Postgraduate Certificate

Irrigation Network Design

tech technological university

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Postgraduate Certificate
Irrigation Network Design

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

Website: **www.techtitute.com/pk/engineering/postgraduate-certificate/irrigation-network-design**

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01

Introduction

Water is a scarce commodity that must be used as efficiently and effectively as possible. Therefore, agriculture is one of the productive areas in which various water optimization techniques have been most extensively developed. On the one hand, to use only what is necessary and, on the other, to make agricultural production as profitable as possible. Due to the importance of this area of knowledge, this program has been designed to provide the professionals with a wide and exclusive content related to the development of the main criteria for the design of the elements that are part of the system. Likewise, there will be a multimedia support which will provide the graduates with a better vision of the sector.

With TECH you will develop innovative irrigation and water supply optimization techniques, taking your career to the professional zenith"

Irrigation is one of the procedures that allows the efficient distribution of water. Nowadays there are different types of irrigation and, with the advance of new technologies, new and increasingly sophisticated options have appeared. The aim is to create a system that is inclusive and respects both society and the communities as well as the natural ecosystem in which it is implemented. That is why experts in hydraulic engineering continue to search for the best methods for distributing water to crops, plants or trees. There are usually many variants that can be configured to achieve the desired irrigation, respecting and thinking about the preservation of the environment.

For this reason, scientific studies have not ceased in this area of knowledge to find the appropriate techniques and materials indicated to not harm any of the parties in this type of process, clarifying that professionals will have to be at the forefront in the irrigation sector. Therefore, this Postgraduate Certificate will provide the students with updated tools on the design of irrigation networks and a focus on developing the general aspects that make up a network.

Students will expand their knowledge in areas related to the development of the main criteria for the design of the elements that are part of the system. This is a program that integrates a specialized professional team, and also has multimedia resources of the highest quality, offering dynamism and convenience with the online mode.

TECH provides with this program the most recent developments in Hydraulic Infrastructure. For this reason, it focuses on excellence and comfort, being a qualification that has great flexibility as it only requires an electronic device with Internet access and thus easily access the virtual platform from anywhere, 24 hours a day.

This **Postgraduate Certificate in Irrigation Network Design** 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 Civil Engineering focused on Hydraulic Works
- 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

In this course you will be part of the creation of new inclusive irrigation systems that respect the natural ecosystem"

If as a civil engineer you want to be at the forefront in the design of irrigation networks, with TECH you will acquire the tools to do it"

You will deepen in specific areas such as the development of the main criteria for the design of the elements that are part of the hydraulic system.

TECH offers the graduates a complete program with the most innovative updates in hydraulic works.

The program's teaching staff includes professionals from 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 professionals 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 professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.

02

Objectives

This academic program will allow the students to acquire the indispensable knowledge to be at the forefront of the profession after emphasizing the most important aspects of Irrigation Network Design. Likewise, TECH provides the different academic tools, guaranteeing the successful completion of the program. At the end of this Postgraduate Certificate, the students will have expanded his knowledge related to the analysis of solutions through drip and sprinkler network techniques, among others.

TECH's main objective is you, guaranteeing you the success in the development with the completion of the program and the use of all the content it includes"

General Objectives

- Develop new knowledge on irrigation, problems, solutions, infrastructure and new technologies
- Determine the main elements that make up an irrigation network according to the different typologies
- Establish the main design criteria of the elements that make up the network
- Analyze the use and application of the BIM methodology in the design, modeling and operation of networks of networks

Specific Objectives

- Specify the factors involved in irrigation
- Address the fundamentals of irrigation network design
- Develop the general aspects that make up an irrigation network
- Determine the main criteria for sizing irrigation networks
- Analyze solutions using drip and sprinkler network techniques
- Apply BIM methodology in the design and analysis of irrigation networks
- Examine BIM deliverables of an irrigation network providing the student with knowledge applicable to any piping system

Improving your irrigation networking skills will boost your professional and personal career in just 6 weeks of 100% online academic experience"

03

Course Management

TECH offers an elite education for the students who attends its programs thanks to the didactic tools that successfully carry out the development of each of its programs. In this sense, the graduates will have access to a syllabus designed by a faculty specialized in the study of Hydraulic Infrastructure and the Design of Irrigation Networks. Their wide experience in the sector and their solid bases in Engineering and Development, Civil Engineering and Environmental Hydraulics will allow them to solve doubts or answer questions that may arise during the course of the program.

