



# ÉCOLE POLYTECHNIQUE

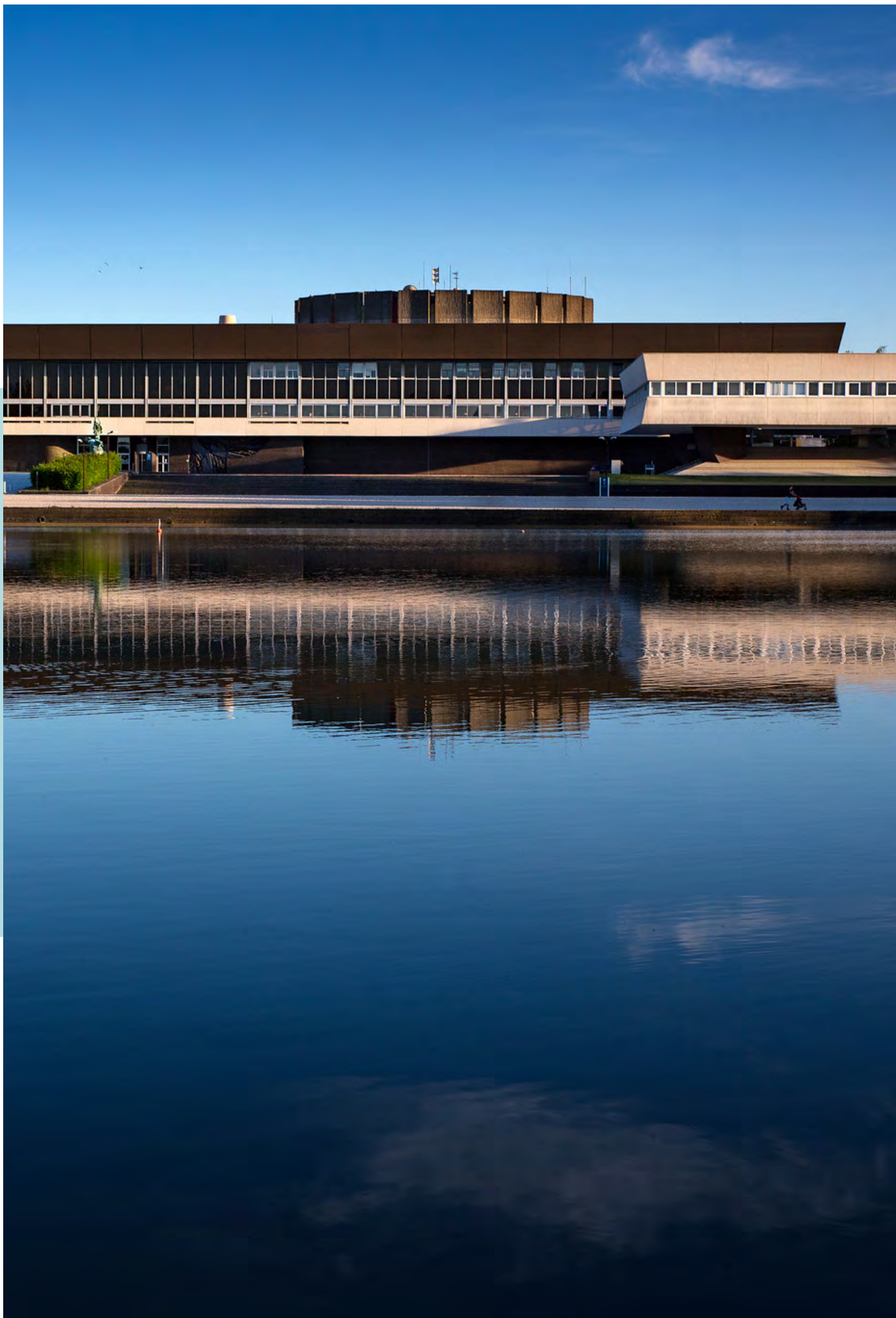
A WORLD-CLASS HIGHER EDUCATION  
AND RESEARCH INSTITUTION

MEMBER OF INSTITUT POLYTECHNIQUE DE PARIS



2023







**École Polytechnique**, a globally-minded institution under the supervision of the French Ministry of the Armed Forces, **combines high-level research, education and innovation at the cutting edge of science and technology** and promotes a culture of excellence, open to a longstanding humanist tradition.

**École Polytechnique is an integral part** – along with four other prestigious French engineering schools (ENSTA Paris, ENSAE Paris, Télécom Paris and Télécom SudParis) – **of Institut Polytechnique de Paris**. Institut Polytechnique de Paris is a public higher education and research institution that pursues two broad ambitions: to develop world-class training programs and cutting-edge research.

Supported by the strong academic foundations of its five founding schools and its alliance with HEC, IP Paris is positioned as a leading educational and research institution, both in France and internationally.

