

**MASTER OF SCIENCE
IN AEROSPACE ENGINEERING**

2022



Excellence with passion



ISAE-SUPAERO

A world leader in aerospace engineering higher education



A SPIRIT OF CONQUEST FROM THE VERY BEGINNING

Created by ambitious, passionate scientists, SUPAERO was the very first aeronautical engineering school in the world, founded more than 100 years ago. Today, our passion and our vision remain intact. They are our driving forces and they carry us forward in our quest for academic and scientific excellence. Over time, our graduates have contributed greatly to the development of the aerospace sector, and ISAE-SUPAERO has benefited from a sustained international reputation thanks to its engineers and the quality of its academic programs and researchers. The wide range of programs and the many partnerships forged with the academic and industrial worlds have made ISAE-SUPAERO a point of reference and a model to follow.

A wide range of degree programs in aerospace engineering:

33 programs

30% international students

More than 1800 students

59 nationalities are present on campus

An extensive, **active international alumni** network and well recognized graduates:

- Inventors: from the designer of the first jet aircraft to the inventor of the black box
- CEOs and high level executives at Airbus, Dassault, Safran, Thales, ATOS, AXA, IBM, and countless other industry leaders in France, Europe and all around the world
- Directors of major programs such as Caravelle, Concorde, Airbus A320, Airbus A380 and Airbus 350
- Astronauts : Thomas Pesquet, Luca Parmitano and Jean-François Clervoy
- Many alumni work closely with space missions

An exceptional environment in the heart of Toulouse

Europe's leading hub of aerospace industries, laboratories and universities

A public higher education and research institution

The ecological transition at the heart of ISAE-SUPAERO's commitment

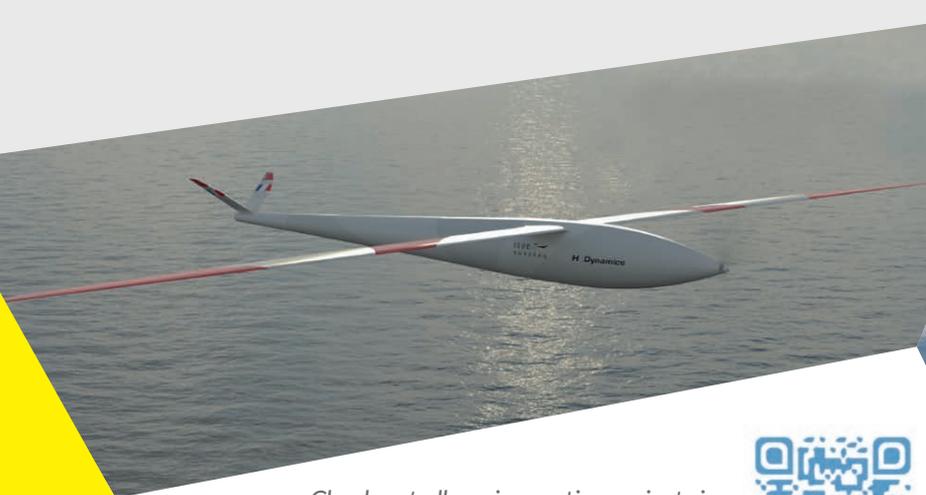
At ISAE-SUPAERO, we are convinced that Aviation connects people together and that Space is essential for communicating between continents and evaluating the condition of the planet. Both are at the cutting edge of technology, and their progress spills over into many other areas. This is why we conduct research and train engineers and PhDs so they can invent the Aeronautics and Space of the 21st century, and more generally to build the sustainable world of tomorrow.

Aerospace engineers are now taking up a new extraordinary challenge: decarbonizing the aviation sector. To do so, new air transport will have to be invented, working with all aspects of technology and our engineers' creativity.

Focus on the Mermoz Project

Faced with the climate emergency, aeronautics must be reinvented today. This will involve technological breakthroughs, of which hydrogen is one. This is why we are working on the design of a liquid hydrogen drone, the MERMOZ drone, capable of long distance flight with no CO2 emissions.

Through this innovative project, we are anticipating the changes that will affect the next generation of more environmentally-friendly aircraft. This project is already arousing a great deal of enthusiasm on the part of our students, who are reminded of the days of the aviation pioneers and discovering new meaning for their future professional careers.



Check out all our innovative projects in line with the ecological transition here



ISAE-SUPAERO has signed the Grenoble agreement supported by the COP2 Etudiante which aims to accelerate the ecological transition of higher education.



The Master of Science in Aerospace Engineering



The Master of Science is a two-year program undertaken after undergraduate studies, including Bachelor's degrees or an equivalent. It provides higher qualification for employment or further doctoral studies. The ISAE-SUPAERO Master of Science degree program is internationally renowned and highly regarded as an innovative program in science and technologies. Fully taught in English, this program is designed to prepare engineering students to find and develop solutions to today's and tomorrow's challenges facing the world and the aerospace industry. The Master is accredited by the French Ministry of Higher Education and Research in line with the European higher education system.



OBJECTIVES

The Master of Science in Aerospace Engineering is intended to educate graduate students in subjects relevant to the demanding challenges and needs of the industry.

Giving students competences in engineering science, technology and design related to aeronautics and space, the MSc AE is designed to be multidisciplinary preparing future engineers to easily and efficiently work on aeronautical systems, space systems and their applications, with emphasis on the complete life cycle of the system. With a large spectrum of knowledge the MSc AE allows students to tackle various aspects from design to operations of products and systems either in a research organism or in an aerospace company in a multinational environment.

LEARNING APPROACH

The ISAE-SUPAERO Master program is designed with a combination of lectures, tutorials, study cases and projects to be performed in an industrial environment or in ISAE-SUPAERO's laboratories. It is taught in English.

