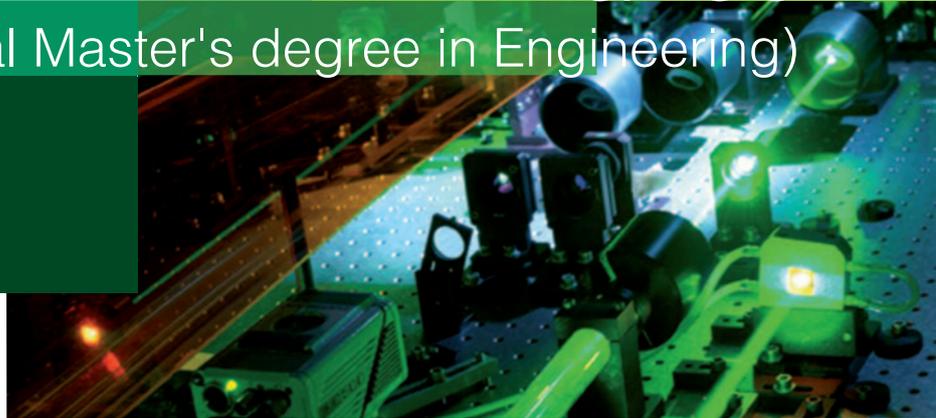


# The *Titre d'ingénieur* in France

(national Master's degree in Engineering)



Nearly 800,000 engineers now active in France were trained in the more than 220 French engineering schools qualified to confer the ***Titre d'ingénieur***, which carries the academic status of a national Master's degree and entitles the holder to pursue doctoral studies. A quarter of these schools are found within universities. The product of a system unique to France, the *Titre d'ingénieur* represents professional degree training in one of 200 engineering and management specialties, capped by a government-accredited degree recognized around the world.

The *Titre d'ingénieur* is awarded upon the completion of a program of studies closely keyed to scientific and technical progress and the needs of companies that grapple with complex technical problems linked to the design, production, and implementation of products, systems, and services. To practice as an engineer, particularly in industry and civil engineering, technical, economic, social, and human knowledge must be grounded in a solid scientific foundation and complemented by an awareness of the principles of sustainable development.

In various subject areas with a scientific, technical, and industrial cast, the engineering curriculum prepares graduates for the essential functions of research and development, consulting, project management, management of industrial processes, business management, human resources, and more.

The professional qualifications of graduate engineers cover a wide spectrum of basic sciences, enabling practitioners to combine the resources of a specialized scientific and technical field with engineering methods and tools to meet industrial and economic challenges in an international context.

The engineering curriculum spans 5 years (10 semesters, 300 ECTS credits). The first 2 years are spent in a preparatory program or equivalent program providing rigorous education in the basic sciences.

These preparatory years (whether spent in a special preparatory program offered in a lycée or in the preparatory cycle of a postsecondary school of engineering) are followed by a highly selective admission process (based on an examination or an application). The best students are admitted to a program of 3 years of study in engineering, management and international affairs. Holders of a first undergraduate degree or a 1-year Master's degree may apply to transfer into engineering programs.

The first 4 semesters of the engineering cycle (semesters 5 through 8 of the 10 semesters in the curriculum) form a common core that builds on students' basic knowledge of mathematics, physics, chemistry, mechanics, and electronics. The student then chooses a specific sector in which to specialize. Engineering schools also offer options in business, management and finance, allowing students to prepare for positions as managers as well as engineers.

Depending on the school, the training offered may be general or specialized. But all French engineering programs include the managerial and international dimensions. Moreover, the scope of education is comprehensive, embracing economics, humanities, the social sciences, communication, and culture. Growing numbers of programs are taught in English, and students must pass a test of English proficiency (B2 level in the European scheme) in order to graduate.

## Why pursue a degree in engineering in France?

- You can look forward to an international career as an engineer made possible by a unique and universally respected degree.
- You will receive both a Title conferring the right to practice as an engineer and an internationally recognized Master's degree in engineering.
- The will develop twin competence in engineering and management, both reflecting the realities of today's world.
- You will receive training attuned to the corporate world and to changes in manufacturing and industry.



