM
Aeronautical
& Space
Structures
(AES)

The price list and schedule are available upon request.

ARTIFICIAL INTELLIGENCE

ISAE-SUPAERO has been committed to the AI industrial and universities ecosystem from 2011. ANITI brings together players and universities who share the goal of making Toulouse the AI world leader.
ISAE-SUPAERO enhances executives' skills - and especially targets those who graduated before the "AI wave" - working in all economic sectors.
Our Artificial Intelligence & Business Transformation Advanced Master Programme is a part-time training program for technical managers or high-potential managers. Certificates of Advanced Studies will enable you to focus on strategic topics in your career path.

Nicolas Drougard,
Programme Head

From the AM
AI & Business
Transformation
(AIBT)

ANITI
Artificial
Intelligence
Toulouse
Institute

The price list and schedule are available upon request.

Structural shells analysis & modeling - SA410
Course supervisor: Yves Gourinat, ISAE-SUPAERO
Key contents: *Calculation of symmetric membranes; Equations of discrete dynamics; Dynamics of solid continuous media; hybrid systems; Reissner's general shell theory.*

Advanced numerical methods - SA411
Course supervisor: Jérôme Limido, ABSTRAO
Key contents: *Explicit FEM models: Explicit algorithms, Matrix variability, Material modelling, Rapid dynamics. Particle techniques: SPH method, Fragmentation & fluid interaction.*

Flexible structure dynamics: modeling & control - SA402
Course supervisor: Erwan Kassarian, ISAE-SUPAERO
Key contents: *Modelling of flexible structures: Lagrange equations, notions of effective masses, Substructuring, modal analysis of flexible structures, colocation of actuators/sensors, model reduction. Theory of linear servoing: transfer function/state representation, modal analysis, root location, frequency analysis, stability margins, gain/phase control of flexible modes.*

Introduction to strategic management: an application to the aviation industry - SA409
Course supervisor: Audrey Rouyre, MONTPELLIER BUSINESS SCHOOL
Key contents: *Specificities of civil aircraft construction; Situation of the Airbus-BOEING cluster; Civil aviation activity since 1952 (traffic, transport and fleet); Difficult technical compromises in product definition; Industrial, commercial and financial management of an activity in global competition.*

CAS Certificate of Advanced Studies

Data integration and processing for value creation - AIBT1
Course supervisor: Nicolas Drougard
3 short courses: AIBT101, AIBT102, AIBT103
Objectives: *Understand key components of ETL-based data warehousing. Devise indicators on data quality and management. Implement the distribution of simple operations via the Map/Reduce principle in Spark. Connect on a cloud computing engine. Understand the usefulness of containers. Deploy a Docker container.*

CAS Certificate of Advanced Studies

AI-oriented business model design - AIBT2
Course supervisor: Nicolas Drougard
4 short courses: AIBT104, AIBT107, AIBT109, AIBT100
Objectives: *Discover how modern AI has an impact on businesses. Know about the main legal aspects of data and learn about "platforms" business models. Understand the impact of Big Data and Deep Learning on innovation.*

CAS Certificate of Advanced Studies

Development & deployment of efficient AI technologies - AIBT3
Course supervisor: Nicolas Drougard
3 short courses: AIBT106, AIBT 108, AIBT 110
Objectives: *Explore the data analytics workflow. Discover a general overview of Machine Learning, Supervised and Unsupervised Learning. Know the main bottlenecks and challenges of data-driven approaches. Discover Reinforcement Learning and main concepts of modern Deep learning algorithms.*

AIBT1
Data integration and processing for value creation

Data integration and exploration - AIBT102

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

Key contents: Data Warehousing; History and recent evolutions; Architecture; Key functions; Layers. Data quality; Indicators; improvement. Data visualization; visual perception; tools.

Big data processing - AIBT103

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

Key contents: Distributed computing with Spark; MapReduce paradigm; Hadoop Stack; Hadoop Distributed File System. Virtualization and cloud computing; Economical models; Technical benefits; cloud engines. Docker.

