

# Postgraduate Certificate Airport Pavements





## Postgraduate Certificate Airport Pavements

- » 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/airport-pavements](http://www.techtitute.com/us/engineering/postgraduate-certificate/airport-pavements)

# 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 pavement is a fundamental element in the construction of airport infrastructures, since the quality of the runway depends on it to a large extent. In addition, there is a wide variety and different types of materials. All of this knowledge is covered in this online program, which aims to learn how to critically use materials suitable for airport paving, as well as how to assess defects and damage, structural capabilities and surface parameters of airports. The content of this educational program is shaped by the experience of its teachers in a multitude of projects and interventions in airport pavements, and is designed for the student to learn, in the most useful way, how to recognize them.





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*Learn from the experience of the teachers in a multitude of projects and interventions in airport pavements”*

The content of this Postgraduate Certificate is intended to deepen the experience, projects and interventions in airport pavements of expert teachers in the field. In order to develop the student's critical sense to choose paving materials, detect errors and make correct calculations, a perfectly structured study plan has been devised.

This program covers from the importance of pavement management throughout the life of the airport, to how to intervene or repair them, thus prolonging the useful life of the airport pavement. The study plan is approached from a theoretical and practical perspective, to encourage the application of learning to professional challenges.

This program also provides in-depth knowledge of the materials used to build esplanades, the calculation and design of pavements themselves, whether rigid or flexible pavements, and pavement inspection. In this sense, a catalog of the most common defects in an esplanade built with different types of pavements is presented.

This Postgraduate Certificate is offered online. Since all multimedia content is uploaded to the digital platform, it can be accessed whenever you want and have an Internet connection. In addition, it is taught with Learning by Doing methodology, in order to delve into the practical notions and that they can be applied to possible real professional challenges.

This **Postgraduate Certificate in Airport Pavements** 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 airport pavements
- ◆ 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 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 assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*With the catalog of the most common defects of the esplanade, you will be able to determine, with critical sense, which is the defect of the pavement and how to solve it"*

“

*A complete program adjusted to the demands of the sector specialized in materials and Airport pavements”*

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

*Open yourself to new professional challenges thanks to this Postgraduate Certificate in Airport Pavements.*

*Learn how to calculate and design rigid and flexible pavements.*



# 02

# Objectives

With this Postgraduate Certificate in Airport Pavements, the student's critical sense is developed to choose paving materials, detect errors and make correct calculations, through a perfectly structured study plan. The training offered by TECH Technological University always has the support of authentic professionals in the field in which it is taught, for this reason the management team and faculty have deposited in this Postgraduate Certificate all their professional experience. Likewise, the knowledge is structured based on the requirements of the labor market in situations as close to reality as possible.





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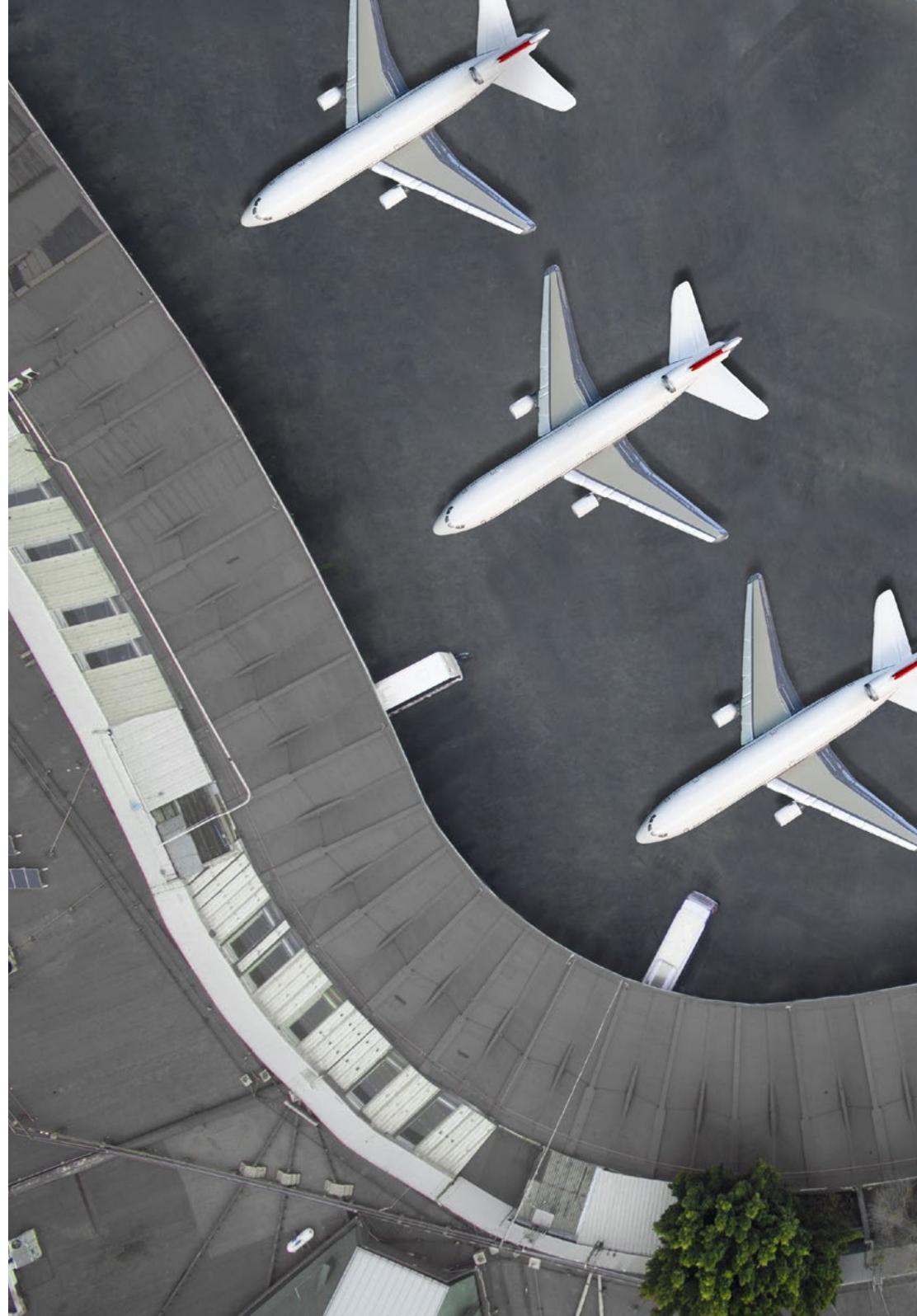
*The faculty of this Postgraduate Certificate designs the study systems based on their professional experience”*



