THE SCHOOL IN FIGURES
Present in the top national and international rankings and moving up the ranks every year, École des Ponts ParisTech enjoys an undisputed national and international reputation. The quality of its multidisciplinary curriculum and innovative teaching methods is backed by excellence in research and close ties to the world of business.

Although its prestige has traditionally been based on civil, environmental, and mechanical engineering, École des Ponts ParisTech today offers top-level training in a wide variety of fields, ranging from applied mathematics and economics to industrial engineering.

École des Ponts ParisTech trains high-potential engineers and high-level executives of the future with a scientific and technical background, who will be called upon to rise to the great societal challenges of today and tomorrow, especially in urban and environment-related fields and the associated engineering disciplines.

This “School in Figures” publication gives an introductory overview of our school in all its rich diversity, revolving around its three main missions: training, research, and the dissemination of knowledge.

### ACADEMIC STAFF

- 351 teaching staff in charge of modules
- 92 École nationale des ponts et chaussées professors, 8 assistant professors and 91 lecturers
- 1,300 part-time non-tenured teaching staff

### STUDENTS

- 2,026 students
- 336 students on advanced “mastère” programs and specialist training courses
- 915 engineering students
- 248 École des Ponts ParisTech PhD students
- 149 MBA students
- 423 master’s and master of science students, including 60 on dual courses

### RESEARCHERS

- 411 researchers and academic-researchers
- 493 PhD students and postdoctoral fellows
- 812 publications (WoS or Scopus)
- 42 % carried out with an international partner
- €9.2 M in revenue from research partnerships
- 51 % carried out directly with companies

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### SOPHIE MOUGARD
Director of École des Ponts ParisTech

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*Scope: the School’s laboratories*
EDUCATION

THE ENGINEERING DEGREE PROGRAM

YEAR 1
- Consolidation of scientific and general knowledge, projects (research and departmental)
- Work experience internship: a 4-week practical in-company internship rounds off the year

THE MASTER’S PROGRAM

YEAR 2
Choice of a department for a specialization
- Civil and Structural Engineering
- City, Environment, Transportation
- Mechanical Engineering and Materials Science
- Industrial Engineering
- Economics, Management, Finance
- Applied Mathematics and Computer Science

Year 2 internship
Between Years 2 and 3, around 80% of the class complete an optional year-long internship, more than 30% abroad.

The other students complete a short (3-month) internship in a company or a laboratory, 20% of them abroad.

YEAR 3
Final Year Project (PFE)
For a period of at least 4 months, students apply the skills acquired during their course to a particular scientific or technical problem, in a company or a research lab. This Multidisciplinary Engineering Project may be completed individually or in groups.

MASTER’S DEGREES

INTERNATIONAL MASTER’S DEGREES
- Masters in Water, Soil and Waste Management and Treatment (GTESD)
- Master Internacional en Empresa y Políticas Públicas (MIEPP) - In-house degree

MASTER’S
Master’s in Applied Mathematics awarded by the École des Ponts ParisTech
5 options:
- Probabilities and Stochastic Models (PMA)
- Mathematics for Finance and Data (MFD)
- Mathematics, Vision, Learning (MVA)
- Modeling, Analysis, Simulation (MAS)
- Operational Research (RO)

Master’s in Energy awarded by the École des Ponts ParisTech
2 options:
- Nuclear Decommissioning and Waste Management (DWM)
- Energy Transition at the Local Level (TET)

Master’s in Mechanical Engineering (co-accreditation with Sorbonne Université)
3 options including:
- Multiscale Approaches for Materials and Structures (AMMS)
- Durability of Materials and Structures (DMS)

Master’s in Civil Engineering (co-accreditation with Université Gustave Eiffel and UPEC)
3 options including:
- Mechanics of Soils, Rocks and Structures in their Environment (MSROE)

Master’s in Materials Science and Engineering (co-accreditation with Université Gustave Eiffel and UPEC)
2 options:
- Materials Sciences for Sustainable Construction (SMCD)

