



# Postgraduate Diploma Strategic Urban Infrastructure Planning

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/pk/engineering/postgraduate-diploma/expert-strategic-urban-infrastructure-planning

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# tech 06 | Introduction

In order to understand and advance in the Strategic Urban Infrastructure Planning, it is necessary to contextualize the current situation of urban development. The cities of the future and present have to adapt to goals such as the Sustainable Development Goals, the Urban Agendas or UN-Habitat. Professionals and engineers with advanced skills in this area will have a clear advantage to lead the most ambitious urban projects.

TECH has assembled a team of experts in the planning and execution of urban infrastructures. Their extensive knowledge has enabled the development of a concise program that provides a detailed update on planning, urban green infrastructure and advanced monitoring of livability, resilience and quality of life. With all this set of knowledge and tools, the graduates will provide a quality value proposition that will position them as a reference professional in their field of action.

In addition, being aware of how complicated it can often be to combine academic responsibilities with personal and work responsibilities, TECH has programmed all the content 100% online. Students do not depend on fixed schedules or the obligation to attend classes, but can decide at any time how to take the program, being able to download all the content from the Virtual Campus itself.

This **Postgraduate Diploma in Strategic Urban Infrastructure Planning** 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 Design of Sustainable Green Infrastructures
- The graphic, schematic, and practical contents with which they are created, provide 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



Download all the material you will find in the Virtual Campus and study it at your own pace, with no ties or obligations"



You will have at your disposal a large amount of high quality multimedia material, with videos in detail and complementary readings for each topic covered"

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.

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.

Study the technology behind planning and data collection in sustainable cities, delving into the most advanced Big Data and Machine Learning.

Lean on the experience of the entire teaching staff, made up of true leaders in Strategic Urban Infrastructure Planning.







# tech 10 | Objectives



# **General Objectives**

- Provide a rationale for the current context of sustainable urban development
- Analyze the main global reference strategies for Sustainable Urban Development
- Protecting and promoting Urban Biodiversity
- Communicate through visualization of good environmental management
- Analyze different nature-based solutions as city transformers



Propel your career into the most ambitious public and private spheres, where you will be able to develop advanced strategic plans in urban infrastructure"





## **Specific Objectives**

### Module 1. Strategic Urban Infrastructure Planning

- Determine the aspects and objectives on which green infrastructure has the greatest impact on the sustainable development of towns and cities
- Develop the different strategies and initiatives for sustainable development at a global level
- Analyze the concept of Urban Sustainability
- Explore the main objectives and challenges of sustainable urban development strategies
- Examine the objectives of sustainable development most closely linked to urban development, cities and green infrastructure
- Assess the different experiences implemented by city networks and reference cities at the global level
- Raise awareness and empower students in the field of sustainable urban development

### Module 2. Strategic Green Urban Infrastructure Planning

- Analyze the key concepts in strategic planning of green infrastructure, within the existing policy or regulatory framework and possible scenarios
- Develop the possible phases necessary to carry out strategic planning, ranging from objective setting, information gathering and analysis, participation, situation diagnosis, action plans to monitoring and evaluation or communication
- Demonstrating the effectiveness of strategic planning through real-life success stories
- Connecting natural capital and consolidating urban green infrastructure
- Rethink investment and management towards models based on sustainability and the fight against climate change
- Encourage participation. Implement in the management itself the processes that promote citizen participation and involvement in the development of the city's green infrastructure

- Advance in the rebalancing of the city's green infrastructure, establishing a system of dynamic diagnosis of the city's green infrastructure to derive strategic proposals that correct imbalances, identify opportunities and enhance the differentiating values of the neighborhoods and promote new centers
- Periodically evaluate the actions proposed in the plan with a commitment to address the results with actions
- Improve communication and awareness and guarantee citizens' right of access to information related to green infrastructure

