



In Water, Soil and 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 the human activities and to implement the tools, technologies and measures allowing to control them.

CONDITIONS FOR ADMISSION

The Master Paris-Tech 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 are selected following a close study of their application 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 before being admitted to the lectures. The duration of this course 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.

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

CALENDAR

The course of study is achieved in three semesters (including a 1-semester internship), from September to December of the next year.

PROGRAMME

First Period : Instrumentation, design and analyses of the grounds

Instrumentation

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

Analyses of the grounds

- Climate and impacts of climate change
- The soil : a fragile interface with a small capacity of rehabilitation
- The biosphere as a factor of ecosystems regulation
- The natural waters
- The biogeochemical cycles and transfers encountered in waste problems

Juridical and economic skills and issues

- Environmental law
- Environmental economy

Second Period : 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
- Emission and whiff treatment

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 Analysis LCA)

Case study : “rural, urban or industrial environment”

- Contaminated soils and sites treatment in a rural, urban or industrial environment
- Waste treatment (trash or industrial waste)
- Water management in different timescales and spacescales
- Air quality and urban emissions
- Energy control and renewable energies
- Big installations impacts on ecosystems

Third Period : 6 month internship in an enterprise

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 (EPSCI)
- 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.