Master’s in Transport, Mobility and Networks (co-accreditation with Université Gustave Eiffel and UPEC)
2 options:
- Transport, Mobility (TM)
- Transport and Sustainable Development (TraDO)

Master’s in Environmental, Energy and Transportation Economics (co-accreditation with Université Paris-Saclay, Université Paris Ouest Nanterre La Défense and EHESS)
3 options:
- Environmental Economics (EEET)
- Economics of Energy (EEET)
- Prospective Modeling (EEET)

Master’s in Quantitative Economics
2 options:
- Analysis and Political Economy (APE) - co-accreditation with ENS Paris, EHESS, ENSEA ParisTech and École Polytechnique
- Public Policy and Development (PPD) - co-accreditation with ENS Paris and EHESS

MASTER OF SCIENCE
- Economic Decision and Cost Benefit Analysis (EDCBA)

INNOVATION AND DESIGN CENTER (D.SCHOOL PARIS)
4 main objectives:
- Train engineering students in innovation-oriented approaches and methods based on practices and design (design thinking, co-design, user-centered design, etc.)
- Become a resource center that provides tools for innovation initiatives and supports researchers and administrative staff
- Encourage interaction and foster collaboration on themes related to practices, design, and the ecological transition
- Train and help companies to understand the design-thinking culture and world by running customized interactive workshops.
3 IDEFIS - EXCELLENCE IN INNOVATIVE EDUCATION INITIATIVES

- **IDEA** aims to offer a range of innovative courses designed to improve teaching quality and facilitate access to lifelong learning and success
- **U-TOP** concerns the creation of a multi-partner, inter-disciplinary distance-learning programs
- **FORCAST** is intended to enable students to monitor controversial scientific or technical issues, which they map using cutting-edge digital tools

**ADVANCED MASTER’S PROGRAMS (MASTERE SPECIALISE®)**

**Full-time**
- Spatial Planning and Urban Development
- Urban Engineering and Information Technologies (UrbanTIC) with EVP
- European Civil Engineering
- Engineering of Major Energy Structures with CentraleSupélec
- Public Policies and Actions for Sustainable Development with AgroParisTech

**Part-time**
- Design by Data, Computational Design, Digital Manufacturing and Building Technologies
- Sustainable Real Estate and Buildings, Energy and Digital Transitions
- BIM, Integrated Design and Life Cycle of Buildings and Infrastructures with ESTP Paris
- Smart Cities Engineering and Management with EVP
- Decision Support and Geo-located Information Systems with ENSG - Géomatique
- Railway and Urban Transport System Engineering with ENSAFE Université de Valenciennes et du Hainaut Cambrésis, and Université Technologique de Compiègne
- Smart Mobility - Digital Transformation of Mobility Systems with Télécom ParisTech
- Supply Chain Design & Management with IML
- Finance Project Infrastructure
- Advanced Public Action in Morocco with Université Mohammed VI Polytechnique
- Management of Energy Projects

**DOCTORAL TRAINING**

The significant research capacity of the School’s 12 top-level laboratories enables it to host:

- 461 PhD students, of whom 33.5% are women and 44% are international students

In the 2020/2021 academic year, the School will once again begin awarding its own École nationale des ponts et chaussées PhDs.

5 co-accredited Doctoral Schools (EDs):
- “Science, Engineering and Environment” Doctoral School (SE). The CEREA, HAM&CO, LEESU, LHSV and Navier laboratories are attached to this doctoral school.
- “Cities, Transport and Territories” Doctoral School (VTT). The LEESU, LATTS, LVMT and CRED laboratories are attached to this doctoral school.
- “Mathematics and ICT” Doctoral School (MSTIC). The CERMICS and LIGM laboratories are attached to this doctoral school.
- “Organizations, Markets and Institutions” Doctoral School (OMI). The LATTS and CRED laboratories are attached to this doctoral school.
- The Panthéon-Sorbonne Economics Doctoral School (ED 465). The PjSE laboratory is attached to this doctoral school.