TECH has a highly qualified teaching team specialized in Technology and Management of the Integrated Water Cycle"

Management

D. González González, Blas

- Managing Director at Tolvas Verdes Malacitanas S.A
- CEO in Andaluza de Traviesas
- Director of Engineering and Development at GEA 21, S.A. Head of the Technical Services of the UTE Metro of Seville and co-director of the Construction Projects for Line 1 of the Metro of Seville
- CEO in Bética de Ingeniería S.A.L
- Teacher of several university master's degrees related to Civil Engineering, as well as subjects of the Degree in Architecture at the University of Seville
- Degree in Civil Engineering from the Polytechnic University of Madrid
- Master's Degree in New Materials Science and Nanotechnology from the University of Seville
- Master's Degree in BIM Management in Infrastructure and Civil Engineering by EADIC - Rey Juan Carlos University

Professors

Mr. Rubio González, Carlos

- Head of the Development Department at TEAMBIMCIVIL S.L
- Specialist at the Interuniversity Institute for Research on the Earth System in Andalusia at the University of Granada
- Civil Engineer at TEAMBIMCIVIL S.L
- Double Master in Civil Engineering and Environmental Hydraulics by the University of Granada
- Master's Degree in Technology and Management of the Integral Water Cycle from the University of Seville
- Degree in Civil Engineering from the University of Seville with mention in Hydrology
- Lecturer in specialization courses on BIM Modeling of Water Supply and Irrigation Networks

04

Structure and Content

This qualification has been created according to recent studies and projects in the hydraulic field, implementing a curriculum that provides robust material on Irrigation Network Design. This Postgraduate Certificate is designed to provide advanced content on sprinkler and drip irrigation networks and their characteristics, including the modeling of irrigation networks in Civil 3D. All this, by means of multiple multimedia tools that offer dynamism and a greater attractiveness to this university qualification.

An expertly designed syllabus and first-rate teaching materials are the key to a successful professional career"

Module 1. Irrigation. Elements and Design

1.1. Irrigation networks
- 1.1.1. Irrigation network
- 1.1.2. Physical characteristics of the soil
- 1.1.3. Factors influencing irrigation
- 1.1.4. Soil water storage
- 1.1.5. Irrigation dosage
- 1.1.6. Crop water requirements

1.2. Types of irrigation
- 1.2.1. Gravity irrigation
- 1.2.2. Sprinkler irrigation
- 1.2.3. Drip irrigation

1.3. Pressure networks Hydraulic fundamentals
- 1.3.1. Flow energy
- 1.3.2. Bernoulli's Equation
- 1.3.3. Energy losses in pipelines

1.4. Sprinkler irrigation networks Features
- 1.4.1. Sprinklers
- 1.4.2. System Types
- 1.4.3. Hydraulic characteristics of sprinklers
- 1.4.4. Distribution of sprinklers in conventional systems
- 1.4.5. Uniformity and efficiency

1.5. Sizing of sprinkler irrigation networks
- 1.5.1. Design Criteria
- 1.5.2. Side branches
- 1.5.3. Distribution Networks

1.6. Drip irrigation networks
- 1.6.1. System Components
- 1.6.2. Uniformity and efficiency
- 1.6.3. Installation diagram
- 1.6.4. Micro-sprinkler

1.7. Dimensioning of drip irrigation systems
- 1.7.1. Design Criteria
- 1.7.2. Side branches
- 1.7.3. Bypass piping
- 1.7.4. Distribution piping

1.8. Modeling of irrigation networks in Civil 3D
- 1.8.1. Elements catalog
- 1.8.2. Network modeling
- 1.8.3. Irrigation network profile

1.9. Modeling of retention basins in Civil 3D
- 1.9.1. Flattening element
- 1.9.2. Footprint design
- 1.9.3. Volume measurements

1.10. Deliverables of an irrigation network
- 1.10.1. Plan alignment drawings
- 1.10.2. Plan and profile drawings
- 1.10.3. Transversal Sections and Measurements

TECH has multimedia resources that will provide you with greater dynamics during the development of the program"

