

Helicopter Engineering (ISAE-Eurocopter)

Accredited by the Conférence des Grandes Écoles



Aims

The Master Helicopter Engineering is designed for graduates or professionals having a passion for this specific aircraft. Developed by ISAE and Eurocopter -global helicopter manufacturer and market leader, this 2-semester program provides high-level of engineering and technical competences for careers in helicopter business world. Unique worldwide, the Master Helicopter Engineering takes singular advantages from the marriage of the both teaching approaches that allows attendees well balanced mix acquisition of scientific and engineering knowledge, as well as techniques and technologies from the world leading company. This comprehensive program course starts with basic engineering knowledge in aeronautical design, then emphasizes on specific techniques, technologies or management aspect related to the design, certification and operations of civil or military helicopters.

Organization

Head of Program: Prof. Frédéric LACHAUD

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Duration of studies: One year full time

Beginning of classes: September

Location: ISAE, Campus SUPAERO from September to December, Eurocopter premises (Marignane) from January to February

Teaching language: English

Pedagogical approach

First semester: academic session of about 530 hours of teaching from September to March, provided by permanent professors of ISAE and experts from aerospace industry giving their current knowledge and experience, from the helicopter industry (Eurocopter, Safran/Turbomeca, Thales, etc.). Including: lectures, tutorials, and practical sessions.

Second semester: students have to conduct a professional thesis in aerospace industry or in laboratory, in France or abroad, 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

ISAE part 1 - Aerospace Engineering - 112 h

The aeronautical engineering environment – Aeronautical products – Aeronautics – Propulsion – CAD – Aircraft structure – Composites – Modelling of aeronautical structures – Advanced structures dynamics – Materials for aerospace structures – Integrated Team Project

ISAE part 2 - Helicopter Engineering - 200 h

Vibration model analysis – Helicopter propulsion and motorization – Helicopter equipment – Arming - mission – Helicopter in flight tests – Certification – Helicopter maintenance

EUROCOPTER part 3 - Organized at Eurocopter premises (Marignane) - 163 h

Aerodynamics -flight qualities- Performance – Helicopter dynamics – Helicopter construction materials and techniques –Systems – Prototypes – tests – production – Quality assurance

Career opportunities

This programme prepares attendees to a wide range of professional opportunities from design, certification and operations of civil and military aircraft in France and overseas.

Companies recruiting our students

Eurocopter, Safran-Turbomeca, Thales, AVIC (China) Helibras (Brazil), HAL (India),Eurocopter Mexico, Air Force of Algeria, Navy of Brazil, Air Force of Chile, Air Force of India, Pakistan Army, Air Force of Tunisia, SONAIR (Angola)



Witnesses

Alix ANDRIEU, Flight Test engineer Eurocopter, graduated in 2008

« During my graduate studies at aeronautical engineer school, my dream was to learn about helicopter however all lessons had been on airplane so I couldn't have theoretical lessons on helicopter working. So I inquired about possible postgraduate courses in other engineering schools or universities and I found this Specialized Master in Europe at ISAE. After 5 years of study I wanted to start my first job but the Master was the only way to fill my wish to work in Helicopter industry. So I applied for and I could do it.

Thanks to this Master I discovered the helicopter world. This Master gathers all fields regarding helicopter. That means materials, design, avionic, arming, aerodynamic, vibration, systems, flight performances, etc.

One of the main assets of this Master is the involvement of Eurocopter. Parts of lectures are taught by engineers, providing me with their expertise, giving as well a perception of the working of company and different existing jobs.

Now I am working in this leader company of helicopter conception and manufacturing. I joined the flight test department after graduation in September 2008.

After I have been studying this Master program for one year, I could say I feel being a better engineer than without do it».

Marc Lambelin, Light Helicopter Quality Program engineer, Eurocopter, Graduated in 2006

« With a solid background as pilot of helicopters, I decided to come back to the engineering domain with my final target that is to work as flight test engineer. To reach this goal and to live completely my passion, I decided to apply to the Master of ISAE - ENSICA which is the unique professional-oriented Master offering a comprehensive program from design, development, manufacturing and operation of helicopter. It offered me the best opportunity to acquire necessary professional skills in engineering, techniques applied to the Helicopter area, in addition to my previous pilot experience. I realized my objectives; I now work at EUROCOPTER, as Light Helicopter Quality Program engineer. It's the first step before next evolution».