True to its original mission of promoting science through world-leading training, research and innovation for the common good, **École Polytechnique has placed sustainable development and ecological transition at the heart of its development.**

Striving to enroll an ever-growing number of students in its high-level training programs and attract top talent to its faculty and administrative teams, **École Polytechnique is firmly committed to fostering diversity and gender equality.**



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# TRAINING

to foster thinking, action and service

.....

Through its unique range of training programs - **Bachelor's, École Polytechnique engineering program, Master's of Science and Technology, Executive Master's, continuing education** - or integrated with Institut Polytechnique de Paris - **Master's, PhD Track, doctoral program** - École Polytechnique trains leaders with a sound multidisciplinary scientific culture by exposing them to both the world of research and **industry**.

Its **23 laboratories**, including 22 joint research units with the CNRS, work at the frontiers of knowledge on major interdisciplinary challenges in the scientific, technological and societal fields.



**3,700**  
students  
in initial  
education



**497**  
teaching and  
research staff  
members



Over  
**100**  
nationalities  
on campus



**100%**  
graduates are  
employed within  
6 months  
of graduation



All École Polytechnique programs are highly selective and are based on a multidisciplinary scientific approach with strong ties to research.



## BACHELOR'S



### Three-year post-secondary program taught in English

- Courses based on fundamental mathematics and sciences
- Program designed for French and international students with very high potential who are prepared to take demanding courses
- Semester abroad opportunity in 3rd year
- Bachelor's level
- Prepares students for high-level academic and professional careers in France and abroad

Bachelor's students complete a rigorous multidisciplinary scientific program over the course of three years.

The first year is devoted to acquiring the fundamental knowledge required for the rest of their studies, and to discovering different disciplines in order to choose their specialization.

In their second and third years, students must then choose between three double majors or specializations:

- **Mathematics and Physics**
- **Mathematics and Computer Science**
- **Mathematics et Economics**

In their third year, students have the option to study abroad for the fall semester at one of our partner universities, such as the University of Toronto, UC Berkeley, EPFL, KAIST, King's College London, or The University of Melbourne. In the spring, students have an eight-week research internship, at the end of which they must submit their Bachelor's Thesis.

### BACHELOR'S PROSPECTS



**44%**  
INTERNATIONAL MASTER'S

**80%**  
AT A GLOBAL TOP 40  
UNIVERSITY IN FRANCE  
OR ABROAD

## MATHEMATICS

### AS A CENTRAL FOCUS

The mathematics courses included in the Bachelor's program are tailored to all double majors (physics, economics, computer science).

A notable feature is the attention given to applications across the spectrum of Mathematics (digital simulation and computing, arithmetic cryptography etc.) from the outset.



## POLYTECHNIQUE ENGINEERING PROGRAM



### **Four-year advanced multidisciplinary program** **Humanist, military and sports training**

- Top-level scientific foundation, leading the national rankings of French engineering schools
- Strong focus on humanities and social sciences
- 3 internships (internship in the Armed Forces or a civil organization, company internship and research internship)
- Mandatory international exposure
- Exposure to innovation management and entrepreneurship
- Specialization from the 3<sup>rd</sup> year onwards
- Admission based on competitive entrance exam after preparatory class, Bachelor's or equivalent degree

### ENGINEERING PROGRAM PROSPECTS



**13%**  
GOVERNMENT AGENCIES

**47%**  
COMPANIES

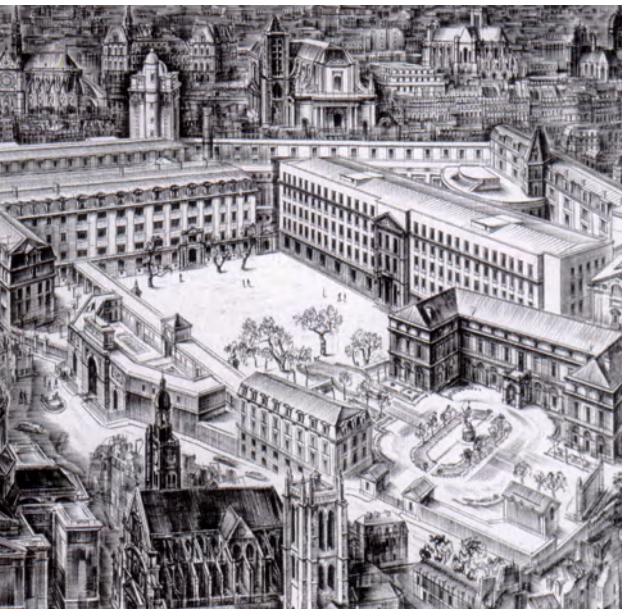
**33%**  
RESEARCH

**3%**  
ENTREPRENEURSHIP

**4%**  
OTHER



## **MILITARY TRAINING**



École Polytechnique is overseen by the French Ministry of the Armed Forces and its students have the status of student-officer in the French Army, as established by Napoleon I in 1804, making X a unique higher education and research institution and helping ensure the country's sovereignty. Its humanist and sports training is mandatory for French and international students.

