

# Postgraduate Certificate

## Climate, Soil, Biology and Botany in Landscape Architecture



## Postgraduate Certificate Climate, Soil, Biology and Botany in Landscape Architecture

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

Website: [www.techtitute.com/in/engineering/postgraduate-certificate/climate-soil-biology-botany-landscape-architecture](http://www.techtitute.com/in/engineering/postgraduate-certificate/climate-soil-biology-botany-landscape-architecture)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*



# 01

# Introduction

The architectural composition in any landscape project is presented, in most cases, as one of the most significant complexities for the professional. For the correct design, planning and management of outdoor spaces, it is necessary to take into account various elements (soils, the nature of the environment, atmospheric conditions, etc.), so that the characteristics of the resulting product complement each other. Likewise, TECH Technological University has developed a program that gathers, precisely, the developments of this professional branch, so that the graduate can get up to date on Climate, Edaphology, Biology and Botany in Landscape Architecture through a 100% online program designed by experts in the sector.



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*In this Postgraduate Certificate you will find the most relevant news related to Landscape Architecture and its composition through multiple theoretical, practical and additional resources”*

Undertaking an architectural project is always a challenge for professionals in this sector, especially when the "outdoor space" factor comes into play. The analysis of the aspects to be considered when starting a landscape project has an added difficulty: the combination of the elements that influence the composition depending on the characteristics of the environment. Soils, the nature of the site itself or atmospheric conditions, among others, are fundamental characteristics that must be taken into account, which also implies a detailed analysis of each of them to determine the feasibility and efficiency of the possible resulting product.

It is, therefore, a complex and arduous task that architects and engineers have to perform together, being a fundamental aspect to take into account before starting the project itself. In order to provide these professionals with the latest information on the subject, TECH Technological University and its team of experts have developed this Postgraduate Certificate in Climate, Soil Science, Biology and Botany in Landscape Architecture. A dynamic, comprehensive and complete program that will serve as a guide to expand and update their knowledge in this branch of Landscape Architecture.

Therefore, through 150 hours of the best theoretical, practical and additional content designed by professionals of the highest level in this area, the graduate will be able to delve into the importance of the study of morphology, anatomy and plant physiology, systematic botany, the different plant classifications or the relationship between climate, soil and vegetation, among other aspects. Moreover, you will be able to do it from wherever you want and whenever you want thanks to its convenient 100% online format. In this way, without schedules or face-to-face classes, you will have the opportunity to expand your technical knowledge, implementing the most innovative architectural trends of the moment by the hand of the largest digital university in the world.

This **Postgraduate Certificate in Climate, Soil, Biology and Botany in Landscape Architecture** 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 Engineering and Architecture
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Would you like to update your knowledge in climate recording based on the latest trends? Enroll now in this program and start working on it"*

“

*A Postgraduate Certificate of the highest level in which you will find the best strategies to analyze Soil Science from different critical perspectives"*

The program includes in its teaching staff professionals of the field who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*Increase your talent as a Landscape Architecture professional by adding a specialized Certificate in this field to your resume.*

*Thanks to the 100% online format of this program, you will be able to work on your course from wherever you want: no tight schedules or tedious face-to-face classes.*



# 02

# Objectives

Given the difficulties involved in Landscape Architecture and the numerous components that influence the success of projects, TECH Technological University and its team of professionals have developed this program in order to provide graduates with the information that will allow them to approach the study of each of these elements to ensure the best results. Therefore, the present Postgraduate Certificate is a guide that will provide your knowledge with the most innovative and complete information on Climate, Soil Science, Biology and Botany applied to the construction of new spaces.







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*If one of your goals is to implement the best techniques of electrical and water conductivity in landscape projects in your practice, you are in the right place and this Postgraduate Certificate is what you need"*



## General Objectives

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- ◆ Understand the different materials used in the construction of landscape elements, such as pavements, walls, urban furniture, among others
- ◆ Become familiar with the properties, characteristics and applications of materials commonly used in landscape architecture
- ◆ Learn to select and specify appropriate materials according to the needs of the project and aesthetic, technical and durability considerations
- ◆ Study the principles of landscape infrastructure design and construction, such as drainage, irrigation and lighting systems
- ◆ Analyze the construction techniques and methods used in the implementation of landscape elements, ensuring their correct installation and operation





