Postgraduate Certificate
Urban Ecosystem Services

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Postgraduate Certificate
Urban Ecosystem Services

- 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/urban-ecosystem-services**

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01

Introduction

In favor of sustainable urban development and the improvement of the quality of life of citizens, it has been promoted in recent decades the implementation of technology that allows the analysis of air, water, as well as all the natural elements that make up an area. Data that favor the planning and design of new environments. In this way, mastering the digital tools for the evaluation, measurement and interpretation of results is key for Engineering professionals who want to focus their careers on the generation of Infrastructure in Green Areas. Therefore, this 100% online program is created, which takes students to delve in just 6 weeks in the main software used for the calculation of the determination of natural capital.

This 100% online Postgraduate Certificate will allow you to be up to date with Artificial Intelligence applied to GIS of Ecosystem Services"

Before planning and creating new urban spaces, it is necessary to guarantee sustainability and the improvement of people's quality of life. Therefore, it is essential that before any project, ecosystem services are assessed using the most advanced devices and software.

In this way, obtaining results on air pollution, water contributions to aquifers or energy efficiency in the installation of certain lighting elements are key to the optimization of engineering actions. For this reason, TECH has designed this university qualification of 150 teaching hoursof intensive learning and by the hand of an excellent specialized teaching team.

A high level syllabus that will allow students to integrate in a short period of time the key concepts related to the measurement, quantification, valuation and mapping of ecosystem services. For this purpose, this academic institution provides pedagogical tools based on multimedia pills, case studies, specialized readings that can be accessed comfortably from any digital device with Internet connection and at any time of the day that students wish.

In addition, thanks to the Relearning learning methodology, the graduate will be able to assimilate the concepts addressed in a much simpler way and therefore reduce the long hours of study that are so frequent in other educational systems.

A unique opportunity to take firm steps towards professional progression through a convenient Postgraduate Certificate, which adjusts to the schedule of each student and also allows them to self-manage their time to access the syllabus and reconcile their daily personal activities. An unparalleled academic option in the current academic system.

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

- The development of practical cases presented by experts in Resilience 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

With TECH you will have the facility to self-manage your study time and reconcile your personal life with a quality education"

An academic option that adapts to your schedule and your motivations for professional growth in the field of Sustainable Green Infrastructure design"

Thanks to this program, you will master the i-Tree tools and their utility for the assessment of urban forestry.

You will gain specialized knowledge on the most useful tools for calculating pollutant uptake.

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.

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 academic year For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

Thanks to this university qualification, students will be up to date with technological tools , including Artificial Intelligence for measuring green spaces, detecting polluted air or purifying water. To achieve this goal, TECH provides pedagogical tools that bring dynamism and a theoretical-practical perspective of great utility for the daily professional performance of the engineer. A unique opportunity for progression that only TECH offers.

The simulations of case studies of this program will allow students to obtain an approach to methodologies used for the valuation of Ecosystem Services"

General Objectives

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

Examine, during 150 teaching hours, the models of measurement and valuation of Ecosystem Services"

Specific Objectives

- Analyze the reasons for measuring Ecosystem Services
- Identify ecosystem services assessment tools
- Examine models for measuring and valuing Ecosystem Services
- Establish the products and needs for each tool
- Determine the set of ecosystem services that can be assessed by each tool
- Conduct a comparison of the ESS assessment tools with standard criteria
- Delve deeper into the management of i-Tree
- Project sizing according to the particularity of ecosystem services and the type of infrastructure to be quantified
- Assess gaps and opportunities for quality improvement of ESS based on the data obtained
- Propose governance for ecosystem-based adaptation

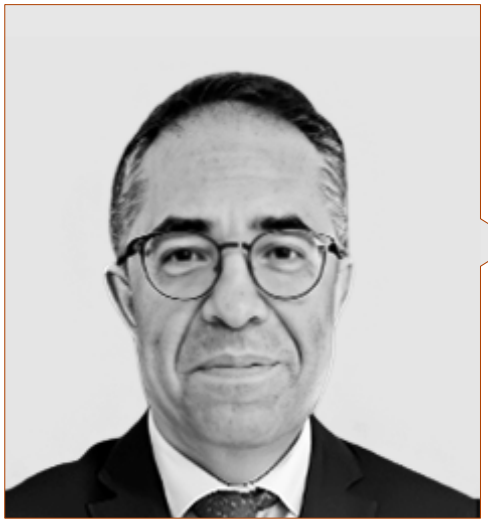
03

Course Management

The direction and teaching staff of this Postgraduate Certificate is made up of an excellent team of specialists in the field of Agricultural Engineering and a focus on the development of Infrastructures in Green Spaces. Their deep knowledge in this field will allow the graduate to obtain a high level of learning, from the hand of real experts in the sector. In addition, thanks to their proximity will be able to resolve any doubts that may arise regarding the content of syllabus.