The MSc AE program includes a three-semester academic session, on ISAE-SUPAERO's premises, taught by permanent professors and experts from the aerospace industry bringing current knowledge and experience.

The last semester consists in a master thesis to be prepared in a company or laboratory in the aerospace sector. After the thesis, students having obtained 120 credits under examination will be awarded the Master of Science in Aerospace Engineering from ISAE-SUPAERO.

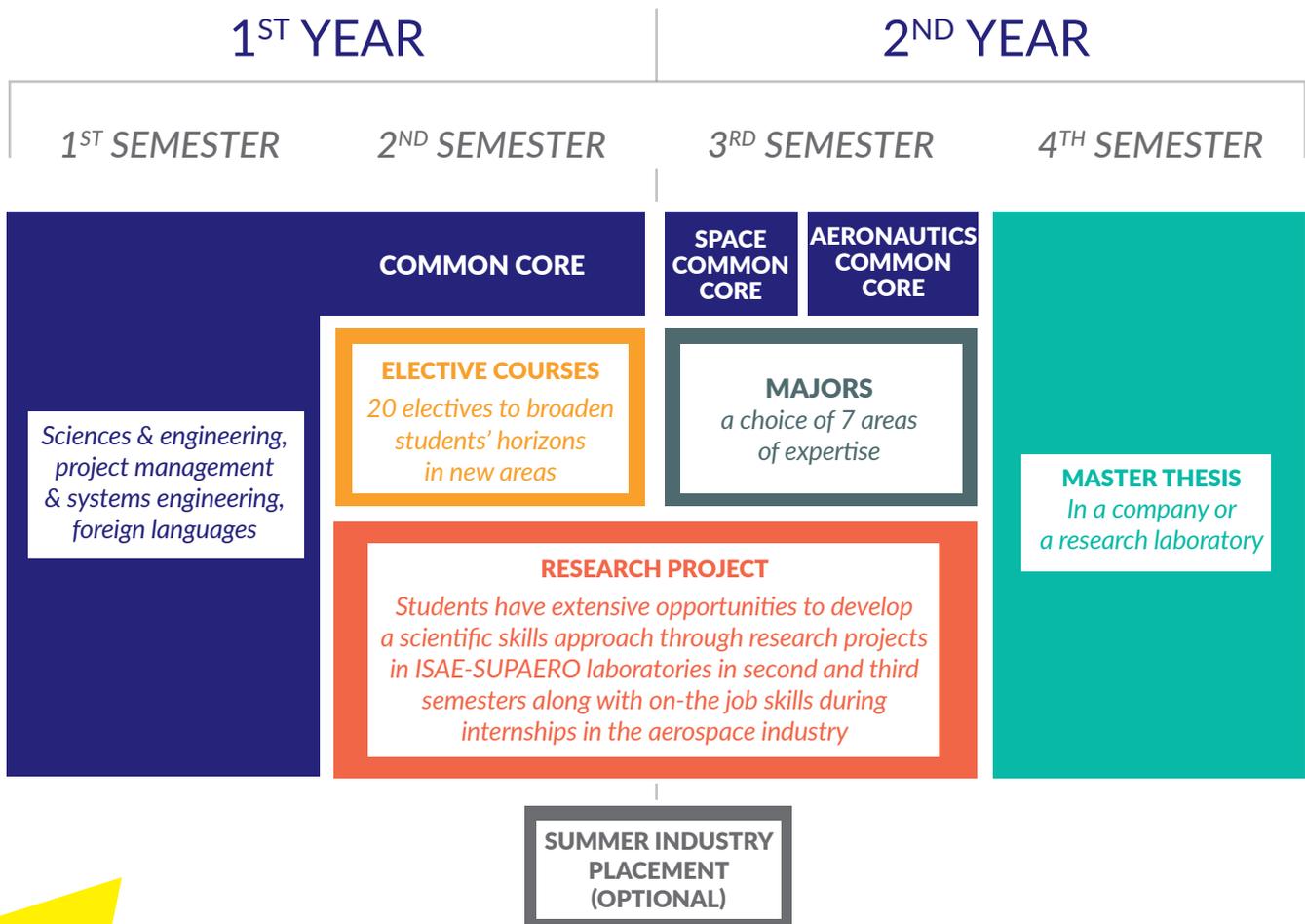
A multidisciplinary curriculum

FULLY TAUGHT IN ENGLISH 4 SEMESTERS OF 30 ECTS EACH

The first semester of the Master of Science Aerospace Engineering program focuses on the common core curriculum, while the second semester offers a wide choice of electives.

In the third semester, students choose one out the seven majors in the main areas of aeronautical and space systems design.

Students complete a master's thesis in the fourth semester.



Common core



The core curriculum is multidisciplinary with a strong grounding in science and engineering, along with courses in project management and foreign languages. During the third semester, it is split into two parts focusing on space environment and mission or sustainable aviation.



Sciences & Engineering

Objective 1: to master solid technical and scientific skills in the major disciplines related to aerospace engineering

- Aircraft systems
- Space systems
- Human factors
- Aviation safety airworthiness
- Control
- Aerodynamics & propulsion
- Flight dynamics
- Aeronautical structures
- Applied mathematics
- Algorithm and computing
- Signal processing
- Embedded systems

Objective 2: to be aware of disciplines playing a major role in new aerospace projects

- Air and space law
- Sustainable aviation
- Climate sciences

Project Management & Systems Engineering

Objective: to develop a comprehensive, interdisciplinary approach to the design and development of a product or system

- Project management
- Systems engineering

Foreign Languages and Soft Skills

Objective: to prepare students to work and communicate in evolving multicultural, team-oriented, innovative environments. French classes are mandatory for beginners during the two-year program.

