

# Postgraduate Certificate Hydraulic Works





## Postgraduate Certificate Hydraulic Works

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

Website: [www.techtitute.com/in/engineering/postgraduate-certificate/hydraulic-works](http://www.techtitute.com/in/engineering/postgraduate-certificate/hydraulic-works)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

Hydraulic works are a fundamental part of civil engineering. In this sector, it is necessary to have specific knowledge of the materials and work to be carried out. In this program TECH presents the most important aspects to take into account for the development of this type of works, in a training of the highest level that will elevate the student to the forefront of civil engineering. Don't think twice and give your career a boost by joining our alumni community.





“

*Hydraulic Works Improve People's Connectivity. Bet on this field of engineering and take a step forward in your profession"*

This Postgraduate Certificate in Hydraulic Works includes all the information necessary for the construction of roads and railways. It will detail the latest generation construction methods for viaducts or tunnels and will review the latest advances in machinery and new technologies applied in the sector.

In this way, students will be able to learn about the most relevant works that can be presented under the heading of Hydraulic Works, in order to continue with the development of the different tasks that must be carried out for the successful completion of each project.

The earthmoving work necessary for the execution of a linear work will be described, with special mention of the type of machinery to be used depending on the terrain to be encountered, planning and management of earthmoving equipment, control of the work carried out using topographic methods and drone technology, and the quality control necessary for the performance of these tasks.

Within this type of hydraulic works, the importance of the drainage of this type of infrastructure will also be explained, providing a series of guidelines that will be very useful for the optimization of the result of the work.

In addition, for the analysis of the foundations defined in each project and in order to determine their suitability, a study of the structure of the geotechnical studies found in each project will be carried out in order to analyze it and optimize the solutions that have been determined.

Depending on the type of linear works, the most characteristic elements of each one of them will also be studied, with topics such as the signaling of each infrastructure and the railway track devices, following the latest advances that are being applied in this sector.

In short, TECH takes the student through theoretical and practical knowledge to a higher level of teaching, and shows him another way of studying and learning, more organic, simpler and more efficient. TECH works to keep you motivated and to create in you a passion for learning. And it will push you to think and develop critical thinking.

This Postgraduate Certificate is designed to give the student access to the specific knowledge of this discipline in an intensive and practical way. A great value for any professional.

It should be noted that since it is a 100% online course, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Certificate in Hydraulic Works** contains the most complete and up to date educational program on the market. The most important features of the program include:

- ◆ The development of case studies presented by experts in infrastructure and civil 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
- ◆ Special emphasis on innovative methodologies in safety, health and PACMA
- ◆ 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



*Completion of this Postgraduate Certificate will place civil engineering professionals at the forefront of the latest developments in the industry"*



*This course is the best investment you can make in selecting an up to date program in the field of civil engineering. We offer you quality and free access to content"*

It includes, in its teaching staff, professionals belonging to the field of civil engineering, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and 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 an immersive training program designed to train 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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Hydraulic Works.

*This specialisation comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.*

*We offer you a 100% online Postgraduate Certificate that will allow you to combine your study time with the rest of your daily obligations.*



# 02

# Objectives

The Postgraduate Certificate in Hydraulic Works is aimed at facilitating the professional's performance so that they can acquire and know the main novelties in this field, which will allow them to practice their profession with the highest quality and professionalism.







“

*Our goal is to make you the best professional in your sector. And for this we have the best methodology and content"*



## General Objectives

---

- ◆ Acquire new knowledge in Civil Engineering and Infrastructures
- ◆ Acquire new skills in terms of new technologies, latest machinery and software, knowledge of next steps and recycling
- ◆ Extrapolate this knowledge to other sectors of the industry, focusing on those fields that require more trained and qualified personnel year after year
- ◆ Processing the data generated in Civil Engineering activities, through the BIM environment, a mandatory reality for the drafting, construction, management and operation of infrastructures

“

*Improving your skills in the field of civil engineering will allow you to be more competitive. Continue your learning and give your career a boost”*





## Specific Objectives

---

- ◆ Training on the wide range of hydraulic works in the field of civil engineering
- ◆ Know the appropriate machinery and construction processes for gravity and pressure piping works
- ◆ Access to the special parts available on the market for application in pipeline works
- ◆ Training on the particularities, appropriate machinery and construction processes of canals and dams works
- ◆ Know the particularities, suitable machinery and construction processes of channeling works
- ◆ Know the particularities, appropriate machinery and construction processes of WWTP, DWTP and irrigation works

03

# Course Management

TECH has professionals specialized in each area of knowledge, who pour into our training the experience of their work. People of recognized prestige in their area of activity who have joined forces to offer the best renovation in the market.