You have a teaching staff with an excellent background in Agricultural Engineering, Agroecosystems and Urban Ecosystems"

Management



D. Rodríguez Gamo, José Luis

- Business Development Director at Green Urban Data
- Senior sustainability advisor for large companies 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
- Specialist in Silvopastoral Farming
- Postgraduate Degree in Conservation and Maintenance of Urban Green Spaces from the Polytechnic University of Madrid
- Executive Management Program by the Instituto de Empresa (IE Business School)

Professors

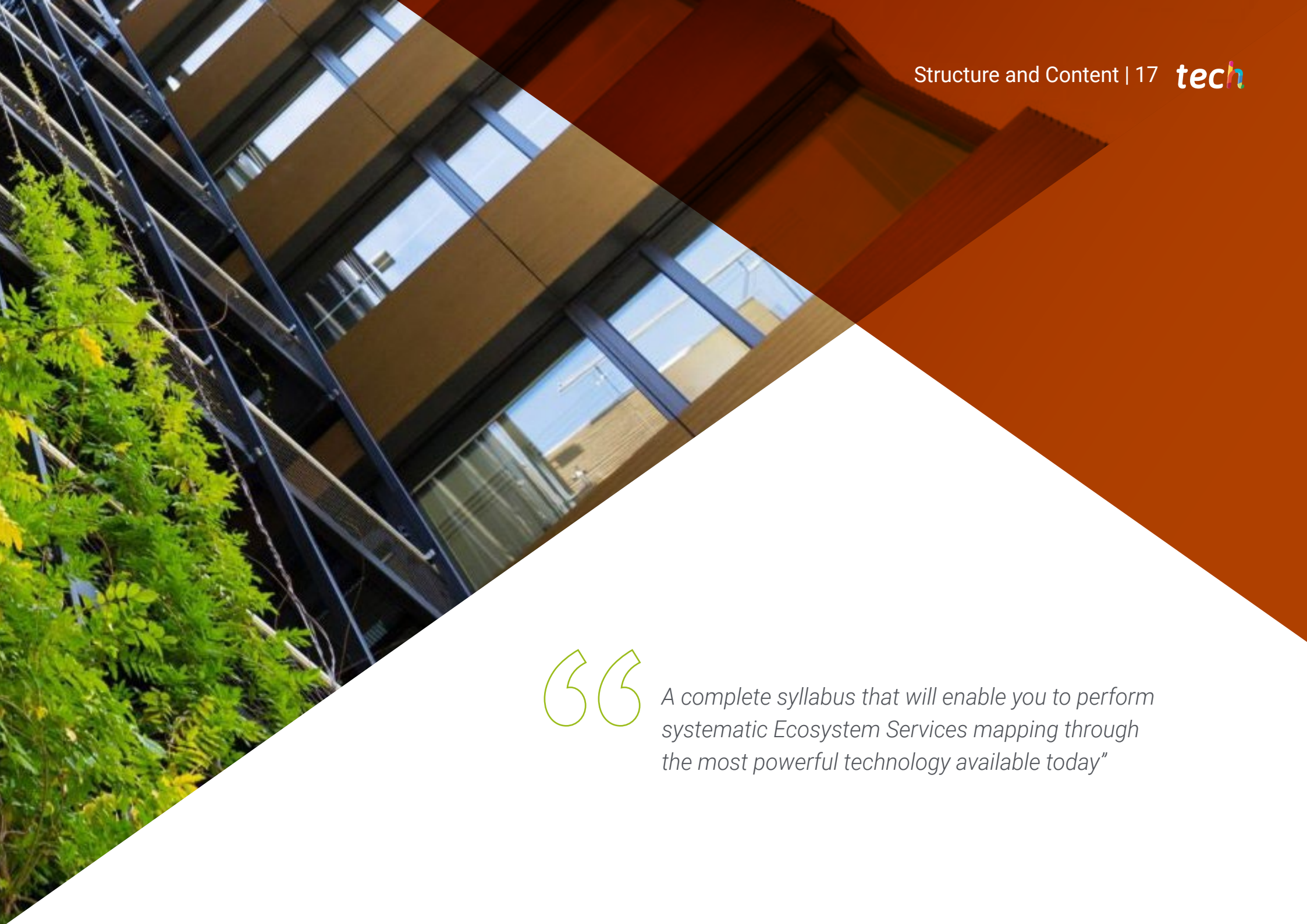
Martínez Gaitán, Óscar

- Agricultural Engineer at Los Arboles Mágicos
- Expert on Agroecosystems and Urban Ecosystems at IUCN
- Agricultural Advisor at CHM Infrastructures
- Advisor in Integrated Pest Management at Parque Deportivo La Garza
- Agricultural Engineer from the University of Almeria
- Specialization in Engineering, Design and Maintenance of Golf Courses and Golf Engineering at Miguel Hernández University
- Degree in SME management and business economics from the School of Industrial Organization

04

Structure and Content

The syllabus of this Postgraduate Certificate has been created to offer the most up-to-date and advanced content on Urban Ecosystem Services over the course of 6 weeks. Therefore, during this learning period, the graduate will obtain a complete education on the technological