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

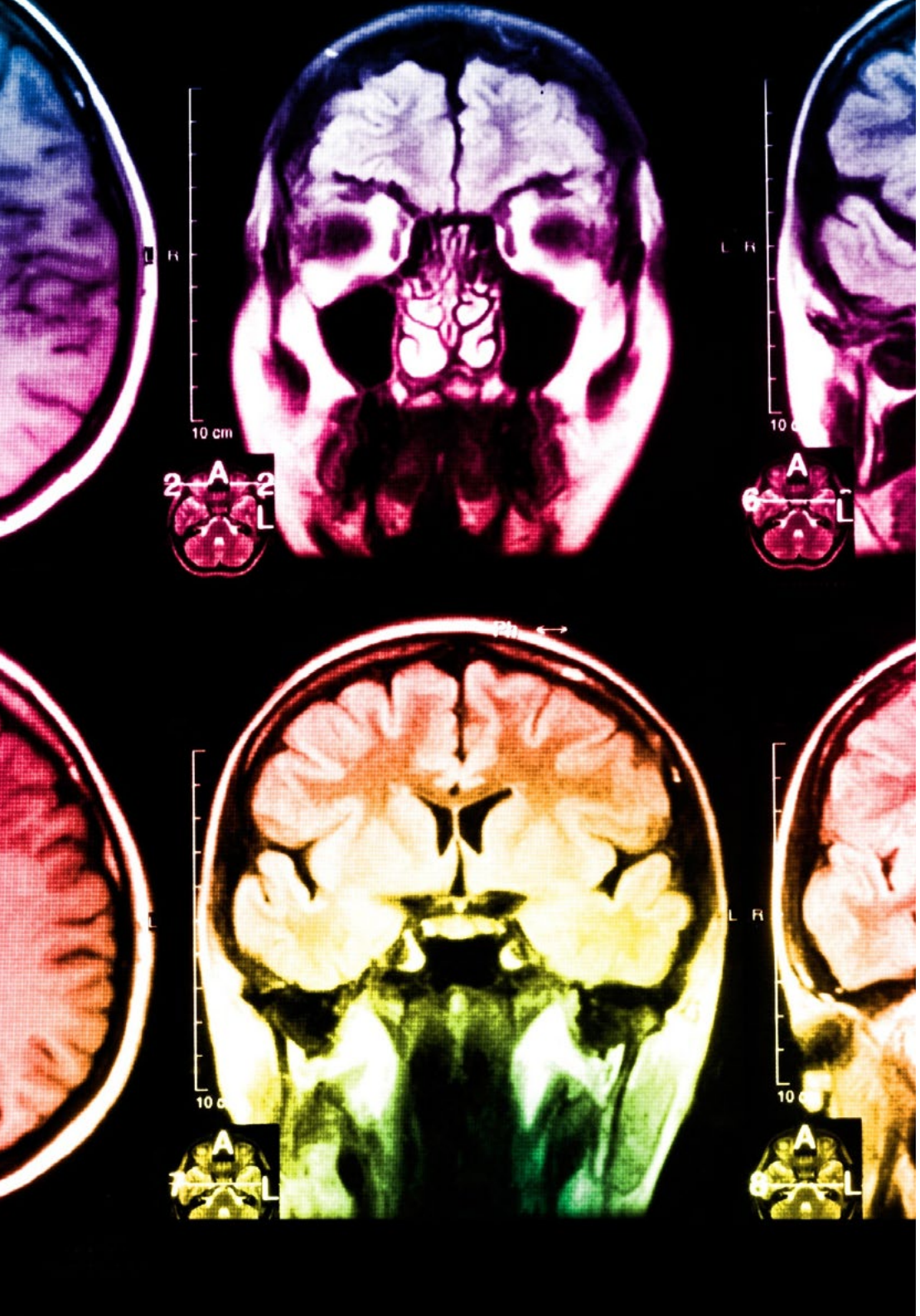
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

