SPATIAL

AÉRONAUTIQUE

AUTOMOBILE

FERROVIAIRE

NAVAL

AUTOMOTIVE & AERONAUTICS DESIGN PROGRAM

Study in English, live in Paris

ESTACA
ECOLE D'INGENIEURS

GROUPE isae

AN INNOVATIVE PROGRAM TO OPERATE NUMERICAL TOOLS, ALIGNED WITH INDUSTRIAL REQUIREMENTS

Modern aeronautical and automotive industries require engineers who go beyond traditional technical skills. They must master advanced digital tools and cutting edge technologies, and be ready to work effectively in an international environment.

PROGRAM IN BRIEF

AIM

Learn and operate CAE tools to design and fit aeronautical and automotive systems and subsystems.

PROGRAM BENEFITS

> Faculty heavily involved in the industrial sector
> Work with industrially relevant computation software and methods
> Study in a multicultural environment
> Explore French language, culture, and intercultural communication through story circles, connecting with each other while discovering Paris.

SKILLS ACQUIRED

> CAD design and FEM/CFD simulation
> Experience working in a multicultural environment
> Understanding of the role of numerical tools in a design process.

COURSE BREAK DOWN

> Lectures
> Labwork
> Project team work.

ACADEMIC PERIOD

> 4 months from January to May
> 2 weeks of vacation to discover Europe or France.

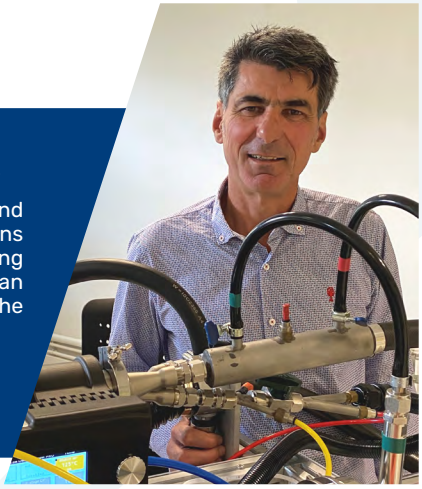
LANGUAGE: English

NUMBER OF CREDITS: 30 ECTS

A SHORT TRAINING TO BECOME QUICKLY OPERATIONAL

ESTACA offers a one-semester program in CAE and Design applied to the Aeronautical and Automotive sectors. The objective of this program is to provide students with the means of achieving high quality design, cost reduction and best timeto-market skills. Combining the training in CAE and its immediate application to a design project carried out in an international team, optimizes the training period for maximum results, after which the students are immediately operational.

Benoit SAGOT,
program Director



The AAD program provides a hands-on introduction to advanced engineering software programs, and ESTACA's expertise in multiple industries means student projects closely reflect real-world scenarios.

I thoroughly enjoyed having a more selective program size, which was an advantage in more ways than one. It helped our class form close connections exploring Paris and traveling to other countries, while maintaining flexibility and encouraging one-on-one discussions with professors. Participating in this program has given me skills to succeed working in multicultural teams, especially because of the Technical Project and the French Language and Culture classes.

I appreciated the opportunity to learn from professors whose work closely corresponded to the project they mentored, and ESTACA's school culture was fun and collaborative. I would encourage anyone interested in developing both technical and soft skills to consider applying!

Kate ALBANESE,
Purdue University (USA – AAD Program 2025)

MODULES & PARTNERS

COMPUTER AIDED ENGINEERING
2 ECTS

Upon completion of this course, the student will be able to autonomously use the major features of the CATIA 3DEXPERIENCE solutions: part design and assembly design. An introduction to surface design is provided, for further use in interdisciplinary applications (CFD or FEM).

