Postgraduate Certificate
Infrastructures for Urban Resilience

tech global university

Postgraduate Certificate
Infrastructures for Urban Resilience

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

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/infrastructures-urban-resilience**

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01
Introduction

Every day, cities are exposed to the risk of natural or human disasters that severely damage their infrastructure. In this sense, political instability, climate change or uncontrolled urban development are the main threats that make them vulnerable. For this reason, the United Nations Sustainable Development Goals call for the construction of Resilient Infrastructures in order to have cities where citizens can live in a truly protected environment. This TECH program responds to this purpose of the UN, preparing engineers to implement green infrastructure that will have Resilience as a great feature. Under the guidance of an outstanding teaching team, students will take this Postgraduate Certificate 100% online and at their own pace.

Stand out in the creation of the urban infrastructures of the future with this program"

Modern society is living at a time when adaptation to Climate Change is beginning to be prioritized over an increasingly complex mitigation. This makes even more sense considering that more than 55% of the world's citizens reside in cities, a figure that the UN expects to rise to two-thirds by 2050.

This future situation will be truly problematic if we do not prepare urban infrastructures for the various types of disasters that the scientific community predicts will occur. And which, in fact, are already occurring. For this reason, it is time to recover natural spaces in the city and define the cities of tomorrow as resilient and sustainable places. In this mission, the main protagonists will be green infrastructures, which are positioned as the engine of change and the buffer against extreme events.

For the creation and design of these Resilient Infrastructures, engineers and architects with up-to-date knowledge in the field will be essential. This program will prepare these professionals to succeed in this area of great projection. In this line, the Postgraduate Certificate will analyze the relationship between Public Health and exposure to the Natural Environment to transfer healthy models to cities. It will also examine in depth the elements of green infrastructure that will be developed in the future to promote the reintegration of cities with nature.

In addition, students will enjoy this high level of training from home and will have at their disposal facilities such as 24-hour access to a complete library of digital resources. The only thing they will need to specialize in this field with all the guarantees is an Internet connection.

This **Postgraduate Certificate in Infrastructures for Urban Resilience** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of case studies presented by experts in Resilient Infrastructures
- 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 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

Become the engineer who redefines the relationship between cities and nature"

Get unlimited access to the most comprehensive library of digital resources on Resilient Infrastructures"

Deepen your knowledge and become the Resilient Infrastructure engineer in demand by governments and large private entities.

Lead one of the major UN Sustainable Development Goals to protect citizens through Resilient Infrastructures.

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.

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 during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

The program design of this Postgraduate Certificate will prepare engineers for the paradigm shift in urban development, proposing new structures that focus on Resilience and Sustainability. Therefore, students will delve into the adaptation needs of cities in the face of Climate Change and will examine the differences with respect to the concept of mitigation. In this way, they will acquire the most updated knowledge on the subject.

The objectives of the program will turn you into the engineer of the future, preparing you to establish new models of cities"

General Objectives

- Substantiate the current context of Sustainable Urban Development
- Analyze the main global reference strategies for Sustainable Urban Development
- Protect and promote Urban Biodiversity
- Communicate through visualization of good environmental management
- Analyze different nature-based solutions as city transformers