tools used for the measurement, quantification, valuation and mapping of services. For this purpose, the student has at their disposal multimedia resources, accessible 24 hours a day, from any digital device with Internet connection.



A complete syllabus that will enable you to perform systematic Ecosystem Services mapping through the most powerful technology available today"

Module 1. Measurement, Quantification, Valuation and Mapping of Ecosystem Services

1.1. Tools for Modeling, Identification and Valuation of Ecosystem Services of Urban and Peri-Urban Green Infrastructure
- 1.1.1. Artificial Intelligence Linked to the Study of Ecosystem Services (ESS)
- 1.1.2. Field Data Collection
- 1.1.3. Data Processing
- 1.1.4. Modeling of Results

1.2. InVEST for the Valuation and Spatial Analysis of Ecosystem Services
- 1.2.1. Habitat Quality
- 1.2.2. Edge Effect of Carbon Storage in Urban Forest
- 1.2.3. Annual Water Contribution to the System
- 1.2.4. Seasonal Water Supply to the System
- 1.2.5. Nutrient Discharge Rate
- 1.2.6. Sediment Delivery Rate
- 1.2.7. Visitation: Recreation and Tourism

1.3. TESSA to Assess Ecosystem Services on a Site Scale
- 1.3.1. Coastal Protection
- 1.3.2. Cultivated Goods
- 1.3.3. Cultural Services
- 1.3.4. Global Climate Regulation
- 1.3.5. Wild Harvested Goods
- 1.3.6. Nature-Based Recreation
- 1.3.7. Pollination
- 1.3.8. Water. Water Supply, Quality and Flood Control