“

*Our university employs the best professionals in all areas who share their knowledge to help you”*

## Management



### Mr. Uriarte Alonso, Mario

- Civil Engineer from the University of Cantabria
- Professional Master's Degree in Oceanographic Engineering
- 17 years of experience in the field of construction execution, having worked as construction manager in works of highways, airports, ports, canals, railways and hydroelectric works
- In the engineering field, he is the CEO of CANDOIS INGENIEROS CONSULTORES SL, a business dedicated to the drafting of projects and construction management



### Mr. Torres Torres, Julián

- Civil Engineer, University of Granada
- Professional Master's Degree in Structures
- 14 years of experience in the field of construction execution, having worked as construction manager in road, urbanization and WWTP works
- In the engineering field he has developed his work as an independent freelancer and as technical director in CANDOIS INGENIEROS CONSULTORES SL

## Professors

### Mr. López Puerta, Miguel Ángel

- ◆ Civil Engineer of Roads, Canals and Ports
- ◆ Professional Master's Degree in Structural Calculation
- ◆ 2 years of experience in the field of Engineering specialized in the drafting of projects

“

*Train in the world's leading private online university"*



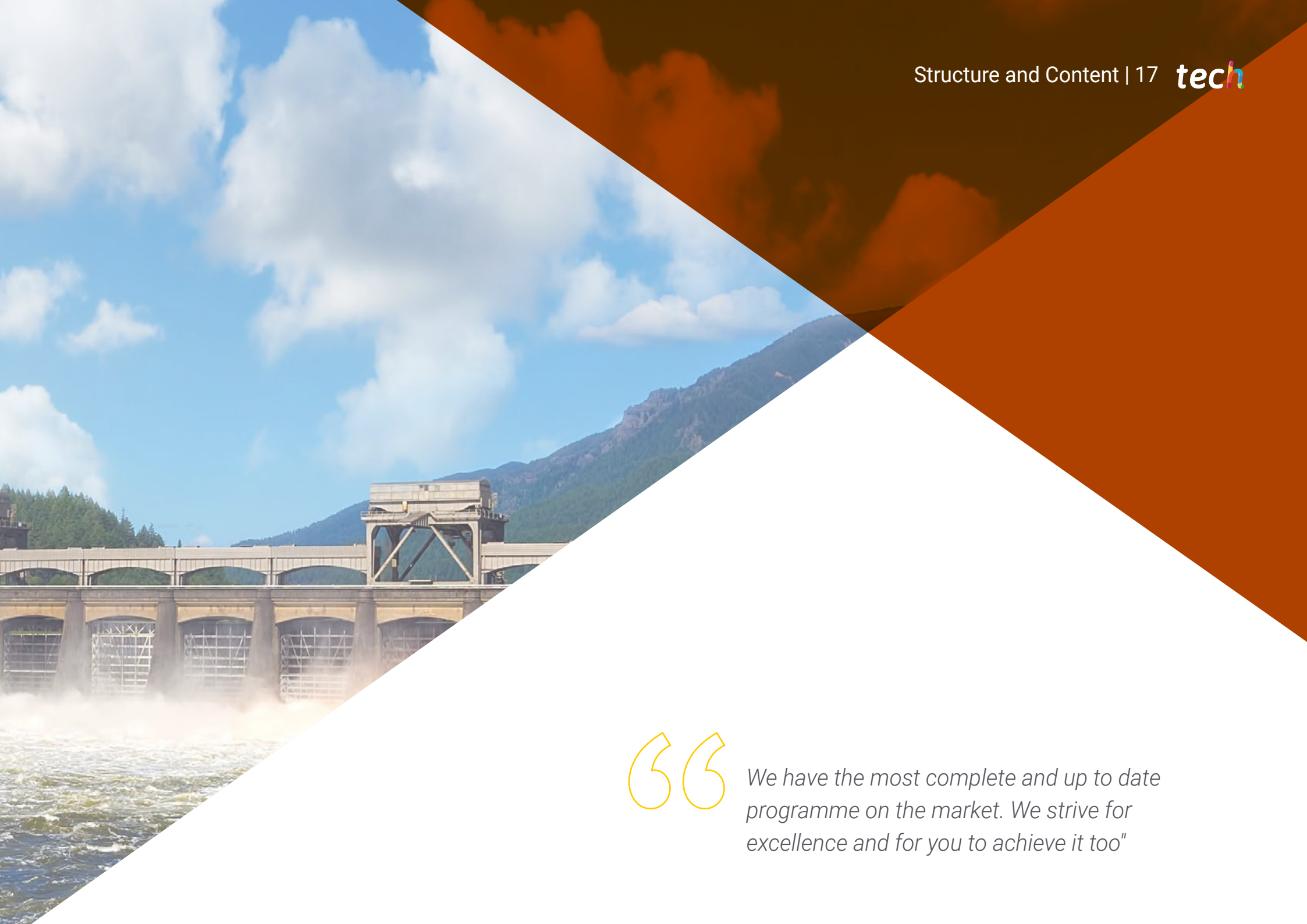
# 04

# Structure and Content

The structure of the contents has been designed by the best professionals in the civil engineering sector, with extensive experience and recognized prestige in the profession, and aware of the benefits that the latest educational technology can bring to higher education.





