



Ingénieur Polytechnicien Program

École Polytechnique

A World-Class Higher Education and Research Institution

France ranks among the world's top leaders in mathematics and science, with globally renowned universities and institutions that produce high-caliber scientific talents in these fields. École Polytechnique has played a crucial part in this historical tradition of excellence that emerged during the Age of Enlightenment, remaining at the cutting edge of disciplines whose applications are shaking up the world. Through its exceptional strengths, École Polytechnique has an unchallenged position and standing as France's leading institution in science, technology and engineering.

École Polytechnique's *Ingénieur Polytechnicien* Program follows a unique curriculum, taking place over four years instead of three, as is the case for other engineering schools. The course provides students with top-quality multidisciplinary training. It offers a wide knowledge base in the fundamental sciences, engineering, economics and social science, while also offering the highly specialized education that is characteristic of an engineering school. The *Ingénieur Polytechnicien* curriculum substantially relies on research- and project-based learning, and business experience through direct contact with companies.

Over the past four years, the Program has undergone a number of profound transformations aimed at offering students the best possible support and preparation for their future career. These transformations have been centered mainly on the development of international exchanges and the acquisition of skills for entry into the professional world. In addition to this, the Program has placed greater emphasis on both personal and group projects.

The great multidisciplinary aspect of the *Ingénieur Polytechnicien* program is its biggest strength. With so many specializations possible in the 3rd year and even more destinations possible during the last year of the program, all students can find the right career for them at École Polytechnique.

More than ever, the *Ingénieur Polytechnicien* program continues to evolve at a rapid pace to better prepare its students and thus make possible the scientific, technological and industrial revolutions of the 21st century. We are confident that our students are more than ever ready to take on the challenges of tomorrow.

Foreword by the Dean of
École Polytechnique's
Ingénieur Polytechnicien Program
Mr Pierre Dauchy





École Polytechnique at a glance

A bit of History...

Founded in 1794, École Polytechnique is France's leading institution in science and technology. A product of the French Revolution and the Age of Enlightenment, École Polytechnique has a rich history that spans over 225 years.

For over two centuries, alumni have profoundly marked the history of science and industry and contributed to the great advances in their fields that have shaped the world as we know it today.

Since its founding, the university has borne a long tradition of scientific excellence. Researchers, professors and alumni from École Polytechnique have received prestigious awards and distinctions, including Nobel Prizes and Fields Medals.

Beyond Tomorrow: École Polytechnique's Vision

Overcoming major societal challenges is integral to the history and traditions of École Polytechnique, in its pursuit of excellence, progress and science. With its perspectives of acceptance and accessibility, the institution is actively committed to a policy of sustainable development and social responsibility.

This challenge not only concerns leaders, researchers and scientists trained at École Polytechnique. There are many discoveries to be made in the coming decades to preserve our planet. École Polytechnique has contributed significantly to past scientific discoveries and we now look to the future to give our students the drive and skills that they need to tackle the challenges of today and tomorrow.

International Reputation and World-Class Research

École Polytechnique is the top French science, technology and engineering institution and is highly competitive at the international level.



in France in Top Grandes Écoles
for Science and Technology
All rankings combined
(Usine nouvelle & L'Étudiant 2018 ranking)



in France for
Student-to-staff Ratio
Times Higher Education 2018



in France in Top 200
Most International Universities
Times Higher Education 2018



in World's Best
Small Universities
Times Higher Education 2018



Worldwide for the number
of Fortune 500 CEOs alumni
Times Higher Education Alma Mater Index 2017



Worldwide in Top 200
Most International Universities
Times Higher Education 2018

Renowned Alumni

École Polytechnique has nurtured many outstanding scholars, successful entrepreneurs and business people, and a number of political leaders. Our alumni have worked diligently to make important contributions to the development of our world's economy, science and technology.