**LIFELONG LEARNING**

**École des Ponts Business School**

The Business School, accredited by the AMBA, has existed since 1987. It offers programs that are innovative and transformative in both their philosophy and their teaching methods:

- Executive Doctorate of Business Administration (Paris)
- DBA in Intelligent Manufacturing Management (Shanghai)
- LeadTech Global Executive MBA (Paris and Barcelona, French-Spanish degree)
- Global Executive MBA (Casablanca)
- TEE Executive MBA (Beijing, French-Chinese degree)

Ponts Formation Conseil is the leading lifelong learning organization among French engineering schools

<table>
<thead>
<tr>
<th>+350 training sessions offered in France</th>
<th>6 certificates (École des Ponts ParisTech qualifications)</th>
<th>6 study days</th>
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<tbody>
<tr>
<td>174 training courses tailored to the specific requirements of companies and public authorities, in France and abroad</td>
<td>5,980 participants (engineers, managers)</td>
<td>1,410 trainers and coaches (experts and professionals)</td>
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<tr>
<td>57 % private-sector participants</td>
<td>43 % public-sector participants</td>
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**IHEDATE (Institute of Advanced Development and Planning Studies in Europe)**

IHEDATE’s annual training cycle is backed by the State (National Agency for Territorial Cohesion, different ministries), the Banques des Territoires-Caisse des dépôts serving local government groupings (AdCF, France Urbaine, Régions de France, GART), CEREMA, the City of Paris, private and public companies (Auchan-Deetunis, Colas, ENEDIS, EDF, Groupe La Poste, SNCF Réseau, Bouygues, RTE, SNAV, SNAV) and a number of professional bodies (ASFA, FNTP, Routes de France, UIMM).
RESEARCH

LABORATORIES

12 research laboratories including 6 CNRS (National Center for Scientific Research) joint research units (UMRs) (own laboratories or in partnerships with academic operators, public organizations, and companies).

4 CORNERSTONE DISCIPLINES

Mathematics and Computer Science

- CERMICS: applied mathematics, scientific computing, modeling, optimization
- LIGM: theoretical computer science, natural language analysis, image, and signal processing, algorithmics, formal calculus

Mechanics and Physics of Materials and Structures

- NAVIER: mechanics and physics of materials and structures, applications to geotechnics, civil engineering, geophysics, and the oil industry
- LHSV: fluid mechanics applied to hydraulics and the environment (rivers, coasts, and harbors)

Environmental Sciences and Engineering

- CEREA: air quality, pollutant dispersal and transportation, atmospheric modeling on urban and regional scales, data assimilation
- CIRED: development and environmental economics, energy/waste/transportation/water/food issues, global environmental challenges, precautionary principle, modeling
- HM&Co: multi-scale observation and analysis, system-based modeling, management of water as a risk and resource, hydrology for a resilient city
- LEESU: the urban milieu and its environment, analysis of the socio-technical and environmental functioning of urban and peri-urban territories
- LMD: atmospheric dynamics, study of climate and its interannual fluctuations, continental and global scales

Economics & Social Sciences

- LATTS: social sciences, spatial planning, history, dialogue between social sciences and technology and engineering, in private sector companies and the public sector
- LVMT: analysis and modeling of interactions between transportation and spatial planning
- PSE: theoretical economics, public economics and labor market economics

4 SOCIO-ECONOMIC PRIORITIES IN THE ECOLOGICAL TRANSITION

Research activities that contribute to meeting the challenges of 4 socio-economic priorities in sustainable development:

- Urban and mobility systems
- Management of environmental risks
- Industry of the future
- Economics, practices, and society