# Module 3. Monitoring and Tracking of Indicators and Technology Applied to Sustainable Urban

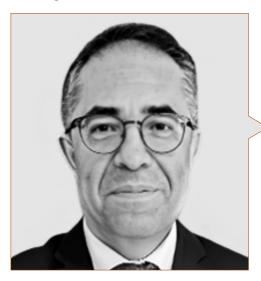
- Generate specialized knowledge on technologies for the development and monitoring of indicators
- Establish strategies for prioritizing actions based on indicators
- Analyze environmental impacts on cities and the need to have objective data to improve them
- Determining the system of indicators best suited to the improvement objective being pursued
- Elaborate a good prior diagnosis based on indicators to be successful in the elaboration of strategic plans
- Examine the different categories of indicator groups
- Substantiate the *Smart City* as an example of technology incorporation for the improvement of quality of life
- Evaluate existing data visualization and analysis systems
- Analyze the potential of Earth Observation data for the generation of Urban Sustainability indicators





# tech 14 | Course Management

### Management



### Mr. Rodríguez Gamo, José Luis

- Business Development Director at Green Urban Data
- Senior sustainability consultant 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
- 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**

### Ms. García San Gabino, Beatriz

- Technical advisor for the Juan Carlos I Park in Madrid
- General Director of Water Management and Green Areas of the Madrid City Council
- Head of the Department of Green Areas and Parks Rehabilitation of the Madrid City Council
- Head of the Projects Department General Directorate of Green Heritage
- Forestry Engineer from the Polytechnic University of Madrid
- Specialization in Silvopastoral Farming
- Professional Master's Degree in Advanced Studies in City Sciences, Polytechnic University of Madrid
- Professional Master's Degree in Public Policy Management and Analysis
- Degree in Planning, Management and Evaluation of Local Public Management, Geographic Information Systems of Green Heritage

### Mr. Ferrer, José Miguel

- Innovation Director and Co-Founder of Green Urban Data
- CEO of CeroCeO2
- Architect and collaborator in landscaping and gardening in several studios
- Graduate in Architecture from the Polytechnic University of Valencia
- Specialization in Urbanism
- Professional Master's Degree in and Landscaping from the Polytechnic University of Valencia
- Member of the Architecture and Environment Association (COACV), Forum for Sustainable Building in the Valencian Community, Association of Landscape Architects (Agrupación de Arquitectes pel Paisatge)



# Course Management | 15 tech

### Mr. Carbonell Martínez, Alejandro

- CEO and Co-Founder of Green Urban Data
- CEO at CeroCeO2
- Co-creator of Effiencity
- Creative at ACM Arquitectura
- Member of the PiP program. Climate-KIC
- Architect in several architectural firms
- Degree in Architecture from the Polytechnic University of Valencia
- Specialization in Building
- Professional Master's Degree in Business Management by CEEI
- Talent MBA at IEBS
- Degree in Management and Organization of Architectural Studios by CTAV







# tech 18 | Structure and Content

### Module 1. Strategic Urban Infrastructure Planning

- 1.1. Sustainable Development The role of cities and green infrastructure
  - 1.1.1. Sustainable development at the global level
  - 1.1.2. The role of cities in sustainable development
  - 1.1.3. The role of urban green infrastructure in sustainable development
- 1.2. Sustainable Development Goals (SDGs)
  - 1.2.1. Context
  - 1.2.2. The 17 Sustainable Development Goals
  - 1.2.3. SDG Progress and Monitoring Reports
- 1.3. SDG 3. Health and Well-being
  - 1.3.1. Context
  - 1.3.2. Objectives and Goals
  - 1.3.3. Relationship to the WHO Healthy Cities Program
- 1.4. SDG 11. Sustainable Citizens and Communities
  - 1.4.1. Context
  - 1.4.2. Objectives and Goals
  - 1.4.3. Relationship with UN-Habitat, ICLEI programs
- 1.5. SDG 13. Climate Action
  - 1.5.1. Context
  - 1.5.2. Objectives and Goals
  - 1.5.3. Relationship with the Covenant of Mayors program
- 1.6. SDG 15. Terrestrial Ecosystem Life
  - 161 Context
  - 1.6.2. Objectives and Goals
  - 1.6.3. Relationship with UNEP, IUCN and IUCN Programs
- 1.7. UN-Habitat, the New Urban Agenda (NUA)
  - 1.7.1. Sustainability and social, economic and environmental impact
  - 1.7.2. Intervention mechanisms and action measures
  - 1.7.3. Governance and monitoring indicators
- 1.8. Networks of cities and municipalities for Sustainability
  - 1.8.1. Global Network of Local Governments for Sustainability (ICLEI)
  - 1.8.2. Covenant of Mayors for Climate and Sustainable Energy (PACES)
  - 1.8.3. Cities Alliance, C40 Cities, United Cities and Local Governments (UCLG)