École Polytechnique is therefore the only French Grande École whose students are called upon to play a key role in defense – in the broadest sense – of the nation and the development of its interests, and are exposed to the military world and geostrategic challenges.

École Polytechnique develops and conveys the essential values of commitment, a sense of giving and a concern for the general interest. These values provide a foundation of shared aims and strengths to help design and implement major strategic projects to promote national interests.



## MASTER'S PROGRAMS

### MASTER OF SCIENCE AND TECHNOLOGY (MSc&T)



Two-year programs taught entirely in English to prepare primarily international students, most of whom are international students, for the technological, environmental and societal challenges of the 21<sup>st</sup> century.

- Very high-level multidisciplinary scientific education: sciences/management-economics, social sciences, languages and sports
- Taught by research professors and offering laboratory projects
- Industry-oriented
- Close ties with companies with a strong focus on entrepreneurship and innovation
- Prepares graduates for a first job in industry, in France or abroad
- Students may go on to a PhD program



#### • 4 areas of study, 9 programs:

- Energy Environment: Science Technology and Management (STEEM)
  - Environmental Engineering and Sustainability Management (EESM)
  - Internet of Things: Innovation and Management (IoT)
  - Artificial Intelligence and Advanced Visual Computing (AI-ViC)
  - Economics, Data Analytics and Corporate Finance (EDACF)
  - Economics for Smart Cities and Climate Policy (ESCLIP)
  - Data Science for Business (DSB) in partnership with HEC Paris
  - Data and Economics For Public Policy (DEPP) in partnership with ENSAE Paris and Telecom Paris
  - Data Science and Finance (DSF) in partnership with HEC Paris
- Admission based on application file after a Bachelor's, Master's or engineering degree

### INSTITUT POLYTECHNIQUE DE PARIS MASTER'S PROGRAMS

- 40 programs offered by École Polytechnique in 13 different specializations
- Master's awarded by Institut Polytechnique de Paris
- Admission based on application file after a Bachelor's degree or equivalent



#### MSc&T PROSPECTS



**82%**  
COMPANIES

**9%**  
PhD Studies

**2%**  
ENTREPRENEURSHIP

**7%**  
OTHER



## **PHD TRACK**

**Five-year program supported by the laboratories of the Institut Polytechnique de Paris research center, to attract the best international students**

- Research-oriented training integrating a Master's and PhD
- Individualized, demanding scientific training program with attractive financial and program conditions (a grant is available for the first two years of the Master's program)

## **PHD**

**Integrated in the Institut Polytechnique de Paris doctoral program**

- Admission based on application file and interview
- Traditional three-year program in a wide range of disciplines
- Financial support for PhD students



## **PHD PROSPECTS**



**20%**  
POSTDOCTORAL POSITIONS

**30%**  
HIGHER EDUCATION  
AND RESEARCH (OTHER THAN  
POSTDOCTORAL POSITIONS)

**50%**  
COMPANIES  
(2/3 IN FRANCE  
AND 1/3 ABROAD)



## EXECUTIVE MASTER'S



**Certificate training program for managers and executives with an average of 18 years of professional experience**

- 11-12 modules lasting four to five days, spread out over a year (in France and at prestigious global institutions)
- 3 educational focuses: Technology, Innovation Management, Leadership
- Program taught by the school's research professors
- A Team Project to start or accelerate an innovative technological project
- 2 intakes: September and March



## EXECUTIVE EDUCATION



**École Polytechnique Executive Education offers diploma, certification, and short programs for executives, managers, engineers and scientists, as well as **tailor-made training and support** for national and international companies of all sizes and in all sectors.**

It draws on the multidisciplinary and excellence that are the hallmarks of École Polytechnique education and research to offer training programs and courses based on our scientific and technical expertise in fields like AI & data sciences, cybersecurity, blockchain, energy transition, leadership & team performance, organizational transformation and innovation.



## RESEARCH

to understand, gain insights and advance

As part of **Institut Polytechnique de Paris (IP Paris)**, École Polytechnique's research strategy is based on its **one-of-a-kind facilities** and **world-renowned expertise**. Its research staff combine the exploration of the most **fundamental** aspects of research to **further knowledge** with the development of major, more **applied** fields that address the **scientific, technological and societal challenges of the 21<sup>st</sup> century**.

École Polytechnique's **23 laboratories** are an integral part of the **IP Paris research center**. This center has **eleven disciplinary departments** and supports the development of **interdisciplinary centers** on **societal challenges**: The **Energy4Climate (E4C)** center focusing on energy transition in the wake of climate change, **Hi! PARIS** devoted to artificial intelligence and data science, the **Interdisciplinary Center for Defense and Security (CIEDS)** and the **Engineering for Health Center (E4H)** devoted to engineering for health.