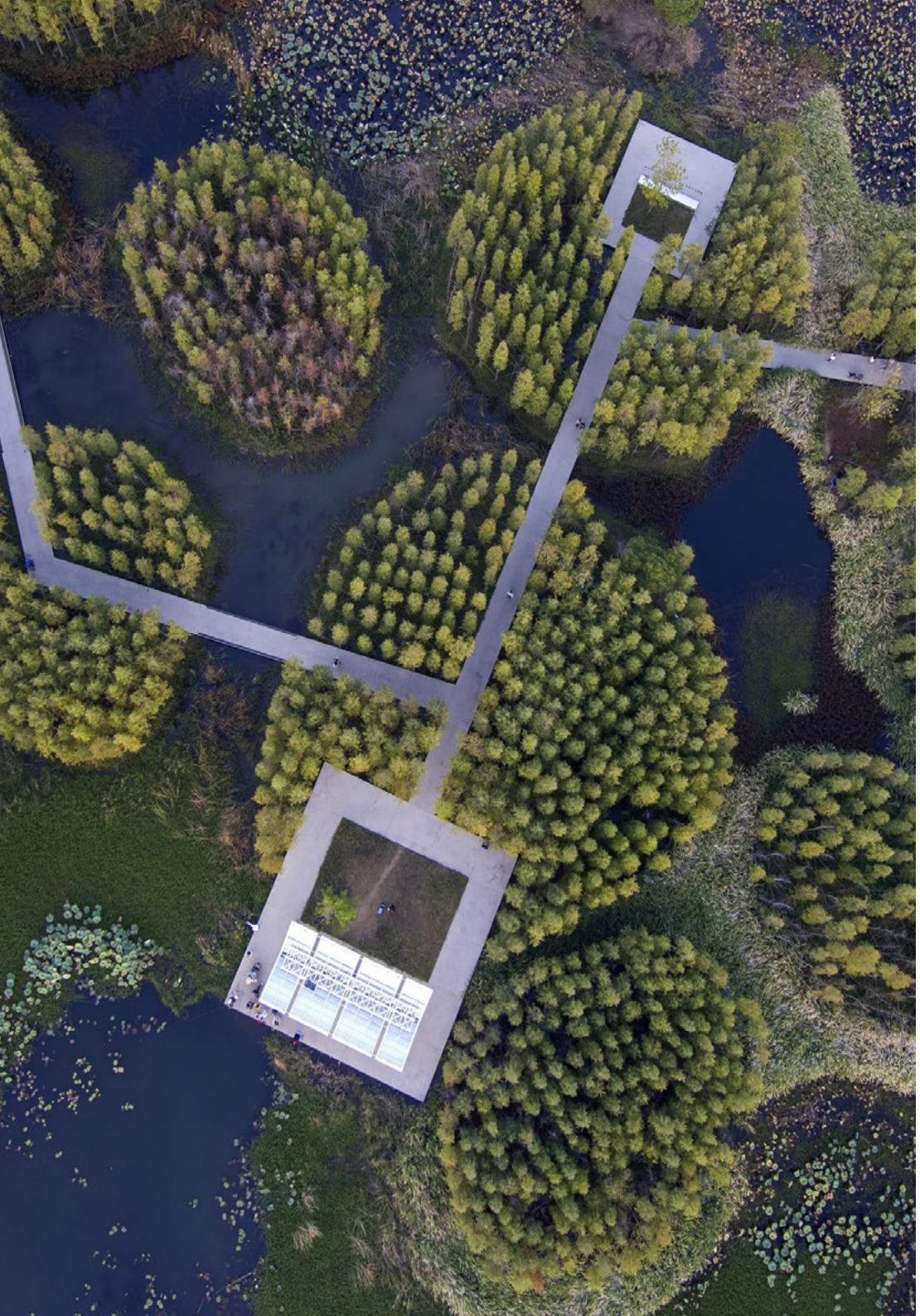
1.4. SolVES (Social Values for Ecosystem Services) as a Tool for Mapping Ecosystem Services
- 1.4.1. Assessing, Mapping and Quantifying the Perceived Social Values of Ecosystem Services
- 1.4.2. Integration into GIS
- 1.4.3. Open Source Developed for QGIS

1.5. ARIES (Artificial Intelligence for Ecosystem Sevices). Artificial Intelligence applied to Geographic Information Systems (GIS) for Ecosystem Services
- 1.5.1. Spatial Data and GIS for Visualizing Input-Output Maps
- 1.5.2. Equations and Query Tables
- 1.5.3. Probabilistic Models
- 1.5.4. Process-Based Models
- 1.5.5. Agent-Based Models, Which Represent Ecological and Social Agents Dynamically and Interdependently

1.6. i-Tree Suite of Software Tools for Assessment, Diagnosis and Inventory of Urban Forest and its SSEE
- 1.6.1. i-tree Canopy
- 1.6.2. i-tree ECO
- 1.6.3. i-tree My tree
- 1.6.4. i-tree Landscape
- 1.6.5. i-Tree Design

1.7. Modeling Through i-Tree Canopy Applied to the Diagnosis of the Green Infrastructure
- 1.7.1. Monte Carlo Method
- 1.7.2. Study Dimensioning
- 1.7.3. Identification of the Studied Spaces
- 1.7.4. Pollutants Absorbed
- 1.7.5. Carbon Sink
- 1.7.6. Avoided Runoff