Introduction to modern AI - AIBT101

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

Key contents: AI Basics; Machine Learning; Unsupervised and Reinforcement Learning. Fueling AI; Understanding the relationship between problem framing. Business outcomes and applicable algorithms. Business intelligence and business models. Major Business and AI success stories

AIBT2
AI - oriented business model design

The business of data - AIBT104

Course supervisors: Nicolas Drougard, ISAE-SUPAERO
and Serge Nyama, TBS EDUCATION

Key contents: AI in the world, geostrategic point of view through data and cloud. Legal environment (GDPR and beyond). New economy and the sharing economy. Open data.

Data value creation - AIBT107

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

Key contents: AI and the marginal value of data, of algorithms. Changing the cost of prediction. Machine learning, market structure and competition; impact of productivity growth on employment. The impact of artificial intelligence on innovation.

AIBT3
Development & deployment of efficient AI technologies

Machine learning and data analytics - AIBT106

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

Key contents: The data analytics workflow; General overview of Machine Learning; Unsupervised Learning. Ensemble methods; Anomaly detection; Bio-inspired ML, Neural Networks and Deep Learning. Feature engineering and data preprocessing.

Sequential decision making in AI - AIBT108

Course supervisors: Florent Teichteil-Koenigsbuch, AIRBUS
and Nicolas Drougard, ISAE-SUPAERO

Key contents: Reinforcement Learning (RL); modern Deep RL algorithms. Scheduling; optimization methods, modeling frameworks. Path Planning, path algorithms, heuristic search, motion planning. Decentralized decision making; Multi-agent concepts and game theory. Collaborative and adversarial decision making.

AI certification, robustness and dependability - AIBT110

Course supervisor: Grégory Flandin, IRT SAINT-EXUPERY and Nicolas Drougard, ISAE-SUPAERO

Key contents: Learning algorithms and robustness, interpretability and explainability, certificability. Norms in the aerospace and automotive industries; human/machine couple in the decision process. Certification of systems based on AI; main legal initiatives on the subject; major technology trends underlying norms on AI. Links between usual engineering validation processes and their use on AI.

Optimization topics for AI - AIBT105

Course supervisor: Nicolas Drougard, ISAE-SUPAERO

*Key contents: Artificial Intelligence, Machine Learning and Optimization. Gradient Descent Optimization.
Gradient based optimization methods; Convergence in Deep Learning.
Discrete optimization; Discrete satisfaction and optimization methods.
Metaheuristics; genetic algorithms; stochastic methods, CMA-ES, cross-entropy.*

Change management - AIBT109

Nicolas Drougard, ISAE-SUPAERO and Serge Nyama, TBS EDUCATION

Key contents: Change management; Innovation organization and management. Entrepreneurial ecosystem in AI in Montréal; Relocation of AI innovation from big business to startups; Meetings with testimonials from entrepreneurs and major companies.

MANAGEMENT & INNOVATION

Philippe Girard,
APM Programme Head

Romain Buquet,
IEM Programme Head

Top managers need to master technical and managerial skills. Project management requires mastering a wide scope of knowledge and know-how adapted to this challenging worldwide business.
To address these needs, ISAE-SUPAERO offers 2 Advanced Master programmes:
- The Aerospace Project Management – APM – Advanced Master provides participants with cutting edge knowledge and the skills required to lead Project or Program teams in the global aerospace and defence industry.
- The Innovation and Entrepreneurship Management - IEM - Advanced Master focusing on developing innovation skills, as well as entrepreneurial methods and tools. Those skills are increasingly critical: we offer a certificate and several short courses to professionals who are seeking to improve themselves.

The price list and schedule are available upon request.

