

# Postgraduate Diploma Environmental Pollution



## Postgraduate Diploma Environmental Pollution

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/in/engineering/postgraduate-diploma/postgraduate-diploma-environmental-pollution](http://www.techtitute.com/in/engineering/postgraduate-diploma/postgraduate-diploma-environmental-pollution)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Structure and Content

---

*p. 12*

04

Methodology

---

*p. 18*

05

Certificate

---

*p. 26*

# 01

# Introduction

Scientific studies reinforce the evidence linking certain pathologies to environmental pollution. It has been found that Parkinson's disease, asthma and chronic obstructive pulmonary disease are closely linked to pollutants. However, concern is not only focused on people's health, but also on the rest of the ecosystem affected by toxic substances. The work of the engineering professional in the pursuit and proposal of projects that reverse this situation is currently highly valued and in demand. This is the reason why this program was created, in which the graduate will be able to be updated, through multimedia didactic material, on the progress in the analysis of the main pollutants, innovation in waste management or the impact of microplastics around the world. Moreover, it is a 100% online program that you can access whenever you want from a computer with Internet connection.







“

*With this Postgraduate Diploma you will open new professional doors in the field of Environmental Engineering. Click and enroll now"*

One of the great human challenges today is to reduce and eliminate pollution from rivers, seas, land and air. There is no place in the world that has not suffered the serious impact of toxic substances, either due to ignorance of their effects on nature and people's health or due to poor waste management in the different economic sectors. A challenge that is being addressed through environmental policies, awareness-raising in society and a multidisciplinary approach to this problem.

A challenge that is being addressed through environmental policies, awareness-raising in society and a multidisciplinary approach to this problem. The progress in this field makes necessary an update on Environmental Pollution, and that is why TECH has designed this Postgraduate Diploma taught 100% online using the latest content in this area.

This way, students who study this program will be able to delve into the environmental management systems of companies, the assessment of the environmental impact of projects, the integrated prevention and control of pollution or the latest corrective techniques used in the decontamination of water and soil. All this will be possible thanks to the pedagogical resources developed specifically for this university program, including video summaries, detailed videos and case studies.

In addition, this institution uses the Relearning method in all of its programs, based on the repetition of content, which allows students to progress through the syllabus in a much more natural way and reduce the number of hours of study.

An excellent opportunity for the Engineering specialist who wishes to study a Postgraduate Diploma conveniently, wherever and whenever they wish. All you need is a device with Internet connection to view the syllabus. The student also has the freedom to distribute the teaching load according to their needs, making this program an ideal option for those who wish to combine professional and/or work responsibilities with quality instruction.

This **Postgraduate Diploma in Environmental Pollution** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of case studies presented by experts of Environmental Engineering
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Sign up now in a program designed for professionals who want a quality education, compatible with their personal responsibilities"*

“

*Do you have a project in mind that seeks to tackle climate change? This specialization provides you with the knowledge you need about pollution treatment"*

*You have before you a Postgraduate Diploma that will allow you to take important steps in the field of Engineering thanks to its advanced content on waste management.*

*Whenever you want, you can access from your computer or tablet to the case studies prepared by the specialists who teach this program.*

The program's teaching staff includes professionals from the sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.





# 02

# Objectives

TECH Technological University has designed this degree with the main objective of offering to professionals the most comprehensive and current learning on Environmental Pollution. Therefore, upon completion of this program, the graduate will be able to develop environmental projects with a transdisciplinary approach, apply the different existing techniques in the treatment of contaminated soils or know the control strategies used. For this purpose, multimedia resources and case study simulations, provided by specialists in this field, will be very useful in your daily work.







