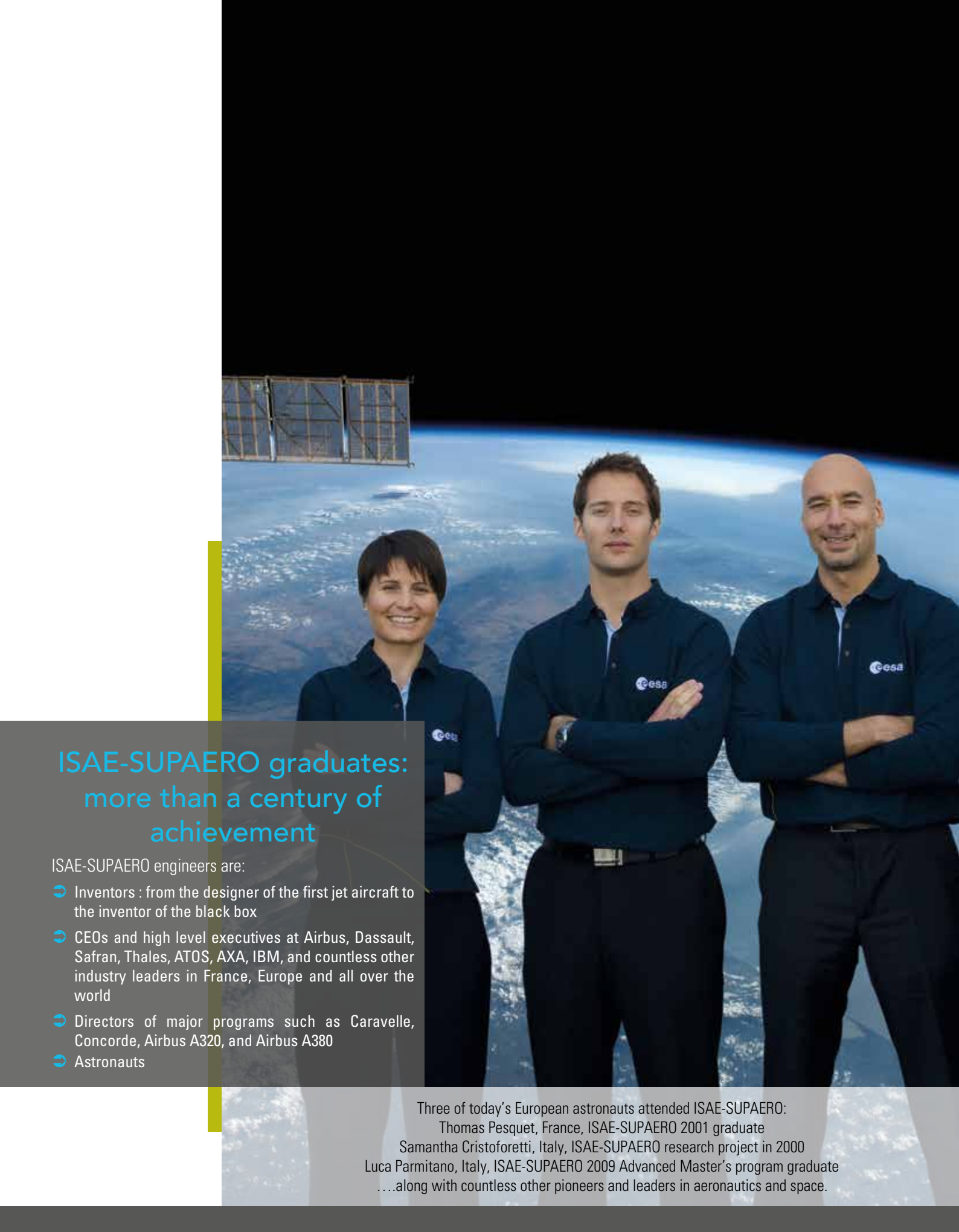




The "Ingénieur ISAE-SUPAERO"
(MSc) degree

Excellence with passion



ISAE-SUPAERO graduates: more than a century of achievement

ISAE-SUPAERO engineers are:

- ➔ 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 over the world
- ➔ Directors of major programs such as Caravelle, Concorde, Airbus A320, and Airbus A380
- ➔ Astronauts

Three of today's European astronauts attended ISAE-SUPAERO:
Thomas Pesquet, France, ISAE-SUPAERO 2001 graduate
Samantha Cristoforetti, Italy, ISAE-SUPAERO research project in 2000
Luca Parmitano, Italy, ISAE-SUPAERO 2009 Advanced Master's program graduate
...along with countless other pioneers and leaders in aeronautics and space.

Forward looking and in the forefront for more than one hundred years



An Institute of Excellence

Founded in 1909, SUPAERO is the first aeronautical engineering institute in the world.

Since its creation, our graduates have played a trailblazing role in the technological and industrial development of the aerospace sector, making France and Europe a global aerospace leader.

The outstanding achievements of our graduates in both industry and research have helped forge the excellent international reputation of ISAE-SUPAERO.

Today, ISAE-SUPAERO is a world leader in aerospace engineering higher education with:

Over **1 700** students from **60** nationalities
1 500 Master's and Advanced Master's level students
200 PhDs
40 higher education programs



Join [ISAE-SUPAERO](#), internationally renowned for its excellence in aerospace engineering, and be part of an exceptional learning community.

Our selective recruitment process is a foundation for the excellence of our scientific and technical degree programs.

Join the "Ingénieur ISAE-SUPAERO" (MSc) program



For more information on the admissions procedure, please visit : www.isae-supaero.fr/en/admissions-en/ingenieur-isae-supaero-msc-admissions/



Why choose the "Ingénieur ISAE-SUPAERO" (MSc) program?



ISAE-SUPAERO is a world leader in aerospace engineering higher education:

- ⇒ internationally renowned, top level scientific degree programs
- ⇒ close collaboration and partnerships with companies
- ⇒ research-driven teaching along with unique research facilities
- ⇒ vibrant student life
- ⇒ an international student body accounting for 30% of the students on campus
- ⇒ an extensive, active international alumni network
- ⇒ an exceptional environment in the heart of Toulouse, Europe's leading hub of aerospace industries, laboratories and universities.

The "Ingénieur ISAE-SUPAERO" (MSc) program:

- ⇒ a century of excellence in aerospace engineering
- ⇒ an innovative curriculum and multidisciplinary approach designed to answer the needs of the aerospace sector
- ⇒ project-based learning with a strong emphasis on company/laboratory internships
- ⇒ special programs with electives in research, entrepreneurship and international experience
- ⇒ double degree programs and the opportunity to tailor your educational path to your personal development and career goals.

Designing systems of the future



Designing flight management systems for latest generation civil aircraft requires the skills of complex system architects, and multidisciplinary engineers with the most advanced scientific training.

Collaborating closely with the aerospace industry and research organizations, the "Ingénieur ISAE-SUPAERO" (MSc) program is integrally connected to cutting-edge technologies which permeate many industrial fields including energy, transportation, telecommunications, security, and the health sector, to name a few.

ISAE-SUPAERO engineers bring their skills and innovation to fields well beyond the aerospace sector.

Advanced scientific knowledge and innovation is crucial to achieving excellence and maintaining competitiveness. The "Ingénieur ISAE-SUPAERO" (MSc) program delivers courses based on the latest knowledge in a wide range of fields including mechanical engineering, electrical engineering, fluid dynamics, applied mathematics, physics, systems, signal and image processing, data science, and computer science, among others.

Our curriculum prepares students to become highly skilled, versatile, multidisciplinary engineers, trained to design integrated system architectures such as aircraft, helicopters, drones, satellites, launchers and embedded systems.