TECH's advanced educational tools and renowned teaching team will make you successfully achieve the objectives of the program"
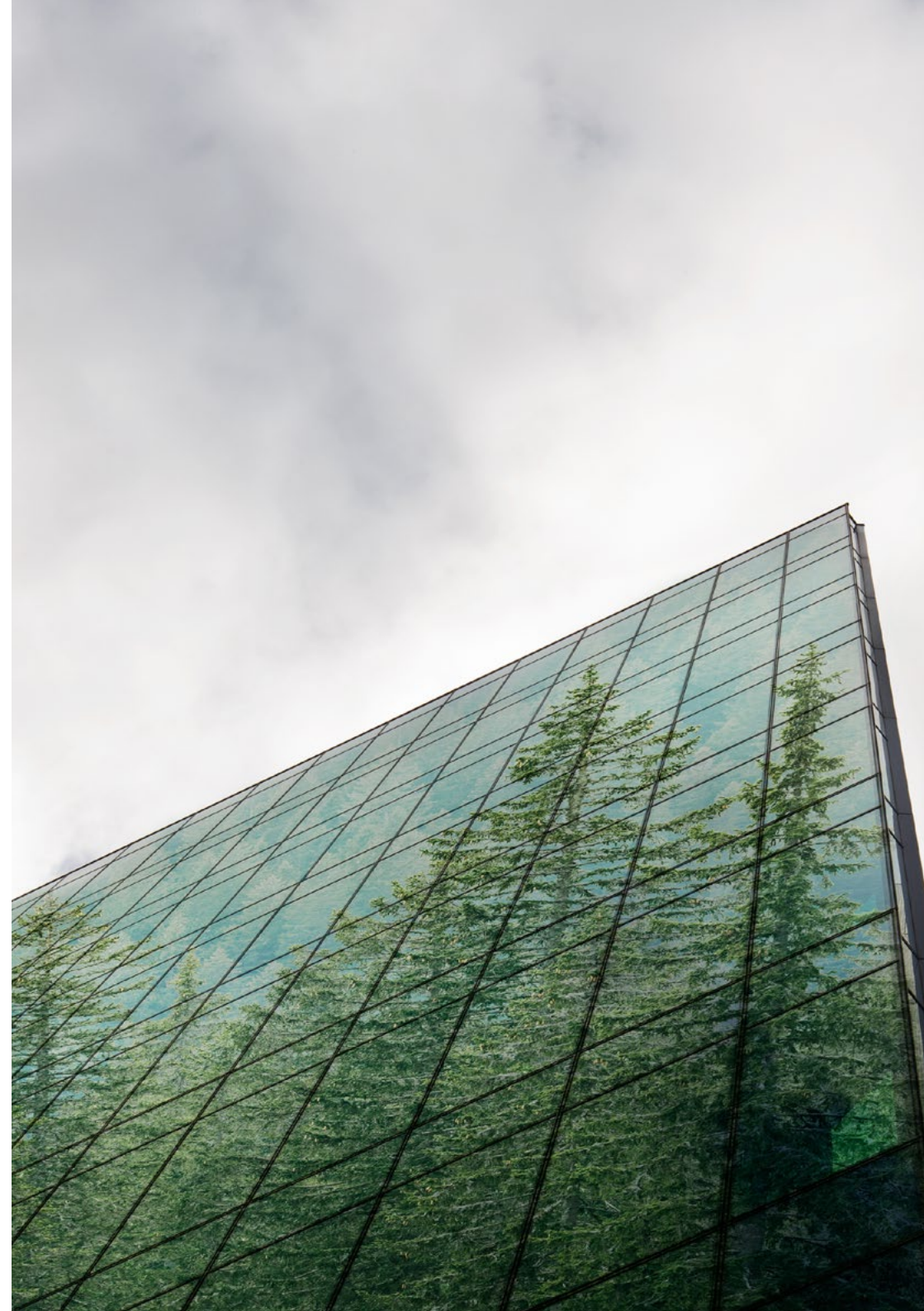
Specific Objectives

- Develop the concepts of urban resilience to climate change and analyze adaptation and mitigation needs and the difference between the two

- Analyze the elements of green infrastructure that are directly or indirectly related to urban adaptation to change

- Assess the direct relationship between exposure to nature and public, physical, and mental health

- Recognize the elements of green infrastructure present in our immediate environment in the city

- Identify the items of contribution to energy efficiency of green infrastructure elements

- Evaluate the implication of green infrastructure on the health and well-being of the inhabitants of the urban environment. Socialization and empowerment of the sense of belonging

- Evaluate the projection of current green infrastructure actions for future cities

03
Course Management

The Postgraduate Certificate in Infrastructures for the Resilience of Cities has a remarkable teaching team with extensive experience in Urban Ecosystems. In this sense, within this field, the faculty has focused on Green Infrastructure, Natural Capital and Biodiversity. It demonstrates, thus, a broad background to make students excel in a thriving sector and to put into professional practice all the knowledge acquired in the different subjects.