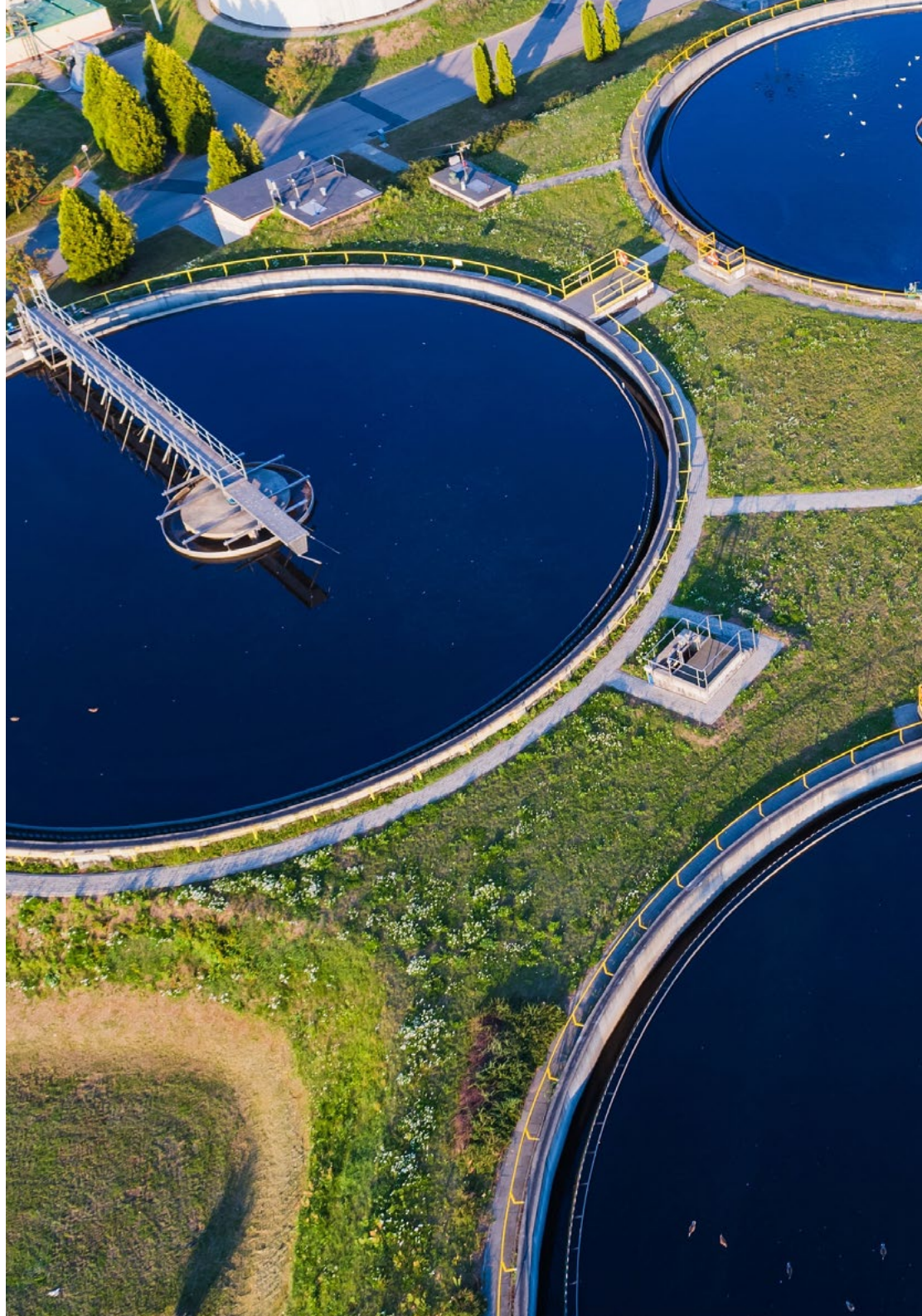


“

*We have the most complete and up to date programme on the market. We strive for excellence and for you to achieve it too"*

## Module 1. Hydraulic Works

- 1.1. Types of Hydraulic Works
  - 1.1.1. Pressure Piping Works
  - 1.1.2. Severity Pipeline Works
  - 1.1.3. Canal Works
  - 1.1.4. Dam Works
  - 1.1.5. Works of Actions in Watercourses
  - 1.1.6. WWTP and DWTP Works
- 1.2. Earthwork
  - 1.2.1. Soil Analysis
  - 1.2.2. Dimensioning of the Necessary Machinery
  - 1.2.3. Control and Monitoring Systems
  - 1.2.4. Quality Control
  - 1.2.5. Standards of Good Execution
- 1.3. Severity Pipeline Works
  - 1.3.1. Survey Data Collection in the Field and Data Analysis in the Office
  - 1.3.2. Re-study of the Project Solution
  - 1.3.3. Piping Assembly and Manhole Execution
  - 1.3.4. Final Testing of Pipelines
- 1.4. Pressure Piping Works
  - 1.4.1. Analysis of Piezometric Lines
  - 1.4.2. Execution EBARS
  - 1.4.3. Piping and Valve Assembly
  - 1.4.4. Final Testing of Pipelines
- 1.5. Special Valve and Pumping Elements
