



Popular Democratic of Algeria

Ministry of Higher Education and Scientific Research



Abbes Laghrour University Khenchela

Identity Sheet of formation Protection of Ecosystems

Domain: Natural and life sciences

Branch: Ecology and Environment

Specialty: Protection of Ecosystems

Cycle: Master

Type: Academic

**Attachment structure: Faculty of natural and life sciences/
department of Ecology**

1. Context and objective of the training

1.1. Access conditions

This specialty is open to several specialized licenses:

Water and environment, Ecology and Environment, Soil and Environment, Hydrogeology, Environmental engineering, and Ecology of natural environments.

1.2. Objectives

The Algerian population growth, the rapid development of towns and villages, the economic recovery experienced by Algeria, the revival of the Algerian industrial fabric, major basic infrastructure projects, the lack of land for the establishment of new projects within the framework of tourism, industrial and agricultural investments lead to the use of sites which in their past may have been polluted. This pollution is often unknown because it is hidden underground (soil, subsoil, groundwater).

The aim of this master is to train specialists at engineer level in the field of the rehabilitation of sites polluted in particular (but not only) by industrial and agricultural activities, but all anthropogenic activities that generate pollution.

This training aims to specialize students over two years in the protection and decontamination of polluted water and soil in general and in the protection of the environment.

Several types of skills in Water and Environment will be acquired at the end of the two years: Hydrogeology, Hydrochemistry, Pedology, Ecology, Microbiology, Management, modelling, management and marketing which will complement the knowledge acquired in the degree courses in Ecology and Environment, in Hydrogeology and in Water and Environment, Ecology of Natural Environments.

This master will therefore train specialists in the rehabilitation of such sites to make them suitable for their new use. It sets itself the objective of:

- Training of engineering level students with the aim of creating design offices in Khenchela, design offices that will be called upon and intervene throughout Algeria (and perhaps in the Maghreb countries). This will generate activity, employment and regional wealth. Design offices made up of former trainees can easily and inexpensively (zero distance) participate in return in training by presenting their work, which allows for the modernization of lessons and internship offers.
- train Algerian specialists in the decontamination and rehabilitation of polluted sites and, in addition, other types of pollution (salination and agricultural pollution, domestic pollution and collective or non-collective sanitation, etc.), waste storage facility (of different dangers), ...
- Initiate the creation of specialized consultancies on this topic. The first non-specialized design offices could gradually give way to specialized offices by type of site to be rehabilitated.
- At the level of teacher-researchers: help ministries to develop Algerian standards and legislation for the protection and rehabilitation of polluted sites, develop economic references (remediation costs in particular) specific to the Algerian context).
- These specialists must be able to manage all the stages of such rehabilitations

2. Profiles and skills targeted

One of the priorities which have strongly guided our policy in setting up this training is both the extent and the diversity of the environmental problems with which all the towns in the country are confronted and the interest that we must to the implementation of this training and its urgent and essential character for the Algeria of tomorrow.

Indeed, our approach which is original is also fundamental to train operational graduates in the field of protection, decontamination and rehabilitation of polluted sites. The skills acquired will therefore allow students to apply to state or private companies (industrial, agricultural, design offices, basin agencies, etc.), or to local authorities (APC,).

At the end of their training, the graduates, Algerian specialists, will be able to intervene on any environmental problem linked more or less directly or indirectly to water and soil and this by predicting the impact, diagnosing the situation or by remediation. Their interventions focus on:

Resource protection: soil, subsoil, water, polluted sites: these are lost resources.

- The interest in recovering building land on the edge or in cities, areas in which real estate demand is strong.
- Establish administrative links with ministries involved in oil exploitation and oil companies. Creation and implementation of legislation and Algerian references for the depollution of sites affected by solid waste and hydrocarbons (prospecting and extraction areas, network leaks, pollution linked to storage, etc.).

The graduate student must be able to establish an experimental protocol, carry out sampling, readings and analyze samples in order to assess the quality of the environment studied. He will be able to define and determine the origins of pollution of polluted sites and study their impact on the environment and propose solutions for their rehabilitation.

3. Regional and national employability potential

Wastewater treatment plant

National Dams Agency

Division of hydraulics

Municipal health office

Agricultural services

Department of the environment

Health Service

Industry and mining sector

Design offices (national)

Oil companies

National Sanitation Office

4. Gateways to other specialties

Bridges exist between this master and the “water and environment” and “ecology and environment” research masters.

5. Training Partners

Companies and other socio-economic partners:

National Office of Meteorology (ONM)

National Sanitation Office (ONA)

National Solid Waste Landfill Office (ONDS)

National Water Resources Agency (ANRH)

Inspection of forests of Khenchela

National Institute of Soil Irrigation and Drainage (INSID)

6. Semester organization of lessons (one table per semester)

Teaching units	VHS	Study hours per week			
	14-16 week	Cours	tutorials	practical courses	other
UE fondamentale units					
FTU1 : Flow and Toxicity					
Applied hydrology	67H30	3H00	1H30	00	82H30
Applied eco-toxicology	45H00	1H30	00	1H30	55H00
FTU 2 : Ecosystem pathology					
Water pollution and knowledge of pollutants	45H00	1H30	00	1H30	55H00
Agricultural pollution control techniques (and depollution)	45H00	1H30	00	1H30	55H00
TU methodology					
Water microbiology	60H00	1H30	1H00	1H30	65H00
Depollution of industrial sites	45H00	1H30	00	1H30	55H00
TU Discoveries					
DTU : Sanitation					
Collective sanitation and autonomous sanitation	45H00	1H30	1H30	00	5H00
TU transversal					
UET1 : Legislation					
Legislation	22H30	1H30	0	0	2H30
Total Semester 2	375H00	13.5	4H00	07H30	375

7. Evaluation method

Final exam: 60%

Continuous control: 40%, CC evaluation mode: evaluations, scientific outings rapports, evaluation practical work, presentations, homework, etc.

8. Teaching language

French language