CAS Certificate of Advanced Studies

Project Management & Digital Transformation - AIBT100

part-time (3x1 week), Nicolas Drougard and Frédéric Minart, INDIANA CONSEIL & FORMATION

Key contents : *Project Management principles (OBS, WBS, planning, risk & control, Agile & V cycle), Data governance, digital transformation, Systems engineering (principles, methods and architecture and MBSE), New ways of working, Agile@scale implementation, Value Proposition & business model, Project presentation & Pitch, PMBok® presentation, Cybersecurity & risk management, Change management.*

From the AM
AI & Business
Transformation
(AIBT)

CAS Certificate of Advanced Studies

Preparation to PMI certification - PMI1

part-time 2 days/week, Philippe Girard.

Objectives: *Get trained by PMBOK experts to prepare the CAPM® (Certified Associate in Project Management) or PMP® (Project Management Professional) exams.*

PMI certification is well-known, acknowledged and appreciated all over the world. The teachers are certified themselves and reference PMBOK experts.

From the AM
Aerospace
Project
Management
(APM)

CAS Certificate of Advanced Studies

Ideation and technological innovation - MP1

(Not opening this year)

Romain Buquet

4 short courses: MP151, MP152, MP255, MP311

Objectives: *Discover Design thinking approach, make a prototype and acquire a basic understanding of neurosciences and cognition to enhance your creativity skills. Understand recent collective intelligence and open innovation tools to manage and boost teams and facilitate teamwork. Acquire communication process and management style knowledge.*

From the AM
Innovation
Entrepreneurship
& Management
(IEM)

(Not all programs on this page are opening this year.)

MP1 - Ideation and technological innovation

Design Thinking - MP151
Course supervisor: Marie-Emilie Sapin, DECAZY

Key contents: *Discover Design thinking methodology, User observation and interviews, Customer Journey Map and quick prototyping.*

Creativity - MP152
Course supervisor: Mathieu Sacrispeyre, MATHSACRIS

Key contents: *Neuroscience and cognition fundamentals to understand creativity mechanism; Creativity boosters (CPS, ASIT methods) and creativity session leadership for innovation projects.*

Collective Intelligence - MP255
Course supervisor: Suzie Lewis, TRANSFORM FOR VALUE

Key contents: *Collective and participatory dynamics, collaborative leadership, Collective Intelligence tools (including numerical tools) and team coaching and facilitation fundamentals.*

Open Innovation - MP311
Course supervisor: Vincent Clot, THALES ALENIA SPACE

Key contents: *Open Innovation approach and management, partnerships modes, Intellectual Property topics, open source patents and software mindsets.*

MP311 course can only be attended as part of the MP1 certificate

SPACE SYSTEMS ENGINEERING

The TAS ASTRO - Space Systems Engineering - Advanced Master Programme allows trainees to develop a high level of multidisciplinary skills in space science, space systems engineering and space project management. Almost 1 in 5 students graduating at ISAE-SUPAERO goes on to work in the space sector and we have a unique position in the ecosystem with space agencies, research agencies and industrial companies in an international environment.

Stéphanie Lizy-Destrez,
Programme Head

From the AM Space Systems Engineering (TAS ASTRO)

The price list and schedule are available upon request.

(Except for PM470, the programs on this page are not opening this year.)

Projet Management Fundamentals - PM470

Course supervisor: Frédéric Minart, INDIANA CONSEIL & FORMATION

Key contents: *Project Management implementation, TOC model, success criteria, projects type, objective settings, roles and responsabilities, Project scheduling (PERT and Gantt), resource management, cost and cash management.*

Project Leadership and Management - MP201

Course supervisor: Frédéric Minart, INDIANA CONSEIL & FORMATION

Key contents: *Project management overview (organization and steering notions), project simulation, risk and events management. Project environment: human factors, after-project steps, customer/ subcontractor relationship management.*

Negotiation - MP253

Course supervisor: Vincent Frey, KEDGE BS

Key contents: *Negotiation strategies, identifying rational and irrational needs, designing win-win proposals, stand definition and defense, trust building; uncertainty management, conflict management, creativity and strategy plans.*