Distinguished alumni include:

Bernard Arnault (Year of Entry: 1969)
CEO of LVMH

Henri Becquerel (Year of Entry: 1872)
Nobel Prize in Physics
(1903 – jointly awarded along with Pierre and Marie Curie)

Valéry Giscard d'Estaing (Year of Entry: 1944)
Former President of France

Nathalie Kosciusko-Morizet (Year of Entry: 1992)
Former French Minister of Ecology,
Sustainable Development, Transport and Housing

Jean Tirole (Year of Entry: 1973)
Nobel Prize in Economics (2014)

Key Features



Founded in
1794



3,600
students



480
Researchers
and professors



39%
International
Faculty



570 PhD
and post-doctoral
students



24
Academic
and Research Chairs



1,400
Publications
per Year

23
Research
Laboratories





The École Polytechnique Experience

Located in a World-Renowned Science and Technology Ecosystem

École Polytechnique's 160 hectares campus is located less than an hour from central Paris, at the heart of the Paris-Saclay research and business cluster.

This cluster encompasses research facilities, numerous higher education institutions and over 50 company R&D centers. Around 15% of all research done in France is conducted here. On our campus, no matter what your interest might be, you will find a way to get involved.

A Multidisciplinary Curriculum Grounded in Excellence

École Polytechnique ensures that students graduate with not only an excellent scientific education, but also a strong multidisciplinary background.

The curriculum focuses mainly on science: mathematics, physics, chemistry, biology, economics, computer science, mechanics, etc., but also includes a variety of subjects like foreign languages, sports, humanities, social sciences, arts, and literature.

Personal Development

Personal development is a key feature of education at École Polytechnique. Our objective is to instill students with the strong values and skills in communication, interpersonal relations and management that are essential for their future career. All students benefit from the guidance of our military staff.

Ingénieur Polytechnicien students all have a development officer they can refer to for personal development activities, sports classes and non-academic matters.

The École Polytechnique Experience

Research-Oriented Curriculum

The *Ingénieur Polytechnicien* curriculum is anchored in research. In order to provide its outstanding education, École Polytechnique relies on a world-class research center, where 23 laboratories are operated in cooperation with CNRS (the French National Center for Research), CEA (French Alternative Energies and Atomic Energy Commission),

and several other institutions (such as INRIA in computer science and INSERM in the medical field). Students have access to all our laboratories through the different projects, courses and research internships they are required to complete during their studies.

A Wide Variety of Careers and a Strong Alumni Network

The multidisciplinary curriculum allows our students to follow a wide array of careers as globally renowned scientists and researchers, high-level managers and engineers or political leaders. Around 53% of our *Ingénieur Polytechnicien* students decide to enter the business world after graduation, 29% pursue a PhD and 15% join a government body.

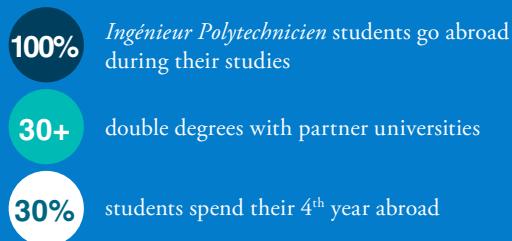
With such a multitude of career paths, you will be able to connect with many other alumni from École Polytechnique working in all types of industries. This unique networking opportunity is also part of École Polytechnique's DNA.

An International Environment

A few numbers about École Polytechnique



A few numbers about the *Ingénieur Polytechnicien* program



With more than 200 cooperation agreements with foreign institutions, our students have access to world-renowned universities for the fourth year of the program, including Peking University, National University in Singapore, Cambridge University, Technische Universität München, KTH Royal Institute of Technology, École Polytechnique Fédérale de Lausanne, Berkeley, Caltech, Columbia, MIT, Stanford, and many more.



Why choose the Ingénieur Polytechnicien program?

École Polytechnique's *Ingénieur Polytechnicien* Program is a unique 4-year program: 3 years to obtain the *Ingénieur Polytechnicien* Master degree and 1 year to obtain École Polytechnique's Diploma.

This 4-year curriculum provides students with:

#1 Multidisciplinary scientific training that gives students a broad scientific base (basic sciences, engineering sciences, social economics, etc.)

#2 Students can choose from 16 different scientific specializations in their 3rd year allowing them to pursue a wide array of careers after graduation

#3 Human, military and sports training that allows students to develop their behavioral and relational skills, as well as humanities, languages and culture oriented teaching

#4 Fluency in French, one of the main global languages, through intensive French language and culture lessons before the start of classes in the 1st year

Multidisciplinarity: the Greatest Strength

Master's specialization: Take your pick! This Master's degree is the only one in which students can easily change their major and choose a specialization which is different from their undergraduate studies.