- Languages: French as a Foreign Language, German, Arabic, Chinese, Spanish, Italian, Japanese, Portuguese and Russian
- Soft skills for innovation (innovation management & projects, creativity development, pitch conception, collective decision-making in situation of uncertainty, conferences with industrial actors in innovation)

Electives

Students select four electives among a choice of twenty

- Acoustics – Mechanics of materials & structures – Space instrumentation – Object-oriented software development – Aircraft design methods
- Aeroengines Architecture & Performance – Aircraft structures – Control dynamic systems & implementation – Simulation for systems engineering – Instrumentation & flight data analysis
- Experimental Approach in fluid dynamics – Computational solid mechanics – Signal processing and digital electronic basics – Systems architecture and programming – Adaptive control
- Software for CFD – Structures design project – Real time control of an aerospace system – Cloud and network computing – MDO

Research Project

Projects are a key component of the program and are designed to broaden students' scientific, intellectual and social horizons.

- This research project features a graduate-level research experience over 2 semesters with a focus on acquiring in-depth knowledge, expanding autonomy, and fostering innovation and critical thinking.



Beyond scientific excellence, ISAE-SUPAERO seeks to ensure quality teaching in French as Foreign Language for its international students.

The French as Foreign Language (FLE) Quality Label was obtained in December 2020, with the maximum score of 3 stars.

Majors

Students focus on one of seven areas of expertise including:

Advanced Aerodynamics & Propulsion

- Advanced Aerodynamics
- Aeroelasticity & Flexible Aircraft - Aeroelasticity part
- Aeroelasticity & Flexible Aircraft - Flexible Aircraft part
- Advanced Aerodynamics of Turbomachinery
- Numerical Fluid Mechanics
- Aeroacoustics
- Physics and Modelling Turbulence
- Multiphase Flow and Combustion

Aerospace Systems and Control

- Multiple-Input, Multiple-Output systems
- Control of flexible structures
- Robust and optimal control
- Systems identification and estimation
- Non-linear control
- Hybrid control
- AI methods and tools for Automatic Control
- Aerospace Power Systems & Architecture
- Aircraft & Space Actuation Systems - Preliminary Design
- Model & Sizing of Aircraft Air-conditioning Systems

Aerospace Structures

- Aeroelasticity & Flexible Aircraft - Aeroelasticity part
- Aeroelasticity & Flexible Aircraft - Flexible Aircraft part
- Aerospace Structures - Advanced Structural Dynamics Part
- Aerospace Structures - Composite Structures in Services Part
- Computational Solid Mechanics
- Manufacturing
- Mechanics of materials
- Space Structures: spacecrafts & launchers

Embedded Systems

- Architecture and Programming of Software Systems
- Real-Time Systems
- Model-Based System Engineering
- Real-Time Networks
- AI and Autonomous Systems
- Architecture, Design and Synthesis of Hardware Systems
- System Dependability
- Certification



Space Systems

- Space environment and effects
- Mission analysis and orbital mechanics
- Space communications systems
- Space project: tools for simulation
- Space systems architecture: ground segments, satellites & sub-orbital planes
- Launchers architecture
- Satellite propulsion: chemical & electrical
- Satellite AOCS
- Launchers guidance and control
- Satellite electrical systems
- On board data handling sub-systems: functions and architectures
- Satellite thermal control systems
- Estimation and filtering

Space Imaging, Navigation and Communication

Fundamentals of electrical engineering

- Random signal processing and estimation
- Microwave and antenna engineering

Satellite communications and navigation

- Digital communications
- Land-mobile satellite transmission
- Satellite-based navigation
- Telecommunications and networks

Earth observation

- Remote sensing and sensors
- Image processing and data analysis

Systems Engineering

- Requirements Engineering
- Systems Engineering Data Technical Management
- Systems Modelling and Analysis
- Systems Dependability
- Systems Design and Architecture
- Introduction to Verification & Validation
- AIRBUS study case:
Systems Engineering & Certification of the A350

Pathway Aircraft Design and Operation:

Students in Aerospace Structures, Aerospace Systems & Control and Systems Engineering majors can follow the Aircraft Design and Operation pathway. In this case they attend two dedicated modules, in semester 2, and they prepare their research project in this field.

Master thesis

- The Master thesis is prepared either in industry or in a laboratory. It enables the student to develop deeper knowledge, understanding, capabilities and attitudes. The overall goal of the thesis is for students to demonstrate their capability to take up scientific or industrial challenges successfully.



Acquiring research experience

PhD Track:

Every year, several Master Graduates pursue PHD studies in our laboratories. MSc and PhD programs can be connected in the frame of a PhD Track, supported by Toulouse School of Aerospace Engineering (TSAE).

Research laboratories host students to complete their research projects

More than **400** researchers on campus

6 doctoral schools

An international center to host and train doctoral students

We are deeply committed to offering our students full access to our research capabilities as well as **academic and industrial partnerships**, covering the entire field of aerospace engineering. From a research policy point of view, the dual objective is to foster the development of new knowledge as well as to answer the needs of the aerospace industry. Our main research partners are ONERA (the French Aerospace Lab.), LAAS-CNRS and OMP (Astronomical Observatory Midi-Pyrénées), the largest French laboratories in the engineering science and space fields. We have numerous long-term research and development agreements with the main European aerospace companies: Airbus, SAFRAN, Thales Alenia Space, Rockwell-Collins, MBDA and Liebherr-Aerospace. Reflecting our longstanding commitment to higher education and research in the aerospace field, we are a member of the **management board of the Aerospace Valley cluster** (550 aerospace companies and higher education and research institutions from the Nouvelle-Aquitaine and Occitanie Regions).