**1,800**  
research  
staff



**77**  
nationalities  
represented



**23**  
laboratories

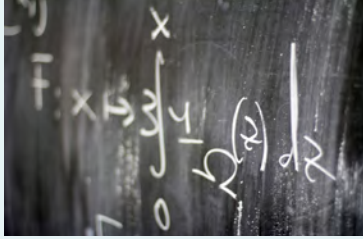


**2,800**  
publications





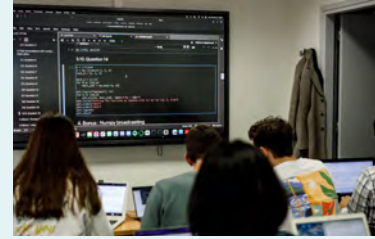
## 11 TEACHING AND RESEARCH DEPARTMENTS



Mathematics



Applied Mathematics  
and Applications



Computer Science



Physics



Mechanics



Chemistry



Biology



Economics



Management, Innovation,  
Entrepreneurship



Humanities and Social  
Sciences

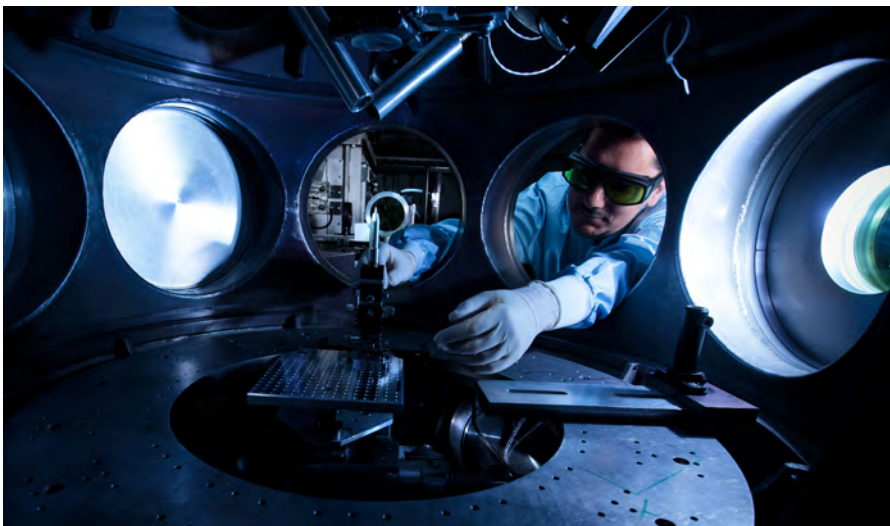


Languages and Cultures

### TO SUPPORT KNOWLEDGE AND SOCIETY

Through cutting-edge fundamental research that addresses the challenges facing society, the School has developed strong ties with the business world, from SMEs to leading French and international companies.

X researchers acutely understand companies' needs to offer innovative effective concepts and create new knowledge drawing on theoretical tools, digital simulation and advanced experimentation.





# INNOVATION AND ENTREPRENEURSHIP

for greater impact, value, creativity

As an institute that trains those who will design and drive the economy of tomorrow, X helps foster an innovation mindset and encourages entrepreneurship among students and researchers. It actively supports entrepreneurs in start-up creation.

## ENTREPRENEURSHIP AWARENESS AND EDUCATION

X equips its students with a true entrepreneurial mindset and provides an array of opportunities to meet start-up founders, learn about industry issues and topics of the future, and take part in start-up creation. X is actively committed to developing entrepreneurship and innovation training.

## SUPPORT FOR START-UP CREATION

As an internationally-oriented institute that actively involves its students and its Research Center, X has created several facilities to support innovative start-up creation, including the X-Up incubation program devoted to seed-stage technological start-ups and the X-Tech incubation program for accelerating technological start-ups.

X therefore supports the development of high-potential projects. The Polytechnique Ventures seed fund, initiated by X alumni rounds out this innovation and entrepreneurship ecosystem.



## DRAHI-X NOVATION CENTER

- Center dedicated to entrepreneurship and innovation at École Polytechnique, open to students, researchers, startups and major companies
- Total area of 5,000m<sup>2</sup>
- Incubation program (X-Up), incubator for accelerating start-ups (X-Tech) and prototyping facility (X-Fab)
- Support for corporate innovation projects (X-Corp)





# CORPORATE RELATIONS

balanced, productive partnerships

The School develops partnerships with industry and fosters the transfer of its scientific and technological results to companies.

