

Environment & Technology Water, Soil & Waste Engineering



OBJECTIVES

This vocational master programme offers students to be proficient executives in the area of water through the identification, management and treatment of environmental impacts. These executives are expected to work in the international firms of our professional partners.

The Master in “Water, Soil and Waste Engineering” aims at providing students with a broad and sound scientific training enabling them to understand geosystems dynamic, to assess the environmental impacts generated by human activities and to implement the tools, technologies and measures allowing to control them.

CONDITIONS FOR ADMISSION

The Paris-Tech Master in Water, Soil and Waste Engineering is open to international students. Applicants to the master programme should hold a Bachelor of Science or a Bachelor of Engineering degree, awarded by an internationally recognised university.

ADMISSION PROCEDURE AND DEADLINE FOR APPLICATION

Applicants will be selected based on their application files by a jury of teachers. The application forms may be downloaded on the PARIS-TECH or INA P-G websites. The forms should be mailed by post before the 15th of June to the following address :

INA P-G Direction des Études
16, rue Claude Bernard
75231 PARIS Cedex 05
France

For further information contact
Alain Bermond :
alain.bermond@inapg.fr

LINGUISTIC PRE-REQUISITE AND LEVEL OF FRENCH LANGUAGE

Most courses being given in French, a minimum proficiency in this language is required. Foreign students should achieve a level 4 (on a 0 to 6 scale) at the TEF test, administered by the Paris Chamber of Commerce.

Students who would not qualify for this level will be required to follow an intensive course of French, whose duration will depend on their initial level.

ACQUIRED SKILLS AND CAREERS OPPORTUNITIES

Through this training programme, students will acquire skills and methods enabling them to control environmental impact of the human activities in the following fields :

- Water Resource Management,
- Waste Water Treatment and Supply,
- Waste Water and Sewage Sludge Treatment,
- Sorting, Collection and Treatment of Solid Waste,
- Management of Polluted Sites.

Master students will become special executives and managers in the enterprises (and the international firms) involved in water, soil and waste management and treatment.

CALENDAR

The programme comprises three semesters (including a 1-semester internship), from September to December the year after.

PROGRAMME

First Semester : Environmental Science

Instrumentation

- Strategies and analytical concepts applied in environment
- Analytical methods
- Chemiometric, validation and normalization
- Processes and modeling

Functioning of soil, water and climate

- Climate and impacts of climate change
- The soil : a fragile interface with a limited resilience of remediation
- The biosphere as a factor of ecosystems regulation
- The natural waters
- The impact of waste on the biogeochemical cycles and fluxes

Legal and economic issues

- Environmental law
- Environmental economy

Second Semester : Treatments

Water management and Water treatment

- Drinking water treatment
- Urban waste water treatment
- Industrial waste water treatment
- Waste water and rainfall water utilities
- Water quantitative management
- Water quality (international levels)

Waste management and waste treatment

- Waste typology and elimination/ recycling routes
- Biological treatments routes (composting, biogas recovery)
- Hazardous and commonplace industrial waste treatment
- Treatment route choice and placing at regional scale
- Treatment of odours and flue gas

Management of polluted sites and polluted soils

- Hydrogeology
- Pollutants characteristics
- Risks encountered in contaminated soils
- Transfers in soils and underground waters
- Remediation methods

Environmental impact assessment

- Planning projects impacts
- Integrative approach of industrial sites impacts (Directive IPPC)
- Products impacts (Life Cycle Assessment)

Case study in rural, urban or industrial environment

- Contaminated soils and sites treatment in a rural, urban or industrial environment
- Waste treatment (urban or industrial waste)
- Water management in different timescales and spatial scales
- Air quality and urban emissions
- Energy control and renewable energies
- Ecosystems impacts of large-scale industrial facilities

Third Semester : 6 month internship in an enterprise

Drinking water treatments, urban waste water treatments, remediation of polluted sites.

LEADER INSTITUTE AND PARTNERS INSTITUTES

This training course PARIS TECH is offered by the Institut National Agronomique Paris-Grignon (INA P-G) in association with the 6 following institutes :

- L'École Nationale du Génie Rural, des Eaux et des Forêts (ENGREF)
- L'École Nationale Supérieure de Chimie de Paris (ENSCP)
- L'École Supérieure de Physique et de Chimie Industrielles (ESPCI)
- L'École Nationale Supérieure des Mines de Paris (ENSMMP)
- L'École Nationale des Ponts et Chaussées (ENPC)
- École Nationale Supérieure de Techniques Avancées (ENSTA)

WEB SITE

www.inapg.inra.fr/master/masterfc

KEY WORDS

Process engineering, environmental chemistry, analytical chemistry, environmental engineering, water, soil, and waste management.

COST OF ATTENDANCE

10 000 euros.