Not one field, not one career: With very different Master's specializations available, our graduates have a wide array of top-level career options available in both research and the private sector.

There is not just one way of going about science: Students are confronted with different ways of thinking and of approaching science via a variety of different courses (i.e. mandatory Quantum Mechanics and Neuro Science classes)

A well-rounded education: Mandatory soft skills and humanities courses are put at the forefront. Not only do our students take outstanding science classes, they are also able to benefit from many humanities and soft skills-based classes, to enrich their studies and enable them to gain valuable life and managerial skills.

Go beyond what you know: Students are encouraged to try new subjects and discover new areas of science. Each year, students must choose very different scientific courses to better understand how each scientific field works and to be able to make an educated decision when it is time to choose their own field and specialization.

An International Program

Experiences abroad: Students have the opportunity to go abroad every year of the program and are required to go abroad at least once throughout their studies.

A French heritage: As the program is taught in French, all non-French speakers go through intensive French language and culture courses before the official start of the year at the beginning of the program. Mastering French, one of the global languages of our world, is a great opportunity for our students.

A new language: Science is an international language and with careers taking them to every corners of the globe, it is only natural that our students learn at least two foreign languages during their studies.

Networking on a Global Scale

Team spirit and class spirit: You are a student of École Polytechnique, you are a member of the *Ingénieur Polytechnicien* program, you are part of a specific class, you belong in a specific sport section, you take part in several student clubs. The team spirit which our students develop is unparalleled and enables them to keep in touch with their fellow alumni for years on end. Once you are part of the École Polytechnique family, it does not stop after graduation. The values of sharing, helping and altruism taught here follow you for the many years to come.

Hands-on Experience

Mandatory company internships allow students to experience the corporate world: Mandatory internships allow students to experience both the corporate and research worlds. With both real corporate and research experience, our students are able to choose wisely their future career. More than 29% of graduates enter a PhD.



A network for the rest of your life: École Polytechnique has ~50 000 alumni network all over the globe. You will not only belong to this tightknit community during your studies, you will be a member for the rest of your life. Our alumni network, which spans over many different countries and fields of expertise, is extremely diverse.

Sportsmanship and pushing your limits: All students must choose a sport and play it during their studies. Whether you are already proficient or have never played it before, we will take you to the highest level you can reach. Strong sport ethics and sportsmanship are also a great advantage of the *Ingénieur Polytechnicien* program.

What sets this program apart?

Aside from a very demanding scientific curriculum, the *Ingénieur Polytechnicien* Program sets itself apart from other top-level scientific master's degrees by its well-rounded education which includes:

Personal Development

The personal development, military and sports training, unique to our institution, enables students to develop their relational and managerial skills:

- **Openness to others:** sense of ethics and public interest, teamwork
- **Openness to the world:** adaptation, international experience
- **Personal development:** self-awareness and control, communication and leadership, physical development and commitment to sports

This training helps students to develop a community spirit and to feel a true sense of belonging within their year group and institution. During their studies, French nationals in the *Ingénieur Polytechnicien* program acquire the status of Officer in the French Military.

Humanities, Languages and Cultures

Classes in humanities and social sciences at École Polytechnique are a special feature that sets it apart from other leading French science, technology and engineering institutions. They include Photography, Sculpture, Philosophy, Political Sciences, Architecture, etc.

These studies are intended to help students develop their capacities for intuition, dialogue and innovation, as well as enabling them to confront the challenges of a multicultural world. In addition, 10 different languages are taught in the program:

Arabic
Chinese

English
French (FLE)

German
Italian

Japanese
Portuguese

Russian
Spanish

A Healthy Mind in a Healthy Body

Students play sports and exercise together in groups and cultivate a sense of public interest through 6 weekly hours of mandatory sports classes. From the end of Year 1 onwards, students choose their sports section among 16 possibilities:

Badminton
Basketball
Boxing
Climbing

Fencing
Football
Handball
Horse riding

Judo
Orienteering and trekking
Rowing
Rugby

Swimming
Tennis
Ultimate
Volleyball



Four years of study

Humanities and Social Sciences
 Foreign languages
 Personal Development and Sports
 Innovation Management and Entrepreneurship