Lean Startup - MP303

Course supervisor: Justine Trebulle, IOT VALLEY

Key contents: *Reducing time to market, customer-centric and MVP (Minimum Viable Product) approaches. Business models, Osterwalde matrix, product or service prototyping, Mock up and wireframes tools, early adopters community management, Defining, analyzing and reporting key performance indicators.*

Agile and scrum methods - MP312

Course supervisor: Géry Schneider, IBM

Key contents: *Customer-centric project management approach, team productivity boosters (versatility, multitasking), Agile approach introduction: values, principles and most commonly used methods (Kanban, Scrum…).*

CAS
Certificate
of **A**dvanced
Studies

Launchers - IS1
Stéphanie Lizy-Destrez
4 short courses: IS413, IS415, IS431, IS453

Objectives: *Understand the main design processes for launchers. Master the concepts of basic astrodynamics related to the guidance of LEO, GEO and interplanetary space trajectories. Acquire knowledge of the physics of the space environment encountered by the vehicle. Discover Control and Guidance algorithms and the principles of inertial navigation techniques.*

IS1 – Launchers

Space environment and effects - IS413
Course supervisor: Angelica Sicart-Piet, ONERA

Key contents: *Knowledge of the physics of the space environment encountered by the vehicle; constraints imposed by the environment; training techniques for predicting effects on materials, electronic components and embedded systems. Various solutions to mitigate degradations and impacts on the system involved.*

Mission analysis and orbital mechanics - IS415
Course supervisor: Stéphanie Lizy-Destrez, ISAE-SUPAERO

Key contents: *Concepts of basic astrodynamics related to the development and control of the LEO, GEO or interplanetary space trajectories.*

Launchers architecture - IS431
Course supervisor: Luc Gonidou, CNES

Key contents: *Main design processes for launchers. Different types of launchers, functions breakdown, links between functions and subsystems. Applications on staging and performances.*

Launchers guidance and control - IS453
Course supervisor: Stéphanie Lizy-Destrez, ISAE-SUPAERO

Key contents: *Control and Guidance algorithms: principles, operational uses, exchange parameters. Principles and components of the inertial navigation techniques. Specification and design of the inertial measurement units (IMU). System trend for future launchers.*

IS415, IS431, IS453 courses can only be attended as part of the IS1 certificate

Space communications systems - IS418

Course supervisor: José Radzik, ISAE-SUPAERO

Key contents: *Introduction to Satellite Communications Systems; Satellite communications systems architectures and components; Types of orbits, radio regulations. Link Analysis; Digital communications; Satellite networking; Multibeam satellite systems. Satellite communications payload; Performance objectives and functions; Repeater architecture; Antenna coverage concepts.*

Space surveillance - IS440

Course supervisor: Emmanuel Delande, CNES

Key contents: *General overview on space debris (origin, sources, risks, evolution) including concepts about Space Surveillance and Tracking (SST). Different techniques used: Orbit Determination, Observation-to-Object association problem, Collision Risk Management, Time of Closest Approach(TCA), computation of the Probability of Collision(PoC) with a short-encounter method.*

Space systems architecture - IS450a

Course supervisor: Thibault Gateau, ISAE-SUPAERO

Key contents: *Mission analysis; Orbitography; Tracking error analysis. Radio communications; Satellite emitter power; Station emitter power; Link budget calculation. Thermal analysis; External flux analysis; Temperatures calculation. Power subsystem; Solar panel sizing; Battery sizing; Global analysis. Attitude control system; External torques analysis; Performance requirements; Architecture definition; Actuators and sensors sizing.*

Systems engineering of space systems - IS552

Course supervisor: Thierry Tournier, AIRBUS DEFENCE AND SPACE

Key contents: *Juice spacecraft system design approach; Mission concept and astrometry measurement principle; Spacecraft design elaboration; Spacecraft design evolutions from advanced studies to frozen design; Spacecraft autonomy and failure management; Development model philosophy; Test facilities and environmental test campaigns; Functional verification; Performance verification; Juice project management. Implementation of Juice within the ESA space science program; Industrial organization and team build up.*

SPACE APPLICATIONS & SERVICES

From the AM Space Applications & Services (SPAPS)

The price list and schedule are available upon request.

