

Aeronautical Engineering

Accredited by the Conférence des Grandes Écoles



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Aims

The TAS Aero - Aeronautical Engineering Master degree program - is a one-year professional course of study. The TAS Aero Master allows students to develop a high level of competence in engineering science, current technology, engineering design and management of aeronautical systems. The TAS - Aero program is highly multidisciplinary and is aimed at developing engineering skills to easily enter the work world with great opportunities and significant chances of advancement on aeronautical projects, either in a research facility or in a company in a multinational environment.

The program is specially designed for students starting immediately after the completion of their graduate degree and for industrial employees who have enrolled through their companies' continuing education programs.

The TAS Aero curriculum includes a broad spectrum of subjects with the following objectives:

- to develop an integrated approach of the product design development, while acquiring necessary skills in the disciplines and techniques of the aeronautical sector,
- to easily work on multidisciplinary projects in aeronautics with a very practical approach,
- to develop skills in team building and team process at a multinational level,
- to develop project-management and programme-management skills for international use,
- to understand the global economic environment of the aeronautical sector.

Organization

Head of Program

Prof. Alain LACOMBE

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Duration of studies: One year full time

Beginning of classes: September

Location: ISAE, Campus SUPAERO

Teaching language: English

Pedagogical approach

First semester: academic session of around 350h, provided by ISAE's permanent professors and experts from aerospace industry bringing current knowledge and experience, including:

- lectures, exercises,
- labs with Matlab,
- engineering and design study seminars,
- laboratory sessions,
- written report and oral presentation,
- practical sessions,
- team work and team business game,
- in-flight practical study and industrial visits (Airbus, CEAT, etc.).

Second semester: students conduct a professional thesis within an aeronautical industry or organisation, in France or abroad and supervised by a tutor from the host organisation and from ISAE. The thesis is concluded by the preparation of a report and an oral dissertation in front of jury.

Syllabus

Part 1 - Structures - 143 h

Structures standardisation, MATLAB standardisation, Aircraft Structures, Composites Standardisation Composites, Modeling for aeronautical structures, Materials for Aerospace structures, Computer Aided Design (CAD)

Part 2 - Flight techniques - 136 h

Aircraft Techniques, Flight Dynamics 1 & 2, Helicopters, Control and avionics

Part 3 - Aerodynamics and Propulsion - 68 h

Aerodynamics 1 & 2, Propulsion

Part 4 - Aeronautical product design - 84 h

Aeronautical Engineering environment, Mastery of Aeronautical Products, Integrated Team Project

Part 5 - ISAE Information system user introduction - 2,5 h

Part 6 - Electives: one of out two to be chosen - 21 h

- Advanced Structural Dynamics
- Propulsion 2

Career opportunities

More than 750 students from 55 countries have been trained over the last 25 years and now work as research engineers, designers and consultants, etc.

Companies recruiting our students

Airbus, EADS, Dassault, CTA (Brazil), Hal (India), Chilean Air Force, Aeroconseil, Mig (Russia).

Witnesses

Questions to former students:

Interview John SPECTOR, South African, graduated in 1997, is now working at Airbus, as Flight Test Coordinator for Flight Physics.

Why did you choose SUPAERO, now ISAE, and the Master TAS Aero?

"I chose the specialized Master TAS aero and SUPAERO because I wanted to extend my knowledge and gain further credibility as an experienced aerospace engineer. At 28 years old I looked around me and saw the majority of my colleagues had Master's degrees, and many had PhDs. With 38 years left to work before likely retirement at 65 the option to come to France and complete my Master's degree addressed 3 important objectives:

- to obtain a Masters in aerospace engineering from one of the best institutions in the world today,
- to gain entry and credibility in the aerospace sector in Europe. My undergraduate degree is from RMIT in Melbourne, Australia which is very well known locally but not well known in Europe,
- to deepen my specialised knowledge in aerospace engineering especially in structures and aeronautics.

As a result of the program I worked for Fairchild Dornier as Design Responsible Engineer for Aeroelastics and am now Flight Test Coordinator for Flight Physics at Airbus for all aircraft programs. In 2007 I finished working on the bulk of the A380 flight test program from first flight to first deliveries to Singapore Airlines. In 2008 I am working on the A400M. The TAS Aero program really allowed me to break into the European aerospace market".

Interview Xavier COMBY, graduated in 2004, is now working for RUAG Aerospace in Emmen (Switzerland)

Xavier, what is the main point of the TAS Aero course?

"This is a technical training which allows getting good skills in the main aeronautical fields within a short but intense period of time".

Has it enabled you to easily get a job?

