Postgraduate Certificate
Contaminant Analysis

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Postgraduate Certificate
Contaminant Analysis

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/contaminant-analysis**

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01

Introduction

Alerts prohibiting the consumption of water due to the appearance of polluting elements, the detection of high levels of toxic particles in the air or even in the soil are very present in practically the entire world. A problem from which both detection and prevention are worked and in which, in this double aspect, the Engineering professional can contribute thanks to his multidisciplinary knowledge. That is why TECH has designed this program aimed at those who wish to delve into the techniques used in the treatment of samples, data or the environmental consequences derived from radioactivity or noise. All this, also through a *Relearning*system, based on the repetition of content, which will allow you to progress in a much more natural way through the advanced syllabus of this degree.

A university program that will lead you to learn the techniques of assessment, analysis, control and treatment of environmental pollution"

The contamination existing in the world ranges from the toxic elements found in the water of a river to the very noise generated by the machines of a factory. A worrisome situation on many occasions, which also entails non-compliance with legal regulations, causing serious socioeconomic damage to society.

Whatever the factor causing it, it is necessary to have precise analyzes that allow professionals to make corrections or determine the possible effects on the health of people and the environment. For this, highly trained engineers with solid knowledge are required. It is for this reason that TECH has created this Postgraduate Certificate in Contaminant Analysis that seeks to offer graduates the most relevant information and that contributes to the promotion of their professional career.

A program with advanced knowledge of analytical chemistry in the environmental field, the techniques used in sampling, the different elements that influence soil, water, and air contamination, as well as existing problems. All this will allow students to acquire learning with which they will be able to evaluate the impact of projects, plans or programs. In addition, thanks to multimedia resources, students will delve into the consequences of radiation contamination in a more dynamic and agile way.

Professionals is thus before an excellent opportunity to advance in their career, thanks to a Postgraduate Certificate that they will be able to attend comfortably, whenever and wherever they wish. You only need an electronic device with an Internet connection, to be able to view at any time the content of the agenda hosted on the Virtual Campus.

This **Postgraduate Certificate in Contaminant Analysis** 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 of the book provide technical and practical information on those disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions for 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

This Postgraduate Certificate will allow you to develop projects that reverse the environmental damage caused by pollutants in the waters”

TECH puts at your disposal video summaries, videos in detail or case studies so that you can acquire the most advanced knowledge about water quality parameters"

Take another step in your professional career and enroll in a 100% online program, which will take you to know in detail the effects of pollutants in the atmosphere.

If you have a computer with an internet connection, you are ready to enter the Diploma in Contaminant Analysis.

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.

Its 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 an immersive education designed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

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Objectives

TECH has created a 100% online program, whose objective is to offer the most essential information on Contaminant Analysis, for its application by Engineering professionals in their daily performance. It is for this reason that the most advanced knowledge is provided through the latest pedagogical tools used in education. Likewise, the specialized teaching team that teaches this qualification will guide you in achieving those goal

This program will immerse you in the analysis of the different contaminants detected in water or soil"

General Objectives

- Acquire basic knowledge of science and use its results, integrating them with the social, economic, legal and ethical spheres for the identification of environmental problems
- Assess the environmental impact of projects, plans and programs
- Know the techniques of assessment, analysis, control and treatment of environmental pollution

With this university program you will be able to successfully carry out environmental projects. Enroll now"

Specific Objectives

- Know the techniques of assessment, analysis, control and treatment of environmental pollution
- 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 risk

03

Structure and Content

TECH has designed a program to offer students the most advanced knowledge on Contaminant Analysis. Thus, in the course of this online program, the graduate will obtain the most exhaustive information on analytical chemistry, the instruments and techniques most used for the detection of residues, as well as the environmental problems of sound, radioactivity or organic and inorganic pollutants. in the atmosphere. All this, in addition to a Relearning system, which will allow students to reduce the long study hours so common to other teaching methods.