For French speakers:
**Internship in a military
 or civilian organization**

For non-French speakers:
**Intensive French
 language and culture
 courses**

6 to 8 months

**Common
 Scientific
 Core**

4 months

Scientific Pluridisciplinary Training

Students choose 4 different
 subjects per period
 in Mathematics, Physics, Chemistry,
 Biology, Mechanics, Economics
 and Computer Science
 - Group science project
 - Applied laboratory modules

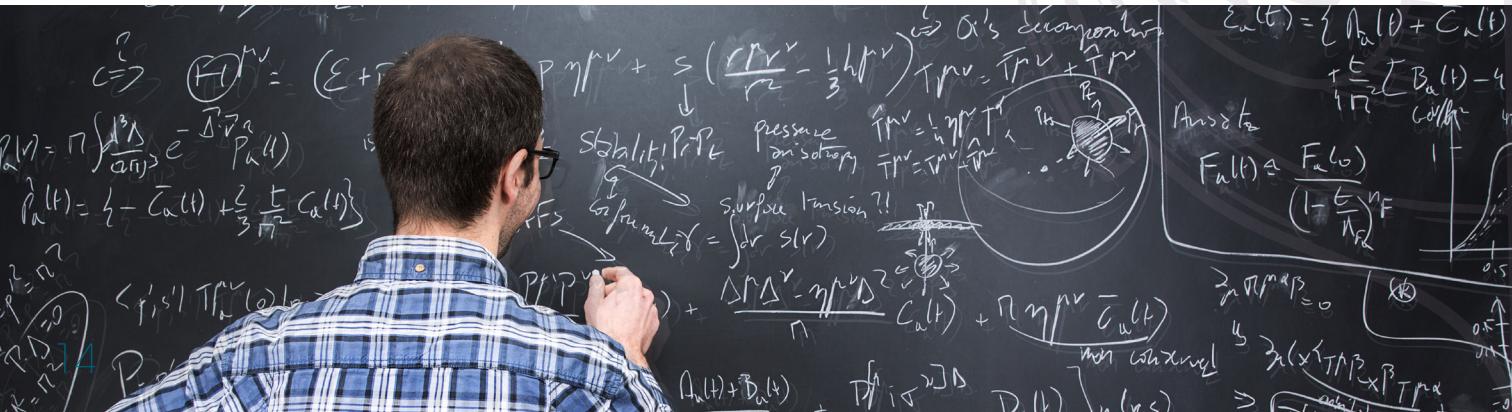
9 months

**Internship
 in a company
 In France
 or Abroad**

3 months

1st year

2nd year



Humanities and Social Sciences
Foreign languages – Personal Development and Sports Innovation Management and Entrepreneurship

Scientific Specialization
Students choose between 16 different scientific specializations

7 months

Research Internship
In a research organization or a company R&D center in France or abroad

4-5 months

Professional Specialization
1. Senior Civil Service: Training offered by a government body (French nationals and EU citizens only)
2. Engineering studies in France
3. A Master's degree in France or abroad

6 months

Final Internship
In France or abroad

4 to 6 months

Employment

PhD

3rd year

4th year

Master's degree in Engineering

École Polytechnique's Diploma

16 scientific specializations available in the 3rd year:

| | | | |
|--|--|---|---|
| Applied Mathematics Bioinformatics Biology Chemistry and its Interfaces | Computer Science Economy Electrical Engineering Materials Science | Mathematics Mechanics Physics Public Affairs | Environmental Science Spatial Science and Challenges Technological Innovation Energies |
|--|--|---|---|

Campus Life

On-Campus Housing and Catering

All *Ingénieur Polytechnicien* students are housed on campus for the duration of the Program. Living together with peers from their sport sections allows them to get fully involved in our vibrant community, while developing team spirit and solidarity.

École Polytechnique's restaurant, the Magnan, is open every day for breakfast, lunch and dinner. From morning to mid-afternoon, the campus café offers hot drinks, pastries and cakes, as well as quick meals, including a selection of sandwiches, salads, etc. Two food trucks can be found on campus as well, selling a variety of meals on the go for lunch every weekday.

