

# Postgraduate Certificate Chemical and Environmental Technology





## Postgraduate Certificate Chemical and Environmental Technology

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

Website: [www.techtitute.com/us/engineering/postgraduate-certificate/chemical-environmenta-technology](http://www.techtitute.com/us/engineering/postgraduate-certificate/chemical-environmenta-technology)

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# 01

# Introduction

Chemical and environmental technology must be at the service of society to meet the needs of industrial sectors as diverse as medicine, cosmetics and consumer goods. To monitor, model and conserve the natural environment and resources, in productive processes and curb the negative impacts of human involvement. Meeting these demands of the sector requires professionals trained in the area who are proficient in the most efficient techniques. This is how specific programs such as this one arise, essential for the professional development of people dedicated to the industrial sector. With a 100% online modality, based on the most innovative Relearning methodology, achievable in 6 weeks.





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*Acquire an updated knowledge in  
Chemical and Environmental Technology  
in 6 weeks and 100% online”*

Chemical and environmental technology makes it possible to create low-cost solutions that are safe and at the same time in harmony with nature. Thanks to scientific knowledge and technological advances, it has improved people's quality of life by providing new integral solutions and products. The emergence of new, more environmentally sustainable polymer synthesis processes and polymer product improvement processes are well suited to the needs of the industry.

Creating, analyzing and evaluating robust manufacturing processes that ensure the quality of the finished product and are also environmentally sustainable is the goal of the leading-edge professional. For this purpose, this training program provides the student with all the knowledge especially related to the implementation of chemical and environmental technology, making an exhaustive analysis of the processes, systems, methods and tools most widely implemented in the modern and efficient production environment.

All through the most avant-garde methodology of the online university environment, driven by TECH; a total of 150 hours of learning based on Relearning, with a variety of multimedia resources and formats of theoretical and practical content, available from the first day to facilitate and streamline the learning process. An updating program where the professional will be able to specialize in the most innovative tools used in the current industrial context, obtaining success in their work performance and opening the way to a promising future.

This **Postgraduate Certificate in Chemical and Environmental Technology** 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 in industrial 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 the self-assessment process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ The availability of access to content from any fixed or portable device with an Internet connection



*As a professional capable of developing innovative solutions based on more sustainable procedures, countless job opportunities will come your way. Enroll now and stand out"*

“

*You will be able to carry out projects applying approaches and procedures based on ethics and social and environmental commitment”*

*In this program you will learn to relate the behavior of industrial and environmental systems to their chemical properties.*

*Connect from your favorite device and start on the road to professionalization.*

The program includes, in its teaching staff, professionals from the sector who contribute to this training with their work experience, as well as renowned specialists from reference 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 programmed 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 the different professional practice situations that are presented throughout the academic course. For this purpose, it will be assisted by an innovative interactive video system created by renowned experts.



# 02

# Objectives

The professional learns to carry out projects in which approaches and procedures based on ethics and social and environmental commitment are applied, by means of various techniques and contemplating chemical and environmental technology, is what is proposed in this updating program, which seeks to provide the student with the most updated knowledge. It combines a variety of multimedia resources and content in different formats that will allow students to acquire specialized knowledge in a completely online, dynamic and efficient way.





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*Adjustments in industrial processes are on the agenda, update yourself with this Postgraduate Certificate in Chemical and Environmental Technology”*



## General Objectives

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- ◆ Deepen the study of the different basic knowledge and application of environmental technologies and sustainability
- ◆ Analyze the importance of new techniques and waste treatment in the industrial manufacturing process
- ◆ Study chemical reactors in the adsorption and matter transfer process for the improvement and creation of reliable processes and products
- ◆ Consider the environmental impact of industrial processes for pollution control
- ◆ Understand the process development for sustainable chemical production





## Specific Objectives

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- ◆ Acquire the basic knowledge and application of environmental technologies and sustainability
- ◆ Apply the principles of chemical and environmental technology in the prevention of air and water pollution, as well as in waste treatment
- ◆ Relate the behavior of industrial and environmental systems to their chemical properties
- ◆ Carry out projects applying approaches and procedures based on ethics and social and environmental commitment

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*Get training in specific areas that are in high demand in today's labor market. Enroll now”*

# 03

## Structure and Content

TECH is a pioneer in the implementation of relearning as a study methodology, which has been recognized as an efficient method to understand and memorize knowledge, so it is a breakthrough in the current university system focused on professionals who wish to continue preparing academically. This, together with the program design and content, facilitate student learning, providing them with the most transcendental concepts to make the most of their careers.





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*TECH promotes an education adapted to the new demands of today's daily life”*

**Module 1. Fundamentals of Chemical and Environmental Technology**

- 1.1. Mass and Energy Balance without Chemical Reaction
  - 1.1.1. Conservation of Matter Principle
  - 1.1.2. Process Classification
  - 1.1.3. General Energy Balance Equation
  - 1.1.4. Closed Systems
  - 1.1.5. Open Systems
- 1.2. Mass and Energy Balance with Chemical Reaction
  - 1.2.1. Basic Concepts
  - 1.2.2. Combustion Reactions
  - 1.2.3. Heats of Formation and Combustion
  - 1.2.4. General Energy Balance Equation with different temperature than standard temperature
- 1.3. Chemical Reactors Matter Transfer Adsorption
  - 1.3.1. Chemical Reactor Design
  - 1.3.2. Chemical Reactors Classification
  - 1.3.3. Matter Transfer Operations
  - 1.3.4. Adsorption Processes
- 1.4. Environmental Chemistry
  - 1.4.1. Atmospheric Chemistry
  - 1.4.2. Soil Chemistry
  - 1.4.3. Hydrosphere Chemistry
- 1.5. Contamination Control Environmental Impact
  - 1.5.1. Environmental Behavior of Pollutants
  - 1.5.2. Environmental Risk Assessment
  - 1.5.3. Pollution Prevention and Control Strategies
  - 1.5.4. Environmental Legislation
- 1.6. Wastewater Treatment
  - 1.6.1. Wastewater Characterization
  - 1.6.2. Pretreatments
  - 1.6.3. Primary Treatments
  - 1.6.4. Secondary Treatment
  - 1.6.5. Tertiary Treatment





- 1.7. Municipal Solid Waste
  - 1.7.1. Municipal Solid Waste Classification
  - 1.7.2. Pickup and Transportation
  - 1.7.3. Municipal Solid Waste Treatment
- 1.8. Industrial Waste
  - 1.8.1. Industrial Waste Classification
  - 1.8.2. Industrial Waste Management
  - 1.8.3. Industrial Waste Minimization
  - 1.8.4. Industrial Waste Impact
- 1.9. Thermal Waste Treatment
  - 1.9.1. Incineration
  - 1.9.2. Gasification
  - 1.9.3. Pyrolysis
  - 1.9.4. Other Options
- 1.10. Gaseous Emissions Control
  - 1.10.1. Contaminant Gas Elimination Techniques
  - 1.10.2. Particle Capture Techniques
  - 1.10.3. Cleaning of Flue Gas from the Power Industry
  - 1.10.4. Regulations and Document Control

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*Enroll now and graduate in  
Chemical and Environmental  
Technology in just 6 weeks,  
completely online”*

# 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.







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*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.

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*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 Certificate in Chemical and Environmental Technology guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.







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

This **Postgraduate Certificate in Chemical and Environmental Technology** 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 Certificate** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Certificate in Chemical and Environmental Technology**

Official N° of Hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma 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  
virtual classroom



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