- 1.9. Urban Development Trends Related to Sustainability
  - 1.9.1. Intelligent Cities
  - 1.9.2. 15-Minute Cities
  - 1.9.3. Self-sufficient cities
  - 1.9.4. Climate-neutral cities
  - 1.9.5. Biophilic cities
  - 1.9.6. Sponge cities
- 1.10. International Quality Distinctions in urban sustainability
  - 1.10.1. BREEAM
  - 1.10.2. LEED
  - 1.10.3. WELL Communities

### Module 2. Strategic Green Urban Infrastructure Planning

- 2.1. Urban Green Infrastructure Strategic Planning (IVU)
  - 2.1.1. Urban Green Infrastructure Strategic Planning (IVU)
  - 2.1.2. Scenario Analysis Approach
  - 2.1.3. Key Elements in Planning
    - 2.1.3.1. Green Infrastructure Components
    - 2.1.3.2. Biodiversity
    - 2.1.3.3. Water:
    - 2.1.3.4. Permeability
    - 2.1.3.5. Connectivity
    - 2.1.3.6. Ecological Restoration
    - 2.1.3.7. Adaptation and Resilience
    - 2.1.3.8. Territorial Rebalancing
    - 2.1.3.9. Teamwork
- 2.2. Methodology for IVU Strategic Planning
  - 2.2.1. Objectives Approach
  - 2.2.2. Main Milestones

## Structure and Content | 19 tech

		2.2.3.1. Information Gathering						
		2.2.3.2. Analysis and Diagnosis						
		2.2.3.3. Action Plan						
		2.2.3.4. Implementation						
		2.2.3.5. Evaluation and Monitoring						
		2.2.3.6. Communication						
		2.2.3.7. Participation and Governance						
	2.2.4.	Scope, Validity and Revision						
	2.2.5.	Documentation Generated						
	Phases	Phases of Urban Green Infrastructure Strategic Planning (IVU): Information Gathering						
	2.3.1.	Study of the information						
	2.3.2.	Collection of Existing Information						
	2.3.3.	3. Preliminary Studies						
		2.3.3.1. Contextual Studies						
		2.3.3.1.1. Legal and Regulatory Framework of each country.						
		2.3.3.1.2. Historical Evolution						
2.3.3.1.3. Urban, Peri-urban and Social Environment								
2.3.3.1.4. Other contextual studies of interest								
		2.3.3.2. Current State of the Territory						
		2.3.3.2.1. Regional and Municipal Scope						
	2.3.3.2.2. Urban and Periurban Scope							
		2.3.3.3. Other Preliminary studies of interest						
	2.3.4.	Tools						
	Phases	of IVU Strategic Planning: Analysis and Diagnosis						
	2.4.1.	Information Management						
	2.4.2.	. Priority Setting						
	2.4.3.	Strategic Analysis						
	2.4.4. Diagnosis							
	2.4.5. Conclusions							

2.2.3 Structure Phases

2.3.

2.4.

2.5. Phases of Urban Green Infrastructure Strategic Planning (IVU): Action Plan 2.5.1. Strategic Objectives and Lines of Action Specific Direct Actions 2.5.3. Transversal Actions 2.5.4. General Guidelines 2.5.5. Ongoing Actions 2.5.6. Timeline 2.5.7 Final Documents 2.6. Phases of Urban Green Infrastructure Strategic Planning (IVU): Implementation 2.6.1. Phases of the Action Plan Implementation Process 2.6.2. Feasibility Analysis within the Organization 2.6.2.1. Timeliness of the Proposal 2.6.2.2. Legal Analysis 2.6.2.3. Processing and Schedule 2.6.2.4. Organizational and Competency Analysis 2.6.2.5. Budgetary Analysis. Implementation Costs. Co-financing 2.6.2.6. Estimation of Human, Material and Technological Resources for Implementation 2.6.2.7. Justification Institutional Anchoring and Coordination necessary for the implementation of the plan 2.6.4. Impulse 2.7. Monitoring and Evaluation of the Action Plan 2.7.1. Follow-up Process 2.7.2. Assessment 2.7.2.1. Establishment of Objectives and Priorities 2.7.2.2. Definition of Indicators 2.7.2.3. Organization and Scorecard 2.7.2.4. Corrective Actions 2.7.3. Resources