1.8. Modeling Through i-Tree Eco Applied to Urban Forest Inventory and Management
- 1.8.1. Study Dimensioning
- 1.8.2. Complete Inventories
- 1.8.3. Inventories by Plots
- 1.8.4. Field Data Collection
- 1.8.5. Ecosystem Study
- 1.8.6. Valuation of Ecosystem Services (ESS)
- 1.8.7. Future Prospects



1.9. Green Infrastructure Management Based on the Results Obtained through the Quantification of Ecosystem Services (ESS)
  1.9.1. Ecosystem-Based Governance
  1.9.2. Green Infrastructure Strategy Development
  1.9.3. Modeling of Payment Policies for Ecosystem Services (ESS)
1.10. GIS Systems and Cartography Applied to Ecosystem Services (ESS)
  1.10.1. Functioning of a GIS
  1.10.2. Techniques Used in Geographic Information Systems
  1.10.3. Data Creation
  1.10.4. Data Representation
    1.10.4.1. Raster
    1.10.4.2. Vectorial
  1.10.5. Raster and Vector Models
  1.10.6. Non-Spatial Data
  1.10.7. Data Capture
  1.10.8. Conversion of Raster-Vector Data
  1.10.9. Projections, Coordinate Systems and Reprojection
  1.10.10. Spatial Analysis with GIS
  1.10.11. Topological Model
  1.10.12. Networks
  1.10.13. Map Superposition
  1.10.14. Automated Cartography
    1.10.14.1. Geostatistics
    1.10.14.2. Geocoding
  1.10.15. GIS Software
  1.10.16. Comparison of GIS Software

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

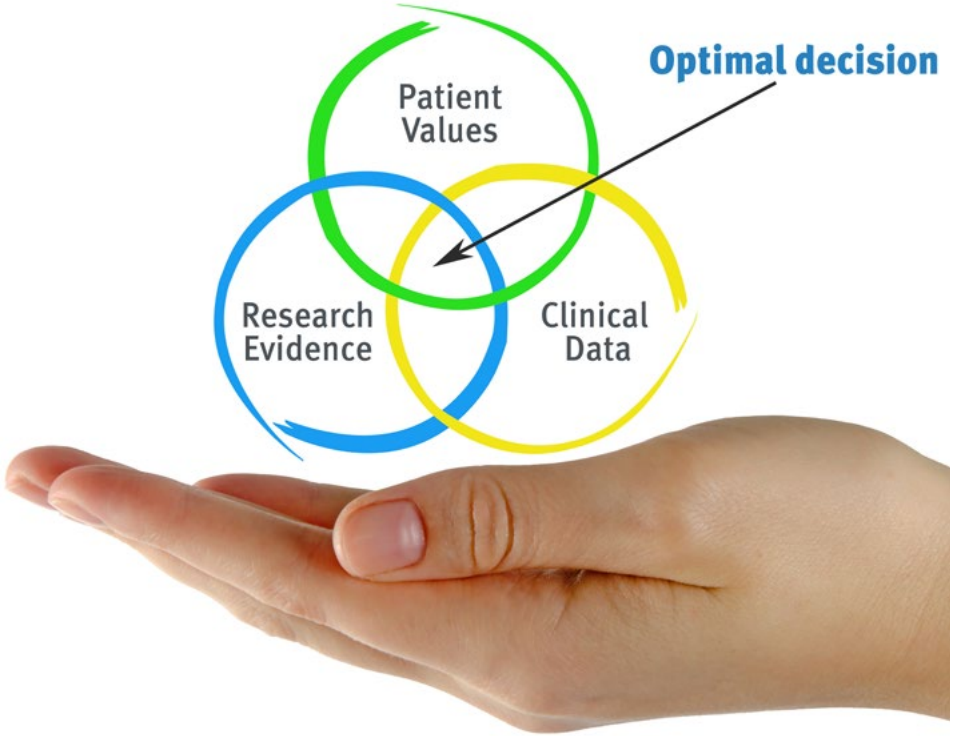
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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