World-class research facilities

- Autonomous system platform for micro-drones and robots
- Critical embedded systems platform
- Flight simulators and neuroergonomics platform
- Wind tunnels, aeroacoustics wind tunnel
- Turbofan Test Bed
- 6m high Drop tower, gas guns
- Fleet of 9 aircraft: TB 20, Robin DR 400, Vulcanair P68 Observer
- Software-defined radio room
- Clean rooms for satellite integration
- Ground station for satellite tracking and operation
- Satellite command and control center
- Additive manufacturing machine



Flight simulator

A multidisciplinary scientific policy:

5 teaching and research departments

The Department of Aerospace Vehicles Design and Control (DCAS)

is a multi-disciplinary team structured in four research groups:

- Aircraft design
- Space systems design
- Decision and Control
- Neuroergonomics and human factors

DCAS covers a wide variety of problems including guidance and navigation, collaborative unmanned vehicle control, astronauts psychophysiology during orbital teleoperations, spacecraft trajectography and future aircraft architectures. Its unique resources include motion flight simulators, a drone fly arena, and a fleet of single-engine (TB-20 and DR400) and twin-engine (P68) aircraft used for flight experimentations.

The four research groups collaborate in the following areas:

- Safer navigation and control of aerospace systems,
- Integrated multi-disciplinary aircraft design
- Advanced space concepts

The Aerodynamics, Energetics and Propulsion Department (DAEP)

is organized on the basis of three core research groups:

- Fundamental fluid dynamics
- External aerodynamics
- Turbomachines and Propulsion

The department works closely with the scientific community on the Toulouse site and on joint research projects with French and international academic partners, whether on a formal basis or based on researcher-to-researcher connections. The department also has research agreements and contracts with major aeronautics firms, equipment suppliers and sub-contractors.



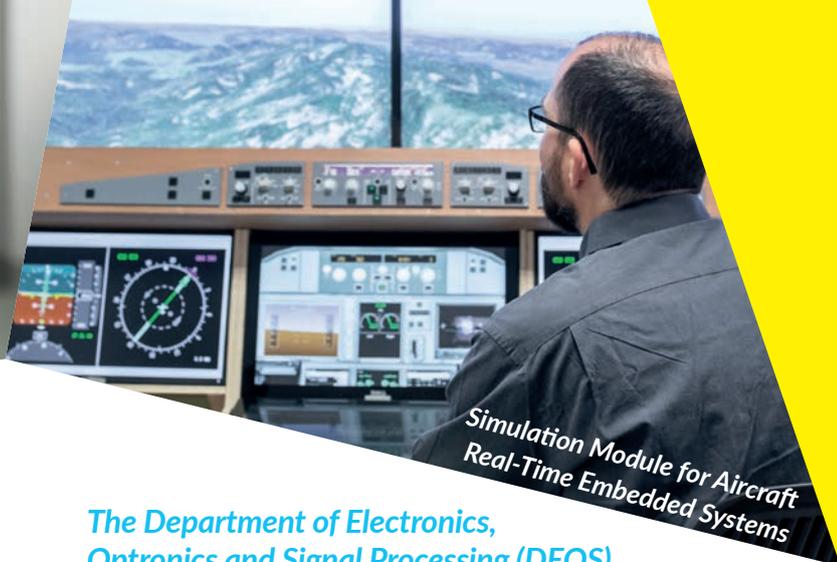
Platform of autonomous systems



Aeroacoustics wind tunnel



Structural tests



Simulation Module for Aircraft Real-Time Embedded Systems

The Department of Mechanics for Structures and Materials (DMSM)

organizes and supervises all the teaching activities associated with the mechanics of deformable solids and structures for ISAE SUPAERO programs, in synergy with fundamental and applied research on aeronautics materials and structures. Its team is made up of professors, engineers, technicians and administrative staff. The classes enable our students to gain skills that are closely aligned with the needs of the industry regarding material & structures disciplines but also to address new issues related to multi-disciplinary or environmental considerations. The Integrated Team Project (ITP) addresses practical questions and solutions to be managed in keeping with a research and development methodology, in collaboration with specialists in the industry and/or research or test centers that are ISAE-SUPAERO partners, taking advantage of the synergy with the ICA (Institut Clément Ader).

Three research topics are at the center of the activities at the DMSM:

- Durability & damage tolerance of composite and metallic materials
- Modelling & qualification of aerospace structures under static or dynamics loadings
- Multiphysics Requirements-Driven Simulation and Design

The Department of Electronics, Optronics and Signal Processing (DEOS)

develops and produces the payloads for the advanced aeronautics and space applications of tomorrow. Its team's skills cover a wide range of technologies, from silicon sensors design to interplanetary science payloads, and from theoretical signal studies to advanced communication and navigation systems. The department is organized into five core research groups:

- Micro Electronic Image Sensors
- Photonics, Antenna, Microwave and Plasma
- Navigation, Communication, Radar
- Communications and Information Theory
- Space Systems for Planetary Applications

The Complex Systems Engineering Department (DISC)

at ISAE-SUPAERO develops knowledge in mathematics and computer science for the aerospace industry. In education as in research, DISC is interested in models, methods and tools to master the behaviors and performances of complex systems. This complexity may come from the multiphysics or multiscale nature of the systems, their dynamic behavior or their connected and distributed structure.

The department concentrates research driven in:

- Applied mathematics
- Communication networks
- Decision making systems
- Engineering for critical systems

All 5 departments support a micro-aerial vehicle development program on the international level based on student projects, research and innovation projects, and international competitions.