“

*TECH provides you with the most attractive and innovative teaching tools, so that you can comfortably reach your objectives. Enroll now!”*



## General Objectives

---

- ◆ Acquire basic knowledge of science and use its results, integrating them with social, economic, legal and ethical fields for the identification of environmental problems
- ◆ Know basic models of pollutant dispersion and understand the functioning of pollution control networks
- ◆ Present the concept of landscape in its different dimensions and its treatment in the regulatory context
- ◆ Differentiate the phases of an engineering project taking into account environmental management





## Specific Objectives

---

### Module 1. Contaminant Analysis

- ◆ Plan and develop environmental projects with a transdisciplinary approach
- ◆ Integrate in work teams that develop professional tasks, which include professors and researchers in the environmental field
- ◆ Analyze, manage and conserve the environment and associated resources in natural, rural or urban environments, as well as design and develop land management plans and projects
- ◆ Elaborate, implement and maintain environmental management systems in the company, and know, analyze and prevent environmental health risks
- ◆ Assess the environmental impact of projects, plans and programs

### Module 2. Waste Management

- ◆ Describe the management and the different wastewater treatments
- ◆ Assess soil pollution and know how to apply contaminated soil treatment techniques
- ◆ Describe the management of a wide range of wastes and know how to choose the appropriate treatment for each of them
- ◆ Distinguish between the different processes of minimization, preparation for reuse, recycling, other recovery and disposal

### Module 3. Environmental Pollution Treatment

- ◆ Understand pollutant treatment methods and control strategies applicable in each case
- ◆ Know and understand the preventive or corrective technologies for water and soil pollution
- ◆ Design systems for physical and chemical purification of gaseous emissions
- ◆ Be able to use information from various sources on an applied topic, interpret it appropriately, draw meaningful conclusions and present them publicly



*You will advance in your professional career with a specialization that will allow you to apply the latest preventive technology in contaminated soil or water"*



03

# Structure and Content

The study plan for this Postgraduate Diploma has been designed to bring students closer to the latest knowledge on Environmental Pollution. A comprehensive learning thanks to the Relearning method, which will lead the professional to delve efficiently into the collection and treatment of samples, the different types of pollution, the proper management of waste, as well as the new problems surrounding microplastics and their interaction with the environment.







“

*A syllabus that brings you closer to the latest developments in the treatment of Environmental Pollution through innovative multimedia content"*

## Module 1. Contaminant Analysis

- 1.1. Introduction to Analytical Chemistry in the Environmental Field
  - 1.1.1. Introduction
  - 1.1.2. Evolution Over Time
  - 1.1.3. Environmental Analysis
  - 1.1.4. Concepts and Analytical Process
- 1.2. Sampling
  - 1.2.1. Sampling Plan and Collections
  - 1.2.2. Types of Samples
  - 1.2.3. Sample Transport and Storage
- 1.3. Sample Treatment
  - 1.3.1. Introduction
  - 1.3.2. Sample Preparation
    - 1.3.2.1. Homogenization
    - 1.3.2.2. Drying
    - 1.3.2.3. Screening
    - 1.3.2.4. Milling
    - 1.3.2.5. Filtering
    - 1.3.2.6. Weighing
  - 1.3.3. Treatment of Solid and Liquid Samples for the Analysis of Inorganic Compounds
    - 1.3.3.1. Dry Combustion
    - 1.3.3.2. Acid Digestion
    - 1.3.3.3. Fusion
  - 1.3.4. Treatment of Solid and Liquid Samples for the Analysis of Organic Compounds
    - 1.3.4.1. Extraction
    - 1.3.4.2. Solid Phase Extraction
    - 1.3.4.3. Solid Phase Microextraction
    - 1.3.4.4. Purging and Trapping
  - 1.3.5. Elemental Analysis
- 1.4. Instrumental Analysis
  - 1.4.1. Molecular Spectroscopy
  - 1.4.2. Atomic Spectroscopy
  - 1.4.3. Gas Chromatography and Detectors
  - 1.4.4. Liquid Chromatography and Detectors
- 1.5. Data Processing
  - 1.5.1. Introduction
  - 1.5.2. Basic Accuracy Concepts
    - 1.5.2.1. Accuracy, Limits of Detection and Quantification
  - 1.5.3. Types of Calibration
    - 1.5.3.1. External
    - 1.5.3.2. Internal
    - 1.5.3.3. Standard Additions
  - 1.5.4. Representation of Results
    - 1.5.4.1. Confidence Intervals
    - 1.5.4.2. Standard Deviation
  - 1.5.5. Suspect Values
- 1.6. Water Characterization
  - 1.6.1. Introduction
  - 1.6.2. Quality Parameters
    - 1.6.2.1. Organoleptic Properties
    - 1.6.2.2. Dissolved Solids
    - 1.6.2.3. Decantable Solids
    - 1.6.2.4. Conductivity
    - 1.6.2.5. Redox Potential
    - 1.6.2.6. pH
    - 1.6.2.7. Dissolved Oxygen
    - 1.6.2.8. Biological Oxygen Demand
    - 1.6.2.9. Total Organic Carbon
  - 1.6.3. Anions, Metals and Metalloids