## DISCOVER THE CORPORATE WORLD

- Internships in France or abroad offered to students every year
- Research topics proposed by companies as part of student projects
- Research topics proposed to PhD candidates based on CIFRE contracts

## SUPPORTING EDUCATION AND RESEARCH



**42**  
corporate  
chairs



**72**  
sponsors and partners  
of chairs



The School promotes synergy between training and research, by developing teaching and research chairs covering a wide range of fields including:

- energy, biomedical, materials, modeling and digital science, sustainable development, management, innovation, economics and finance.

## COMMERCIALIZING INNOVATION

École Polytechnique contributes to economic development by commercializing technological expertise and inventions from its Research Center.



# INTERNATIONAL OUTLOOK

for cooperation, enrichment and expanding horizons

An international outlook is central to the development of our education, research and innovation. This internationalization goes hand in hand with our policy to develop close partnerships with prestigious institutions and networks in Europe and abroad. École Polytechnique is recognized as the most global French university in leading international rankings.



**41%**  
international  
students



Over  
**100**  
nationalities



**40%**  
international research  
professors



**[fla]** ★★★★★ formation  
★★★★★ enseignants  
★★★★★ accueil  
★★★★★ locaux  
★★★★★ gestion  
**QUALITÉ**  
FRANÇAIS LANGUE ÉTRANGÈRE

## STRATEGIC PARTNERSHIPS TO BOLSTER ACADEMIC AND RESEARCH EXCHANGES

The first international students were admitted to École Polytechnique in 1798. Since its early days, the institution has therefore recognized the importance of diplomatic relations and training elite students from abroad. Today, with over 200 cooperation agreements, X has an extensive network of partner universities around the world. Its academic and scientific partnerships give students and research professors exceptional mobility opportunities.

École Polytechnique now focuses its strategic partnership policy on some twenty leading universities. As a member of the global U7+ Alliance and the European EuroTech network, the School contributes to thinking on European and global challenges in higher education.