Orion spacecraft



Clean rooms



Student Projects

CNES AND ISAE-SUPAERO ARE PREPARING STUDENTS FOR A NEW ERA IN SPACE EXPLORATION THROUGH SPACESHIP FR

Three students from the MSc Aerospace Engineering, Miriam Opazo Mendez (Spain), Elizaveta Shashkova (Russia), and Marcos Eduardo Rojas Ramirez (Mexico), Space Systems major, are part of the Spaceship FR Team at CNES (the French Space Agency). Their project consists in developing critical technologies, providing students with an opportunity to design and build the future of Space Exploration. The Spaceship Initiative started at the European Space Agency (ESA) and has gained support from different groups working on technologies for space exploration, especially those required for future missions to the Moon and Mars. The International Space Exploration Coordination Group (ISECG) has therefore created a roadmap for the critical technologies necessary to carry out the planned missions, some of which CNES works on within Spaceship FR. The team is working closely with Spaceship EAC (European Astronaut Center) located in Germany and Spaceship ECSAT (European Centre for Space Applications and Telecommunications) located in the United Kingdom.

Marcos (second-year student) was the first student to work on the Spaceship FR project back in February 2020 and is now working full-time on this project as part of his end-of-studies internship. At the moment, his role is to implement Model-Based Systems Engineering (MBSE) tools and methods to support System Engineering Activities across Spaceship FR. His research received an award from the International Astronautical Federation's Emerging Space Leaders Grant Programme, which will allow him to showcase his work, Spaceship FR, CNES, and ISAE-SUPAERO, at the International

Astronautical Congress (IAC) to be hosted in Dubai in October 2021.

Miriam and Elizaveta (first-year students) joined the team in February 2021 to develop the basis of the Energy and Habitat subjects. Miriam has defined her work on Habitat as being at the intersection of Habitable Structures, Interior Design, and Environmental Control and Life Support Systems (ECLSS). On the other hand, Elizaveta works on studying and providing information on new technologies linked to power production, power management, and energy storage. At the same time, both of them get to use their knowledge to support a project that aims to design and build an Inflatable Lunar Habitat.

The Spaceship FR Team is mainly composed of students guided by the project manager and other advisors depending on the subject. Thanks to a partnership between ISAE-SUPAERO and CNES, up to two students from the MAE Space Systems Major can work at Spaceship FR as part of their 13-month research project every year. In the coming years, CNES is planning to build a structure at the Toulouse Site that can serve as a work space for the Spaceship FR Team. This structure will have features similar to those of a Lunar or Martian Station and will allow the Spaceship FR team members to work and conduct their research. In this way, Spaceship FR and the other Spaceship Teams will bring humankind one step closer to building long-term habitats for human exploration of the solar system while preparing a new generation of scientists and engineers.



HALE AEROECODESIGN

The second-year Master student from Spain, Victor Guadaño Martín, Aerospace Structures major, has been working on the HALE Aeroecodesign project. The main objective is to optimize the CO2 footprint of a solar-powered High Altitude Long Endurance (HALE) drone. In fact, a fully electric drone can still have an impact on the environment, mainly due to the materials used and the way it is built. For this reason, the originality of this work is to include material choice from a discrete catalogue in the multidisciplinary design optimization (MDO) approach. The MDO approach consists in finding the optimum interaction between different disciplines.

The project was originally started by Edouard Duriez, a PhD student and was then taken over by Victor. With the supervision of Edouard and Pr. Joseph Morlier (Department of Mechanics, Structures and Materials), his tasks consist in improving both the complexity of the UAV model and the convergence of optimizations for the tool created on the basis of OpenAeroStruct. OpenAeroStruct is a lightweight tool that performs aerostructural optimization using OpenMDAO, a NASA open-source framework for efficient multi-disciplinary optimization.

Also known as atmospheric satellites, HALE drones can provide permanent coverage of a point or be repositioned when needed. They are repairable, unlike satellites that are in orbit. Their lower altitude can provide better resolution for earth observation, but it also results in smaller coverage. Their biggest advantage lies in their lower cost compared to satellites. HALE drones may also be more environmentally friendly as they do not need high energy-consuming launcher. This advantage can be enhanced if special attention is paid to their environmental impact.

According to Victor, it is interesting to look at a drone's carbon footprint. Indeed, a drone fueled by solar energy may lead us to think that its carbon footprint is zero, which turns out to be inexact. He adds that it makes you reflect on the fact that everything currently sold as electric and zero-emission may still have a significant environmental impact due to other aspects such as its manufacture.

The whole project will culminate with a paper that Victor and his tutors hope to publish this year in the Structural and Multidisciplinary Optimization Springer journal, an international peer-reviewed journal providing content through innovative information, products and services. The tool they have created could be an excellent starting point for the preliminary design of new HALE drones. In this sense, with just a little input you can quickly obtain a real optimized drone model, which can be very useful. Moreover, being an open-source tool based on OpenAeroStruct, anyone can continue the work and add new components to the model to obtain increasingly more complex and realistic results. This could be an opportunity for future MAE students to continue with this project!





ISAE-SUPAERO MSc's GRADUATES

We have already trained more than 24 100 engineers who are contributing to the development of the aeronautics and space sector in France and around the world. Our engineers' vocation is to become future leaders in the aerospace industry and the world of tomorrow. That is why we have developed an integrated approach with training, research and innovation in partnerships with academic players, many industrial stakeholders and a network of the best international universities.

ROSA ANGELICA CARDENAS SIERRA
MEXICO
Aerospace Structures major



The reason why I chose the MSc in Aerospace Engineering at ISAE-SUPERO is because it is a 2-year international program that gets you involved in research and/or professional environments with the possibility to adapt the academic plan according to your personal interests. In my case, I selected the Structures Major and performed an internship on Topology Optimization at Airbus.

Afterwards, I was hired by the company as a Structure Analysis Engineer and since then, I have been collaborating in Research & Technology projects as well as In-Service activities.