A Historic Library

The Central Library comprises the Historical Resources Center, the MUS'X (Museum of École Polytechnique) and the main Library. Unique books and artifacts have been collected by the library of École Polytechnique

since its inception in 1794. The Library now owns close to 70,000 works, including books, specialized press and other printed materials, and uses a comprehensive digital system to ensure convenient access to resources.

Entrepreneurship and Innovation Center

The Drahi X-Novation Center is dedicated to entrepreneurship and innovation. This unique space provides students with a business incubator and accelerator, where start-ups can expand and improve their business models. Students are invited to take advantage of this Center and its Fab Lab with cutting-edge technology, which fosters creativity and promotes experimentation during their studies.

To find out more about the Drahi X-Novation Center, scan the QR code



The BasiX, Welcoming International Students

The BasiX is a unit dedicated to international students. It provides support before arrival on campus and for the duration of international students stay.

All non-EU students receive personalized advice about their visa application, immigration process, resident permit renewal and other types of administrative help.



ENTREPRENEUR – Drahi - X Novation Center



Student Life

Student life at École Polytechnique extends far beyond academic courses. Sports, performing arts, student clubs and activities not only enrich students' time on campus, but also offer wonderful opportunities for learning, networking and developing important skills outside of the classroom.

Sports

Sports play an essential role at École Polytechnique. There are more than 20 sporting activities on offer. Our 160-hectare campus, located just outside of Paris, is surrounded by nature and boasts state-of-the-art sports facilities. Students have a wide variety of sports to choose from, with 2 swimming pools, tennis courts, volleyball courts, a climbing wall, a dojo, an armory equipped with 11 fencing pistes, a fitness room, an equestrian center, football pitches, rugby pitches, a semi-artificial lake for rowing, etc.

Binets: Student Clubs

The wide range of student associations at École Polytechnique make it a vibrant and exciting place for students. There are almost 250 associations, giving students the chance to take part in a great variety of cultural, artistic, social, scientific, religious and sporting activities.

These clubs, known as binets in École Polytechnique's jargon, punctuate campus life, enabling like-minded students to get together and share their passions. Campus community life is an integral part of our students' education, fostering a sense of responsibility and an entrepreneurial spirit.

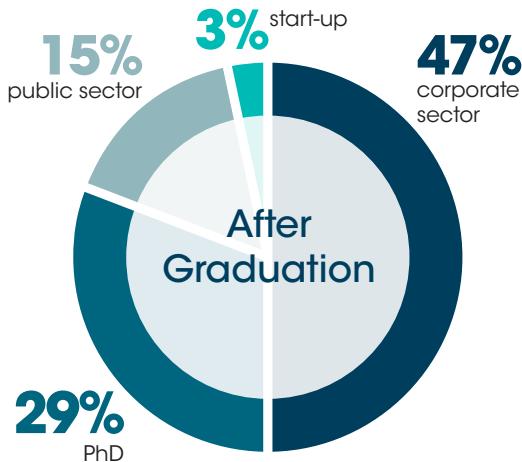




Life after École Polytechnique

Job Opportunities

Following their studies, 47% of students choose to enter the corporate sector for their professional career, 29% go on to study a PhD, 15% choose the public sector and 3% create a start-up.

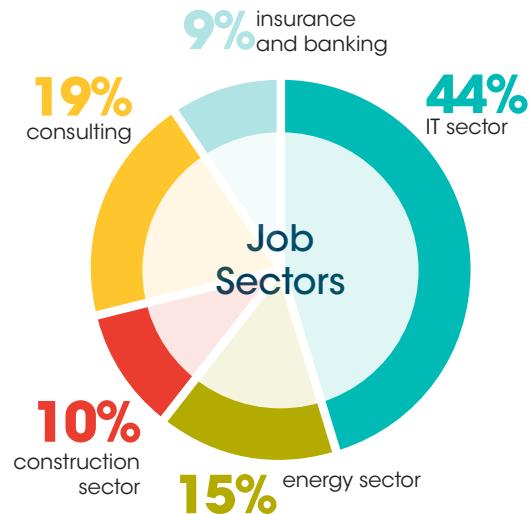


Job search length: In the corporate sector, 64% of graduates find employment before graduation. Within 6 months after graduation, 100% of graduates find employment in the corporate sector.