Prepared to engage in careers with high levels of responsibility, ISAE-SUPAERO engineers are skilled in management, decision making, and project leadership

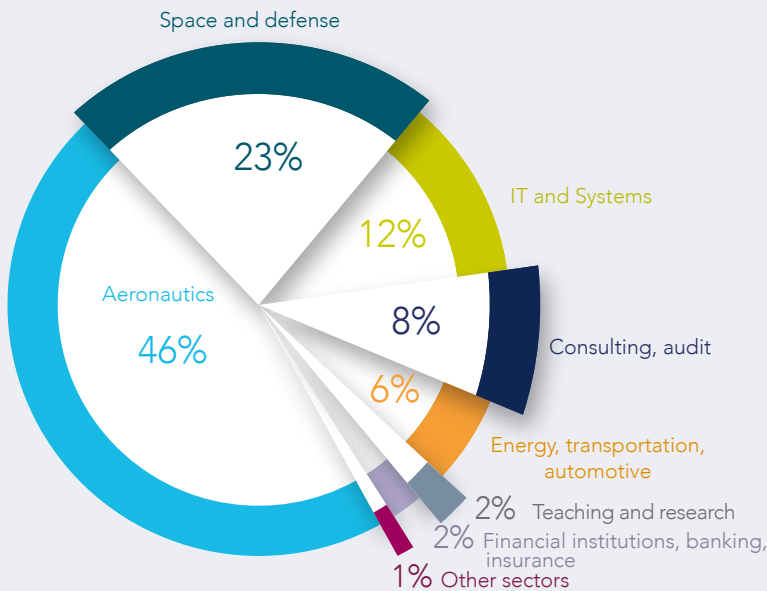
in an international environment. A driving force for innovation, ISAE-SUPAERO engineers anticipate and shape the latest industrial and technological developments. They actively contribute to new fields of fundamental and applied research.

Research at the core of the "Ingénieur ISAE-SUPAERO" (MSc) program

- ⇒ ISAE-SUPAERO research focuses on aerospace systems including aerodynamics and propulsion, design and operation of aerospace vehicles, neuroergonomics, and human factors for flight safety, the behavior of materials and structures, image sensors, signal processing, space instrumentation for exploration, embedded systems engineering, and communication networks.
- ⇒ ISAE-SUPAERO partners with industrial companies in the aerospace sector, European research organizations and the most renowned international higher education institutions.
- ⇒ ISAE-SUPAERO has world-class research equipment and facilities including a platform for autonomous systems and micro-drones, an aero-acoustic wind tunnel, Turbofan Test Bed, Critical embedded systems platform, a fleet of 10 aircraft, and clean rooms for satellite integration, among others.

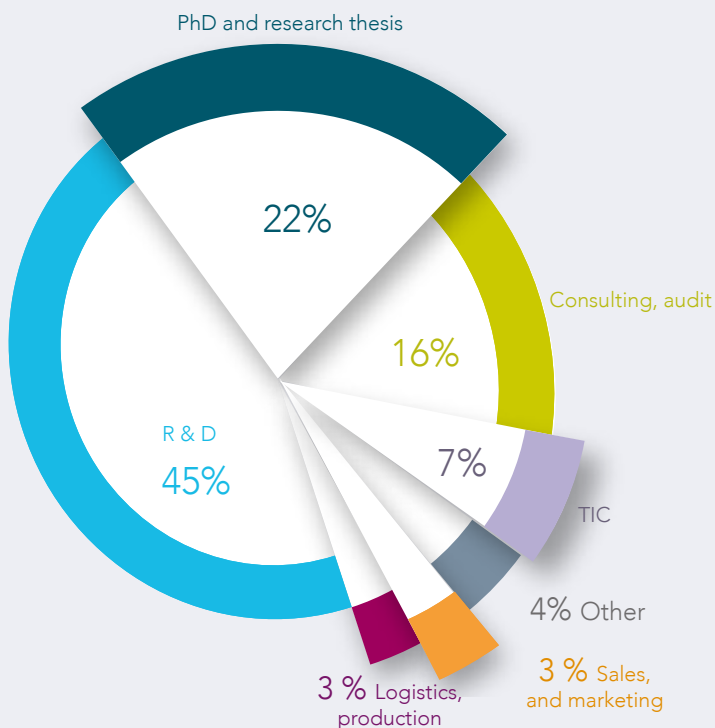
A wide range of exciting career perspectives for ISAE-SUPAERO engineers

Influence in key sectors of the economy



Survey on 1st jobs, graduating class 2015

Skills for a wide range of jobs



The scientific skills, innovative capacity and versatility of ISAE-SUPAERO engineers open up multiple career 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 over the world.