## STRENGTHS

French engineering schools maintain close links with employers and businesses in general. Firms participate in schools' governance (for example, by serving on boards and helping shape the curriculum), and jointly developed training programs enable students to work on practical problems. All students complete several internships, during which they function at a variety of levels, from worker to project leader. A semester-long internship places the student in a real-world setting in which he or she must complete a project.

**Students may also elect to take a year-long break** before the last year of their program. Students spend that year working with a firm in France or abroad, generally working on a study or a consulting assignment.

**Study abroad may be part of the curriculum, with the credits earned being counted toward the engineering degree. Proficiency in English is required.** The opportunity to learn a second foreign language, and sometimes even a third, is offered. Some courses and subjects are taught entirely in English in classes open to students of all nationalities.

## Major fields of activity in engineering

- Aeronautics and space
- Agronomy, food processing, agriculture, viti-viniculture, environment and health
- Defense and weaponry
- Building, construction, and public works (infrastructure, urban systems, major public structures, geotechnics)
- Biotechnology
- Chemistry
- Electricity
- Electronics (microelectronics, instrumentation, microtechnics)
- Energy (production, transmission, efficiency)
- Geology, geosciences
- Manufacturing, industrialization (materials, processes, computer-assisted manufacturing, automation, robotics)
- Computer science (modeling, advanced systems, multimedia, telecommunications)
- Engineering for the health professions
- Mathematics
- Nanotechnologies, nanosciences
- Civil nuclear engineering
- Physics
- Earth sciences
- Information and communication technologies
- Telecommunications and networks
- Transportation (automobiles, aviation, rail, river, maritime, logistics)
- Biological and biomedical engineering (biotechnologies, biomechanics, biomaterials)
- Civil engineering, urbanism, land-use planning and development
- Hydrology (geothermics, hydraulics, hydropower, hydrosystem engineering)
- Electrical engineering, electrotechnics (automatism, mechatronics, microelectronics, telecommunications)
- Process engineering (industrial processes)
- Industrial engineering (manufacturing systems, production, industrial logistics, risk, plastics, textiles, packaging, vehicles)
- Materials and surface engineering (biomaterials)
- Mechanical engineering (fluid and solid mechanics, energetics, thermics, combustion)
- Engineering in rural spaces, including water bodies and forests

**The *Titre d'ingénieur* (equivalent to a national Master's degree) opens the way to doctoral study or to a short, specialized graduate degree, such as a *Mastère Spécialisé*.**





## INTERNATIONAL RECOGNITION

The French *Diplôme d'ingénieur* is **recognized as equivalent to a Master in Engineering in the United States** by the American Association of Collegiate Registrars and Admission Officers and appears in AACRAO's Electronic Database for Global Education. <http://edge.aacrao.org>

Since 2007, the French national commission on engineering degrees (CTI, see above) has awarded the **EUR-ACE quality label** to French engineering programs that meet the quality criteria established for Europe by ENAEE, the European Network for Accreditation of Engineering Education. The label facilitates student mobility, particularly within Europe. More than 300 French programs have earned the EUR-ACE label.

**EUR-ACE** : [www.cti-commission.fr/Le-label-EUR-ACE-le-contexte](http://www.cti-commission.fr/Le-label-EUR-ACE-le-contexte)

## The French national commission on engineering degrees

Since 1934, the *Commission des Titres d'Ingénieurs* (CTI), an independent national organization, has been responsible for accrediting the engineering programs offered by more than **220 schools of engineering, a quarter of which are housed in universities**. Schools are reviewed every 6 years. Those that pass the review are authorized to confer the title of graduate engineer (*ingénieur diplômé*), the academic equivalent of **the national Master's degree**.

<http://www.cti-commission.fr>>Chercher un programme d'ingénieur habilité

### International agreements

CTI has reached agreements for mutual recognition of degrees with Engineers Canada (at the federal level) and the *Ordre d'Ingénieurs du Québec*.

