



**EXCELLENCE
WITH PASSION**

OVER ONE CENTURY OF AEROSPACE EXCELLENCE

ISAE-SUPAERO is a world leader in higher education for aerospace engineering. For over one hundred years, SUPAERO has been educating students to have the most advanced scientific and engineering skills, helping the aeronautics and space industry to anticipate and adapt to the latest scientific, economic and social changes.

At ISAE-SUPAERO, we are committed to growing scientific knowledge, engaging in cutting-edge research and collaborating closely with our educational, industrial and research partners to foster progress.

Within the scope of this overall mission, we welcome the best students from all over the world and educate them to be future responsible leaders driving the development of our society and contributing to technological innovation in aeronautics and space.

Located in Toulouse, France, we benefit from a unique ecosystem, both at the heart of the European capital for aeronautics and space and of a thriving aerospace higher education and research campus.

A WINNING TRIO: TEACHING, RESEARCH, AND INNOVATION

With its extensive range of over 33 degree and educational programs, backed by research-driven teaching and close collaboration with industry, ISAE-SUPAERO answers the constantly evolving needs of the aerospace sector.

Since 1909, SUPAERO engineers have played a leading role in major technical, industrial and social achievements:

- Our graduates are aircraft designers, program managers, test pilots, inventors, entrepreneurs, astronauts...
- Most of our graduates work for leading industrial groups at high level positions in France and all over the world including Airbus, Bombardier, Dassault Aviation, Safran, Thales and Zodiac Aerospace and in the high-tech service industry for ATOS, AXA, Accenture, Dassault Systems and IBM, to name just a few.
- Our graduates have led major aerospace programs to success including Caravelle, Concorde, Mirage, Airbus A320, A380, A 350, Ariane, Rafale...

THE ISAE GROUP

A leader in aerospace engineering, the ISAE Group is comprised of four specialized French engineering schools: ISAE-ENSMA, for mechanical and aero-technical engineering, ISAE-ESTACA for aeronautical technologies and automotive construction, an aeronautical military school, l'Ecole de l'Air and ISAE-SUPAERO.

TOULOUSE, EUROPEAN CAPITAL OF AERONAUTICS AND SPACE



Earth observation Pleiades satellite constellation. Management of the system and its satellites as well as control and exploitation of images are overseen by the CNES, Airbus Defence & Space, and Airbus Defence & Space Geo Intelligence in Toulouse.

A CLOSE-UP LOOK AT ISAE-SUPAERO STUDENTS

OVER 1700
students

45
nationalities
30 % international students

1100
engineering students

400
students in Masters and Advanced
Master's programs

225
doctoral students
32 % international students

Toulouse is both the European aerospace capital and one of the greatest places to study in the world:

- World headquarters of Airbus, with the engineering and production of the whole Airbus aircraft range and hundreds of subcontractors on site
- 1/4 of all space-related jobs in Europe
- Number one in France for embedded electronic systems
- 90 000 jobs in the aerospace industry
- The leading region in France for aeronautics education

TRAINING HIGHLY QUALIFIED PROFESSIONALS IN AERONAUTICS AND SPACE

The world aerospace industry needs engineers, scientists and professionals skilled in ever-more complex techniques and systems. With its close links to industry and innovative, competitive range of over 33 degree-granting programs and special courses, ISAE-SUPAERO actively contributes to the growth of the sector.



Supervised by a professor, students perform a test on the Turbofan Test Bed.

■ **THE “INGÉNIEUR ISAE-SUPAERO” (MSC) DEGREE:** highly regarded as one of the best engineering programs in France, this program combines advanced level scientific training along with a focus on international experience, economics and entrepreneurship. International students are eligible for international mobility and double degree programs over one semester or two years of study.

■ **CNAM-ISAE ENGINEERING PROGRAM:** this aerospace engineering program is jointly designed with the CNAM, the French organization specialized in continuing education. The program alternates in-class courses with in-company learning.

■ **DOCTORAL PROGRAMS:** there are 7 doctoral programs backed by the exceptional network of our aerospace industry partner laboratories.