Close-up on the Class of 2017

69%
hired before
obtaining the degree

17%
started their career
abroad

Main recruiters

SAFRAN, AIRBUS GROUP, DASSAULT, ALTRAN, AKKA, THALES, CAPGEMINI, ALTEN, MBDA, CNES, AIR FRANCE, LIEBHERR, ATR, SOPRA STERIA



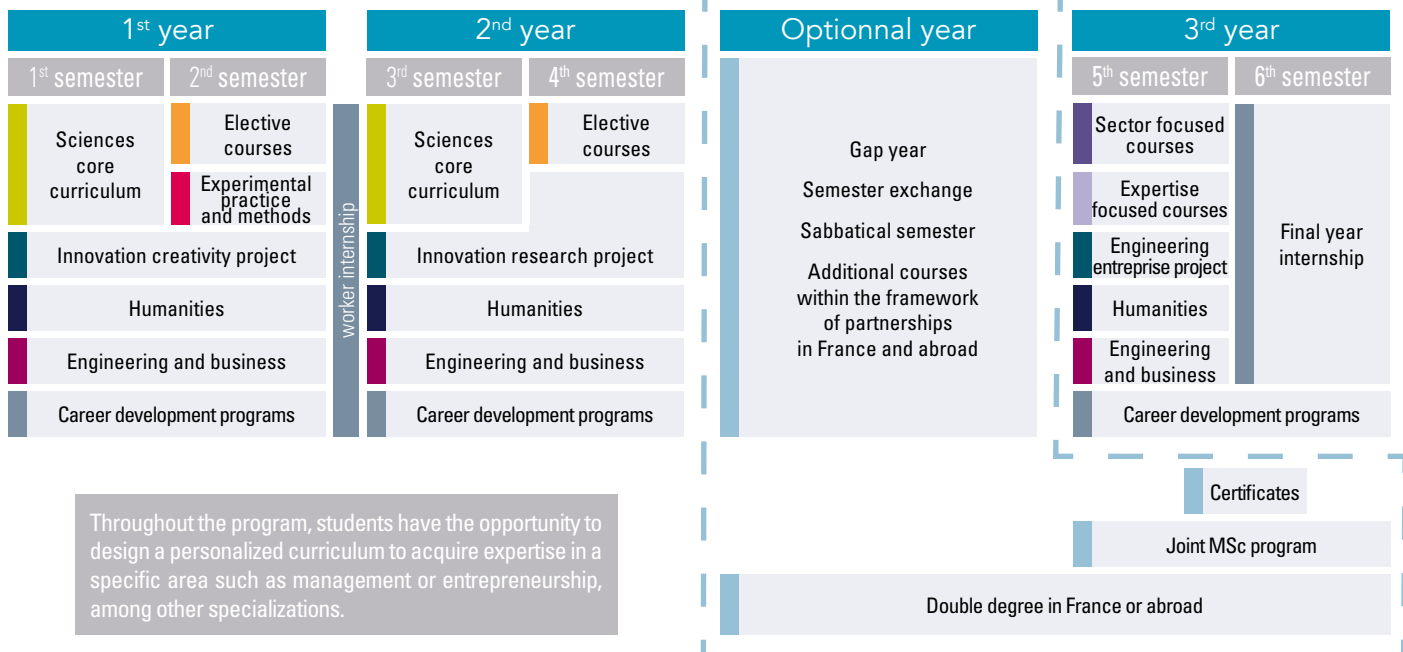
An innovative multi-disciplinary curriculum tailored to student needs

The program is multidisciplinary with courses in fundamental sciences, engineering sciences, human and social sciences, project management and economics, among others. It is designed to help students acquire knowledge and skills in a wide range of areas illustrated by concrete case studies from the aerospace sector.