Professionals specialized in different branches of Urban Ecosystems will provide you with a multidisciplinary approach to Resilience in Cities to make you stand out in your career"

Management

Mr. Rodríguez Gamo, José Luis

- Business Development Director at Green Urban Data
- Senior Sustainability Consultant for Large Corporations and Public Administrations
- Manager of the Urban and Environmental Services Division of Grupo Ferrovial
- Manager of Climate Change and Biodiversity of Grupo Ferrovial
- Forestry Engineer from the Polytechnic University of Madrid
- Specialization in Silvopastoral Farming
- Postgraduate degree in Conservation and Maintenance of Urban Green Zones from the Polytechnic University of Madrid
- Executive Management Program by the Instituto de Empresa

Professors

Mr. Martínez Gaitán, Óscar

- Agricultural Engineer in Los Árboles Mágicos
- Postgraduate Diploma in Agroecosystems and Urban Ecosystems at IUCN
- Agronomical Advisor at CHM Obras e Infraestructuras
- Integrated Pest Management Advisor at Parque Deportivo La Garza
- Agriculture Engineer from the University of Almería
- Specialization in Engineering, Design and Maintenance of Golf Courses and Golf Engineering at the University Miguel Hernandez
- Degree in SME Management and Business Economics from the School of Industrial Organization (EOI)

Structure and Content

The syllabus has been designed considering all the key elements that should be provided to an engineer regarding the development of Resilient Infrastructures. Under the guidance of the teaching team, the program deals with energy efficiency of Urban Green Infrastructure, climate shelters, management of the Peri-urban Environment or Ecosystem Services in Public Health, among other relevant subjects. In addition, with the innovative educational method of Relearning, the concepts of the contents will be assimilated with solvency by the students thanks to the reiteration in the learning cycle.

An updated curriculum at the forefront of the latest educational innovations thanks to Relearning"

Module 1. Infrastructures for Urban Resilience

1.1.   The Heat Island Phenomenon. Effects and Consequences
    1.1.1.   The Heat Island Phenomenon
    1.1.2.   The City and the Heat Island Phenomenon
    1.1.3.   Adaptation to Changes
1.2.   Energy Efficiency of Urban Green Infrastructure
    1.2.1.   Heat Reduction
    1.2.2.   Landscaped Facades
    1.2.3.   Green Roofs
    1.2.4.   Biological Cooling
    1.2.5.   Biophilic Buildings
1.3.   Functional and Ecological Connectivity and Proximity Spaces
    1.3.1.   Opportunity Spaces
    1.3.2.   Alignment Trees
    1.3.3.   Small Squares
    1.3.4.   Urban Parks
    1.3.5.   Large Peri-Urban Parks
    1.3.6.   Ecological Corridors and Connectivity
    1.3.7.   Greenways
    1.3.8.   Riparian Forests
    1.3.9.   Urban-Rural and Urban-Forest Interface
1.4.   Sinking and Environmental Adaptation Effect
    1.4.1.   Carbon Sequestration
    1.4.2.   GHG Sequestration
    1.4.3.   Runoff Reduction
    1.4.4.   Particulate Matter Retention
    1.4.5.   Noise Reduction
1.5.   Climatic Shelters
    1.5.1.   Shelter Areas for Extreme Temperatures
    1.5.2.   Safety in the Event of Climatic Events
    1.5.3.   Heat Waves
    1.5.4.   Torrential Rains
    1.5.5.   Thunderstorms
    1.5.6.   Extreme Wind

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.