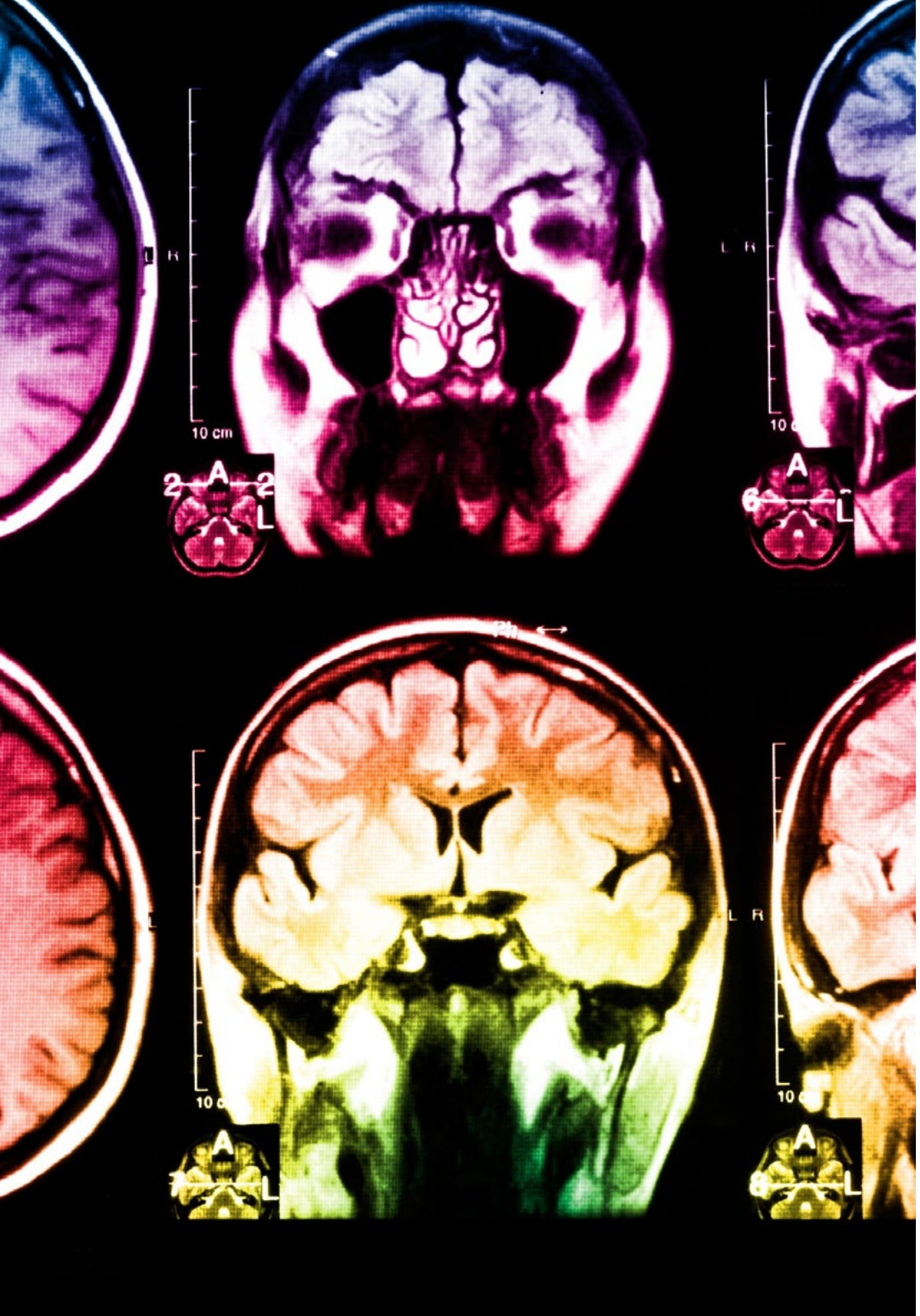
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