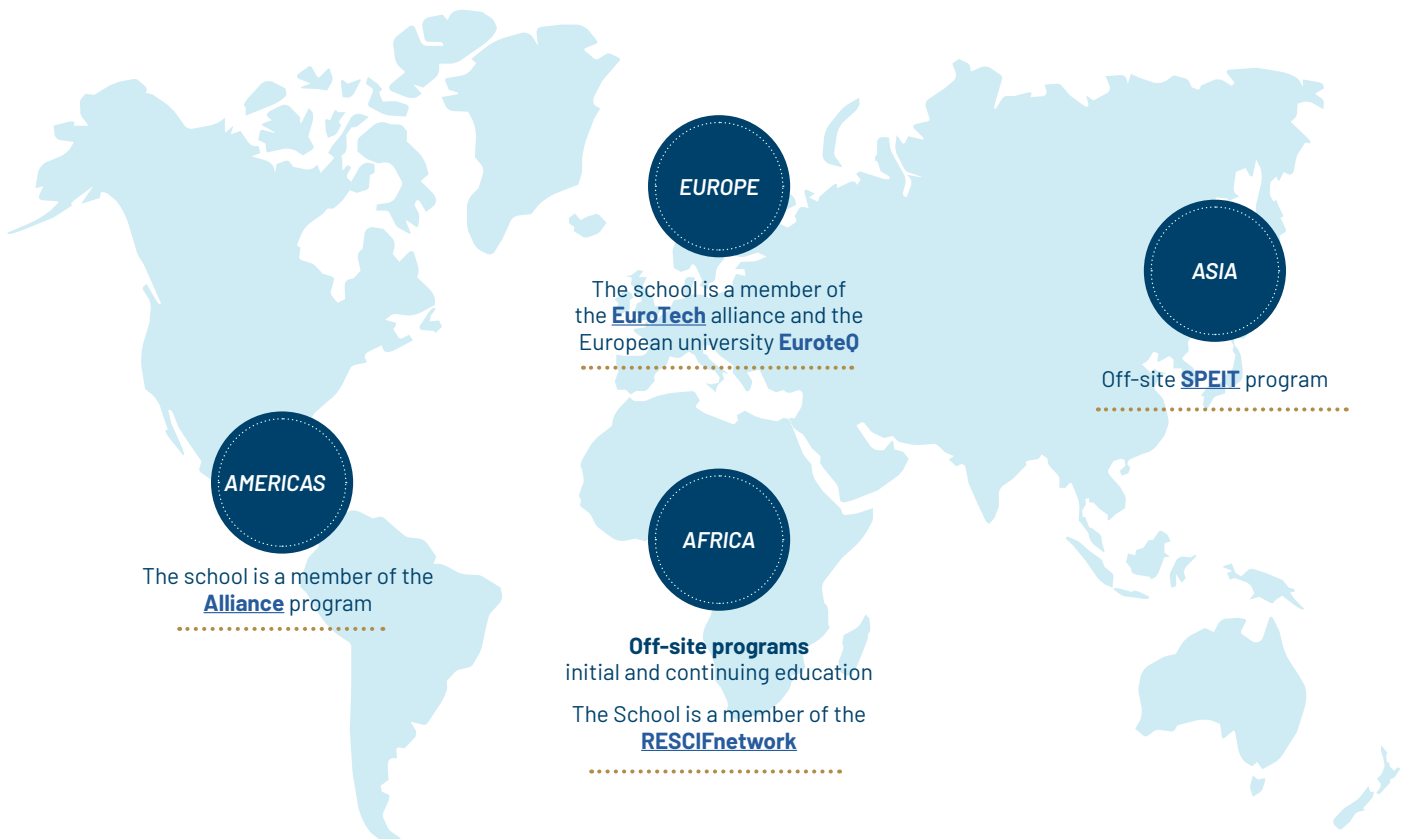




## A STIMULATING ENVIRONMENT FOR INTERNATIONAL STUDENTS

École Polytechnique offers a unique experience for international students: from admission to following their career development, X supports them through mentoring, administrative and financial support, and sponsoring by former students. The International Office and Welcome Desk (BasiX) provides support for international students from the moment they arrive in France. École Polytechnique has been granted the “Bienvenue en France” label (3 stars) and the “Qualité Français Langue Étrangère” (3 stars) for its high-quality campus services. This unique environment supports the academic excellence of the students recruited and attracts top international research professors.

École Polytechnique’s international policy is in keeping with the Institut Polytechnique de Paris international policy.



## FOUNDING MEMBER OF THE EUROTEQ EUROPEAN UNIVERSITY

École Polytechnique is a founding member of the European University “EuroTeQ Engineering University”, supported by the European Union. École Polytechnique is part of this ambitious project, which aims to train the European engineers of tomorrow, alongside prestigious academic partners: Eindhoven University of Technology (TU/e), Technical University of Munich (TUM), Technical University of Denmark (DTU), Tallinn University of Technology (TalTech) and Czech Technical University in Prague, in conjunction with Technion - Israel Institute of Technology and École Polytechnique Fédérale de Lausanne (EPFL).





# A DYNAMIC CAMPUS

where students thrive, get involved and make connections

There’s always something happening on campus – scientific symposia, performances, exhibitions and more! Many events are open to the public, such as: Fête de la Science, Heritage Days and conferences.

**Providing students, research professors and staff with an improved working and living environment to enhance its attractiveness is a priority of the campus project led by Institut Polytechnique de Paris and École Polytechnique.**

The Institut Polytechnique de Paris campus extends from ENSTA Paris in the east to the Télécom Paris and Télécom SudParis schools in the west and encompasses the ENSAE Paris premises in the south.

**The geographic center of the campus is located around École Polytechnique** with classroom spaces, the library and laboratories occupying a central position. The School museum, Mus’X, houses a remarkable collection of historic scientific instruments and is open to the public.

Student housing is located in the south, sports and nature activities in the north, and in the east an innovation and research park offers partnership and economic development opportunities.

**Located just 25 km from Paris, the École Polytechnique campus is in close proximity to the capital,** its train stations and airports, landmarks, museums, vibrant cultural scene and wide array of shows and festivals year round.







**14**  
lecture halls



**60**  
classrooms  
and lab work areas



**42,000 m<sup>2</sup>**  
of research and laboratory  
buildings



An extensive library with  
a strong focus on  
fundamental sciences.



A museum, **Mus'X** devoted to  
the history and heritage of  
École Polytechnique



**1,500**  
student housing units



A **restaurant**  
and a **cafeteria**



Large-scale, comprehensive  
**sports facilities**

To raise its campus to the highest international standards, transform it into a model of sustainable development and offer an attractive experience for all students and staff, **École Polytechnique is constantly modernizing and renovating its facilities** to reflect new ways of teaching, offer coworking spaces and new, improved social hubs, bring its infrastructure into compliance with the goal of achieving carbon neutrality

by 2050, and offer an operating capacity in line with its ambitions for growth and excellence.

**The** Institut Polytechnique de Paris and École Polytechnique campus is constantly evolving **and is set on the Plateau de Saclay**, a vast ecosystem of educational and research institutions, public and private laboratories offering a wealth of opportunities for their students, researchers, faculty and staff.

With 50,000 jobs in tech, R&D and engineering, the Plateau de Saclay – one of eight global research and innovation clusters – brings together public research centers and laboratories with the presence of CNRS, CEA and also concentrates 15% of public and private research in France, with the presence of companies like EDF, Thales, Danone, Safran, EADS, Kraft Foods and IPVF.







