

# Postgraduate Certificate

## Water Resources of an Urban Water Service



## Postgraduate Certificate Water Resources of an Urban Water Service

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

Website: [www.techtute.com/us/engineering/postgraduate-certificate/water-resources-urban-water-service](http://www.techtute.com/us/engineering/postgraduate-certificate/water-resources-urban-water-service)

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# 01

# Introduction

Water is an invaluable resource for people. In addition, public institutions must be responsible for ensuring that this precious commodity reaches all households. For all these reasons, this Postgraduate Certificate develops one of the key aspects that a professional dedicated to urban water services must know: the management of available water resources. In order to delve deeper into this field, this educational program goes into everything related to this topic so that, upon completion of the Postgraduate Certificate, the engineer will be fully capable of establishing the necessary strategies to maintain an adequate balance between the demand and sustainability of water harvesting.





*Water resources are invaluable.  
Learn how to manage them properly by  
studying this TECH Postgraduate Certificate"*

Aware of the relevance and timeliness of specialization in the water sector, this TECH Postgraduate Certificate will seek to revalue the professional profile of the engineer through in-depth knowledge of everything related to water resources management. In this sense, the program stands out for its first-rate content that encompasses all the areas in which the engineer must act and have the skills to perform a quality praxis, based on the latest developments in the sector.

Specifically, the Postgraduate Certificate in Water Resources of an Urban Water Service develops one of the key aspects that a professional dedicated to the urban water service must know: the management of available water resources.

In this regard, the Postgraduate Certificate delves into the characterization of traditional resources: surface water and groundwater, determining the most relevant aspects of each one of them. It also establishes the alternative resources to be taken into account in the system in order to maintain its environmental sustainability in the long term.

Upon completion of this academic program, the professional will be able to establish the necessary strategies to maintain an adequate balance between demand and sustainability of water catchment. In addition, you will understand the importance of the current means of connectivity to optimize the management of water resources.

All this, condensed in a study plan of only six weeks, which also stands out for being 100% online, which allows the student to study comfortably and adapted to their needs. In this way, it will be the professionals who will establish the time they dedicate to study, without having to neglect their professional work.

This **Postgraduate Certificate in Water Resources of an Urban Water Service** 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 engineering focused on the integral water cycle
- ◆ 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



*The water sector is booming, and the engineer who is prepared to work in it will be one step closer to being at the forefront of their profession"*

“ *This Postgraduate Certificate will not only help you acquire new professional competencies, but will also equip you with invaluable skills that will enable you to improve in your daily practice*”

The program's teaching staff includes professionals from the sector who contribute their work experience to this 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced engineering experts.

*Update your knowledge and become an expert engineer in water resources.*

*As this is an online program, you can study comfortably wherever you want.*



# 02

# Objectives

All the specializations designed by TECH pursue the same objective: to prepare the best professionals in the sector. This complete Postgraduate Certificate is no exception, and to achieve its goals this University has designed a complete academic program led by a highly prestigious teaching staff and full of theoretical and practical material which will serve as academic support for students. The knowledge poured in the development of the points of the curriculum will drive the engineer from a global perspective, with full preparation for the achievement of their own professional goals.







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*This University makes a major effort to help achieve the professional goals of all its graduates”*



## General Objectives

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- ◆ Delve into key aspects of urban water utility engineering
- ◆ Leadership of integrated water cycle departments
- ◆ Management of distribution and sanitation departments
- ◆ Management of drinking water treatment, desalination and purification plants
- ◆ Management of the technical office and studies of companies in the sector
- ◆ Mastering a strategic vision of the subject
- ◆ Strong knowledge of coordinating concessions and administrative relations
- ◆ Orient the student's professional activity towards the achievement of the Water objective in the 2030 Agenda
- ◆ Acquiring skills related to the implementation of the urban water system
- ◆ Being able to apply the latest technological innovations to set up an optimal management of the service





## Specific Objectives

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- ◆ Characterizing water abstractions in order to manage water abstractions in a sustainable manner
- ◆ Carrying out rigorous water balances that influence the adoption of regulatory governance measures for resource management
- ◆ Establish monitoring systems to prevent contingency situations
- ◆ Understand in detail the possibilities that full connectivity between devices offers for water resource management



*Your goals are our goals. If you grow, TECH grows too"*

03

# Course Management

One of the distinguishing features of any academic program is its faculty. At TECH we are aware of this, which is why we make a major effort to bring in the best professionals in the sector to be in charge of educating the students. In this sense, this Postgraduate Certificate in Water Resources of an Urban Water Service has a first-class teaching staff who have been in charge of designing the program based on international standards and the latest developments in the sector.