We offer a Space Applications & Services - SPAPS - Advanced Master Programme, which gives participants a broad understanding of space systems and their environment, constraints and capacities in the fields of earth observation, communications and navigation.

Raphaël Garcia,
Programme Head

> *The certificates and short modules detailed below will be available from October 2025.*

CAS Certificate of Advanced Studies

Earth Observation - APS1

Raphaël Garcia
3 short courses: APS302, APS303, APS304

Objectives: *Master the basics of image processing. Identify relevant analytics for end users. Develop the processing chain needed to obtain the corresponding data. Have a broad view of the services that can be provided based on spatial imagery. Be able to identify the performances of space data analysis related to intelligence application requirements.*

CAS Certificate of Advanced Studies

Satellite Telecommunication Network - APS2

Raphaël Garcia
2 short courses: APS401, APS402

Objectives: *Understand IP network architectures and identify the protocols and equipment needed for secured network architecture. Understand the impact of the satellite link on end-to-end quality of service and be able to determine user experience quality.*

APS1 – Earth Observation

Image processing and data analysis - APS302
Course supervisor: Laurent Guillaume, AIRBUS DEFENCE & SPACE

Key contents: *Introduction to human and computer vision as a baseline for object identification; principles of image processing; workshops and Python implementation; computer vision lab.*

Applications and services, agriculture and forest - APS303
Course supervisor: Anne Jacquin, AIRBUS DEFENCE & SPACE

Key contents: *Vegetation maps form optical data; Agriculture analytics and Pixel Factory use; workshops using I4D and Overland tools; in the field application.*

Applications and services, natural resources and intelligence - APS304
Course supervisor: Anne Jacquin, AIRBUS DEFENCE AND SPACE

Key contents: *Intelligence and military applications; land surveillance; maritime domain surveillance; oil, gas and mining; water cycle.*

APS2 – Satellite Telecommunication Network

Telecommunications and networks - APS401
Course supervisor: José Radzik, ISAE-SUPAERO

Key contents: *Layered networks, protocols and services. Introduction to telecommunication networks, IP network architecture; IP routing, IPv4/IPv6 address management; Quality of Service (QoS) principles; Lab interactions between access techniques in satellite networks and upper protocol layers; encryption principles; introduction to radio network access techniques.*

Broadband satellite communication systems - APS402
Course supervisor: José Radzik, ISAE-SUPAERO

Key contents: *Architecture of satellite communication systems, topologies and introduction to the link budget; propagation at high frequencies and Adaptive Coding and Modulation; link budget and radio resource management, multibeam coverage and frequency reuse; earth station and infrastructure; satellite Internet access network and Broadband Satellite Multimedia standards, DVB-S2 principles; Lab: continuous carrier operation for the return link; DVB-RCS2, MF-TDMA, DAMA radio resource management, random access and integration in IP networks; Lab: DVB-RCS2 return link, deterministic access; higher layer design, performance enhancement.*

APS302, APS303, APS304 courses can only be attended as part of the APS1 certificate.
APS401, APS402 courses can only be attended as part of the APS2 certificate.

SYSTEMS ENGINEERING

The Systems Engineering – SEN – Advanced Master Programme aims at equipping professionals so they can specify, design, deploy and maintain complex systems in various industrial sectors: space, aeronautics, air traffic control, land transport systems, maritime transport, energy, communication systems...

Systems Engineering is an interdisciplinary engineering discipline. Its approach is based upon technical processes (requirement engineering, design, integration, verification, validation, etc.) as well as project management processes, agreement processes and enterprise processes implementation.

The price list and schedule are available upon request.