- 1.7. Atmospheric Pollutants
  - 1.7.1. Introduction
  - 1.7.2. Primary and Secondary Pollutants
  - 1.7.3. Inorganic Pollutants in the Atmosphere
  - 1.7.4. Organic Pollutants in the Atmosphere
  - 1.7.5. Suspended Particles
  - 1.7.6. Effects and Analysis
- 1.8. Soil Pollution
  - 1.8.1. Introduction
  - 1.8.2. Phenomena and Chemical Composition of Soils
    - 1.8.2.1. pH, Total Organic Carbon
    - 1.8.2.2. Ion Exchange Capacity
    - 1.8.2.3. Redox Potential
  - 1.8.3. Organic and Inorganic Pollutants
- 1.9. Noise Pollution
  - 1.9.1. Sound
  - 1.9.2. Quantification of Sound and Its Effects
  - 1.9.3. Environmental Problems of Sound
- 1.10. Environmental Radioactivity
  - 1.10.1. Types of Radioactivity
  - 1.10.2. Quantification of Radioactivity and Its Effects
  - 1.10.3. Environmental Disasters Related to Radioactivity

## Module 2. Waste Management

- 2.1. What Qualifies as Waste?
  - 2.1.1. Evolution of Waste
  - 2.1.2. Current Situation
  - 2.1.3. Future Perspectives
- 2.2. Existing Waste Streams
  - 2.2.1. Analysis of Waste Streams
  - 2.2.2. Grouping Streams
  - 2.2.3. Characteristics of the Streams

- 2.3. Classification of Waste and Characteristics
  - 2.3.1. Classification According to Standards
  - 2.3.2. Classification According to Management
  - 2.3.3. Classification According to Origin
- 2.4. Characteristics and Properties
  - 2.4.1. Chemical Characteristics
  - 2.4.2. Physical Characteristics
    - 2.4.2.1. Humidity
    - 2.4.2.2. Specific Weight
    - 2.4.2.3. Granulometry
  - 2.4.3. Hazard Characteristics
- 2.5. Waste Problems. Origin and Types of Waste
  - 2.5.1. Main Problems of Waste Management
  - 2.5.2. Generation Problems
  - 2.5.3. Problems with Transport and Final Treatment
- 2.6. Environmental Liabilities
  - 2.6.1. Liabilities for Environmental Damage
  - 2.6.2. Damage Prevention, Mitigation and Remediation
  - 2.6.3. Financial Guarantees
  - 2.6.4. Environmental Requirement Procedures
- 2.7. Integrated Pollution Prevention and Control
  - 2.7.1. Fundamental Aspects
  - 2.7.2. Environmental Requirement Procedures
  - 2.7.3. Integrated Environmental Authorization (IEA) and Review of IEA
  - 2.7.4. Information and Communication
  - 2.7.5. Best Available Techniques (BAT)
- 2.8. European Emission Source Inventory
  - 2.8.1. Emission Inventory Background
  - 2.8.2. European Pollutant Emission Inventory
  - 2.8.3. European Pollutant Release and Transfer Register (E-PRTR)