The core curriculum is extensive along with elective courses and the opportunity to choose specialized sectors and industrial fields, allowing students to personalize their degree path. Open-mindedness, the capacity to innovate, and lead complex projects, as well as the spirit of discovery are all strongly encouraged.

58% core curriculum

42% student-selected courses



The core curriculum: a strong foundation

The core curriculum is multidisciplinary with a strong grounding in science, along with courses in the humanities, engineering, project management and business.

Sciences

Objective: to acquire a solid technical and scientific foundation in the major disciplines related to aerospace engineering

- ⇒ Mechanics
- ⇒ Electrical engineering
- ⇒ Computer science
- ⇒ Fluid mechanics and thermodynamics
- ⇒ Mechanics of deformable solids
- ⇒ Applied mathematics
- ⇒ Physics

Elective courses include: aircraft performance, astrophysics, from nanotechnologies to nano-objects, transmission system security, a survey on transportation uses, mathematics and space, elementary particles, embedded control systems, and dynamic systems, among others.

Humanities

Objective: to prepare students to live and work in evolving multicultural, team-oriented environments

- ⇒ Languages : English, German, Arab, Chinese, Spanish, French as a Foreign Language, Italian, Japanese, Portuguese, Russian
- ⇒ Conference cycles
- ⇒ Arts and cultures: elective seminars, workshops in film, plastic arts, literature, and more
- ⇒ Sports

Engineering and business

Objective: to develop a global, interdisciplinary approach to the design and development of a product

- ⇒ The engineer in his or her environment
- ⇒ Autonomy and the engineer



Hands-on projects

Hands-on projects are a key component of the program and are designed to broaden students' scientific, intellectual and social horizons.

The four project themes, innovation-creativity, innovation-research, engineering-entreprise, and innovation-entrepreneurship emphasize hands-on learning, applications and the achievement of a tangible result. This work uses cross-disciplinary knowledge and skills.

Innovation-creativity

This project gives students the freedom to explore scientific, artistic, cultural, and economic fields with a focus on growing your curiosity, communication skills and personal initiative.

Innovation-research

This project features an introduction to research with a focus on expanding your autonomy, and fostering innovativeness and the ability to think critically.

Engineering-entreprise

This project features all aspects of project management as well as expanding your team spirit, project management skills and the ability to deal with deadlines, costs, quality and risks.



Innovation-entrepreneurship

This project is designed to foster innovation and audacity, experimentation and entrepreneurial spirit.

Expertise-focused courses

Students choose to focus on one of six areas of expertise including:

Fluid dynamics

- Aerodynamics
- Turbomachinery and combustion

Structures and materials

- Computational structural mechanics
- Aerospace materials
- Aerospace structures

Earth observation and space science

- Space science
- Earth science and earth observation

Computer science, telecommunications and networks

- Computer science
- Networks and telecommunications

Decision sciences

- Industrial engineering
- Financial engineering
- Data and decision sciences

Electrical engineering

- Electronics
- Signal and image processing
- Control theory

Sector-focused courses

Students choose to focus on one of five sector-focused courses from among the following:

Aircraft systems and operations

- Aircraft architecture
- Helicopter architecture
- More electric aircraft
- Aeronautical propulsion systems
- Neuroergonomics

Space systems design and operations

- Space transportation systems
- Orbital systems

Autonomous systems

- Robots
- UAV
- Missiles

Sustainable transport and energy systems

- Energy sources and grids
- Transportation systems and intermodality

Modelling and simulation of complex systems

- Applied mathematics
- Physics and applications

Follow your own path, achieve your goals

To meet the professional objectives of future engineers, and answer students' interest in broadening their horizons to other areas of expertise, a wide range of reinforced programs are offered.

Students may choose a reinforced program that focuses on doing research in a specific area of scientific or technical expertise or they may specialize in business engineering and management or innovation and entrepreneurship.