  - 1.5.1. Types of Valves
  - 1.5.2. Types of Pumps
  - 1.5.3. Boiler Making Elements
  - 1.5.4. Special Valves
- 1.6. Canal Works
  - 1.6.1. Types of Channels
  - 1.6.2. Execution of Channels of Excavated Sections in the Ground
  - 1.6.3. Type of Rectangular Cross-Section
  - 1.6.4. Desanders, Sluice Gates and Loading Chambers
  - 1.6.5. Auxiliary Elements (Gaskets, Sealants and Treatments)





- 1.7. Dam Works
  - 1.7.1. Types of Dams
  - 1.7.2. Earth Dams
  - 1.7.3. Concrete Dams
  - 1.7.4. Special Valves for Dams
- 1.8. Actions in the Channels
  - 1.8.1. Types of Works in Watercourses
  - 1.8.2. Channeling
  - 1.8.3. Works for Channel Defenses
  - 1.8.4. River Parks
  - 1.8.5. Environmental Measures in River Works
- 1.9. WWTP and DWTP Works
  - 1.9.1. Elements of a WWTP
  - 1.9.2. Elements of a WWTP
  - 1.9.3. Water and Sludge Lines
  - 1.9.4. Sludge Treatment
  - 1.9.5. New Water Treatment Systems
- 1.10. Irrigation Works
  - 1.10.1. Study of the Irrigation Network
  - 1.10.2. Execution EBAR
  - 1.10.3. Piping and Valve Assembly
  - 1.10.4. Final Testing of Pipelines