Additionally, I am a temporary-professor at ISAE-SUPERO and in my free time I perform non-profit volunteer activities to underscore the importance of education.

HARI PRASATH
INDIA
Space Systems major



When I started applying for Masters, I was looking for a college that has a good course structure and also has well-established connections with industry. ISAE-SUPAERO is one such reputed university. I had the chance to connect with people from the industry, which in time helped me to get my first job in the Space sector, despite the Covid situation. Specifically, I loved my space systems course as it covered almost all the topics of space engineering and gave me a broader perspective of the field.

I did my internship at a US startup company, working remotely from home. It dealt with the effects of radiation exposure on DNA on the surface of the moon.

Currently I am working as a scientific engineer in Stellar space studies. I would like to continue and to progress in the space sector, with my career goal being to become a prominent player in the space sector in the future.

PALOMA GUINEA-GONZALVO
SPAIN
Space Systems major



Since I started my Bachelor in Aerospace Engineering, I was sure that I wanted to develop my career in the space sector. I also felt very attracted by the idea of living a new experience in a different country and growing in an international environment.

After obtaining information about the various options, I concluded that ISAE-SUPAERO would be the perfect place to achieve my goals. In the heart of the European aerospace industry, this Master seemed to me to be a unique opportunity to get into the sector and continue my education in a world-recognized institution.

In my view, one of the strongest points of the Master is the direct contact with the aerospace sector and its actors. It is very useful and enriching to learn directly from researchers and workers from different companies and have access to their experiences.

I did my last semester internship at Airbus Defense and Space Toulouse. Thanks to this opportunity, I was able to acquire significant experience in many areas. I not only greatly widened my technical knowledge and competences in the space sector, I also grew as a person in a professional environment, improving my soft skills and working as a team player.

After my graduation, I had the opportunity to work for GMV France in Toulouse. And currently, I am working on GALILEO, the European global navigation satellite system, as a performance engineer for the ground mission segment.

In this sense, I am very satisfied with my efforts as I finally achieved my goal of working on the space sector, doing a job where I can apply all the skills that I acquired during my studies and where I can continue building my professional career.

FEDERICO BISCARO
ITALY
Space Imaging, Navigation and
Communication major



I chose ISAE-SUPAERO because the Master has a great combination of academic, research and professional points of view, with a mix of lectures, interaction with PhD students, and links to amazing industrial partners that are within reach in Toulouse. I also wanted to move to France for personal reasons, while pursuing higher education studies.

One of the strong assets of the MSc that comes to mind is the number of points of contact with the post-graduation world. Plenty of lectures are given by professionals - which can be a bit disorienting at the beginning, but has lots of advantages. We also learn how to elaborate and present our work as students in a very mature way - thanks to the many practical projects that we have during the courses.

Last but not least, it is an International Master: students create amazing bonds with people literally from all around the world. In the long run, we end up having true friends, research partners, colleagues who will pursue their career on different continents while staying in touch, and that is invaluable. Internships in 2020 were affected by the pandemic for a lot of students. In my case, I was lucky to be offered a plan B by Exotrail, a Toulouse startup working (among other things) on space mechanics and mission analysis software. And the experience was amazing! I moved to London in February 2021 to start working as a Flight Dynamics Engineer at OneWeb.

It is not easy to be sure about career goals in the long run, nowadays. Research still fascinates me, so I am considering switching to that after some experience in industry. What is great about ISAE-SUPAERO is that it really does open many doors: professors are always available to chat about one's interests, and I am currently discussing possible research contracts or PhD offers - in different domains related to space technology.

Close collaboration with companies & industry

ARIANE GROUP CAPGEMINI

SIEMENS STELIA AEROSPACE IAC

DASSAULT ATR ALTRAN

CNES AVENCORE AKKA technologie

AIRBUS SAFRAN RENAULT

NAVAL GROUP ACCENTURE THALES

MBDA WAVESTONE ALTEN

AIR LIQUIDE AIRFRANCE

CYLAD LIEBHERR EY

COLLINS AEROSPACE DAHER

SOPRA STERIA ATOS PWC

CONTINENTAL

MECANO ID



1365

engineers, and/or researchers
from leading companies are
visiting lecturers



250

companies support our
development



An alumni network
of over

24 100

graduates

11



company chairs for teaching and research in
innovative programs



More than **30**
partnerships signed with
small and medium-sized
companies and major
industrial players

Every year companies
receive more than

800

ISAE-SUPAERO students
for internships and Master theses.
Conferences, industrial visits,
internships in companies, forums,
recruitment workshops



A wide range of exciting career perspectives await you for your future

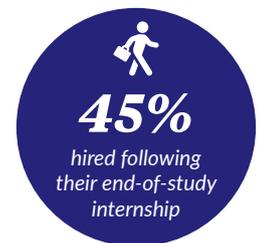
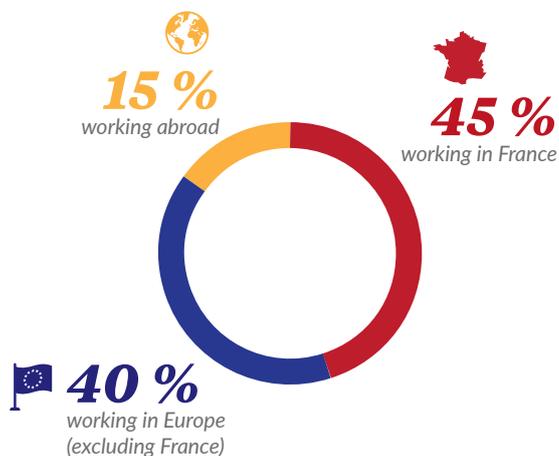
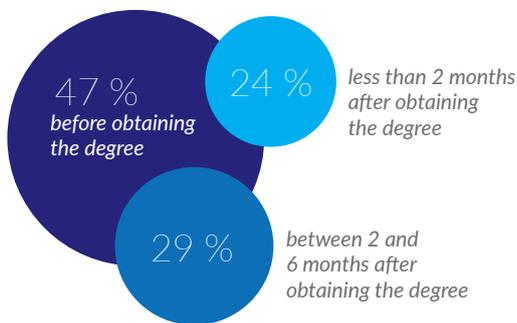
WIDE-RANGING JOB OPPORTUNITIES

Our graduates will work as technical experts, researchers and managers in the fast-expanding aerospace sector and key sectors of the economy, in Europe and all around the world.