These programs are backed by industrial and academic partnerships of excellence, allowing students to develop different experiences and cultivate an international outlook.

Choose from among the following reinforced programs

The research-focused reinforced program

- ⇒ Elective courses in an area of expertise
- ⇒ A two year research project
- ⇒ Option of completing a Master's degree in Research
- ⇒ Industrial internships
- ⇒ A published scientific paper and participation in a congress

Innovation and entrepreneurship reinforced program

- ⇒ Entrepreneurial project development
- ⇒ Additional courses to help complete the feasibility report

- ⇒ Support for participation in an innovation competition
- ⇒ Flexible curriculum tailored to needs of project progress

Business engineering and management

Additional courses.

- ⇒ 2 month certificates
- ⇒ Option of earning a second master's degree in France or abroad
- ⇒ Double degree with HEC Business School

Diversify your profile

Double degree programs with:

- ⇒ HEC business school
- ⇒ Sciences Po Paris
- ⇒ ESPCI Paris
- ⇒ École Polytechnique – Technological innovation & Entrepreneurship
- ⇒ École Polytechnique – Design Innovation Project
- ⇒ Toulouse School of Economics
- ⇒ Toulouse School of Management
- ⇒ Université Paris 11 – Law for space activities and electronic communications
- ⇒ École navale (Naval Academy)
- ⇒ 33 international universities

Certificates:

- ⇒ École Polytechnique - entrepreneurship, Zodiac Aerospace and BNP Paribas Chair
- ⇒ Sustainable development – aeronautics and the environment, AIRBUS CEDAR Chair
- ⇒ Certification INCOSE – System engineering
- ⇒ Business engineering

Growing professional experience

By the time they have graduated, ISAE-SUPAERO students will have completed a number of professional internships during which they have a hands-on opportunity to develop team work methods, project management skills, and research practices, as well as working in a multicultural, international environment.

Industrial experience

- ⇒ The worker internship (3 weeks)
- ⇒ Final year internship (5 months)
- ⇒ Optional internship (2-6 months)

International experience

There are many different options to study abroad:

- ⇒ 3-6 months exchange programs with 81 partner universities worldwide
- ⇒ Double degree in partnership with the best international universities
- ⇒ Internships abroad

Research and innovation experience

Working in an ISAE-SUPAERO research department or laboratory in France or abroad

- ⇒ Research project
- ⇒ Thesis



Close collaboration with companies and industry



- ⇒ Some **1100** engineers, and/or researchers from leading companies are visiting lecturers. They deliver courses based on the latest industry developments and practices
- ⇒ An alumni network of over **21500** graduates.
- ⇒ Long-term, innovative cooperative programs with over **30** partner companies.
- ⇒ Sponsorship agreements with companies : human factors and neuro-ergonomics for aviation safety with AXA, transport aircraft innovative concepts with Airbus Group, technological innovation and entrepreneurship with École Polytechnique, Zodiac Aerospace and BNP Paribas, Embedded systems engineering and architecture with Thales.
- ⇒ Conferences.
- ⇒ Industrial visits, internships in companies, forums, recruitment workshops.

Dynamic partnership agreements with:

ACCENTURE, AIRBUS, AKKA TECHNOLOGIES, ALTRAN, CITÉ DE L'ESPACE, CNES, DASSAULT AVIATION, LIEBHERR, MARINE NATIONALE, NUCLETUDES, MBDA, ONERA, SAFRAN, THALES GROUP, AIR FRANCE, ATR, DAHER,...



Acquiring research experience



Research laboratories host students from all of the school's programs to complete their research projects.

Coordinated research projects involve coursework, research, experimentation, and innovation. Student activities in the development of nano-satellites, micro-drones and marine robots are strongly supported by research teams. Student research and work regularly win international prizes and honors from professional organizations.

