



2023 Recruitment Job Sheet

Professor / Assistant professor

ENTPE

(Graduate school of Civil, Environmental and Urban Engineering)

Job Title:	Assistant professor /Professor in Applied Physics for Ecohydrology
Discipline(s):	Applied Physics for Ecohydrology
Specialty(ies):	Environmental physics (CNU 37)/ Climate change: global and regional hazards and impacts (CNRS section 19)
Laboratory:	LEHNA UMR 5023, Team IAPHY-
Location:	ENTPE (Vaulx-en-velin; 69520)
Contact(s):	At ENTPE: <ul style="list-style-type: none">- Luc Delattre, Director of Research and Doctoral Training, luc.delattre@entpe.fr ; Tel : 04 72 04 70 90- Antoine Le Blanc, Director of Initial Training, antoine.leblanc@entpe.fr ; Tel : 04 72 04 71 05 At LEHNA: <ul style="list-style-type: none">- Christophe Douady, Director of the UMR LEHNA, christophe.douady@univ-lyon1.fr Jean-Philippe Bedell, UMR-ENTPE site referent and IAPHY team leader, bedell@entpe.fr Tel : 04/72/04/70/81 ; Port : 07-64-79-23-64

1-Context and issues

The École nationale des travaux publics de l'État (ENTPE) is a higher education and research institution reputed as a public scientific, cultural and professional establishment (EPSCP) under the supervision of the Ministry of Ecological Transition. The ENTPE is involved in training and research in all professional fields of urban development and management:

- Buildings and infrastructure ;
- Territorial planning, urban policies and urbanism;
- Transport systems and mobilities ;
- Soils, water and anthropized hydrosystems: control of environmental impacts and preservation of hydrosystems.

In an increasingly competitive context, the major challenge for the ENTPE today is to position the school and make it even more recognized in the academic sphere as well as in the socio-economic world, on a national and international scale. With this in mind, the ENTPE has drawn up a new strategic project that affirms its desire to make the school a pilot and exemplary establishment in the field of ecological and solidarity-based transition.

The school currently trains approximately 700 engineering students, most of whom are recruited from the post-graduate preparatory classes for the Grandes Ecoles. It also offers a range of master's degrees and specialized masters, as well as continuing education programs for professional development. It will open a Bachelor's degree program in "Ecological Transition and Territories" in September 2023, with the first year under student status and the other two years under apprentice status, with a target enrollment of 50 students per year. The school is part of the Lyon Saint-Etienne site dynamic and works closely with the three other public engineering schools on the site: Insa Lyon, Ecole Centre de Lyon and Mines Saint-Etienne.

The ENTPE is the supervisor of 5 research laboratories, 4 of which are affiliated with the CNRS and one with the Gustave Eiffel University. On its site, the School employs and hosts 80 researchers, 60 of whom are permanent. About 100 these are in preparation.

The management of training is organized within the Initial Training Department (DFI), which relies on the skills of the laboratory staff to implement the training courses offered in the establishment.

In this context, the ENTPE is looking for a teacher-researcher, to ensure a research mission at 50% of his time within the IAPHY team of the LEHNA and teaching (50% of his time) in the training courses offered by the school.

Description of the laboratory's themes

The IAPHY team is one of the 6 teams of LEHNA, located on the ENTPE site in Vaulx-en-Velin (69). The Joint Research Unit (UMR) 5023, LEHNA, includes a total of 70 permanent staff based both on the Doua campus and on the ENTPE campus. Its main research objective is the analysis and understanding of the influence of global changes on ecosystem services in hydrosystems. The scientific field of the IAPHY team is part of the general framework of Environmental Sciences and concerns the evaluation of the impact of developments, in the broad sense, and of chemical pollutants on continental aquatic environments and ecosystems. The research and teaching activities of the IAPHY team are at the crossroads of the concerns of the INEE of the CNRS and the missions of development and management of the territories which are the responsibility of the MTE. They are focused on understanding the role of developments, pollutants and other stresses resulting from human activity on biotic and abiotic processes within continental hydrosystems, making it possible to identify situations at risk and to characterize the resilience of these ecosystems. The scientific project is part of the general framework of the study of the effects of anthropogenic forcings (developments and pollutant emissions) on material flows (water, sediments, nutrients and pollutants) and their impacts on hydrosystems and their ecological functions

2-Missions

Position

The teacher-researcher will be assigned to the LEHNA-IAPHY laboratory (Laboratory of Ecology of Natural and Anthropized Hydrosystems - team Impacts of Developments and Pollutants on Hydrosystems). His research activity is part of the scientific program of this unit. His teaching activity is part of the collective and contractualized commitment that his laboratory and the DFI define each year. All of his or her activity is placed under the responsibility of the director of his or her research unit at the ENTPE.