100%
students employed
6 months after graduation

Business sectors: On average, graduates choose: IT (44%), consulting (19%), energy (15%), construction (10%), and insurance and banking (9%).



Salary: In the corporate sector, the average gross annual salary, bonuses included, for first positions is €59,500.

€59,500



École Polytechnique Foundation

Created in 1987 by 20 major French companies, following the initiative of Bernard Esambert (Year of Entry: 1954), with the support of the Alumni Association, the École Polytechnique Foundation works towards the institution's development. As a recognized public-interest organization, it helps gather funding from private and corporate sponsors for the benefit of students, professors-researchers and programs at the institution. The Foundation finances projects at École Polytechnique and contributes to its influence in France and abroad.

To find out more about the Foundation,
scan the QR code (in French only)



Alumni Association

The École Polytechnique Alumni Association (AX) aims to promote connections and friendships within the 28,000-strong alumni community located in over 65 countries.

To find out more about the Alumni Association,
scan the QR code (in French only)



Applying to the Ingénieur Polytechnicien program

Applications

In order to be admitted to the *Ingénieur Polytechnicien* Program, applicants need to pass an entrance examination. In order to be admitted, students need to first pass the admissibility part of their entrance exam. The content of the admissibility and admission stage for each stream is detailed on page 24.

The exact content of the exam depends on applicant's nationality and place of undergraduate studies, there are overall 4 entrance examination streams. To find out which stream you belong to, please refer to the information below.

Application deadlines are different for each stream. To find out more about application deadlines, please visit our dedicated website at



What is your Entrance Exam?

1. Classe Préparatoire stream (CPGE)

This stream is for students coming from classes préparatoires (preparatory classes to the entrance examination to Engineering Schools) taught in France. This stream is open to French and international applicants who take such classes.

French students International students

2. University stream - French University Track (UNIV-FUF)

The French University Track is made for students fitting either of these two criteria:

- International or French students from French universities
- French students from international universities

French students International students

3. University stream - International University Track (UNIV-FUI)

The International University Track is open to international students enrolled in higher study at international universities. Out of the 4 streams, this is the only one which can be taken in English.

French students International students

4. University stream - International University Track - French Education (UNIV-FUI-FF)

This International University Track – French Education is for international students coming from classes préparatoires (preparatory classes to the entrance examination to Engineering Schools) taught abroad.

French students International students

What is your entrance exam?

| Admissibility | Admission |
|---|--|
| 1. Preparatory Classes stream http://bit.ly/concoursCPGE | |
| Written exams vary according to CPGE track: <ul style="list-style-type: none"> - MP and PC track - PSI track - TSI track - PT track - BCPST track | Oral exams vary according to CPGE track: <ul style="list-style-type: none"> - MP and PC track - PSI track - TSI track - PT track - BCPST track |
| 2. University stream - French University Track http://bit.ly/UNIV-FUF | |
| Application file including: <ul style="list-style-type: none"> - Cover letter - Résumé - Official grade transcripts for all higher education - Official diplomas from and including the last diploma received at high school onwards - Letter of agreement - 2 letters of recommendation - Proof of French language skills, for non-Francophone students | 6 oral exams: <ul style="list-style-type: none"> - Interview on applicant's L3 program - Exam on applicant's L1 and L2 programs in mathematics and physics - Analysis of scientific documents - General scientific knowledge - French (optional for non-Francophone students) - Foreign language |
| 3. University stream - International University Track http://bit.ly/UNIV-FUI | |
| Application file including: <ul style="list-style-type: none"> - Cover letter - Résumé - List of classes taken - Official grade transcripts for all higher education - Official certificates of student's ranking at university - Request form for taking the competitive entry examination - Financial records - Letters of recommendation | 2 written exams: <ul style="list-style-type: none"> - Mathematics - Physics 3 oral exams: <ul style="list-style-type: none"> - Mathematics - Physics - General scientific knowledge |
| 4. University stream - International University Track - French Education http://bit.ly/UNIV-FUI-FF | |
| 4 written exams: <ul style="list-style-type: none"> - Mathematics - Physics - French - English | 4 oral exams: <ul style="list-style-type: none"> - Mathematics - Physics - Analysis of scientific documents - General knowledge and motivation |



Tuition fees

For EU students and international students:

All full-time *Ingénieur Polytechnicien* international students are required to pay tuition fees for the entire duration of their studies. Students who repeat a full year of study will also be required to pay the applicable full-time tuition fees for the repeated year.

