

**INSA** | INSTITUT NATIONAL  
DES SCIENCES  
APPLIQUÉES  
HAUTS-DE-FRANCE

INTERNATIONAL MASTER IN  
**TRANSPORTATION  
& ENERGY**



STUDY IN SYNERGY  
WITH ACADEMIC AND INDUSTRIAL EXPERTS  
AND BECOME A KEY PLAYER  
OF TOMORROW'S TRANSPORT!



Located in Valenciennes, in the North of France, INSA Hauts-de-France offers a unique educational experience to talented women and men interested in the transportation industry, especially automotive and railway.

## OBJECTIVES

International Master in Transportation and Energy is entirely taught in English.

This program offers lectures, practical works and individual or team research and development projects in the fields of mechanics and energetics for transportation (mechanical design, energy management, vehicle dynamics, ergonomy, ...), but also project and product management, ...

This program gives access to a Master degree delivered in co-accreditation by Université Polytechnique Hauts-de-France and Institut National des Sciences Appliquées (INSA) Hauts-de-France, and recognized by the French Ministry of Higher Education and Research.

## STRONG LINKS WITH RESEARCH AND INDUSTRY

Work in synergy between teachers-researchers of INSA Hauts-de-France and industrial experts bring high theoretical and practical skills to the students.

Students can take benefit of numerous experimental platforms (test benches, combustion and hybrid engines, metrology, CAD, finite element software...) and other key elements of the INSA Hauts-de-France approach to engineering education, such as high staff/student ratio.

Students work with teachers-researchers belonging to the internationally recognized Research laboratories of Université Polytechnique Hauts-de-France and also directly in cooperation with industrial partners (Alstom, Audi, Capgemini, Hexa Ingénierie, ONERA, Railtech, Renault, Siemens). A semester is dedicated to internship in company to strengthen practical skills of students.

Teaching and Research at INSA Hauts-de-France match the actual need of transportation sector, strongly implanted in Valenciennes area (Alstom, Stellantis, Renault, ...), which leads to a high hiring rate of students just after graduation.

## THE KEY FEATURES OF OUR INTERNATIONAL MASTER ARE:

- The relevance of the courses to modern trends in the transportation industry
- The excellence and industrial relevance of the research and development work (group & individual projects)
- The high standards of teaching by professors and experts from industry
- Courses designed to enhance specific subject knowledge and develop transferable skills in transportation technology

## CAREER PROSPECTS:

Our graduates will be expert in the most promising new technologies in mechanical engineering and energy. They will be able to:

- prepare for a career as an engineer for industrial projects and services
- acquire a valuable background in all fields of transportation industry.

## POSITIONS HELD:

Senior positions in Research and Development, engineering consultancy, quality engineering, project manager, ...



# COURSE SYLLABUS

This program aims at providing in-depth specialization in the wide-ranging field of transportation.

Each semester includes modules dedicated to scientific and technical foundations, followed by modules of specialization.

No French proficiency is needed. Free French courses are provided during all program duration.

## 1ST YEAR MODULES

### SEMESTER 1 - 30 ECTS

Tools and Methods 1  
Design Process  
Safety  
Reliability Engineering and System  
Safety 1  
Team Project  
French Language Course

### SEMESTER 2 - 30 ECTS

International Business Management  
Tools and Methods 2  
Production and Transportation Logistics  
Comfort and Ergonomics  
Reliability Engineering and System  
Safety 2  
French Language Course

## 2ND YEAR MODULES

### SEMESTER 3 - 30 ECTS

Thermal & Hybrid Engines, Electrical  
Machines  
Combustion and emissions management  
Thermal management of vehicles  
Aerodynamics and turbulence  
Tools and Methods 3  
Team Project  
French Language Course

### SEMESTER 4 - 30 ECTS

Internship



Detailed list of courses communicated upon demand.

## ADMISSION REQUIREMENTS

The program is specially designed for international students.

### For the 1st year - Master 1:

Enrolment is open to students with a bachelor degree in engineering: mechanical, automotive, electronics, electricity, material science, mechatronics, physics and applied sciences, ...

### For the 2nd year - Master 2:

Enrolment is open to students with a master degree (1st or 2nd year) in engineering: mechanical, automotive, electronics, electricity, material science, mechatronics, ...

## ENGLISH PROFICIENCY

It is highly recommended to have a minimum level B2 (upper intermediate) according to the common European Framework of Reference for Languages.

## APPLICATION PROCEDURE



Application form can be downloaded from the INSA Hauts-de-France website or on demand: [international-master-te@insa-hdf.fr](mailto:international-master-te@insa-hdf.fr)

## CONTACT

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**59313 Valenciennes Cedex 9 - France**

**[insa-hautsdefrance.fr](http://insa-hautsdefrance.fr)**



## DURATION

2 years - Full time

## STARTING DATE OF COURSES

1st week of september

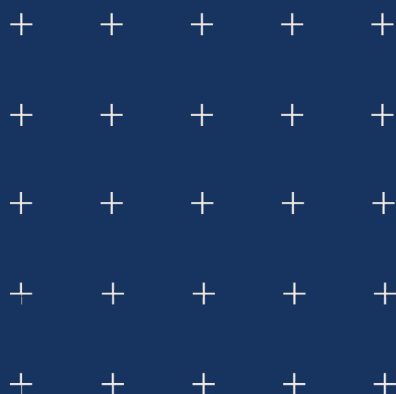
## TUITION FEES

**Admission in 1st year:**

- 1st year: 8,341€ (3,941€ to be paid at admission) + CVEC\* of 105€
- 2nd year: 5,012€ + CVEC\* of 105€

**Admission directly in 2nd year:** 8,341€ (3,941€ to be paid at admission) + CVEC\* of 105€

\*CVEC : fees for campus and student life (includes health insurance). Cost may evolve depending on decision of French Ministry of Higher Education and/or of Administration Council of INSA Hauts-de-France.



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