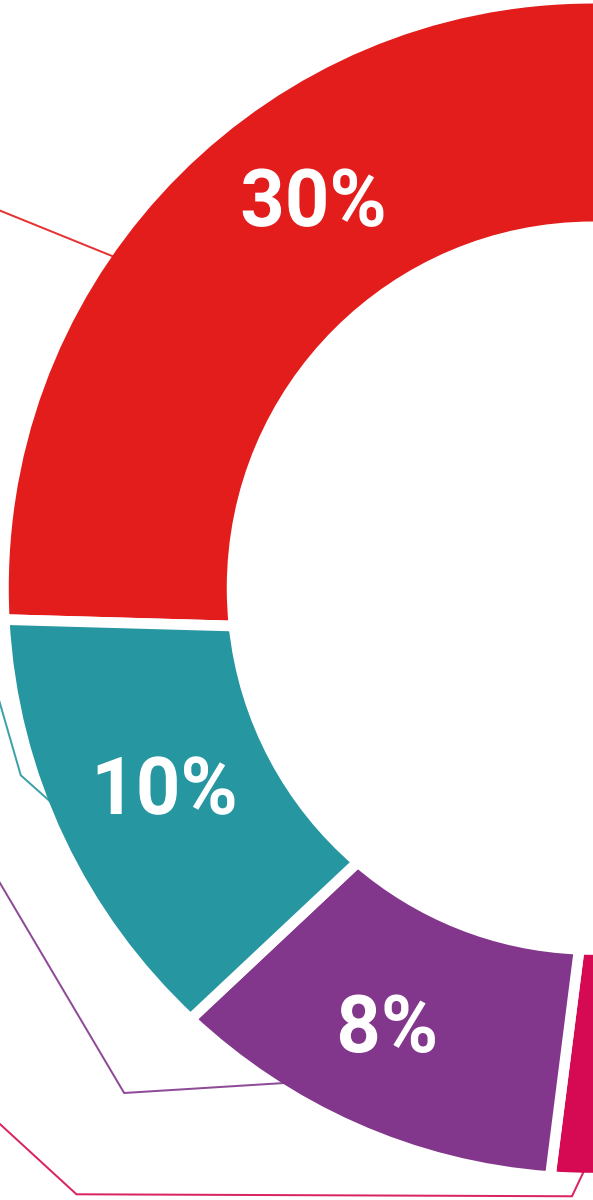
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

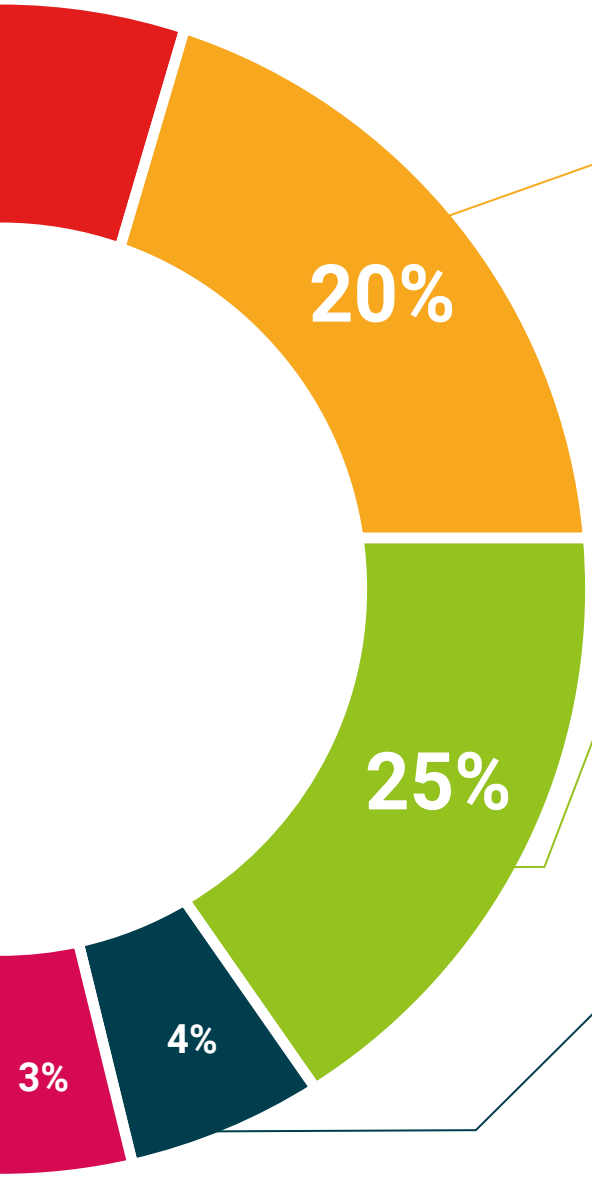
Practising Skills and Abilities

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 Irrigation Network Design guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 Certificate in Irrigation Network Design** 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 certificate 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 Irrigation Network Design**

Official N° of Hours: **150 h.**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Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Irrigation Network Design

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

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 certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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