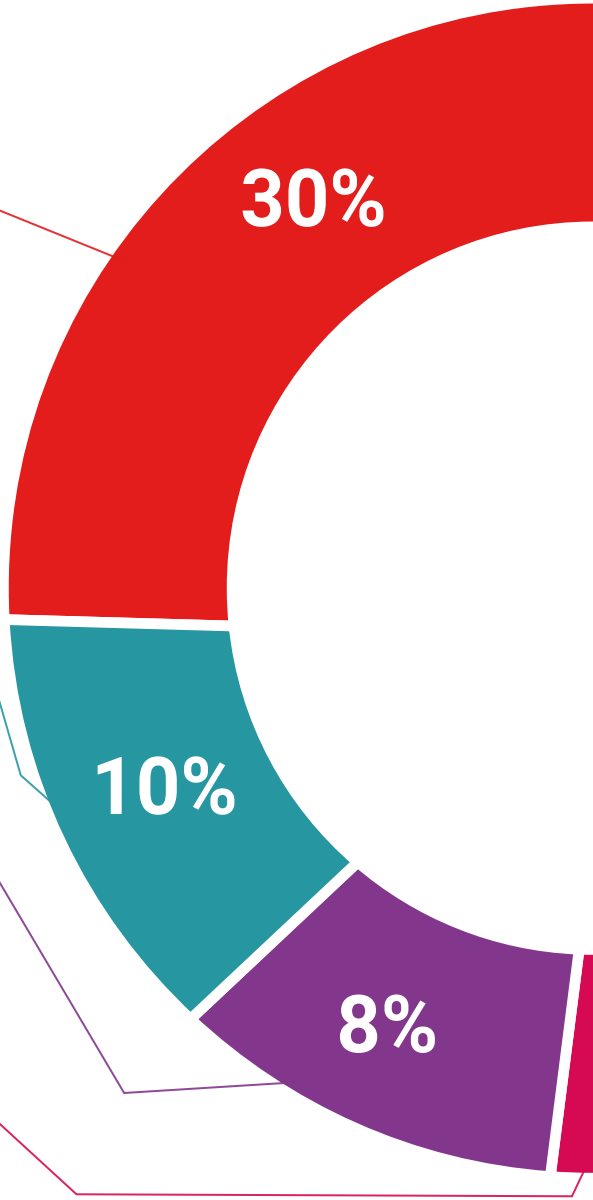
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

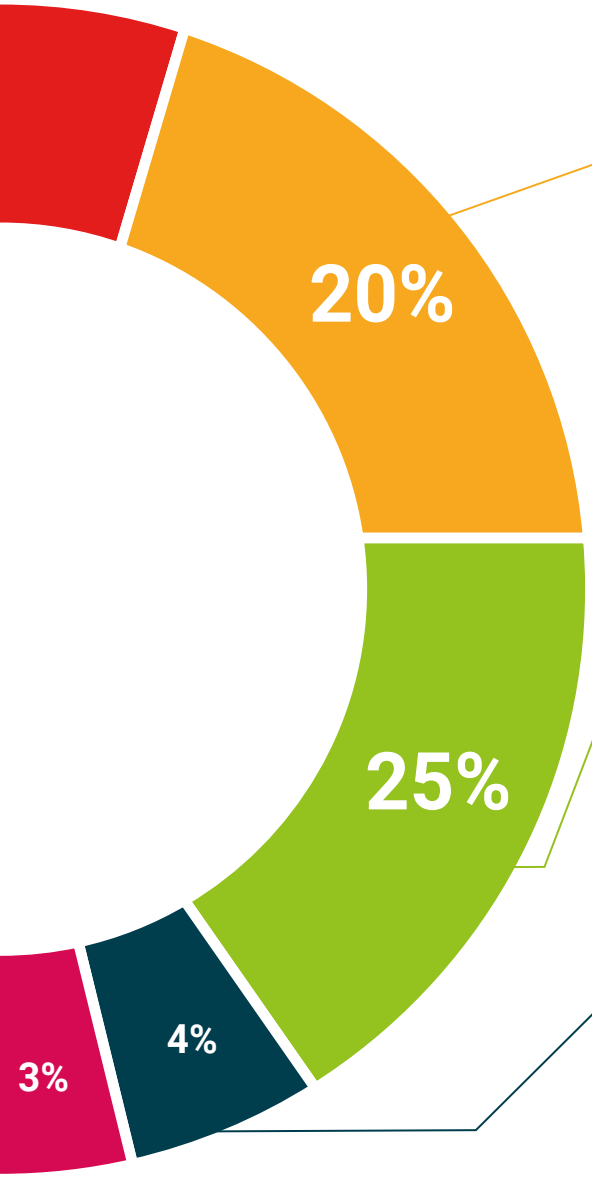
Practising Skills and Abilities

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 Urban Ecosystem Services 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 Urban Ecosystem Services** 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 Urban Ecosystem Services**

Official Nº of Hours: **150 h.**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Awards the following

DIPLOMA

to

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

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Urban Ecosystem Services

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

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