Jean-Charles Chaudemar,
Programme Head

Professional certification
«Architecte - Manager en ingénierie système (MS)» - RNCP 36470

FRANCE compétences
CERTIFICATION
enregistrée au RNCP

MON COMPTE FORMATION

CAS
Certificate of Advanced Studies

Value-driven Systems Engineering - SEN1
Operated by EUROSAE - 2 days/month

Objectives: *Acquire the basics of System thinking, System engineering management, Requirement engineering, MBSE (Model Based Systems Engineering), System architecture, System design.*

CAS
Certificate of Advanced Studies

Preparation for INCOSE ASEP & CSEP certification - SEN2
Rob Vingerhoeds

Objectives: *Become INCOSE ASEP or CSEP certified. Understand the definition and concepts of a system; learn the concepts of System thinking and Life cycle overview; analyze technical processes ranging from requirements, to implementation, integration, verification and validation; understand how systems engineering contributes to business aspects.*

PROFESSIONAL AND CUSTOM-MADE COURSES WITH EUROSAE

EUROSAE
ADVANCED TRAINING

Most of ISAE-SUPAERO certificates and short courses introduced in the pages above are components of our Advanced Masters Programmes. ISAE-SUPAERO also has a subsidiary, EUROSAE, fully dedicated to training professionals.
EUROSAE has been offering professional education since 1960. It is based in Paris and Toulouse (inside ISAE-SUPAERO's facilities). EUROSAE combines the advantages of agility and in-depth expertise thanks to the access it has to the expert ecosystems. Lecturers come from either the academic world or from industry. They form a network of 1,600 experts and can help you define your need and find

a custom-designed training solution. ISAE-SUPAERO and EUROSAE work together on a day-to-day basis to build new teaching solutions and make the most of their assets and strengths, such as their facilities and human resources.

We can work with industrial partners to create new programs such as the following executive certificate in Value Driven Systems Engineering, which resulted from a need expressed by CAP GEMINI and is a spin-off from our SEN Advanced Master Programme operated by EUROSAE.

Short Aerospace courses

Short courses taught in French
in Paris ⋏
in Toulouse ❀

Aeronautic, Space & Defence		
⋏	AED 002	Systèmes propulsifs à propergols solides
❀	AED 003	Les facteurs humains dans l'aéronautique : concepts et mise en pratique sur simulateur et avions DR400
⋏	AED 004	Qualités de vol des avions modernes - Commandes de vol électriques
❀	AED 005	L'approche industrielle du processus STC
❀	AED 006	Mécanique spatiale et contrôle des véhicules spatiaux
⋏	AED 007	Conception des lanceurs et phases de rentrée
❀	AED 008	Initiation à la mécanique du vol
❀	AED 008D	Introduction to flight mechanics
⋏	AED 009	Systèmes propulsifs à propergols liquides
❀	AED 010	Conduite du vol
❀	AED 011	Conception de l'avion : techniques pour un avant-projet d'avion de transport commercial
❀	AED 012	Conception des satellites
⋏	AED 013	Architecture des satellites
❀	AED 014	Segment sol de contrôle et opération des satellites
❀	AED 015	Architecture électrique avion : Les bases des systèmes électriques
❀	AED 017	Télémesures, télécommandes, localisation des satellites