A program with a theoretical-practical focus on pollutants, their analysis and the different techniques used"

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 Collection
- 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. Processing 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. Processing of Solid and Liquid Samples for the Analysis of Organizations 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 Biological Oxygen Demand
  - 1.6.2.8. 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

Enroll now in a Postgraduate Certificate that will allow you to delve into the quantification of sound, its effects and its environmental problems"

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

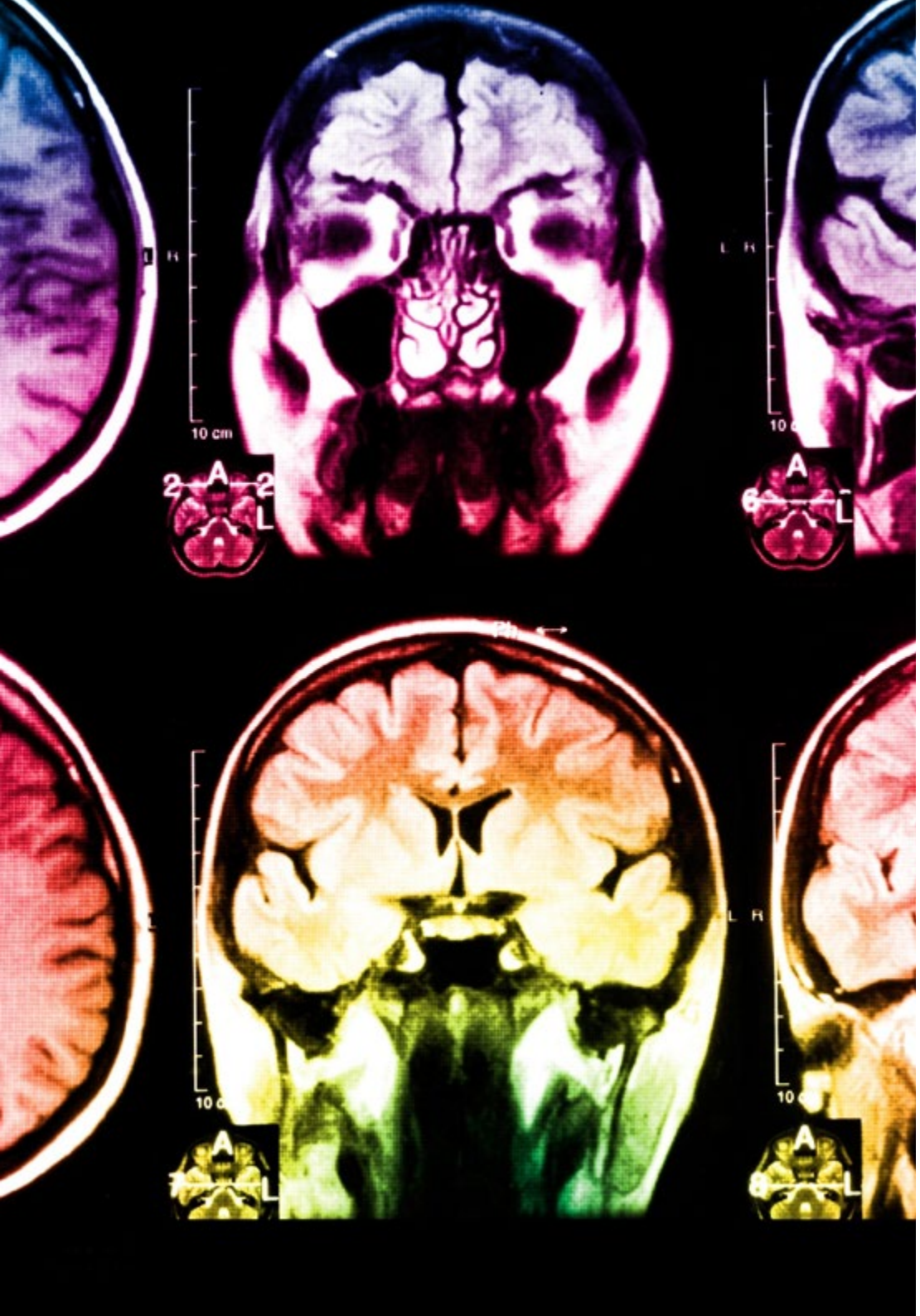
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