30%

10%

8%

20%

25%

4%

3%
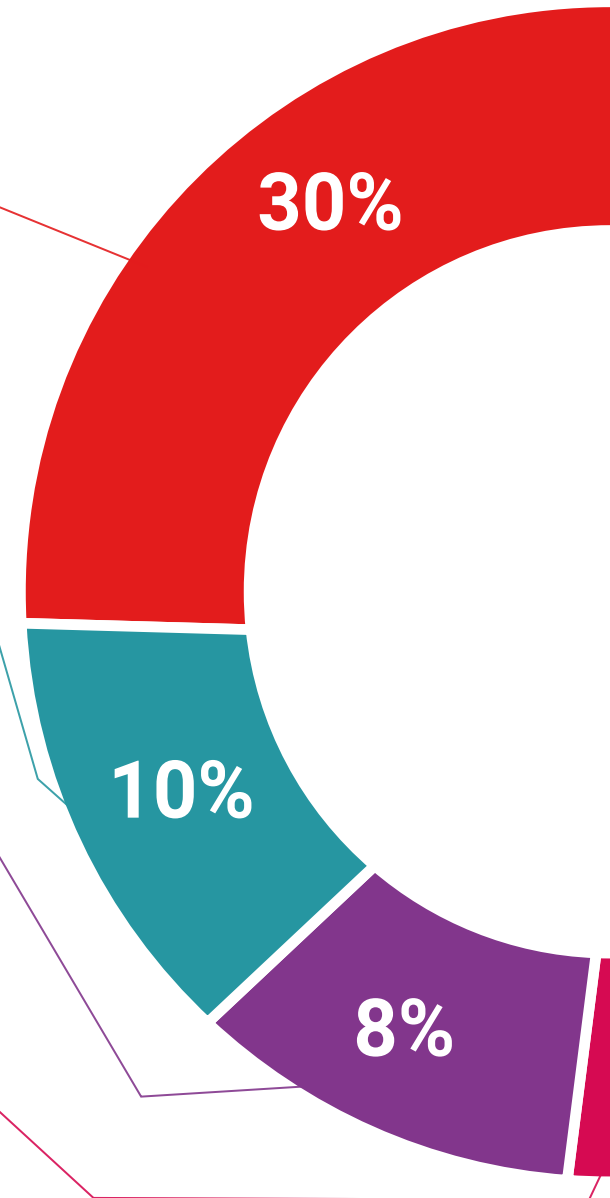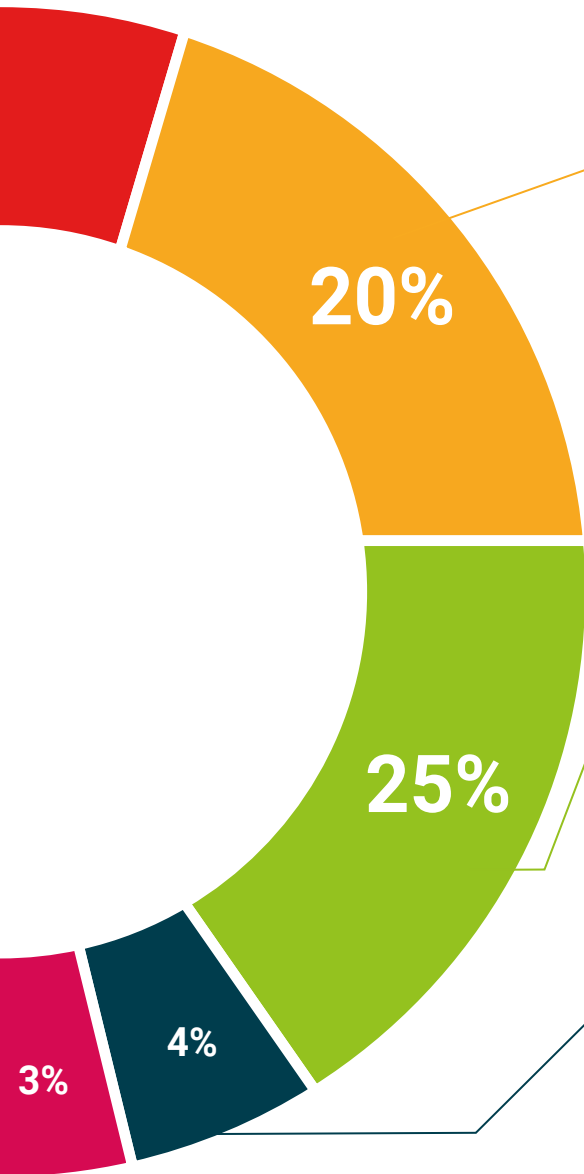
Case Studies

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 Infrastructures for Urban Resilience 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 private qualification will allow you to obtain a **Postgraduate Certificate in Infrastructures for Urban Resilience** 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** private qualification, 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 Infrastructures for Urban Resilience**

Modality: **Online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

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

Postgraduate Certificate in Infrastructures for Urban Resilience

This is a private qualification 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
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 diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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