# tech 20 | Structure and Content

2.8.	Actions	transversal	tot	nlanning.	Par	ticination	and	Gover	nance

- 2.8.1. Stakeholders Analysis
- 2.8.2. Action Plan
- 2.8.3. Tools
- 2.8.4. Implementation and Management
- 2.8.5. Governance and Participation Plan

#### 2.9. Actions transversal to planning: Communication and Awareness

- 2 9 1 Communication
- 2.9.2. Sensitization
- 2.9.3. Generation of Alliances
- 2.9.4. Graphic and Audiovisual Resources Generated
- 2.10. Case Studies and Best Practices
  - 2.10.1. Successful cases in Europe
  - 2.10.2. Successful cases in Asia and America
  - 2.10.3. Other Approaches to Green Infrastructure Plan Development

# **Module 3.** Monitoring and follow-up of indicators and technology applied to the management and planning of sustainable urban infrastructure

- 3.1. Use of indicators (KPIs) for the monitoring of environmental parameters
  - 3.1.1. KPIs as a tool for urban management
  - 3.1.2. Public managers
  - 3.1.3. Indicators Requirements
- 3.2. Urban Environmental Quality Management Indicator Systems
  - 3.2.1. Indicators for cities
  - 3.2.2. SDG (Sustainable Development Goals) indicatorsSustainable Development Goals SDGs
  - 3.2.3. Urban Agendas 2030
  - 3.2.4. Other Indicator Systems

- 3.3. The urban environment. Adaptation of Cities
  - 3.3.1. Adaptation of Cities
  - 3.3.2. Sectors concerned: Tourism, Insurance, Real Estate, Infrastructure
  - 3.3.3. Solutions Based on Nature (SBN)
- 3.4. Indicators and monitoring: categorization, frequency of collection, and quality of indicators
  - 3.4.1. Categories of indicators
  - 3.4.2. Recurrence of data collection
  - 3.4.3. Resolution as a criterion for improving the quality of the indicator
- 3.5. Technology for city planning: Data collection
  - 3.5.1. Data: flour for the cake
  - 3.5.2. Data sources for constructing environmental indicators
  - 3.5.3. Dashboards for managing using KPIs
  - 3.5.4. Technology for citizens as a tool for knowledge and transparency
- 3.6. Technology for city planning: sustainable cities
  - 3.6.1. Cartography (GIS)
  - 3.6.2. Big Data
  - 3.6.3. Machine Learning
  - 3.6.4. Artificial Intelligence
  - 3.6.5. Digital Twins
- 3.7. Smart Cities 2.0: Sustainability at the heart of cities
  - 3.7.1. Smart Cities 2.0 from the approach of Sustainability
  - 3.7.2. Creation of a Smart City
  - 3.7.4. Management Platforms
  - 3.7.5. Open Data Portal
- 8.8. Earth Observation (EO) data for urban planning
  - 3.8.1. Monitoring from space
  - 3.8.2. Copernicus program
  - 3.8.3. International Earth Observation (EO) programs