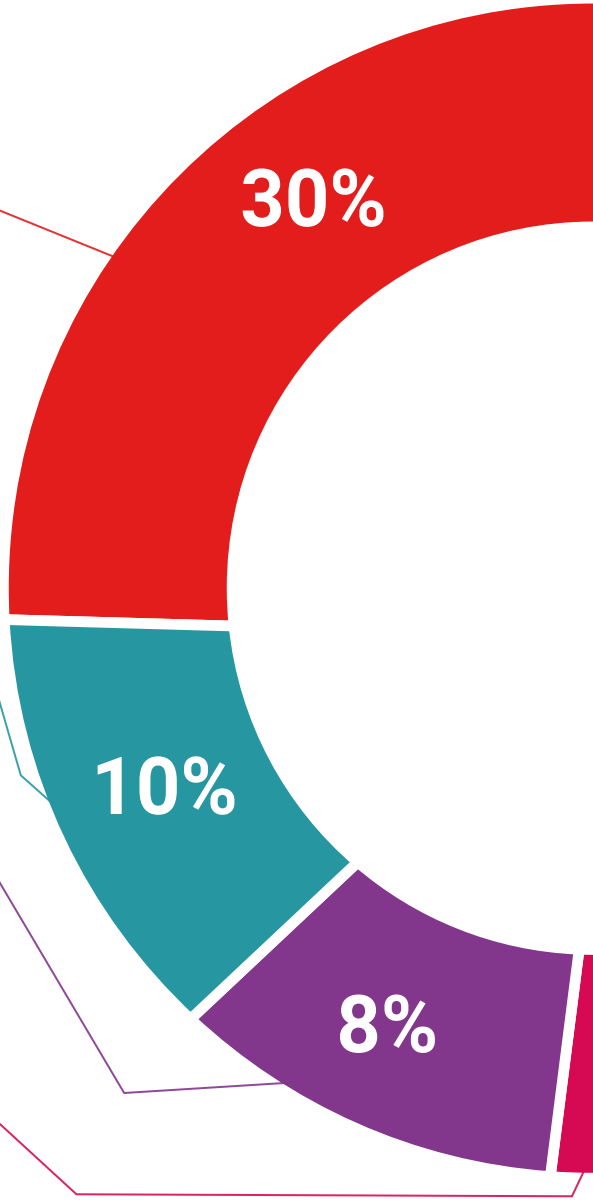
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

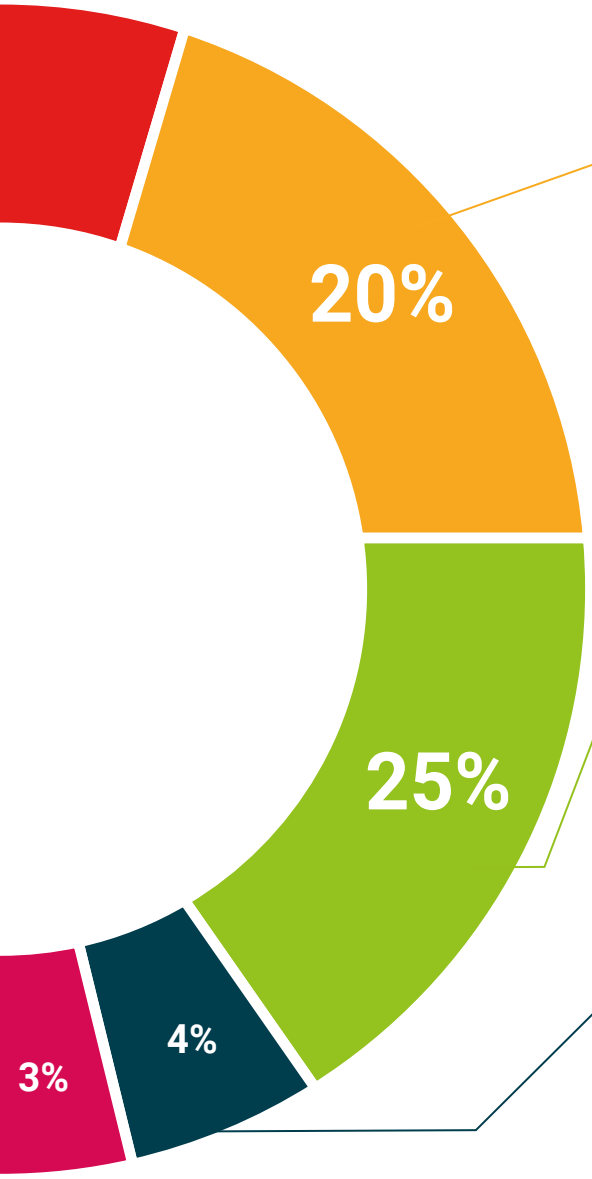
Practising Skills and Abilities

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

This Postgraduate Certificate in Contaminants Analysis guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Certificate in Contaminants Analysis** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Contaminants Analysis**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Contaminants Analysis

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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