"Toulouse is a world wide reference for aeronautics and

space. Besides, ISAE (SUPAERO) benefits from its close ties with industry, such as Airbus for instance".

What would you say if you had to recommend this program?

"I would say that the courses are delivered either by senior full time professors or by corporate engineers working for famous research centres or companies.

Besides, I would add that this is a real international experience as students come from various countries.

Eventually, I would say that attending a degree course at ISAE, one of the best known schools for aeronautics and space, is a quality reference when you look for a job".

Interview Sabine MALTAVERNE, France, graduated in 2009, is now working at Snecma located in Gennevilliers, as engineer.

Why did you choose ISAE for your specialized master?

Only ISAE proposes a specialized master in aeronautics which relates to technical subjects rather than business. Master courses took place at the SUPAERO campus. This allows us to enjoy its famous status.

What advice would you give to someone considering the course in order to succeed in their studies?

To take into account all the courses, work on the exams given during the years before, work with people of the engineer cycle and resist to the stress.

What has the course brought you, what have you gained through the master's course?

I improved my experience concerning general courses and I got a first theoretical teaching in the aeronautics field.

Has the master TAS Aero helped you in your current or past job?

Of course. The specialized master is responsible for my presence in Eurocopter. In this company, my work begins rapidly because of helicopters' courses that I followed at ISAE. I got self-confidence to propose ideas and guidelines in a project frame because of the many examples studied during specialized master. Furthermore, I can deal more easily with theoretical aspects.

Admission 2010

Common ISAE's admission procedures

Postgraduate Specialized Masters in engineering

- **SM AMS - SM ASAA - SM EMS - SM HE - SM SCS - SM SEN - SM TAS Aero - SM TAS Astro**
- **MS EAS - MS SAS - MS SPA**

Tuition fees 2010-2011: 12 000 €.

French and European Students: 6000 € (students graduated in the year of application or the year before, and with no professional experience).

Academic requirements

Applicants must have a Master degree, or an equivalent degree in science or engineering, or a bachelor degree with 3 years of professional experience at least.

Selection and admission

Selection and admission are made by an admission committee; possible interviews can be organized if necessary.

Deadlines for application: several admission committees scheduled from April to June 2010,

Application form to be downloaded at www.isae.fr

Application fees: 65 € (non-refundable).

Complete application files to be sent: Institut Supérieur de l'Aéronautique et de l'Espace - Direction des masters et mastères spécialisés - 10, avenue Édouard-Belin - BP 54032 - 31055 Toulouse Cedex 4 – France

Language requirements for Masters in English

Language qualification requested : TOEFL 550 (paper-based). Except if applicant's first language is English or total instruction of Bachelor or Master degree has been provided in English.

Other admission procedures

MS IEVex

Specific admission process through the French Ministry of Defence, contact us for more detailed information.

MS MGP

Selection and admission organized by HEC:

www.hec.edu/Specialized-Masters

Contact us for more detailed information.

MS IMF

Selection and admission organized by ESC Toulouse:

www.esc-toulouse.com

Contact us for more detailed information.

Contacts

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ISAE

The "Institut Supérieur de l'Aéronautique et de l'Espace" (ISAE) was created in 2007 from the merger of the two prestigious French graduate and postgraduate schools of engineering, SUPAERO and ENSICA. Today, ISAE, is a world-class higher institute for aerospace engineering education and research. Nowadays with a student corpus of over 1600, ISAE is one of Europe's largest Aerospace Institute offering graduates and postgraduates programs. Yearly, ISAE awards around 20% of master's degrees in Europe in aeronautics and space field. ISAE develops its worldwide reputation on the prestige of its master's programs, the fame of its teaching staff, or the excellence of its research but also on the high-value of its graduates, their skills in engineering or management, as well, their capacity to evolve within a very high-technology environment, their enterprising mind and international opening.

Identity card

Name: Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)

Founded in 2007 - as the result of the merging of SUPAERO (1909) and ENSICA (1945)

Legal Status: A large public institution of scientific, cultural and vocational missions

Trustees: Délégation Générale pour l'Armement (DGA) [French Defence Procurement] - Ministry of Defense

Endorsements and awards: CTI agreement of the two Graduate Programs, Conference des 'Grandes Écoles', for postgraduate specialized masters Ministry of Higher Education and Research for Masters of Science

Staff: 420 permanent staff

Key figures

2 Graduate Programs: SUPAERO and ENSICA

17 Specialized Masters including 12 in English

2 Masters of Science

9 Research Masters

6 PhD Programs

1600 students

160 international cooperation opportunities

50 academic and research partnerships

Contacts ISAE

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