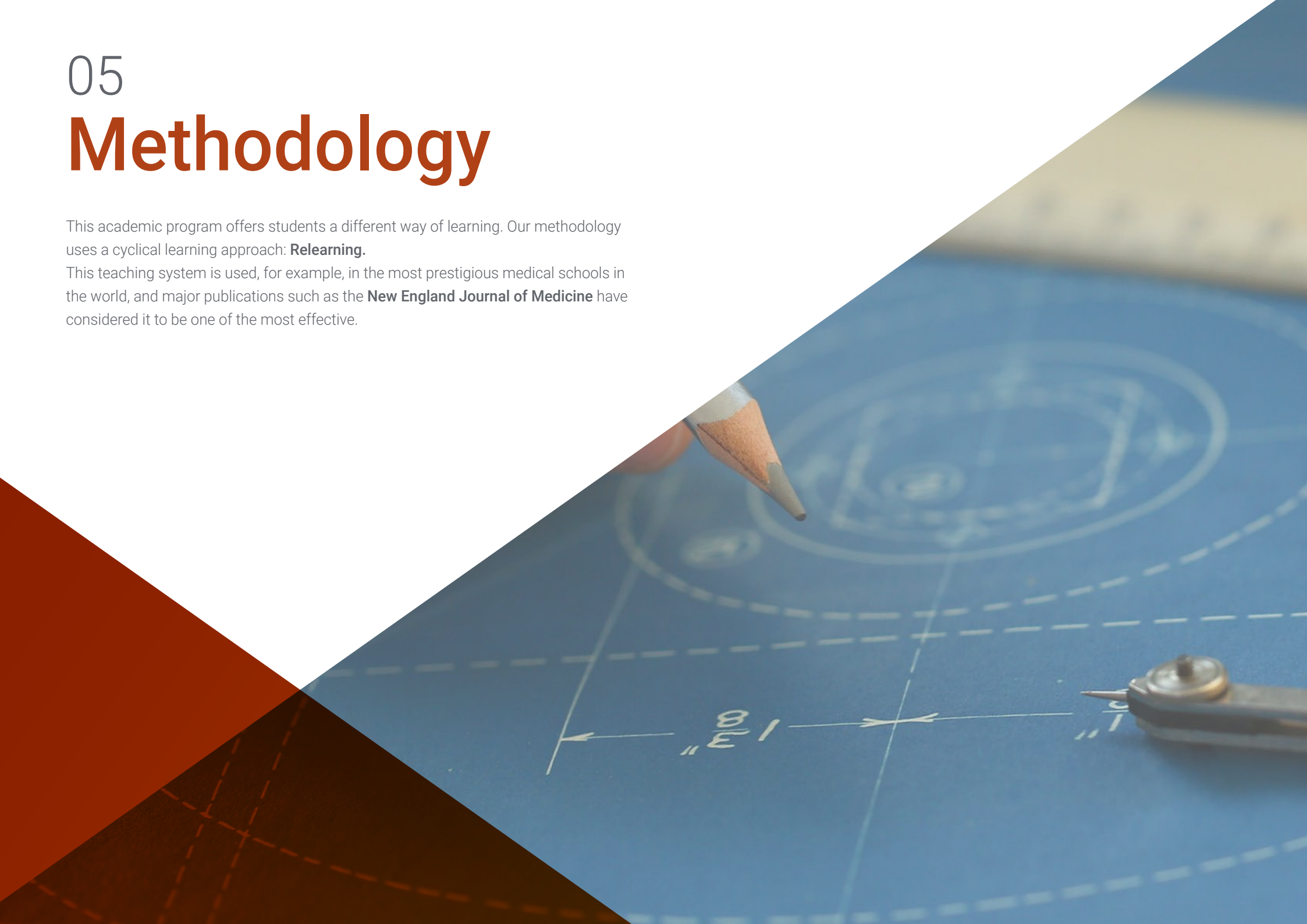
“A comprehensive and multidisciplinary program that will allow you to excel in your career, following the latest advances in the field of Civil Engineering”

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.*



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

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 Hydraulic Works guarantees, in addition to the most rigorous and up to date training, access to a Postgraduate Certificate issued by TECH Technological University.





“

*Successfully complete this program and receive your university title without the hassle of travel or paperwork”*

This **Postgraduate Certificate in Hydraulic Works** 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 University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the **Postgraduate Certificate**, and meets the requirements commonly demanded by job markets, competitive examinations and professional career evaluation committees

**Title: Postgraduate Certificate in Hydraulic Works**

**Official N° of hours: 150 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 quality

online training

development language

virtual classroom

**tech** technological  
university

## Postgraduate Certificate Hydraulic Works

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

# Postgraduate Certificate Hydraulic Works