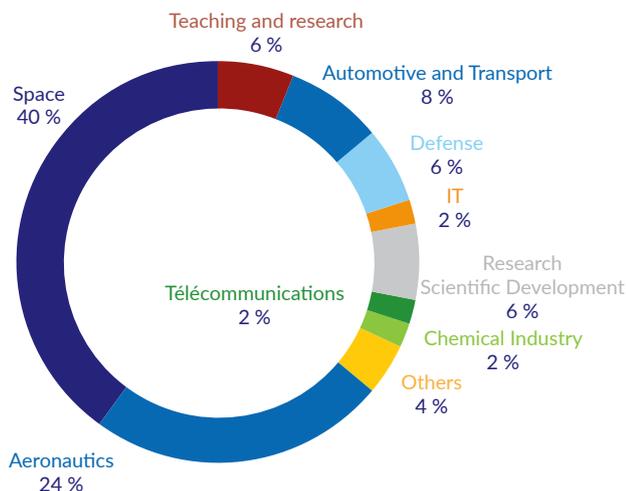
CLOSE-UP ON THE CLASS OF 2020*

Jobs after Graduation

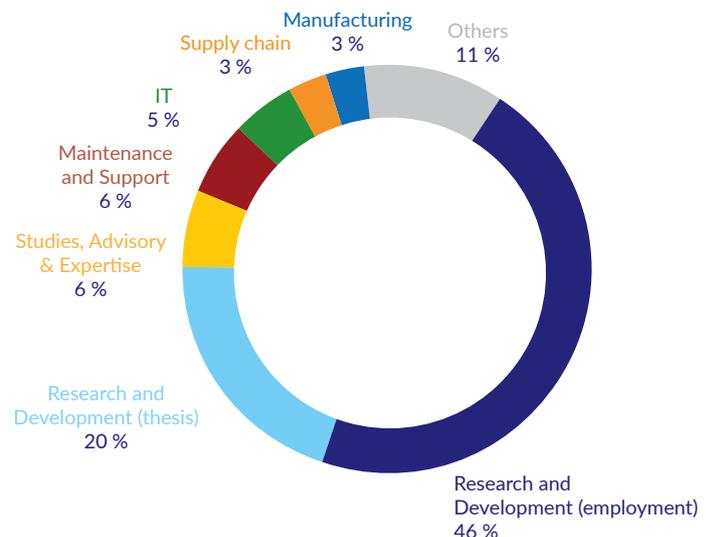
6 months after obtaining the degree



Business areas



Activities



MAIN RECRUITERS



*Survey on 1st jobs, graduating class 2020, 90% of respondents out of 100 young graduates approached



Campus life in the heart of Toulouse

Located at the heart of the scientific and university complex, our campus covers 22 hectares along the lovely, UNESCO classified Canal du Midi. Teaching, living and sports facilities – we have it all!



A complete range of athletic facilities

You will enjoy the pool, gym, climbing walls, fitness center, football and rugby fields, tennis and squash courts.

More than 80 clubs for a dynamic associative life: culture, sports, technical clubs (micro-drones, space club, aeromodelling, robotics, etc.), social and humanitarian actions, event organization, etc.

Aeronautical sports

Ten minutes from campus, we have a fleet of 9 planes (TB 20, Robin DR 400, P68 Observer, etc.). Students have the opportunity to earn a wide range of flight licenses under very preferential conditions: powered aircraft gliding, parachuting, and paragliding. Every year 35 students obtain their pilot's license.



Student residences and the Student Center

The 6 entirely new residences offer 1000 housing units, from 14m² to 46m². Residences include common areas such as study rooms, kitchens, and laundry rooms. The Student Center includes a large main room with a snack bar area, a living room, TV rooms, and rooms for student clubs and activities.



The ISAE-SUPAERO Toul'box:
A student welcome kit to make life easier right from day one: formalities, setting up a bank account, housing, transport card, city tour - find out all you need to know and get started right away!

