In the environmental field, our planet is facing major challenges: climate change, scarcity of resources such as drinking water, pollution, human population growth or loss of biodiversity. Environmental issues are not only diverse, but also increasingly complex. Although inventing appropriate solutions to these issues involves human, economic and social dimensions, taking into account scientific and technical progress is paramount.
Have you ever wanted to understand why avalanches are so difficult to predict? How observing ants can help in network routing? How PET bottles can be used to disinfect water? Then the Master SIE is made for you!

During my Master in Environmental Modeling and Monitoring, I was able to exercise a diverse set of skills; from planning irrigation networks for arid regions to predicting atmospheric temperatures in Greenland using artificial intelligence. Pretty quickly, geospatial analysis became of special interest to me and I discovered how multidisciplinary it is. Indeed, most environmental studies involve maps and spatial decisions. Questions such as ‘Where is the best place to install this wind turbine?’ or ‘How does the topography of this water catchment influence the risk of flooding?’ are a common sight in the problem landscape.

Before my PhD studies, I worked at the Vaud Forest Service to create forest canopy maps and worked in a natural reserve - the Grande Carïcaie - to analyze erosion dynamics.

Overall, as an environmental engineer, you will be able to implement both down to earth and high tech solutions. Most of the young environmental engineers work in the domains of transportation systems, life cycle analysis, geographic information consulting, renewable energy, natural reserve management and water/wastewater treatment, all around the world.

I hope this glimpse of activities has convinced you of the opportunities offered by the Environmental Engineering curriculum.

Matthew PARKAN
Master of Science in
ENVIRONMENTAL SCIENCES
AND ENGINEERING
2-year program - 120 ECTS

Specialization Credits
Projects 20
Design project A 20
SIE/ENAC Project B 10
Project in human and social sciences C 4

Specific courses 25
Air pollution and climate change A 5
Environmental Transport phenomena B 5
Geomonitoring C 5
Spatial statistics and analysis C 5
Water and wastewater treatment A 5
Water resources engineering B 5

Optional courses 45
Analyse et management des risques industriels A 3
Applied wastewater engineering A 3
Biomineralization: from nature to application A 4
Development Engineering A 4
Energy conversion and renewable energy A 3
Environnements de travail, risques professionnels B 3
Fate and behaviour of organic pollutants A 4
Génie des bioprocédés environnementaux A 4
Groundwater and soil remediation A 4
Material and energy flow analysis A 3
Recycling of materials A 2
Sanitary engineering in developing countries A 2
Solid waste engineering A 4
Systèmes de management environnementaux A 2
TP de bioprocédés environnementaux A 4
Bio-ingénierie des cours d'eau et milieux naturels B 2
Concepts in Ecological Engineering B 4
Droit: contrats et responsabilité professionnelle A B C 3
Écologie numérique A B C 4
Eco-morphologie fluviale B 3
Économie hydraulique B 2
Fluvial biogeosciences B 3
Hydraulique fluviale et aménagements de cours d'eau B 3
Hydrogeophysics B 4
Hydrologie urbaine B 4
Limnology B 4
Physics and hydrology of snow B 4
Risques hydrologiques et aménagements B 3
Soil Water Regime Management B 4
Water quality modeling A B 4
Advanced Satellite Positioning C 4
Analyse exploratoire de données géospatiales B C 3
Design de SIG C 4
Distributed information systems C 4
Distributed intelligent systems C 5
Experimental design and data analysis with R C 2
Géocomputation C 3
Imagery of Territory C 3
Introduction to database system C 4
Sensor Orientation C 4
Etudes d’impact A B 3
Gestion foncière et droit foncier C 3
SIG et aide à la décision C 3
Sustainability Assessment C 3

Projects

Optional courses

Specific courses

Career Opportunities
Your expertise, your newly acquired scientific skills and versatility will allow you to access a wide variety of professional activities in the public or private sector, in industry or the service sector, in Switzerland or abroad.

Your prospective employers are primarily design offices, engineering consultants or environmental engineering firms. You also have the opportunity to work in public administration (sanitation, energy, mobility, spatial planning, etc.), in small or large companies or in environmental protection institutions (technical cooperation...). Finally, you may also decide to satisfy your scientific curiosity by embarking on a doctoral thesis.

School of Architecture, Civil and Environmental Engineering
master.epfl.ch/environment
Contact: chantal.seigne@epfl.ch