Tuition fees for non-French students entering the *Ingénieur Polytechnicien* Program in 2019:

| | |
|----------------------------------|--------------------------------------|
| EU students: €19,000 for 3 years | Non-EU students: €38,000 for 3 years |
| Year 1: €3,500 | Year 1: €7,000 |
| Year 2: €7,750 | Year 2: €15,500 |
| Year 3: €7,750 | Year 3: €15,500 |

For Year 4, students can choose to study for a 1- or 2-year Master's degree in France or abroad, in which case, if there are tuition fees, they are to be paid directly to the host institution.

For French nationals:

French students at *École Polytechnique* serve under military status and receive a military salary for the duration of their studies. There are no study costs for French students during their time at the institution, on the condition that they work for the French civil service for at least 10 of the 15 years following their graduation.

Otherwise, they must repay the tuition fees:

The total amount to be repaid is set at:

- €21,000 for students who have chosen to study with a government body for Year 4
- €31,000 for students who have not chosen to study with a government body for Year 4

This amount is reduced by 10% for each year of work in the civil service.

Financial aid

Each year, the École Polytechnique Foundation contributes to École Polytechnique's globalization and its diversity policy by allocating several types of financial aid to students in the form of scholarships, partial tuition fee waivers, or subsidized loans.

Students may also receive scholarships or grants from the French government or from foreign governments.

To find out more about the different types of financial aid,
scan the QR code



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Programs

Bachelor of Science

Ingénieur Polytechnicien Program

Masters

PhD Track

Summer Schools

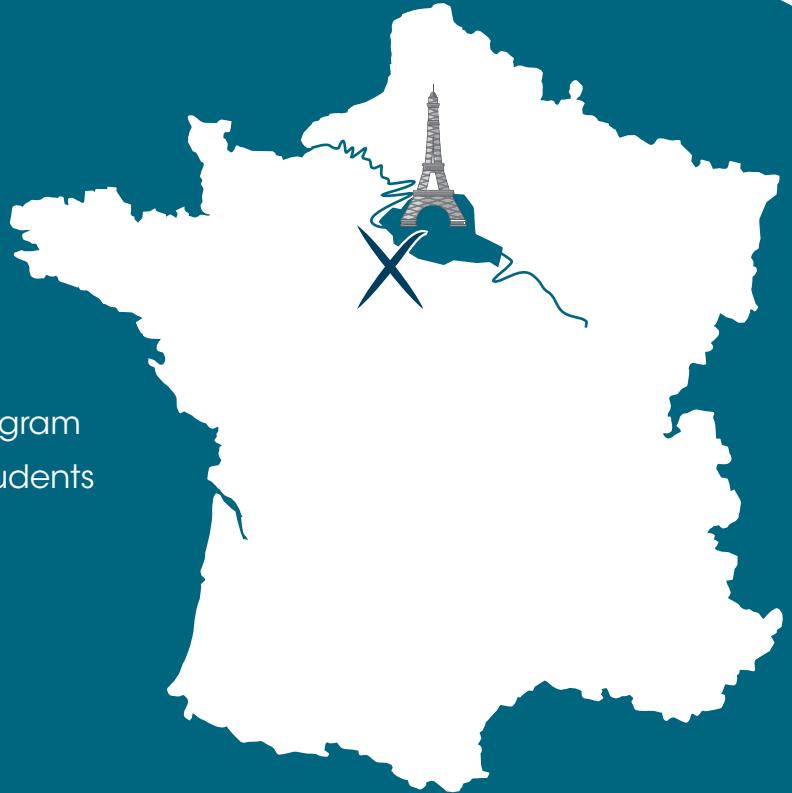
Executive Master

Executive Education

E-Learning

International Academic Exchange Program

Internship Program for International Students



École Polytechnique

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