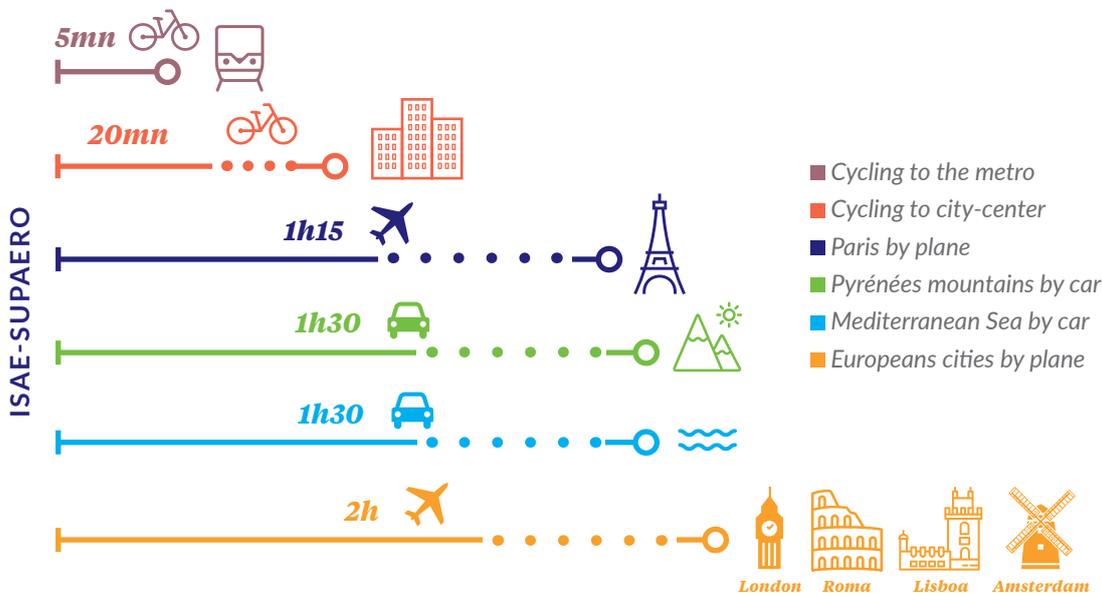
Toulouse, European Capital of Aeronautics and Space

Nearly 90 000 direct jobs in aeronautics and space.
The leading French region for research and aeronautics education.

4th largest city in France Most attractive city to study

Known as "la Ville Rose", in reference to the color of the city's many historical brick buildings. Repeatedly voted by the French as the most desirable places to live in France: exceptional quality of life, a great place to live as a student!

Toulouse airport has low-cost flights to the main European cities!



"Bienvenue en France" accreditation

The "Bienvenue en France" label accredited by Campus France, distinguishes French higher education institutions, that have developed reception measures for international students at French higher education institutions, and represents a promotional and outreach tool for the institution.

ISAE-SUPAERO is one of the few institutions receiving the '3 stars' certification. The certification demonstrates the quality of the reception at our school.



Funding

Our Master of Science students can benefit from financial support from the ISAE-SUPAERO Foundation and partners during the two years of the Master of Science program.



ISAE-SUPAERO Foundation Scholarship

The Foundation Scholarship covers tuition fees and part of living expenses.

TSAE

Toulouse School of Aerospace Engineering

Toulouse School of Aerospace Engineering (TSAE), a joint program between ISAE-SUPAERO, ONERA and ENAC aims at promoting graduate and PhD programs in the aerospace engineering domain. For this, it offers scholarships to undergraduate students who wish to enter the MSc in Aerospace Engineering at ISAE-SUPAERO and to pursue a PhD program.

AIRBUS

CEDAR Excellence Scholarship

The scholarship from Airbus's Chair for Eco-Design of Aircraft (CEDAR) covers tuition fees and part of living expenses. (Major related to Aircraft)



GIFAS Program of Excellence

This scholarship covers tuition fees and part of living expenses.

THALES

THALES India Program of Excellence sponsored by the French Institute in India.

This scholarship covers tuition fees and a part of living expenses.



MBDA Program of Excellence for Indonesia at ISAE-SUPAERO

This scholarship covers tuition fees and part of living expenses.



MBDA Program of Excellence for India at ISAE-SUPAERO - Sponsored by the French Embassy in India.

This scholarship covers tuition fees and part of living expenses.

Scholarships applications: From October to December



For more information on financial aid for foreign students in France, visit the Campus France website: <http://www.campusfrance.org>.

Many government scholarships are available as well (CONACYT (Mexico), BECAS CHILE (Chile), COLFUTURO (Colombia), CIENCIA SEM FRONTIRAS (Brazil), BEC-AR (Argentina), etc.

Join the MSc in Aerospace Engineering program



Fully taught
in English

Eligibility

This program is particularly suitable for students with:

■ **A bachelor's degree in aerospace or aeronautical engineering, mechanical engineering and mechatronics**

All majors are open to these students: Advanced aerodynamics and propulsion, Aerospace structures, Space systems, Aerospace systems and control, Embedded system, Systems engineering, Space Imaging Navigation and Communication.

■ **A bachelor's degree in electrical engineering, electronics, telecommunications**

Five majors are open to these students: Space systems, Aerospace systems and control, Embedded systems, Systems engineering, Space Imaging Navigation and Communication.

■ **Others profiles in Engineering and Science**

Industrial engineering, civil engineering or physics, mathematics, computer sciences (ISAE-SUPAERO admissions officers can provide you with information on the major open to you).

On-line application documents

Applications starting in October

- Resume
- Cover letter
- Copy of highest diploma or certificate of enrollment
- Transcripts for the 3 last years
- 2 letters of recommendation
- TOEFL (IBT): 88 points (Inst. code: 9820) or TOEIC: 785 points, or IELTS: 6.5 points or CAE/ FCE: 170 points or Linguaskill: 170 points
- GRE test results if available (not mandatory)

For more information on the admissions procedure, please visit:

<https://www.isae-supaero.fr/en/academics/MSc/admission/admissions/>



Address

ISAE-SUPAERO
10, avenue E. Belin
BP 54032
31055 Toulouse CEDEX 4
France

Telephone

33 (0)5 61 33 80 55

Contact

info-masters@isae-supaero.fr

Website

www.isae-supaero.fr/en



Photo credits: ISAE-SUPAERO Aude Lemarchand, Alain Félix/ Masaï, P.Nin, GETTY IMAGES, architecture Groupe-6 LCR associé, Mathieu Ducros Opictures, CNES ill.DUCROS David, Shutterstock, NASA.
Graphic design: Laurent Gonzalez, California studio de création
Production: ■Studio Pastre
Non-contractual document: July 2021