Aeronautic, Space & Defence		
⋏	AED 019	Techniques des hélicoptères
❀	AED 020.1	Les techniques d'essais dans l'aéronautique
❀	AED 021.1	Initiation aux techniques d'essais en vol
❀	AED 022	Introduction aux systèmes spatiaux
❀	AED 023	Givrage en aéronautique
❀	AED 024	Le projet aéronautique : de la genèse à la réalisation
❀	AED 025	Le foudroiement des aéronefs
❀	AED 026	Systèmes d'air aéronautiques
❀	AED 028	La sécurité feu dans les aéronefs
❀	AED 029	Initiation à la conception des avions
❀	AED 030	Les mini-drones : enjeux applicatifs et innovations technologiques
⋏	AED 032	Introduction aux missiles tactiques
⋏	AED 033	Éléments de conception des missiles tactiques
❀	AED 034	Introduction aux nano satellites
⋏	AED 035	Guidage optronique des missiles tactiques
⋏	AED 036	Autodirecteurs électromagnétiques des missiles tactiques
❀	AED 037	Maintenance des systèmes aéronautiques : aspects techniques et stratégiques
❀	AED 038	Introduction à la maintenance programmée d'un avion de transport civil : processus MRB et Méthode MSG-3
❀	AED 040	Les standards aéronautiques pour la certification des systèmes avioniques et ATM
❀	AED 041	Géopositionnements statiques et dynamiques précis
❀	AED 042	Les différences entre normes de maintien de navigabilité (EASA-FAA- UK CAA-TCAC-CAAC-JCAB)
❀	AED 043	La navigation de l'avion - Situation actuelle et évolutions
❀	AED 045	Les débris spatiaux et la surveillance de l'espace
⋏ ❀	AED 050	Certification des équipements aéronautiques : les processus réglementaires pour l'aviation commerciale
⋏ ❀	AED 051	La navigabilité des aéronefs civils : de la conception à la maintenance
⋏	AED 052	La navigabilité des aéronefs étatiques: de la conception à la maintenance
⋏ ❀	AED 053	La navigabilité des aéronefs civils et étatiques : de la conception à la maintenance
❀	AED 054	Part 21J - Organismes de conception : extension à la réglementation étatique (FRA 21J) et militaire européenne (EMAR 21J)
❀	AED 055	Part 21G - Organismes de production : extension à la réglementation étatique (EMAR/FR 21G)
❀	AED 056	PART M - Maintien de la navigabilité : extension à la réglementation étatique (EMAR/FR M)
❀	AED 057	PART 145 - Organismes de maintenance : extension à la réglementation étatique (EMAR/FR 145)
❀	AED 060	Evaluations "Safety" sur avion de transport : aspects généraux pour les systèmes et "Software"
❀	AED 061	Certification et suivi de navigabilité des moteurs
Aeronautic, Space & Defence		
❀	AED 063	Spécifications de certification (CS-25) vol et opérations
❀	AED 064	Spécifications de certification (CS-25) structures
❀	AED 066	Certification des avions : processus (PART-21) et spécifications (CS-25)
❀	AED 067	Specification de certification - Partie avionique
❀	AED 068	Spécifications de certification (CS-25) cabine avion
❀	AED 069	Méga constellations et satellites très haut-débit : Marché et technologies

⚓	AED 071	Découverte des drones. Les différents types de drones à voilure fixe et à voilure tournante
⚓	AED 072	Découverte des hélicoptères. Principe du vol et différents types d'aéronefs à voilure tournante
⚓	AED 073	Découverte de l'aviation d'affaires. Initiation au domaine et aperçu des classes d'avions
⚓	AED 075	Découverte des circuits de bord. Circuits carburant, électrique, hydraulique, conditionnement d'air
⚓	AED 076	Découverte des bases de la propulsion. Turbo-réacteurs, turbo-propulseurs et turbo-moteurs
⚓✳	AED 102	Initiation aux techniques de l'aéronautique
✳	AED 131	Systèmes embarqués en aéronautique civile et militaire
✳	AED 132	Generation et distribution electrique A350 XWB
✳	AED 133	Les processus industriels et la gestion de configuration avion
✳	AED 134	Processus électrique aéronautique : Dossier de définition électrique avion
✳	AED 135	A350 Réseau electrique ESN/MBN
⚓	AED 136	Alternatives à la navigation par satellite : Procédés de géolocalisation et de navigation alternatifs au GNSS
✳	AED 137	Aéronefs plus électriques : De l'électrification à la propulsion

Automatic - IT - IA - Quantum		
✳	ARF 003	Commande "robuste" des systèmes
✳	ARF 025	Réseaux embarqués AFDX