■ **ISAE-SUPAERO MASTER OF SCIENCE IN AEROSPACE ENGINEERING:**

IN AEROSPACE ENGINEERING: a two year multidisciplinary program delivered in English, the MSc in Aerospace Engineering is designed to ensure that students acquire skills in aeronautics and space-related engineering science, technology and design. It is open to students who have a Bachelor's degree in science or engineering.

■ **ADVANCED MASTERS®:** the Advanced Master's Programs are designed to grow expertise in aeronautics, space, and complex systems, as well as management skills. Innovative and internationally recognized, these degree programs are open to students with an engineering or Masters of Science degree as well as to working executives. The program includes six months of courses and a six month training period in a company.

■ **CERTIFICATES:** taught in English and lasting from 5 to 12 weeks, these certification courses are designed to expand skills in a specific area including drone systems, earth observation, helicopter engineering, flight test engineering, human factors in aeronautics, aeronautics maintenance and customer support, aeronautical engineering for maintenance and airworthiness.

■ **AEROSPACE BUSINESS INTEGRATION PROGRAM:** this program is designed to prepare high-potential European managers to lead international aeronautics projects. It is a 10 week course designed and sponsored by 7 aeronautics universities and 7 European industrial companies (ECATA consortium).

■ **SHORT COURSES:** to answer the needs of companies, the institution offers a wide choice of short courses and workshops in science and technology, engineering, and management. The latter are delivered by the subsidiary, EUROSAE.

INNOVATION-DRIVEN RESEARCH TO ANSWER TECHNOLOGICAL AND INDUSTRIAL CHALLENGES

RESEARCH FOCUS ON AERONAUTICS AND SPACE

Our research teams are driving technological progress to anticipate and answer the needs of sector stakeholders, and to find solutions to the latest socioeconomic and environmental challenges. In cooperation with many renowned partners, our diversified and innovative scientific research activities also focus on industrial valorization.

ISAE-SUPAERO partners with the Jet Propulsion Laboratory/Caltech and NASA to explore the depths of planet Mars.



RESEARCH AREAS

- ▶ Advanced aerodynamics and propulsion
- ▶ Behavior of materials and structural dynamics
- ▶ Image sensors in radiation environments
- ▶ Signal processing, antennas and optronics systems
- ▶ Planetary exploration
- ▶ Complex system engineering
- ▶ Communication network optimization
- ▶ Design and operation of aerospace vehicles
- ▶ Neuro-ergonomics and human factors for flight security

AGENCIES

Defense Ministry-DGA,
CNES, ESA



ORGANIZATIONS (JOINT RESEARCH LABORATORIES)

ONERA, CEA DAM, LAAS-CNRS,
IRT Saint-Exupéry, IRIT

MAJOR INDUSTRIAL GROUPS

Airbus, Airbus Defense & Space, Akka Technologies,
Dassault Aviation, Liebherr, MBDA, Safran, Thales,
Zodiac Aerospace

INTERNATIONAL ACADEMIC PARTNERS

Cranfield University (Great Britain),
Technical University of Munich (Germany),
TU Delft (Netherlands), Caltech (USA),
Georgia Tech (USA), Stanford University
(USA), UC Berkeley (USA), University of
Michigan (USA), École Polytechnique de
Montréal (Canada), University of Tokyo

WORLD CLASS RESEARCH FACILITIES

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



The human factors and neuroergonomics research team is helping to improve aviation safety.

INTERNATIONAL SCIENTIFIC COLLABORATION AND INDUSTRIAL AND ACADEMIC PARTNERSHIPS

- The aircraft of the future: Ultimate European Project for the development of disruptive concepts in aero-propulsive architectures
- Space exploration : Nasa InSight Mars mission, collaboration with the Jet Propulsion Laboratory/Caltech in particular for the design of the SEIS seismometer
- Clean Sky Program: collaboration with European partners
- Regular hosting of guest researchers from partner universities: University of Michigan (USA), École Polytechnique de Montréal (Canada), Instituto Tecnológico de Aeronáutica (Brazil), etc.

RESEARCH, TRAINING, INNOVATION: ESSENTIAL LINKS

FROM RESEARCH TO TEACHING

Professors lead the doctoral programs, which provide the highest level of training in research, as well as overseeing or guiding a wide range of student academic and extra-curricular activities and competitions.