Training activity

The person recruited will be involved in all the training courses offered by the ENTPE, in particular and as a priority in the post-baccalaureate Bachelor's degree course "Ecological Transition and Territories", which is due to open in September 2023 (levels L1 to L3), but also in the initial engineering training at the ENTPE, in the masters courses in which the establishment is involved and in the continuing education courses that it offers

The teaching mission consists of contributing to the pedagogical engineering of the various training courses offered by the ENTPE, participating in the steering and management of the teaching, providing courses, supervising practical work, supervising projects and internships as well as academic tutoring of students, in particular work-study students, in direct contact with the company's apprenticeship supervisor. The teacher-researcher must be able to teach in English and at a distance (or in a hybrid format).

The candidate will teach general engineering geology, hydrogeology, quantitative and qualitative hydrology and ecohydrology. These teachings will put into perspective global changes, the disruption of matter and energy cycles (e.g.,

hydrological cycles, biogeochemical cycles and pollutant transfers), their impacts on terrestrial and aquatic ecosystems, and the necessary ecological transition of societies.

Research

The person recruited will carry out research in the field of physics applied to ecohydrology. The person recruited will develop his/her themes on the "physical" characterization of hydrosystems (hydrogeological and hydrological characterization) in order to identify the physical modifications of the environments resulting from global changes, with the objective of a better understanding of the changes of the flows of matter and energy within the biotope and the consequences on the "living" compartment. On a larger scale, these investigations will allow us to understand the issues of resilience and sustainability of ecosystem functions (habitat functions, regulation of the water cycle, filtration of pollutants). The unsaturated zone (interface between anthropic activities on the surface and water tables), the banks (interfaces between rivers and terrestrial ecosystems), and sedimentary deposit zones of aquatic environments will be potential objects of study.

3-Expected profile

- For Assistant professors: The candidate must hold a PhD in applied Physics for Ecohydrology.
- For Professors: The candidate must be qualified to direct research, or be able to justify an equivalent level for foreign candidates (publications, doctoral supervision, experience of scientific direction of research projects, teaching).
- The candidate must have an interest in, a willingness to teach, and experience in teaching and tutoring students; he/she should be able to cover a broad spectrum of engineering geology, hydrogeology, quantitative and qualitative hydrology, and ecohydrology to meet the evolving needs of the course.
- He/she will have to justify scientific publications in journals and communications in conferences or the writing of internationally recognized books in his/her disciplines and field of research
- He (she) must have a good knowledge of the socio-economic world and a vision of the needs for skills related to the impact of environmental and anthropic constraints on hydrosystems.
- He (she) must be fluent in written and spoken English.

The following will also be assessed by the hiring panel:

- Have experience abroad or the ability to mobilize a national and international network;
- To have research experience at the end of the thesis;
- To have a good knowledge of its scientific field, the stakes, actors and associated networks, whether in its discipline or in the neighbouring disciplines;
- For faculty positions, have proven experience in setting up and conducting collaborative research projects, transfer/valorisation projects or, more broadly, partnerships;
- Demonstrate knowledge and skills in geophysics, hydro(geo)logy, soil physics (hydrodynamic characterization), and mass transfer (pollutant transfer)
- To have the ability to teach data processing and geographic information systems (GIS), tools that are essential to the planning of territories in a context of ecological transition
- Demonstrate the ability to work in a team and multidisciplinary collaboration.
- Have a CNU qualification.

4-Application procedures

Interested parties are to send applications by e-mail to recrutement-enseignants-chercheurs2023@entpe.fr indicating name, surname, e-mail address and the position applied for.

In return, a message will be sent informing you of the application procedure: this procedure is dematerialized via the website <https://recrutement.entpe.fr>

Application includes a Research and Training project. To prepare their applications and define their research and training projects, and until the closing date for applications, candidates are strongly encouraged to contact the heads of the recruiting units (see contact information on job description).