## SPORTS FACILITIES



### OVER 12,000 M<sup>2</sup> OF INDOOR SPORTS FACILITIES INCLUDING

- 2 swimming pools
- 3 fitness facilities
- 1 fencing room
- 1 climbing wall
- 2 dojos
- 2 tennis courts
- 2 weightlifting rooms
- 1 boxing room
- 1 equestrian center
- 1 multipurpose sports facility







### 8 HECTARES OF OUTDOOR SPORTS FACILITIES INCLUDING

- 3 soccer fields including one synthetic field
- 3 rugby fields
- 6 outdoor tennis courts
- 1 semi-artificial lake (rowing and canoe)
- 1 running track, 400 meters long
- 1 multipurpose sports pitch (handball, basket)
- 1 city stadium
- 2 cross fit areas







# WORLD-CLASS ARCHITECTURE

Several recent world-class facilities and projects have given concrete form to the school’s ambitions in its three activities: education, with the Shared teaching building (BEM), research, with scientific buildings such as the Mechanics Center and the new Instrumental Research Site for Remote Sensing (SIRTA), and innovation, with the expansion of the Drahi – X Novation Center, the École Polytechnique incubator.

This campus development goes hand in hand with the creation of new student housing like the Bachelor’s student residences housed in a smart building and recreational and sports areas such as the Multisport Hall.



Instrumental Research Site for Remote Sensing (SIRTA)



Shared teaching building (BEM)



Multisport hall





## AN ACCESSIBLE, GLOBALLY-MINDED CAMPUS

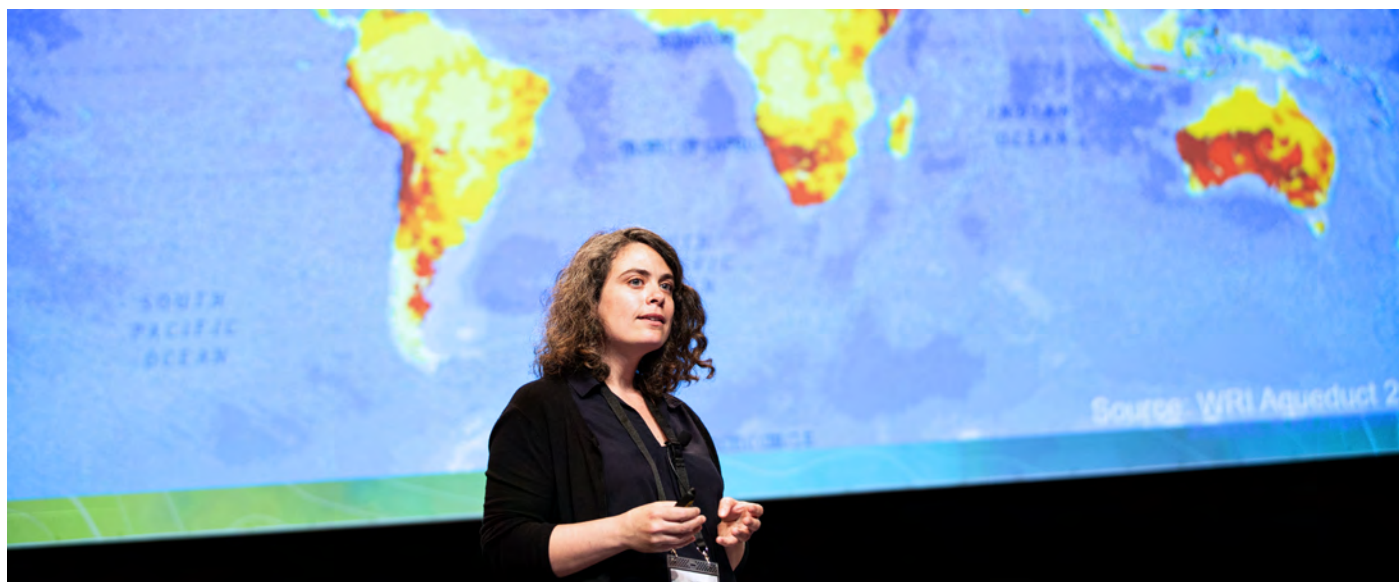
A series of walkways and bike paths connect the different public common areas, for a peaceful way to get around campus and to the various educational, research, innovation, student, sports and recreational facilities. Vehicle traffic and parking is organized on the periphery of the campus. Bus stops are positioned at the main pedestrian entrances to the campus to improve intermodal connections between public transport stations and non-motorized transport.

The reconfigured pedestrian link to the Lozère RER B train station allows users to access to the Plateau de Saclay with a bicycle or baggage. A pedestrian link also provides an effective link between Télécom Paris and Télécom SudParis and the Le Guichet RER B train station.

The campus, which is already well-connected by road infrastructure and existing public transport, will be even easier to access after the **completion of the future line 18 of the Greater Paris Métro**. It will connect the campus to Paris and Orly Airport, and go through the Massy-Palaiseau TGV and multimodal station. Its links to Paris, train stations and airports through the highway system and public transport networks makes our campus open to the world.







## A SUSTAINABLE CAMPUS, LIVING LAB FOR ENERGY TRANSITION

École Polytechnique is implementing an ambitious plan to achieve carbon neutrality on campus by 2050.

