HELICOPTER, AIRCRAFT AND DRONE ARCHITECTURE

ADVANCED MASTER

WITH **AIRBUS**

ONE YEAR FULL TIME
- 6 months of courses
- 6 months of professional thesis or internship.

TEACHING LANGUAGE
- English

START OF CLASSES
- End of September

LOCATION
- ISAE-SUPAERO, Toulouse, France

KEY POINTS
- In existence for more than 10 years.
- Strong partnership with Airbus Helicopters.
- Drones of all shapes and uses (in a UTM-dedicated center on the campus) and 1 helicopter flight.

HEAD OF PROGRAM
- ISAE-SUPAERO:
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More information

OBJECTIVES

The Advanced Master "Helicopter, Aircraft and Drone Architecture (HADA)" is jointly designed and developed by ISAE-SUPAERO and Airbus Helicopters. This program provides a high-level of engineering and technical skills for careers in the aircraft, helicopter and drone industries.

This program provides the basic skills required for aeronautical engineers (architecture, certification and structures) and specific skills to identify problems, come up with alternatives, choose and implement solutions for aircraft, helicopter and drone projects. Drones and Urban taxis will be developed as they represent a growing part of the activity in the future aerospace sector. Industrial, regulatory and logistical challenges will therefore emerge. As a result, future aerospace engineers interested in being part of these innovative projects will need to call on and develop new skills and expand their current knowledge. This program offers full training from electronic systems to structures and taking in aerodynamics, flight dynamics and certification while encouraging diversity in the profiles of selected applicants.

This ADVANCED MASTER course teaches cutting edge techniques required for future aircraft and rotorcraft systems including the new challenges associated with urban mobility. The present program is a high level Master course recognized by industry and adapted to current and future aeronautical engineering.

LEARNING APPROACH

1st semester:
Academic session from September to March, provided by the tenured professors at ISAE-SUPAERO and aeronautical industry experts with their up-to-date knowledge and experience (Airbus Helicopters, Airbus Group, Safran/Turbomeca, Thales, etc.). Including: lectures, tutorials, and practical sessions. From end of February to mid April, students are hosted at Airbus Helicopters in Marignane to attend lectures given by experienced Airbus engineers.

2nd semester:
Students are required to conduct a 4 to 6 months professional thesis or internship.
- with an aerospace company or in a laboratory
- in France or Abroad

supervised by a tutor from the host organization and from ISAE-SUPAERO.

The thesis concludes with the submission of a report and an oral dissertation in front of a thesis committee.

CAREER OPPORTUNITIES

This program prepares participants for a wide range of professional opportunities from design, certification and operation of civil and military aircraft, drones and helicopters in France and overseas.

Companies recruiting our students
CAPGEMINI, Airbus Group, Airbus Helicopters, Safran-Turbomeca, Thales, Dassault Aviation, Gendarmerie Nationale, Helibras (Brazil), AVIC (China) HAL (India), Pawan Hans Helicopters ltd (India), Airbus Helicopters Mexico, Algerian Air Force, Brazilian Navy, Chile Air Force, Indian Air Force, Pakistan Army, Tunisian Air Force, Sauber f1 team...

SYLLABUS

Part 1: *Aircraft structures, Aircraft architecture and certifications*

- *Aircraft architecture*
- *Aircraft Structures*
- *Certification*
- *Computer Aided Design*

Part 2: *Fixed-wing aircraft*

- *Avionics systems*
- *Aircraft general systems*
- *Engines and powerplant*
- *Flight dynamics*

Part 3: *Helicopters*

- *Helicpter: Aerodynamics, performance and flight qualities*
- *Helicopter materials and construction technics*
- *Helicopter Systems: prototyping, tests and production quality*
- *Helicopter dynamics*

Part 4: *Drones*

- *Designing drone systems*
- *Payload and sensors for UAVs*
- *Drone safety and airworthiness*
- *Drone guidance and navigation;*
- *Neural network for control and diagnostics;*

TESTIMONIES

VINCENT KIRCHHOFER
Class of 2021-2022

I chose this school for this master because ISAE SUPAERO is a school recognized worldwide for its quality training. I wanted a specialized master's degree that would **provide an overview of the different aircraft on the market.** The fact that it was in partnership with Airbus Helicopters was also a plus.

The great strengths of this master are: the quality of teaching because **the courses are provided entirely by industry stakeholders.** The fact that the students come from different backgrounds is also a great strength (especially during practical work or discussion at the coffee break).

LAETITIA CALICE
Class of 2021-2022

I graduated from an engineering school, Ecole Nationale Supérieure de Cognitique (ENSC), focused on cognitive sciences, computer sciences and human factors. I strongly wanted to specialize in aeronautics. My goal was to apply my expertise in human-machine interfaces to the aeronautical field and to increase my knowledge in this sector. Thus, ISAE-SUPAERO's advanced master HADA fits my expectations because of the globality of its training. In fact, I was aiming **to diversify my field of activity, to understand aircraft in their entirety and to really discover how helicopters and drones work.**

Firstly, the greatest asset is the lecturers. They are passionate, extremely competent on their subjects and eager to share their knowledge. Secondly, given the subject of this advanced master, the diversity of the courses is a strong asset. I learned a lot on each aircraft and not only on their architecture but for example on their certification and production processes. Moreover, even though all students came from different backgrounds, aeronautical or not, we all learned valuable information for our career. The MS HADA enabled us to improve our general knowledge without going into too complicated equations

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