The agreements set conditions for reciprocity in the professional practice of engineering, taking into account the differences in academic and professional systems. The federal agreement facilitates membership of French graduate engineers in Canada's provincial engineering associations.





## GOOD TO KNOW

The engineering degree corresponds to 10 semesters of postsecondary study that carry a total of 300 ECTS credits. After earning a scientific *baccalauréat* or equivalent secondary-school diploma, students complete 2 years of scientific and technical training before seeking admission (either by taking an entrance examination or by submitting an application) to an engineering program authorized to confer the professional title of engineer. The first 2 years may be spent in a program designed to prepare students for admission to the French *Grandes Écoles* or in an equivalent program that is similarly selective.

Annual tuition (set by law) in a public school of engineering is €606 for the 2013–14 academic year. In a private school, the annual tuition may be between €3,000 and €8,000. These figures do not include the costs of entrance examinations.

### Useful links

Accredited engineering programs: [www.cti-commission.fr](http://www.cti-commission.fr)>Chercher un programme d'ingénieur habilité

Admission to and enrollment in preparatory classes: [www.admission-postbac.fr](http://www.admission-postbac.fr)

"Become an engineer": [www.deviensingenieur.fr](http://www.deviensingenieur.fr)

Community of engineers: [www.ingenieurs.com](http://www.ingenieurs.com)

CDEFI (the conference of directors of French engineering schools): [www.cdefi.fr](http://www.cdefi.fr)

CGE (*Conférence des Grandes Écoles*): [www.cge.asso.fr](http://www.cge.asso.fr)

CPP for the INPs (national polytechnic institutes): [www.la-prepa-des-inp.fr](http://www.la-prepa-des-inp.fr)

CPI (integrated preparatory cycles, *Fédération Gay Lussac*): [www.19ecolesdechimie.com](http://www.19ecolesdechimie.com)

CTI (French national commission on engineering degrees): [www.cti-commission.fr](http://www.cti-commission.fr)

ENAE (European Network for Accreditation of Engineering Education): [www.enaee.eu](http://www.enaee.eu)

Examination office of ENSEA (*École nationale supérieure de l'électronique et de ses applications*):  
<http://concours.ensea.fr>

Federation of schools of chemistry and chemical engineering (*Fédération Gay Lussac*): [www.19ecolesdechimie.com](http://www.19ecolesdechimie.com)

FESIC (federation of postsecondary schools of engineering and management): <http://fesic.org>

Figure, University Engineering programs - 13 associated universities: [www.reseau-figure.fr](http://www.reseau-figure.fr)

Geipi Polytech examination: [www.geipi-polytech.org](http://www.geipi-polytech.org)

*Grandes Écoles* in France: [www.grandesecoles-postbac.fr](http://www.grandesecoles-postbac.fr)

*Grandes Écoles* of aeronautics and space: [www.asp2013.ensma.fr/gea.htm](http://www.asp2013.ensma.fr/gea.htm)

*Groupe des Écoles centrales*: [www.groupe-ecoles-centrales.fr](http://www.groupe-ecoles-centrales.fr)

IESF (engineers and scientists of France): [www.iesf.fr](http://www.iesf.fr)

INSA (national institutes of applied sciences): [www.insa-france.fr](http://www.insa-france.fr)

Institut Mines-Télécom: [www.mines-telecom.fr](http://www.mines-telecom.fr)

National schools of engineering: <http://www.ingenieur-eni.fr>

Network of France's universities of technology: [www.3ut-admissions.fr](http://www.3ut-admissions.fr)

National network of the polytechnical schools of engineering: [www.polytech-reseau.org](http://www.polytech-reseau.org)

Study Engineering in France (the n+I network): [www.nplusi.com](http://www.nplusi.com)

Top Industrial Managers for Europe, TIME: [www.time-association.org](http://www.time-association.org)

UGEI (union of independent *Grandes Écoles*): [www.ugei.org](http://www.ugei.org)