ISAE-SUPAERO wins awards in many international scientific challenges including: QB50 European Project, EntrySat Nano-satellite for the study of atmospheric re-entry. Perseus Program for the design of two micro-launchers including the supersonic SERA 2 rocket designed by the SUPAERO SPACE SECTION CLUB.

FROM RESEARCH TO INNOVATION AND VALORIZATION

Scientific research and expertise foster technology transfer and the innovations which accompany evolutions in the aerospace industry.

INTERNATIONAL OUTREACH

Our mission: to educate the finest students from France and all over the world students, and to actively foster the international mobility of our students, professors and researchers.

ACTIVE PARTICIPATION IN INTERNATIONAL NETWORKS, ACADEMIC AND INDUSTRIAL PARTNERSHIPS

- » PEGASUS: the European network of 25 aeronautics and space universities in aerospace engineering from 10 countries.
- » TIME - Top Industrial Managers for Europe - a network of 53 members from 20 countries
- » The Airbus Group University Partner Program (AGUPP): a strategic network that connects the Airbus Group partner universities around the world.

81
partner universities in
23
countries
on four continents



SUMMER SCHOOLS

Aeronautics Summer School and Space Summer School developed with our academic partners.

EXAMPLES OF EUROPEAN PARTNER UNIVERSITIES

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

EXAMPLES OF BILATERAL AGREEMENTS WITH UNIVERSITIES

- » **United States and Canada:** Georgia Tech, Caltech, UC Berkeley, Stanford University, École Polytechnique de Montréal
- » **Brazil:** Instituto Tecnológico de Aeronáutica
- » **Japan:** University of Tokyo
- » **Russia:** Bauman University
- » **China:** BUAA Pekin

COLLABORATING WITH COMPANIES TO PREPARE THE FUTURE



STRONG ENGAGEMENT OF COMPANIES AT ALL LEVELS

Nearly **1000** professionals from industry teach courses in our programs

Representatives from industry are active members of our governance boards

95% of our research is carried out in collaboration with industry and our academic partners

Engineering and development of training programs to support European companies with their international strategy.

CORPORATE SPONSORSHIP AND COOPERATION FOR EDUCATION AND INNOVATION

ISAE-SUPAERO has partnerships with over **20** companies and organizations including Airbus, Safran, Dassault, Thales, and MBDA, among others. The latter are involved in long-term cooperative agreements with ISAE-SUPAERO and actively contribute to training our students.

In the areas of teaching and research, we have developed sponsorship agreements with companies, industrial groups and the ISAE-SUPAERO Foundation.

The latest partnerships signed are:

- › Architecture of man-in-the-loop Air Systems with Dassault Aviation
- › Embedded systems architecture and engineering (ARISE) with Thales Avionics
- › Aero engine innovative studies (AEGIS) with SAFRAN
- › Support for developing ISAE Group with the GIFAS, the French aerospace industry association.



THE ISAE-SUPAERO FOUNDATION: INTERNATIONAL OUTREACH ACTIONS TO SUPPORT FACULTY AND STUDENTS

Excellence grants to host international students and promote the mobility of our students all over the world.

Hosting of cutting-edge faculty and researchers in the aerospace field, financing of research stays in partner laboratories all over the world.

A VIBRANT CAMPUS

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

The campus has just been recently renovated with the addition of new buildings and new research and leisure facilities.



15 min from downtown Toulouse, **10 min** from the nearest subway stop. A complete range of **athletic facilities** (pool, a gym, rock climbing walls, a fitness center, squash and tennis courts). Practicing **aeronautical sports** powered aircraft, gliding, parachuting and paragliding.



UNIVERSITÉ FÉDÉRALE TOULOUSE MIDI-PYRÉNÉES

HIGHER EDUCATION AND RESEARCH



Toulouse, the number three university town in France, ranked «best place to study» by French students three years in a row.

The Université Fédérale de Toulouse is comprised of **4** universities, **12** engineering schools and specialized schools and **5** national research organizations. ISAE-SUPAERO is a founding member of this leading French higher education hub.

Over **110 000** students

Over **16 000** international students

Over **4 000** PhD students



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