## Specific Objectives

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- ◆ Address the basic principles of climate and its influence on the design and maintenance of landscape spaces
- ◆ Differentiate the characteristics and properties of the soil (Edaphology) and its importance for the development of plants in the landscape
- ◆ Deepen in the fundamental concepts of plant biology and botany, including species identification and adaptability
- ◆ Develop strategies for water conservation and irrigation efficiency in landscape design
- ◆ Master legal and ethical aspects related to the conservation and protection of flora and fauna in landscape design

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*Working with this program is directly proportional to investing in progressing towards a successful future within the field of Landscape Architecture”*



# 03

# Course Management

One of TECH's Technological University top priorities is to create complete programs at the highest level. And for this it is necessary to include in them the best teaching team, which accompanies and guides the graduates during the course of the academic experience. For this reason, several distinguished professionals in the field of environmental landscaping have been selected for this Postgraduate Certificate, experts who have also collaborated with the design of the syllabus, providing resources drawn from their own current practice.







“

*The teaching team will be at your disposal to answer any questions you may have through the direct communication tool that you will find in the Virtual Campus”*

## Management



### Mr. Libroero López, Ricardo

- ◆ CEO and founder of GreenerLand
- ◆ Technical Director of the Atlantic Botanical Garden of Gijón
- ◆ Coordinator of landscape projects at the Universal Exposition of Seville in 1992
- ◆ Postgraduate Certificate in Management and Landscape Design by the Complutense University of Madrid
- ◆ Member of the Spanish Association of Landscape Architects

## Professors

### Dr. Bueno Sánchez, Álvaro

- ◆ Independent Scientific Advisor for the creation of Botanical Gardens
- ◆ President of the Ibero-Macaronesian Association of Botanical Gardens
- ◆ Researcher at the Institute of Natural Resources and Territorial Planning
- ◆ Doctor of Science from the University of Oviedo







# 04

# Structure and Content

The syllabus of this Postgraduate Certificate in Climate, Soil Science, Biology and Botany in Landscape Architecture has been designed rigorously following the guidelines of quality, innovation and completeness that characterize and differentiate TECH Technological University. Additionally, the teaching team has provided dozens of hours of additional material (videos, images, research articles, news, etc.), so that the graduate can expand those sections that are of greatest interest. All this compacted in a convenient and accessible 100% online format, ideal for combining it with professional activity.







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*Would you like to review the metabolic processes of plants and the dichotomous classification guides? If the answer is yes, do not hesitate and enroll now in this Postgraduate Certificate"*

**Module 1. Climate, Edaphology, Biology and Botany. Vegetation**

- 1.1. Relationship between Climate, Soil and Vegetation
  - 1.1.1. Introduction
  - 1.1.2. Types of Climate
  - 1.1.3. Bioclimatic Zones
  - 1.1.4. Classification Table
  - 1.1.5. Climatic Records
- 1.2. Soil Science
  - 1.2.1. Types of Soil Structure
  - 1.2.2. Types of Soil Texture
  - 1.2.3. Soil Origin. Types of Soil
  - 1.2.4. Chemical Determinants
  - 1.2.5. PH
  - 1.2.6. Fertile Soil Characteristics. Organic Matter
  - 1.2.7. Amendments
  - 1.2.8. Artificial Substrates Design
  - 1.2.9. Hydroponic Media and Stock Solutions
- 1.3. Water
  - 1.3.1. The Water Cycle
  - 1.3.2. Historical Precipitation Series by Area
  - 1.3.3. Water Quality
  - 1.3.4. Electrical Conductivity
  - 1.3.5. Need to Recover Fresh Water. Systems
  - 1.3.6. Concept of Xerogardening
- 1.4. Plant Morphology, Anatomy and Physiology
  - 1.4.1. From the Plant Cell to the Tissues
  - 1.4.2. Plant Organs
  - 1.4.3. Basic Metabolic Processes of Plants
    - 1.4.3.1. Photosynthesis and Respiration. Stomata
    - 1.4.3.2. Pigments Chlorophyll and Carotenoids
    - 1.4.3.3. Plant Nutrition. Macro and Micronutrients
    - 1.4.3.4. Cell-tissue-organ Interactions
    - 1.4.3.5. Phytohormones
    - 1.4.3.6. Photo Journalism
    - 1.4.3.7. Ecophysiology