“

*The best professionals are at the best university. Don't miss out on this great academic opportunity"*

## Management



### Mr. Ortiz Gómez, Manuel

- ♦ Head of Water Treatment Department at FACSA
- ♦ Head of Maintenance at TAGUS, concessionaire of water and sewage services in Toledo
- ♦ Industrial Engineer at Jaume I University
- ♦ Postgraduate Degree in Innovation in Business Management from the Valencian Institute of Technology
- ♦ Executive MBA from EDEM
- ♦ Author of several papers and presentations at conferences of the Spanish Association of Desalination and Reuse and the Spanish Association of Water Supply and Sanitation



## Professors

### Mr. Sánchez Cabanillas, Marciano

- ◆ Director-Coordinator of the Advanced Course for Laboratory Technicians of Wastewater Treatment Plants. Regional Government of Castilla-La Mancha
- ◆ CEO PECICAMAN (Projects of Circular Economy of Castilla La Mancha)
- ◆ Industrial Chemical Engineer UCLM
- ◆ Master's Degree in Environmental Engineering and Management E.O.I. Madrid
- ◆ Master's Degree in Business Administration and Management CEREM Madrid
- ◆ Expert Professor in the Master of Engineering and Environmental Management at ITQUIMA-UCLM
- ◆ Research work on the reuse of sludge from chemical washing of nitric acid boilers and on nanoparticulated products for water treatment with new technologies
- ◆ Speaker at National and International Congresses on Water, Agriculture and Sustainability

# 04

# Structure and Content

The contents of this academic program have been designed by a group of engineering professionals who bring to this training their years of experience in the sector. In the same way, a number of experts in other areas collaborate in the development of academic materials that complete and enrich the Postgraduate Certificate in an interdisciplinary way. This assures students that by studying here they will have access to the most complete and up-to-date compendium of contents in the Spanish-speaking market.







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*You will have at your disposal a complete content bank that will help you learn in a more comfortable and effective way”*

## Module 1. Water Resources in a Water Supply

- 1.1. Groundwater. Groundwater Hydrology
  - 1.1.1. Groundwater
  - 1.1.2. Characteristics of Groundwater
  - 1.1.3. Groundwater Types and Location
  - 1.1.4. Water Flow Through Porous Media. Darcy's Law
- 1.2. Surface Water
  - 1.2.1. Surface Water Characteristics
  - 1.2.2. Division of Surface Water
  - 1.2.3. Difference Between Groundwater and Surface Water
- 1.3. Alternative Water Resources
  - 1.3.1. Use of Groundwater. Runoff and Rainwater
  - 1.3.2. Renewable Versus Polluted Resource
  - 1.3.3. Reusable Water from WWTPs. Reused From Buildings
  - 1.3.4. Initiatives, Measures and Control Bodies
- 1.4. Water Balances
  - 1.4.1. Methodology and Theoretical Considerations for Water Balances
  - 1.4.2. Quantitative Water Balance
  - 1.4.3. Qualitative Water Balance
  - 1.4.4. The Sustainable Environment
  - 1.4.5. Resources and Risks in Unsustainable Environments. Climate Change.
- 1.5. Capture and Storage. Environmental Protection
  - 1.5.1. Catchment and Storage Components
  - 1.5.2. Surface Catchment or Underground Catchment
  - 1.5.3. Potabilization (DWTP)
  - 1.5.4. Storage
  - 1.5.5. Distribution and Sustainable Consumption
  - 1.5.6. Sewage Network
  - 1.5.7. Wastewater Treatment Plant (WWTP)
  - 1.5.8. Discharge and Reuse
  - 1.5.9. Ecological Flow
  - 1.5.10. Eco-Social Urban Water Cycle



- 1.6. Optimal Water Management Model. Principles of Supply
  - 1.6.1. Set of Sustainable Actions and Processes
  - 1.6.2. Provision of Supply and Sewerage Services.
  - 1.6.3. Quality Assurance. Knowledge Generation
  - 1.6.4. Actions to Be Taken to Ensure the Quality of Water and its Installations
  - 1.6.5. Knowledge Generation for the Prevention of Errors
- 1.7. Optimal Water Management Model. Socioeconomic Principles
  - 1.7.1. Current Financing Model
  - 1.7.2. Taxes in the Management Model
  - 1.7.3. Financing Alternatives. Proposals for the Creation of Financing Platforms
  - 1.7.4. Security of Water Supply (Distribution and Supply) for All
  - 1.7.5. Involvement of Local, National and International Communities in Financing
- 1.8. Monitoring Systems. Prediction, Prevention and Contingency Situations
  - 1.8.1. Identification of Water Bodies and their Status
  - 1.8.2. Water Distribution Proposals According to Needs
  - 1.8.3. Water Knowledge and Control
  - 1.8.4. Maintenance of the Installations
- 1.9. Good Practices in Water Supply and Sustainability
  - 1.9.1. Posadas Periurban Park, Córdoba
  - 1.9.2. Palma del Río Periurban Park, Córdoba
  - 1.9.3. State of the Art. Others
- 1.10. The 5G in Water Resources Management
  - 1.10.1. Characteristics of 5G
  - 1.10.2. Importance of 5G
  - 1.10.3. Relationship of the 5G with the Water Resource

“ *Start today to achieve everything you deserve by studying at TECH*”



05

# 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.



06

# Certificate

The Postgraduate Certificate in Water Resources of an Urban Water Service guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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*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 Water Resources of an Urban Water Service** 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 Water Resources of an Urban Water Service**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*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.

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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