Electronics & Applications		
⚓	ELA 005	Récepteurs de mesures et de contre-mesures en radar
⚓	ELA 006	Performances et applications du radar : des principes de base à l'avant projet
✳	ELA 010	Performances et applications du radar : des principes de base à l'avant projet
⚓	ELA 013	Les systèmes radars aéroportés
✳	ELA 023	Réseaux de télécommunications par satellites - Services et protocoles
✳	ELA 024	Télécommunications spatiales
✳	ELA 026	Radio logicielle : Concepts et applications

Electronics & Technology		
✳	ELT 007	Effets de l'environnement spatial sur les composants électroniques embarqués
✳	ELT 009	Initiation aux hyperfréquences
✳	ELT 012	Initiation aux antennes

Fluid mechanics & Acoustics		
✳	FMA 006	Initiation à l'aérodynamique
✳	FMA 008	Conception aérodynamique de l'avion
✳	FMA 013	Initiation aux écoulements visqueux et turbulents
✳	FMA 015	Simulation et analyse des écoulements internes et externes
✳	FMA 016	Aérodynamique et performances des machines tournantes
✳	FMA 019	Turbomachines aéronautiques : Principes, Fonctionnement, Intégration, Certification

Mechanical Engineering, Materials & Structures		
⚓	GME 003	Fatigue des structures aéronautiques
⚓✳	GME 004	Fatigue des structures aéronautiques : phénomènes physiques, critères, règlement, fiabilité
✳	GME 005	Le calcul des structures par éléments finis dans un contexte industriel
✳	GME 006	Dynamique des structures
✳	GME 008	Bases de la mécanique des structures
✳	GME 009	Initiation aux charges et structures des avions
✳	GME 015	Calcul et fabrication de structures en matériaux composites

Applied mathematics & Signal processing		
✳	MTS 004	Machine Learning : une introduction

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le catalogue complet
EUROSAE

EXECUTIVE EDUCATION GOING DIGITAL AT ISAE-SUPAERO

For the past several years, the Institute has been an environment conducive to "digital learning". The IDEA (Innovative Digital & Education for Aerospace) is a multidisciplinary skilled team focused on teaching through digital technology. It takes an innovation-oriented approach in the context of R&D activities on technologies for education. IDEA participates in the development of training programs using digital technology and provides support to teachers in conducting digital educational activities.

> **7 online courses are accessible to the 118 million registered learners of the Coursera digital training platform: Flight Mechanics, Structural dynamics, New Space...**

IDEA teams also developed innovative EdTech platforms for ISAE-SUPAERO and beyond!

- NaaS (Nuggets as a Service): This technical and functional ecosystem allows the implementation and delivery of ADN (« Aerospace Digital Nuggets », sort of micro-content proposed as a service-oriented approach to various distributed learning management systems. As a result, we are able to build online courses in LMS, MOOC or microlearning platforms.

- IREAL (Interactive Remote Experimentation for Active Learning): The platform focuses on learning by doing and scientific experimentation. It enables large numbers of students to simultaneously use the experimental devices to access a digitized version of the equipment.

- Currently being developed with ENAC: an online training programs range, mainly asynchronous, for experienced engineers working in aviation or aeronautical sector and willing to enhance their knowledge and skills. This program aims at enabling them to take an active role in environmental transition thanks to advanced theories, methods and tools to:

  - assess the environmental impact on aviation/ aeronautical activities;
  - to design responsible products and services for sustainable development;
  - to lead breakthrough solutions implementation.

Check out the IREAL experiments already online

Discover few open-education ADN presented into the Groupe ISAE Microlearning platform

ECATA:

the European Consortium for Advanced Training in Aerospace. Since 1992, ISAE-SUPAERO has been coordinating the Aerospace Business Integration executive education program.

Every year the ECATA ABI course brings together 24 delegates for 10 weeks of off-the-job training, at ECATA universities, in different countries.

ECATA has developed a unique international training program to help high-potential executives develop their skills in leadership and program management.

For more information, visit **ecata.org**

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ISAE-SUPAERO
EXECUTIVE
EDUCATION

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