PROGRAMS STRUCTURING SCIENTIFIC COMMUNITIES

- Bézout (LabEx): Deterministic and stochastic models, discrete mathematics and algorithms, high-dimensional phenomena, imaging, and geometry
- Urban Futures (LabEx): Environment, transport, planning, architecture for the urban world
- L-IPSL (LabEx): Climate change and consequences at the relevant spatial and temporal scales for political and economic decision-making
- MMCD (LabEx): Multiscale modeling and trialing of materials for sustainable construction, properties of civil engineering and environment materials
- OSE (LabEx): Economics, globalization and development, markets and organizations, foundations of individual, strategic, and social behaviors
- SITES (LabEx): Science and technology, society, research and innovation processes and policies
- Efficacity (ITE): Institute for Urban Energy Transition - founder member
- Cap Digital: European Center for the Digital and Ecological Transition

THE INDUSTRIAL RESEARCH CHAIRS

Urban and Mobility Systems

- Innovative Solutions For a Sustainable and Responsible Habitat (NAVIER): with Saint-Gobain
- Maintenance of Civil Engineering Structures (NAVIER): Sanef-abertis
- Sciences for Rail Transportation (NAVIER): with Getlink
- Smart Cities and Value Creation: with KPMG

Management of Environmental Resources

- Fluid Mechanics applied to Hydraulics and the Environment (LHSV): with EDF R&D
- Hydrology for A Resilient City (HM&Co): with Veolia
- Financial Risks (CERMICS): with the Fondation du Risque and its founders Société Générale, École Polytechnique and Sorbonne Université

Industry of the Future

- Operational Research and Learning (CERMICS): with Air France
- Materials Science for Sustainable Construction (NAVIER, CERMICS): with Lafarge Holcim
- Sustainability of Energy-Related Materials and Structures (NAVIER): with the European Foundation for Tomorrow’s Energies, EDF, ENGIE, GRT Gaz and MINES ParisTech
- Supply Chain of the Future (CERMICS): with Renault, Louis Vuitton, Casino and Michelin

Economics, Practices and Society

- Forward Modeling for Sustainable Development (CIRED): with EDF, Total, Schneider Electric, ADEME and MINES ParisTech
- Socio-Economics and Modeling of Urban Public Passenger Transit Systems (LVMT): with Île-de-France Mobilités
- Development and Financing of Sustainable Infrastructure Projects (CIRED): with Meridiam
TARGETED SERVICES FOR RESEARCHERS

- Scientific and technical information services portal: http://espacechercheurs.enpc.fr
- Open archive: hal-enpc.archives-ouvertes.fr comprising over 10,000 submissions of full-text scientific publications, and 27,000 SEO documents, 65% of scientific articles are available in Open Access format
- Access to the main scientific journal platforms and scientific, technical and economic databases (Web of Science, Scopus, Business Source Complete, Mathscinet, Science Direct, Springer, Wiley, ASCE, etc.)
- An Opalia bibliometric platform

AN EXCEPTIONAL HERITAGE COLLECTION

- A collection of 80,000 historical documents and manuscripts, printed between the 18th and 20th centuries
- Digitized heritage collections: patrimoine.enpc.fr, bibliothequesdesphares.fr, gallica.bnf.fr, archive.org
- 18,000 digitized documents or some 957,000 pages/plates
- A photo library containing 13,000 images (bridges, canals, railway stations, portraits of engineers, etc.)
- 16,000 archive folders or 1,615 linear meters of historical and contemporary archives
- Museum collections recording the history of France’s first engineering school

STAFF AND RESOURCES

560 members of staff employed by the School and its subsidiaries on 31 December 2019 (excluding part-time non-tenured teaching staff and public employees in training)

224 researchers

PRE-TAX REVENUES OF SUBSIDIARIES IN 2019

€7.04 M Ponts Formation Conseil
€3.19 M MIB Développement

Public service subsidy from MTES (Ministry of Ecological and Solidarity Transition)

Research contracts (including sponsorships: 1.2 M)

Teaching (tuition fees, partnerships)