- 2.9. Environmental Impact Assessment
  - 2.9.1. Environmental Impact Assessment (EIA)
  - 2.9.2. Administrative Procedures of EIA
  - 2.9.3. Environmental Impact Assessment (EIA)
  - 2.9.4. Abbreviated Procedures
- 2.10. Climate Change and the Fight against Climate Change
  - 2.10.1. Elements and Factors that Determine the Climate
  - 2.10.2. Definition of Climate Change. Climate Change Effects
  - 2.10.3. Actions Against Climate Change
  - 2.10.4. Organizations Facing Climate Change
  - 2.10.5. Predictions about Climate Change
  - 2.10.6. Bibliographical References

### Module 3. Environmental Pollution Treatment

- 3.1. Environmental Pollution
  - 3.1.1. Introduction to the Concept of Pollution
  - 3.1.2. History of Environmental Pollution
  - 3.1.3. Current Environmental Issues
- 3.2. Air Pollution
  - 3.2.1. Introduction to Air Pollution
  - 3.2.2. Air Pollution Problems
  - 3.2.3. Solutions to Air Pollution
- 3.3. Soil Pollution
  - 3.3.1. Introduction to Soil Pollution
  - 3.3.2. Soil Pollution Problems
  - 3.3.3. Solutions to Soil Pollution
- 3.4. Water Pollution
  - 3.4.1. Introduction to Water Pollution
  - 3.4.2. Ocean Pollution
  - 3.4.3. River and Lake Pollution





- 3.5. Soil Decontamination
  - 3.5.1. Introduction
  - 3.5.2. Soil Decontamination Techniques
  - 3.5.3. Results of Soil Decontamination Techniques
- 3.6. Water Decontamination
  - 3.6.1. Water Potabilization
  - 3.6.2. Water Purification
  - 3.6.3. Results of Water Decontamination
- 3.7. Solid Waste
  - 3.7.1. Introduction to the USW Problem
  - 3.7.2. Concept of Solid Urban Waste
  - 3.7.3. Types of USW
- 3.8. USW Management
  - 3.8.1. Landfills and Collection System
  - 3.8.2. Recycling
  - 3.8.3. Other Management Techniques
- 3.9. Dangerous Waste
  - 3.9.1. Introduction
  - 3.9.2. Radioactive Waste
  - 3.9.3. Waste from Medical Activity
- 3.10. Emerging Environmental Issues: The Impact of Microplastics
  - 3.10.1. What Is Plastic?
  - 3.10.2. Plastic and Recycling
  - 3.10.3. Microplastics and Their interaction with the Environment
  - 3.10.4. Brief Review of the PM Problem



04

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





“

*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

*At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world”*



*You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.*





*The student will learn to solve complex situations in real business environments through collaborative activities and real cases.*

### A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career”*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

## Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*In 2019, we obtained the best learning results of all online universities in the world.*

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.





This program offers the best educational material, prepared with professionals in mind:



### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



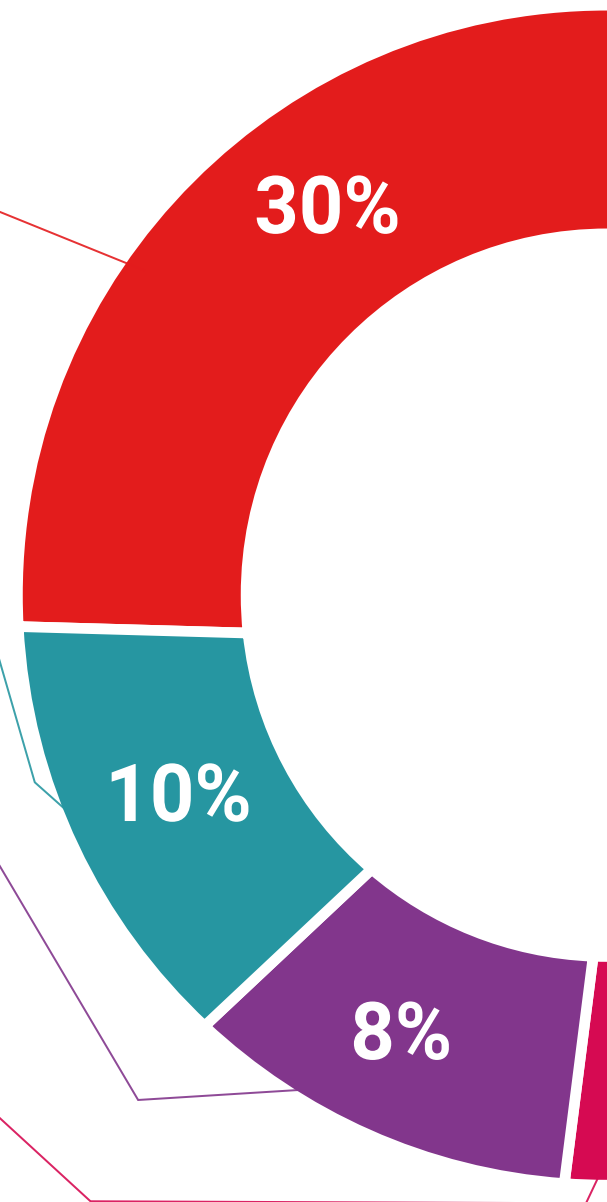
### Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





**Case Studies**

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.



**Interactive Summaries**

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



**Testing & Retesting**

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



05

# Certificate

The Postgraduate Diploma in Environmental Pollution guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.





“

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

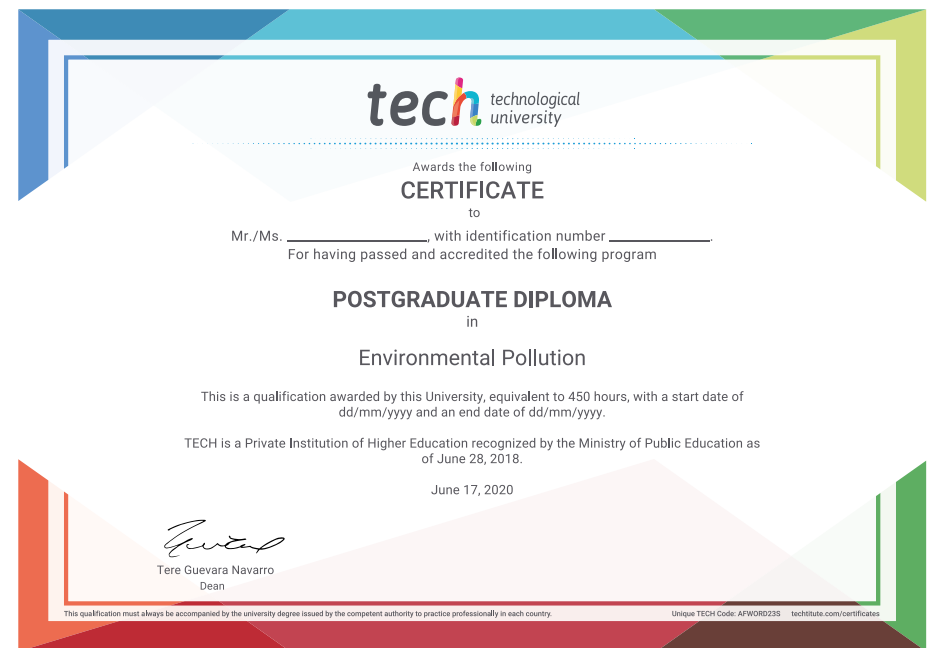
This **Postgraduate Diploma in Environmental Pollution** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery\*

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Environmental Pollution**

Official N° of Hours: **450 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
classroom



## Postgraduate Diploma Environmental Pollution

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online



# Postgraduate Diploma Environmental Pollution