ISAE-SUPAERO research areas:

- Advanced aerodynamics and propulsion
- Behavior of materials and structural dynamics
- Image sensors in radiation environments
- Signal processing, antennas and optronics system
- Planetary exploration

- Complex system engineering
- Communication network optimization
- Design and running of aerospace vehicles
- Neuro-ergonomics and human factors for flight security

World-class research facilities:

- Autonomous system platform for micro-drones and robots
- Critical embedded systems platform
- Flight simulators and neuro-ergonomics platform
- Wind tunnels, aerocoustic wind tunnel
- Turbofan Test Bed
- Drop tower, gas guns
- Fleet of 10 aircraft : TB 20, Robin DR 400, Aquila
- Clean rooms for satellite integration
- Ground station for satellite tracking and operation

International development

A cosmopolitan campus

60

nationalities

31%

international students

ISAE-SUPAERO continues to expand its international development with renowned partners all over the world including universities, research organizations and companies.

The Institute has extensive academic agreements and actively participates in international networks such as ERASMUS, PEGASUS and TIME, fostering cooperation with the finest institutions in Europe.

ISAE-SUPAERO is a member of the worldwide network of AIRBUS Group partner universities.

International industrial groups, companies and organizations host and recruit our students for international internships.

Academic partnerships throughout the world

4

continents

100

agreements

27

countries

93

partner universities

Examples of European partner universities

- ↻ Technical University of Munich (Germany)
- ↻ Universidad Politecnica de Madrid (Spain)
- ↻ Cranfield University (Great Britain)
- ↻ Politecnico di Milano, Politecnico di Torino (Italy)
- ↻ KTH Stockholm (Sweden)
- ↻ TU Delft (The Netherlands)
- ↻ EPFL (Switzerland)

Examples of bilateral agreements with universities

- ↻ Georgia Tech, Caltech, University of California Berkeley, Stanford University (USA)
- ↻ École Polytechnique de Montréal (Canada)
- ↻ Instituto Tecnológico de Aeronáutica (Brazil)
- ↻ University of Tokyo (Japan)
- ↻ Bauman University (Russia)
- ↻ BUAA Beijing (China)

Campus life, in the heart of Toulouse



15 min from
downtown Toulouse

ISAE
SUPAERO



5 min from
the nearest
subway stop

3 h from
the Atlantic
Ocean

1 h 30 from the
Mediterranean
Sea

1 h 30 from the
Pyrénées mountains

A complete range of athletic facilities

The campus is equipped with a pool, a gym, rock climbing walls, a fitness center, squash and tennis courts as well as football and rugby fields.

An outstanding campus

Located at the heart of the scientific and university complex, the ISAE-SUPAERO campus includes 22 hectares along the UNESCO classified, lovely Canal du Midi.

The campus was renovated in 2015 with the addition of new buildings and research and leisure facilities

Student residences and the Student Center

The **6** entirely new residences offer **1000** housing units, including **30** studio apartments and rooms from **14** m² to **46** m².

Housing fees start from 299- euros per month, with utilities included. The ALS (student housing subsidies) is to be deducted. 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.

Practicing aeronautical sports

Ten minutes from campus, ISAE-SUPAERO has a fleet of ten planes (TB 20, Robin DR 400, Aquila) for flight courses including, an introduction to the flight environment, flight tests, an introduction to research, and more.

Students have the opportunity to earn a wide choice of flight licenses under very preferential conditions: powered aircraft, gliding, parachuting, and paragliding. Every year 35 students obtain a pilot's license.

The ISAE-SUPAERO Toul'box: a student welcome kit

To make life easier right from day one: setting up a bank account, housing, language courses, cultural activities-find out all you need to know and get started right away!

Find out more at: <https://toulbox.univ-toulouse.fr>
(Our Packages > Special packs > ISAE-SUPAERO)



Toulouse, the number three university town in France, is also the European capital of aeronautics and space. Known as "La Ville Rose", in reference to the color of the city's many historical brick buildings, it is ideally situated between the Atlantic Ocean and the Mediterranean Sea and right near the Pyrenees mountains. Repeatedly voted by the French as one of the most desirable places to live in France, Toulouse offers exceptional quality of life and is an especially great place to live as a student.

Contact: admission-ingenieur@isae-supaero.fr

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