Apprenticeship tax

Other

Other

Other

Other

Other

Other
INTERNATIONAL RELATIONS

71 partner institutions

35 countries on 4 continents

45 dual-degree agreements with universities

26 countries

EUROPE

- 39 partner institutions
  - 19 dual-degree agreements
  - 20 Erasmus+ exchange agreements

ASIA

- 9 partner institutions
  - 8 dual-degree agreements
  - 1 bilateral exchange agreement

AMERICAS

- 15 partner institutions
  - 12 dual-degree agreements
  - 3 bilateral exchange agreements

AFRICA AND THE MIDDLE EAST

- 8 partner institutions
  - 6 dual-degree agreements
  - 2 bilateral exchange agreements

DEGREES AWARDED IN 2019

- 210 engineering degrees
- 122 master’s degrees
- 151 PhDs
- 313 specialist programs: “mastère spécialisé” and Master of Science
- 200 École des Ponts Business School MBAs

CAREER OPPORTUNITIES

- 62 students studying engineering abroad
- 65 on dual-degree engineering courses
- 825 foreign students in 2019
- 67 students studying engineering abroad

THE SCHOOL IN NATIONAL AND INTERNATIONAL RANKINGS

THE (Times Higher Education) international ranking: the school has moved up the ranks into the 201-250 band.

It has progressed on several indicators: “teaching”, “research”, “citations” and “international outlook”, making it the 2nd placed Grande École in the ranking and the 5th-ranked French institution. In total, over 1,250 institutions feature in this ranking.

QS World University Rankings 2021

The School is the 6th-ranked French institution, the top French institution in terms of the international student ratio, and is included in the Top 250 overall international ranking. This ranking includes 1,000 institutions in 85 countries.

The Usine Nouvelle national ranking for 2020

The School is ranked 2nd overall among French schools. It is recognized as one of the country’s best engineering schools, scoring particularly well on the criteria of academic excellence, international outlook, closeness to business and industry and openness to new audiences. This ranking includes 122 French institutions.

AVERAGE STARTING SALARY

€46.1 K

€58.7 K

with bonuses and incentives

Source: 2020 survey of the 2019 graduating class (excl. civil servants)
LES PRESSES DES PONTS
Les Presses des Ponts is the School’s own publishing house founded in 1977, which has a catalog of 220 scientific and technical books and software products mainly covering civil engineering, construction, and spatial planning.

PONTS ALUMNI
The School’s alumni association, founded in 1860, is a State-approved public interest association. Its members are the School’s 21,600 graduates: civil engineers, high-ranking state engineers, holders of master’s degrees, PhDs, and MBAs.

The Ponts Alumni network is present in 11 countries and in all the School’s sectors of activity. There are 27 geographical groups – 14 of them abroad, 16 professional groups, including 4 joint groups with other Grandes Écoles, 3 degree groups (MBA, Masters, UrbaPonts), 1 international sponsorship group and 7 friends clubs.

FONDAATION DES PONTS
This State-approved public-interest foundation collects contributions from companies under sponsorship arrangements and donations from alumni and Friends of the School to help School become increasingly open to today’s world, more innovative and effective in an ever-more competitive international field, and to promote equality of opportunity, diversity and excellence among its students.

Over the last ten years, over 700 alumni and more than 70 companies or organizations, both private and public, have provided donations to support the development of teaching, research, innovation, and entrepreneurship and to secure places at the School for the most talented students.

FUNDS COLLECTED IN 2019

<table>
<thead>
<tr>
<th>Individual donations or legacies</th>
<th>€0.256 M</th>
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<tbody>
<tr>
<td>Chairs or partner</td>
<td>€1.54 M</td>
</tr>
</tbody>
</table>

(Net of administrative costs)

HOW DONATIONS ARE USED

| Research, teaching, and innovation (Chairs and partnerships) | 79 % |
| Prizes for excellence, bursaries and loans for overseas study, schemes to foster entrepreneurship, social diversity | 21 % |

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