Its Climate Plan, published in early 2022, outlines the concrete steps it has already taken. It incorporates ecological transition throughout the School's missions and campus operations. Among other things, it calls for:

- Reducing greenhouse gas emissions by 20% per user on campus in terms of energy consumption.
- Ensuring that 50% of procurement is based on Environmental Social and Governance (ESG) quality criteria
- Establishing a campus center reserved for non-motorized transport.

Through the Energy4Climate (E4C) interdisciplinary center and within Institut Polytechnique de Paris, École Polytechnique has developed an ambitious climate plan based on disruptive research technology platforms.

E4C has developed full-scale demonstrators integrated in three campus buildings: The Drahi - X Novation Center where smart electricity solutions are being tested, a residential building to test collective energy self-sufficiency, and the SIRTa atmospheric observatory (Instrumental Research Site for Atmospheric Remote Sensing) which is equipped with a modular research electric micro-grid and an agrivoltaic farm.

The "Reducing CO2 emissions: between smart energy management and carbon sequestration" project will create two new technology platforms:

- The very first system for extracting and recovering CO2 from water
- The first full-scale demonstrator for storing and optimizing thermal and electrical energy

Like the three existing demonstrators, these new platforms will be located at the center of the Institut Polytechnique de Paris and École Polytechnique campus, making it a living laboratory for energy transition.





# ÉCOLE POLYTECHNIQUE FOUNDATION



A state-approved public interest entity founded in 1987, the École Polytechnique Foundation contributes to the development of X and helps enhance its renown in France and globally.

## ITS MAIN MISSIONS ARE TO:

- Fund the development of X
- Strengthen corporate ties
- Support innovation, entrepreneurship and research
- Provide support for X students

To carry out its missions, the foundation raises funds from private donors and companies. In its second campaign (2016-2021), it raised over €87 million in donations, bequests and pledges to École Polytechnique.



DONATE

[www.fondationx.org](http://www.fondationx.org)

# ÉCOLE POLYTECHNIQUE ALUMNI ASSOCIATION

L'AX is the association of École Polytechnique alumni and graduates. For over 150 years, it has helped X alumni and graduates experiencing hardship and has developed solidarity and friendship within the École Polytechnique community.

## ITS MAIN MISSIONS ARE:

- **Friendship:** Create and maintain lasting relationships between students and alumni.
- **Solidarity:** Provide support for fellow alumni and their families in times of hardship.
- **Community :** Build a strong, vibrant community by running professional, cultural and geographic groups, and planning regular events.
- **Network :** Support its members throughout their career and help them develop their network.

## AT A GLANCE:

**30,000** alumni and graduates

**115** thematic groups

Over **300** events a year

Over **1,000** international students sponsored since 2005

**1,100** pairs formed through the student-alumni mentoring program launched in 2016

[ax.polytechnique.org](http://ax.polytechnique.org)



# FRENCH AND INTERNATIONAL RANKINGS

**LE FIGARO**

**l'Étudiant**

**X, the number-one French engineering school**

École Polytechnique tops the rankings for French engineering schools in rankings by Le Figaro, l'Usine Nouvelle and l'Étudiant.



**IP Paris, 34<sup>th</sup> worldwide and 1<sup>st</sup> in France  
in the THE rankings of most global  
universities.**



**IP Paris ranked 48<sup>th</sup> in the 2023  
rankings of top global universities  
and 2<sup>nd</sup> in France**

**11<sup>th</sup> worldwide for graduate employability**

QS World Universities Rankings 2023

**IP Paris one of the Top 30 global institutions  
in 4 disciplines,  
one of the Top 50 for 4 others**

QS Subject Rankings 2022

**MsC&T in Data Science for Business  
ranks in the World's Top 3**

The X-HEC Master of Science and Technology (MSc&T) in Data Science for Business comes in third worldwide out of 120 comparable programs in its first QS ranking.





# LEARN MORE

## Reference texts



### Objectives & Performance Contract 2022-2026

[Read here](#)



### Research Brochure

[Read here](#)



### Diversity & Success Activity Report

[Read here](#)



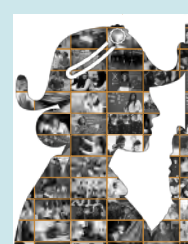
### Climate Plan

[Read here](#)



### Chair Activity Report

[Read here](#)



### 50 Years of Women at Polytechnique

[Read here](#)

Find detailed information about the School at:



[www.polytechnique.edu](http://www.polytechnique.edu)

Connect with us on social media:



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[Facebook](#)



[Instagram](#)



[Twitter](#)



[YouTube](#)

Thank you to everyone who helped create this document.  
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Communication Department - École Polytechnique - December 2022



INSTITUT  
POLYTECHNIQUE  
DE PARIS