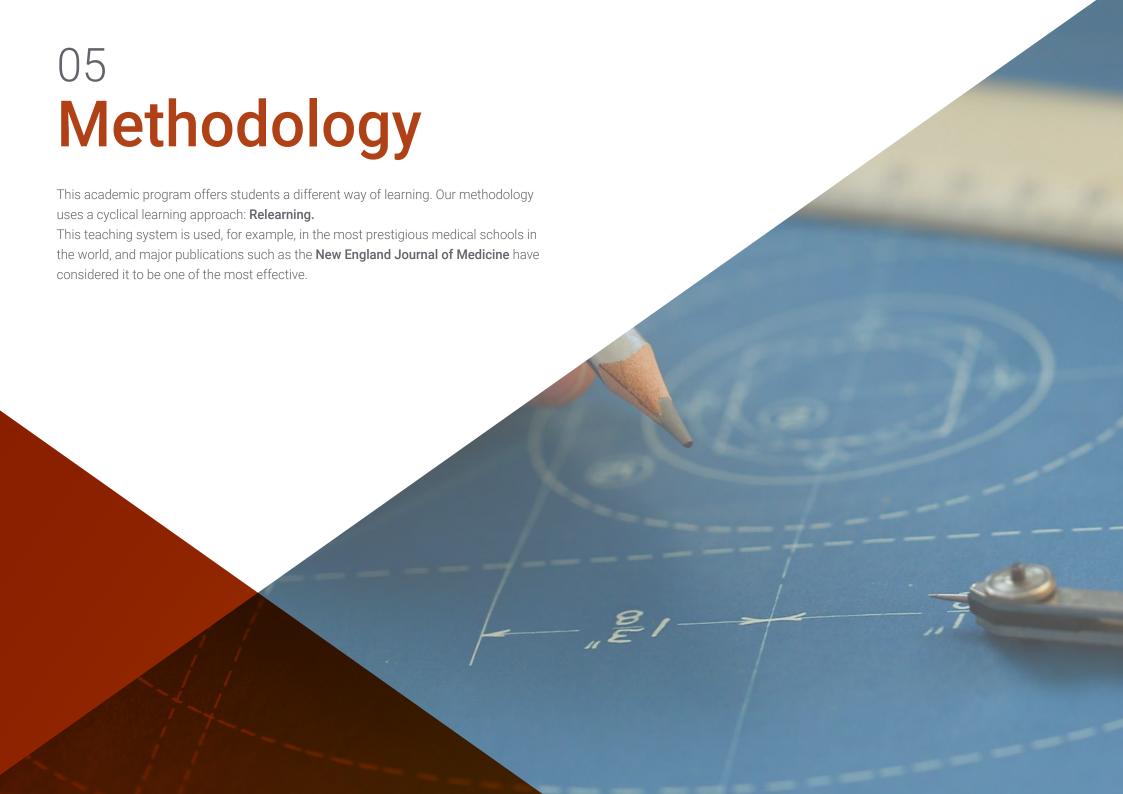


# Structure and Content | 21 tech

- 3.9. Data observatories for the construction of roadmaps to Sustainability
  - 3.9.1. Environmental certification standards
  - 3.9.2. Standards for the construction of data observatories
  - 3.9.3. City monitoring portals
  - 3.9.4. Cities. The SDGs
- 3.10. Future indicators related to resilience and livability
  - 3.10.1. Quantification of benefits for the improvement of the emotional and physical health of citizens.
  - 3.10.2. Measuring the degree of resilience of cities
  - 3.10.3. Investment and environment



Delve deeper into the topics you are most interested in through a multitude of readings and new complementary material"





# tech 24 | Methodology

## 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.

# Methodology | 25 tech



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.

# tech 26 | Methodology

## 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.



# Methodology | 27 tech

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.



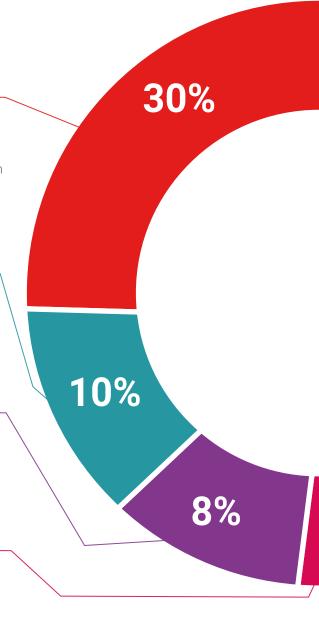
### **Practising Skills and Abilities**

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.





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.



25%

20%





# tech 32 | Certificate

This **Postgraduate Diploma in Strategic Urban Infrastructure Planning** 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 Diploma** issued by **TECH Technological University** via tracked delivery.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: Postgraduate Diploma in Strategic Urban Infrastructure Planning
Official N° of Hours: **450 h**.



<sup>\*</sup>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.

technological university

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- » Modality: online
- » Duration: 6 months
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- » Dedication: 16h/week
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