- 1.5. Concepts of Ecogeography and Systematic Botany
  - 1.5.1. Definition of Biome
  - 1.5.2. Definition of Ecosystems
  - 1.5.3. Definition of Natural Vegetation Series
  - 1.5.4. Classification of the Plant Kingdom. Bryophytes, Ferns, Angiosperms and Gymnosperms
  - 1.5.5. Monocotyledons and Dicotyledons
  - 1.5.6. Botanical Systematics. Family, Genus, Species
  - 1.5.7. Family, Genus, Species
  - 1.5.8. Dichotomous Classification Guides
  - 1.5.9. Fungi
  - 1.5.10. Distinction between Deciduous and Perennial Species
  - 1.5.11. Plant recognition
- 1.6. Plant Species. Classification of Planters. Palmaceae
  - 1.6.1. Definition of the Concept Palmaceae
  - 1.6.2. Morphological
  - 1.6.3. Fan-leaved palms
    - 1.6.3.1. List of species by Morphological Characteristics, Use, Climate, Soil, Water Needs and Limitations
  - 1.6.4. Pinnate-leaved Palms
    - 1.6.4.1. List of Species by Morphological Characteristics, Use, Climate, Soil, Water Requirements and Limitations
- 1.7. Plant Species. Classification of Planters. Trees
  - 1.7.1. Definition of Tree Concept
  - 1.7.2. Conifers
    - 1.7.2.1. Morphology
    - 1.7.2.2. List of species by Morphological Characteristics, Use, Climate, Soil, Water Needs and Limitations
  - 1.7.3. Hardwoods
    - 1.7.3.1. Morphology
    - 1.7.3.2. List of species by Morphological Characteristics, Use, Climate, Soil, Water Needs and Limitations
- 1.8. Plant Species. Classification of Planters. Shrubs, Climbers, Bushes and Aromatic Plants
  - 1.8.1. Definition of the Shrubs Concept Groupings According to your Interest in the Garden
  - 1.8.2. Flowering Shrubs of Interest
    - 1.8.2.1. List of Species by Use, Climate, Soil, Water Needs and Limitations
  - 1.8.3. Shrubs of Leafy Interest
    - 1.8.3.1. List of Species by Use, Climate, Soil, Water Needs and Limitations
  - 1.8.4. Climbers
    - 1.8.4.1. Types of Climbers
    - 1.8.4.2. List of Species by Use, Climate, Soil, Water Needs and Limitations
  - 1.8.5. Shrubs and Aromatics
    - 1.8.5.1. List of Species by Use, Climate, Soil, Water Needs and Limitations
- 1.9. Plant Species. Classification of Planters. Perennials, Biannuals and Annuals
  - 1.9.1. Definition of the Perennial Concept. Groupings According to their Interest in the Garden
  - 1.9.2. List of Species by Use, Climate, Soil, Water Needs and Limitations
  - 1.9.3. Annuals and Biennials
  - 1.9.4. List of Species by Use, Climate, Soil, Water Needs and Limitations
- 1.10. Plant Species. Classification of Planters. Ground Cover and Cespitosas, Aquatic and Ferns
  - 1.10.1. Definition of the Concept of Ground Cover Plant. Groupings According to their Interest in the Garden
    - 1.10.1.1. List of Species by Use, Climate, Soil, Water Needs and Limitations
  - 1.10.2. Species Cespitosas and Bamboos
    - 1.10.2.1. List of Species by Use, Climate, Soil, Water Requirements and Limitations
  - 1.10.3. Aquatic and Amphibious Species
    - 1.10.3.1. List of Species by Use, Climate, Soil, Water Requirements and Limitations
  - 1.10.4. Ferns
    - 1.10.4.1. List of Species by Use, Climate, Soil, Water Requirements and Limitations

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 Climate, Soil, Biology and Botany in Landscape Architecture guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*



This **Postgraduate Certificate in Climate, Soil, Biology and Botany in Landscape Architecture** 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 Climate, Soil, Biology and Botany in Landscape Architecture**

Official N° of Hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

**tech** technological  
university

personalized service innovation

knowledge present

online training

development landscapes

virtual classroom

## Postgraduate Certificate

Climate, Soil, Biology and Botany  
in Landscape Architecture

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