■ Objectives

Under the aegis of the DGA, ISAE-SUPAERO 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-SUPAERO 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-SUPAERO besides the EPNER qualification.

The Experimental Flight Test Engineering Master is a 12-month course organized by ISAE-SUPAERO and EPNER aiming at providing either Flight test Governmental Organisations 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 conduct flight tests 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 course is split into two periods:

• 2-month course in basic sciences and French aeronautical communication organized 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. Éric POQUILLON
eric.poquillon@isae-supraero.fr

Course duration
One year full time: 2 months of preparation courses and 10 months of technical courses

Course start date
June

Location
ISAE-SUPAERO and EPNER (Istres)

Teaching language
French

■ Learning approach

Academic session consists of around 450h of ground and simulators courses, provided by ISAE-SUPAERO and EPNER’s 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.
Experimental Flight Test Engineering

![Syllabus](image)

**Syllabus**

<table>
<thead>
<tr>
<th>ISAE-SUPAERO part</th>
<th>EPNER part</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>International attendees</strong></td>
<td><strong>French attendees</strong></td>
</tr>
<tr>
<td>Mathematics</td>
<td>✓</td>
</tr>
<tr>
<td>Flight mechanics</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic control and aircraft control</td>
<td>✓</td>
</tr>
<tr>
<td>Visits of companies</td>
<td>✓</td>
</tr>
<tr>
<td>Advanced aeronautical French</td>
<td>✓</td>
</tr>
<tr>
<td>Aeronautical phraseology</td>
<td>✓</td>
</tr>
<tr>
<td>Aircraft preliminary design</td>
<td>✓</td>
</tr>
<tr>
<td>Human factors</td>
<td>✓</td>
</tr>
</tbody>
</table>

**EPNER part**

- Systems engineering introduction – Safety of flight tests
- Basics of aerospace technics
- Documentation, procedures applied in flight tests programs – Performances tests
- Propulsion tests
- Handling tests
- Embedded-systems tests
- Specific test (fixed-wind): flight envelope extension
- Certification, acceptance, assessment, etc. – Specific test (fixed-wind): flight envelope extension - Specific flight, synthesis activities – Professional thesis

**Career opportunities**

The Master intends to prepare skilled professionals, pilots or engineers for:
- Managers of flight tests implementation, flight envelope extension of aircraft or embedded-systems in close cooperation with design and development offices
- Managers of flight tests centers.

**Admission procedure**

Selection and admission by the French Ministry of Armed Forces, contact us for more detailed information.

**Companies recruiting our students**

Flight Test Centres, Air Force, Navy, Army, Airbus Group and its subsidiaries, BWB Germany, Dassault Aviation, ESA, Canadian Flight test center...

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**Testimonies**

**Why did you choose ISAE-SUPAERO and apply for this MS? What were your objectives?**

<table>
<thead>
<tr>
<th>RICE WILLIAMS</th>
<th>PATRICK CALLAGHAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort 2019</td>
<td>Cohort 2021</td>
</tr>
</tbody>
</table>

- **RICE WILLIAMS**
  
  This course was the only option and a great way to practice the French language in the sector of aviation while refreshing math and science I hadn't seen in 10 years. I was hoping to get a head start for EPNER.

- **PATRICK CALLAGHAN**
  
  This was a part of the flight test program at EPNER.

**According to your experience, what are the strong assets of this master?**

- **RICE WILLIAMS**
  
  There are many language programs that have an aviation and science emphasis so this is a great way to refresh math, science, and learn the French words that go along with studying at EPNER.

- **PATRICK CALLAGHAN**
  
  World class instructors with real world experience friendly, helpful support staff. Excellent facilities.

**What are your career plans?**

- **RICE WILLIAMS**
  
  I hope to become a test pilot for the United States of America.

- **PATRICK CALLAGHAN**
  
  Continue to work as a flight test engineer.
Admission procedures

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

Your contacts

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