

Experimental Flight Test Engineering (ISAE, EPNER - the French Flight Test School)

MS IEVex



Aims

Under the aegis of the DGA, ISAE and EPNER joined their expertise setting up the first Master's degree in Flight Test Engineering for pilots and engineers using the synergy of their recognized competences in aerospace education.

EPNER is one of the world leader Flight Test School offering high-level courses for Flight Test Pilots and Flight Test Engineers. EPNER offers fixed wing and rotary wing courses for test pilots and engineers.

ISAE and EPNER studied and developed a comprehensive program integrating their competencies and existing courses to provide EPNER flight test courses attendants with a Master's degree Specialized in Experimental Flight Test Engineering of ISAE besides the EPNER qualification.

The Experimental Flight Test Engineering Master is a 12-month course organized by ISAE and EPNER aiming at providing either Flight test Governmental organizations or Aircraft manufacturers with high-qualified test pilots and flight test engineers. Aware of the necessity to conduct flight tests program in close coordination between pilots and engineers, the original spirit of this program is to prepare pilots and engineers to work in integrated team.

The objectives of the Master is to develop theoretical and applied skills of experienced pilots and engineers for the preparation, implementation and report of flight tests either of aircraft or complex embedded-systems, in the best safety conditions. After graduation, these skilled professionals are able to participate to civilian certification of new or modified aircraft, to aircraft or equipment development program, to military acceptance program, either fixed-wing or rotary-wing.

The course is split into two periods:

- > 2-month courses in basis sciences and French aeronautical communication skills organised at ISAE-SUPAERO campus, in Toulouse,

- > 10-month Experimental Flight Test course, for fixed wing or rotary wing for pilots and engineers, given at EPNER in Istres.

Organization

Head of Program: Prof. Christian COLONGO

E-mail: christian.colongo@isae.fr

Duration of studies: One year full time

Beginning of classes: End of June

Location: ISAE-SUPAERO campus and EPNER-Istres

Teaching language: French

Pedagogical approach

Academic session consists of around 450h of ground and simulators courses, provided by ISAE's and EPNER permanent professors and experts from industry bringing current knowledge and experience.

And around 110 flight hours on more than 20 airplanes for fixed-wing stream and 15 helicopters for the rotary-wing stream.

All along the program, students conduct professional theses, assessment of aircrafts or embedded-systems. These theses are concluded by the preparation of a report and an oral dissertation.

Syllabus

ISAE part

	International attendees	French attendees
Mathematics	x	x
Flight mechanics	x	x
Automatic control and aircraft control	x	x
Advanced aeronautical French and aeronautical phraseology	x	
Aircraft preliminary design		x
Human factors		x

Mastère spécialisé en ingénierie

Accrédité par la Conférence des Grandes Écoles



EPNER part

System engineering introduction
Safety of flight tests
Basics of aerospace techniques
Documentation, procedures applied in flight tests programs
Performances tests
Propulsion tests
Handling tests
Embedded-systems tests
Specific test (fixed-wind): flight envelop extension, certification, acceptance, assessment, etc.
Specific test (fixed-wind): flight envelop extension, specific flights, synthesis activities
Professional thesis

Career opportunities

The Master intends to prepare skilled professionals, pilots or engineers for:

- > Managers of flight tests implementation, flight envelop extension of aircraft or embedded-systems in close cooperation with design and development offices,
- > Managers of flight tests centres.

Organisms recruiting our students

Flight Test Centres, Air Force, Navy, Army, EADS Germany, BWB Germany, Airbus, Dassault, Eurocopter, ESA, Canadian Flight test center...

WITNESSES

CPT Luca S. Parmitano, Air Force Italia, Graduated in 2009, selected by ESA

I was selected by my government for this specialized master which is related to the EPNER test pilot school course. As the master is still taught in French, I wish give advice future students to learn french, it will help in learning the french culture, which in turn will help them to better understand the courses, even when they are in english. Plus, knowing the language will help them enjoy the beautiful city. Regarding my career, let's say the master helped me get my future job: in September 2009, I joined the European Space Agency to start astronaut training».

American Officer, future Graduate in 2011 (training in progress)

*Why did you choose ISAE and apply for our master ?
What were your objectives ?*

I came to ISAE as part of the MSIEVEX, associated with EPNER. My objectives were to work on mathematics, aviation, and aeronautical engineering subjects in French, in order to expand my knowledge of French engineering practice and begin my training as a Flight Test Engineer.

According to your experience, which are the strong assets of the Master you did ?

The greatest strength of the MSIEVEX program for me was the wealth of expertise available through our instructors and administrators, even in a short course like ours (only two months, during the summer). I am grateful that so many talented and knowledgeable professors dedicate their summer weeks to working with the MSIEVEX students. I also appreciate the inclusion of our Alliance professor and the French language course, because as a foreign student, having an excellent French teacher to complement the purely technical subjects was imperative.

I will know more about the specific strengths of the ISAE MSIEVEX program working together with the Program A stage at EPNER after I have spent more time at EPNER!

Which are your career plans ?

I will return to the United States in September 2012 to work as a Flight Test Engineer (Rotary-Wing specialty). I will spend at least three years in a FTE-RW job, and then I will build on that experience as an engineer and a field grade officer in the US Air Force.

Common ISAE's admission procedures

Selection and admission

Selection and admission are made by the French Ministry of Defence, contact us for more detailed information.

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.

Pilots: 1200 flight hours minimum.

Language qualification requested

French: French certificate equivalent to score C1-Common European Framework reference For Languages.

Your contacts at ISAE

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ISAE in few words

The "Institut Supérieur de l'Aéronautique et de l'Espace" (ISAE) was created in 2007 from the merger of the two prestigious French 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 1500, 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.

Key figures

- > 2 Graduate Engineering Programs: SUPAERO and ENSICA
- > 15 Specialized Masters including 11 in English
- > 3 Masters of Science
- > 6 Research Masters
- > 6 PhD Programs
- > 1500 students (1300 masters and 200 PhDs more or less)
- > 160 international cooperation opportunities
- > 50 academic and research partnerships

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



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