> Catia design and simulation (Labwork)

SIGNAL PROCESSING
4 ECTS

This course introduces signal processing basics: signal representation, classification of signals, standard functions such as Laplace transform, convolution, correlation. Fourier transform is introduced. Matlab labworks provide an opportunity to apply the concepts of sampling process, the Shannon theorem. Experimental sessions in the Acoustic department are planned to illustrate the fundamental principles and practical techniques such as FFT (Fast Fourier Transform).

> Signal Processing (Lecture)
> Matlab Labs (labwork)
> Exp Signal Processing (labwork)

COMPUTATIONAL FLUID DYNAMICS
5 ECTS

This course introduces the main key stages of producing an accurate CFD (computational fluid dynamics) simulation. The lecture is oriented to a simplified presentation of the finite volume method, together with an illustration of the different meshing strategies, to obtain a reliable simulation. Students will use the industrial software STAR-CCM+, with different case set-up for both automotive and aeronautics applications (winglet, car drag evaluation ...).

A lecture on heat transfer is provided, to develop the ability to conduct thermal analysis, for classical engineering applications.

> Computational Fluid Dynamics (Lecture)
> Matlab CFD (Labwork)
> CFD with STAR-CCM+ (Labwork)
> Heat Transfer (Lecture)

HYDRAULIC SYSTEMS
2 ECTS

This module provides a deep understanding into dynamic physical systems which are analyzed and designed by engineers. The labworks emphasize the key features for modelling multiphysics systems such as coupled thermohydro-mechanical application (car suspension, hydraulic piston pump ....).

> Hydraulic systems simulation (Labwork)

STRUCTURAL DESIGN
5 ECTS

This course presents the basic fundamentals and techniques of stress analysis, using real structural problems to illustrate the fundamental principles and practical techniques. Labworks introduce this FEM methodology with Abaqus.
> Finite Element Method (Lecture)
> FEM Simulation with CATIA (Labwork)

TECHNICAL PROJECT
8 ECTS

To experience team working and to develop analysis and synthesis skills necessary to project management applied to aeronautic or automotive domains :

> to improve technical and organizational skills
> to develop communication skills
> to develop ability to project
> to acquire an expertise in methodologies and software used in industries.

At the end of the project, groups are required to report and present findings.

> Project

FRENCH LANGUAGE
2 ECTS

This course is designed to help students develop their French language skills. There are two groups: one for beginners and one for intermediate/advanced learners. The course is tailored to appropriately challenge each student, regardless of their level. For beginners, the focus is on acquiring essential «survival French,» while the intermediate and advanced group concentrates on language skills relevant to the field of engineering. The method is based on interaction and active participation, with a strong emphasis on oral communication. The course offers a real opportunity to improve one's skills in comprehension, expression, and grammar.

INTERCULTURAL COMMUNICATION
2 ECTS

This course, taught in English, is designed to encourage students to reflect on intercultural interactions in the context of effective global communication.
It focuses on embracing cultural differences and similarities, moving beyond stereotypes, and understanding various communication styles.
Special attention is given to strategies for managing misunderstandings and resolving conflicts that may arise in intercultural contexts.
The course combines theoretical foundations with a strong emphasis on real-life scenarios, allowing students to explore and apply different communication approaches in practical situations.

Information on this brochure is subject to change without prior notice.

ESTACA PARIS-SACLAY CAMPUS IN SAINT-QUENTIN-EN-YVELINES

Located west of Paris, 10 minutes from "the Château de Versailles" and 30 minutes from the Eiffel Tower, ESTACA Paris-Saclay offers an outstanding environment for international students. Opened in 2015, the campus is just five minutes from Saint-Quentin-en-Yvelines station, in a town that provides excellent student facilities, including accommodation, dining, sports and cultural activities.

Saint-Quentin-en-Yvelines is part of the Paris-Saclay cluster, the second largest economic hub west of Paris. It brings together numerous transport industries as well as leading academic and scientific partners in mobility and transportation.

Many French "Grandes Écoles" and universities are established there. They are members of Université Paris Saclay, an internationally recognized institution that forms the core education and research hub of the Paris-Saclay technological cluster, often described as "the French Silicon Valley".

ONE FOOT IN FRANCE AND THE OTHER IN THE CAE WORLD

The AAD program drew my attention not only because the university is located in France, but also due to the strong academic content it offers. After studying extensive theory at my home university, I wanted the opportunity to apply this knowledge using industry-standard software. I greatly appreciated the close interaction with the professors and their effective teaching approach. The CFD and FEM courses were particularly influential, as they helped me define the specialization I want to pursue in my master's studies.

Beyond the technical aspects, the program also provided valuable experiences. The French classes were especially helpful, as the teacher adapted to the pace of the group, allowing me to make significant progress in the language. Likewise, the interculturality course enabled me to discover new cultures and gain insight into different lifestyles, traditions, and cuisines around the world. It also strengthened my understanding of teamwork and the importance of clear and effective communication.
I can confidently recommend this program. Both academically and socially, it is exceptional. I had a truly enriching experience and met wonderful people throughout my stay.

Jose IMERI,
University of Stuttgart student (Germany - AAD Program 2025)

ESTACA
GRADUATE ENGINEERING SCHOOL

Founded in 1925, ESTACA is a member of ISAE group, 1st world cluster in aerospace training and research. ESTACA is highly specialized in the fields of aeronautics, automotive, space, railway and naval industries.

The training courses constantly evolve to meet the requirements of companies and adapt to the emergence of new technologies or disciplines. ESTACA's graduates undertake the design, development and production of transport systems and components.

The industry has ranked ESTACA among the best engineering schools for its expertise in the transportation fields.

ESTACA IN FIGURES

3
campuses: ESTACA Paris-Saclay, ESTACA Laval and ESTACA Bordeaux

450
graduates per year

2,850
students

11,000
alumni

2
research teams

ISAE IN FIGURES

Group of the 5 most prestigious French engineering programs in Aerospace: SUP'AERO, ENSMA, SUPMECA, ESTACA, École de l'Air et de l'Espace, ENAC

6,000
students at a high scientific level in aerospace

475
doctoral students

68,000
alumni

700
faculty, researchers and engineers

WHERE LEARNING MEETS DISCOVERY

The experience at ESTACA is a great combination of learning and exploring. My decision to enroll in this school was driven by its strong reputation and the success of its alumni working in major motorsport teams, and the ADD program certainly didn't disappoint. One of the most exciting parts of the semester was working on a Formula Student front wing simulation using CFD, a project that allowed me to apply engineering theory to a real challenge.

However, what truly makes the experience meaningful is the international environment. Collaborating with classmates from so many cultural backgrounds helped me strengthen my teamwork skills, and I was fortunate to make lifelong friends from the USA, Morocco, and Germany.

Outside of class, living in France was an adventure of its own. I had the opportunity to visit Paris, explore its landmarks, and immerse myself in its culture, making this exchange a truly unforgettable experience. I will always remember my time as a student at ESTACA and I recommend the program to anyone looking for a meaningful and challenging experience.

Hiram JIMENEZ CABRERA,
Technológico de Monterrey (Mexico – AAD Program 2025)

PRACTICAL INFORMATION

SCHEDULE
The program runs for 18 weeks, including two weeks of vacation. It begins in the last week of January and concludes at the end of May.

ELIGIBILITY
This program is open to all foreign students holding a bachelor's degree or having completed two years of studies in an Engineering degree. Applicants should have English language proficiency (TOEFL iBT 79 / TOEIC 785 / IELTS 6.0).

CERTIFICATE OF COMPLETION
A certificate of completion (30 ECTS) will be given to students who complete the entire program succesfully.
The academic performance is assessed according to exams, project evaluation, reports, attendance and class participation.

TUITION FEES (for free movers only)
4,000 euros

ADMISSION PROCESS
Application available on the website:
http://www.estaca.fr
Deadline for application:
15th of october

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