## General Objectives

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- ◆ Provide the professional with the specific and necessary knowledge to perform with a critical and formed opinion in any phase of planning, design, construction or operation of the airport
- ◆ Determine the problems of airport design and look for solutions adjusted to the airport's needs
- ◆ Master the main constraints involved in an airport project
- ◆ Acquire a specialized approach and be able to monitor the management of any airport department
- ◆ Apply the latest techniques used in the industry today
- ◆ Outline the new trends that airports plan to implement in the post-COVID era
- ◆ To deepen the knowledge of the different critical and common airside infrastructures and their design





## Specific Objectives

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- ◆ Identify the importance of pavements in the life of the airport
- ◆ Identify the constituent materials of pavements
- ◆ Know the requirements for the installation of the work units that make up the pavements
- ◆ Learn more about the design parameters of an apron
- ◆ Go in depth into the dimensioning of rigid pavements, to dimension flexible pavements
- ◆ Detailing of pavement monitoring methods
- ◆ Identify pavement defects and the causes of these defects
- ◆ Distinguish the repair and reinforcement actions to be recommended in each situation

“

*Learn how to apply calculations and to choose materials for the construction of esplanades and to detect flaws in them”*

# 03

# Course Management

This program has been designed following the guidelines of prestigious professionals in the sector. They are active experts who have dedicated a large part of their careers to the design, construction and operation of airport infrastructures, continuing at the forefront of the sector and carrying out their professional practice in the best airports of international stature. By means of the content they will present and the diverse didactic materials they have developed, the student will receive the most current and requested knowledge of this industry.





“

*This program has been designed following the guidelines of prestigious professionals in the sector”*

## Management



### D. Moreno Merino, Rafael

- ♦ High Speed Projects Technician. Risk Assessment Expert at INECO
- ♦ Airport Maintenance Project Manager at INECO
- ♦ Engineer at INECO
- ♦ Director of the Master's Degree in Project, Construction and Operation of Airport Infrastructures
- ♦ Head of Occupational Risk Prevention and Production at ACCIONA
- ♦ Master's Degree in Business Administration at Polytechnic University of Madrid
- ♦ Master's Degree in Business Administration from Polytechnic University of Madrid
- ♦ Degree in Civil Engineering from San Antonio Catholic University of Murcia

## Professors

### D. Martín Ramos, Jorge

- ♦ Specialist in Airport Pavements
- ♦ Experience in airport pavements in airports in different continents
- ♦ Trainer for the Spanish Ministry of Public Works in Airport Issues
- ♦ Master's Degree in Physical Sciences
- ♦ Master's Degree in Airport Systems from the Polytechnic University of Madrid
- ♦ Bituminous Mixes Course: Dosage, Manufacture, Laying and Quality Control by INTEVÍA
- ♦ Professional Expert Course on Civil Works Pavements at the Technical Association of Roads
- ♦ Course on Pavement Evaluation Software Program ELMOD 6 by DYNATEST



# 04

# Structure and Content

This Postgraduate Certificate has been designed to generate knowledge and critical thinking in materials and airport paving. This program, adjusted to the needs of the market, will be easily delivered thanks to the experience of the teaching staff. The content includes the main materials and factors to be taken into account for the construction of airport concourses, as well as a catalog of the most common defects, and material to learn how to distinguish the repair and reinforcement actions recommended in each situation.



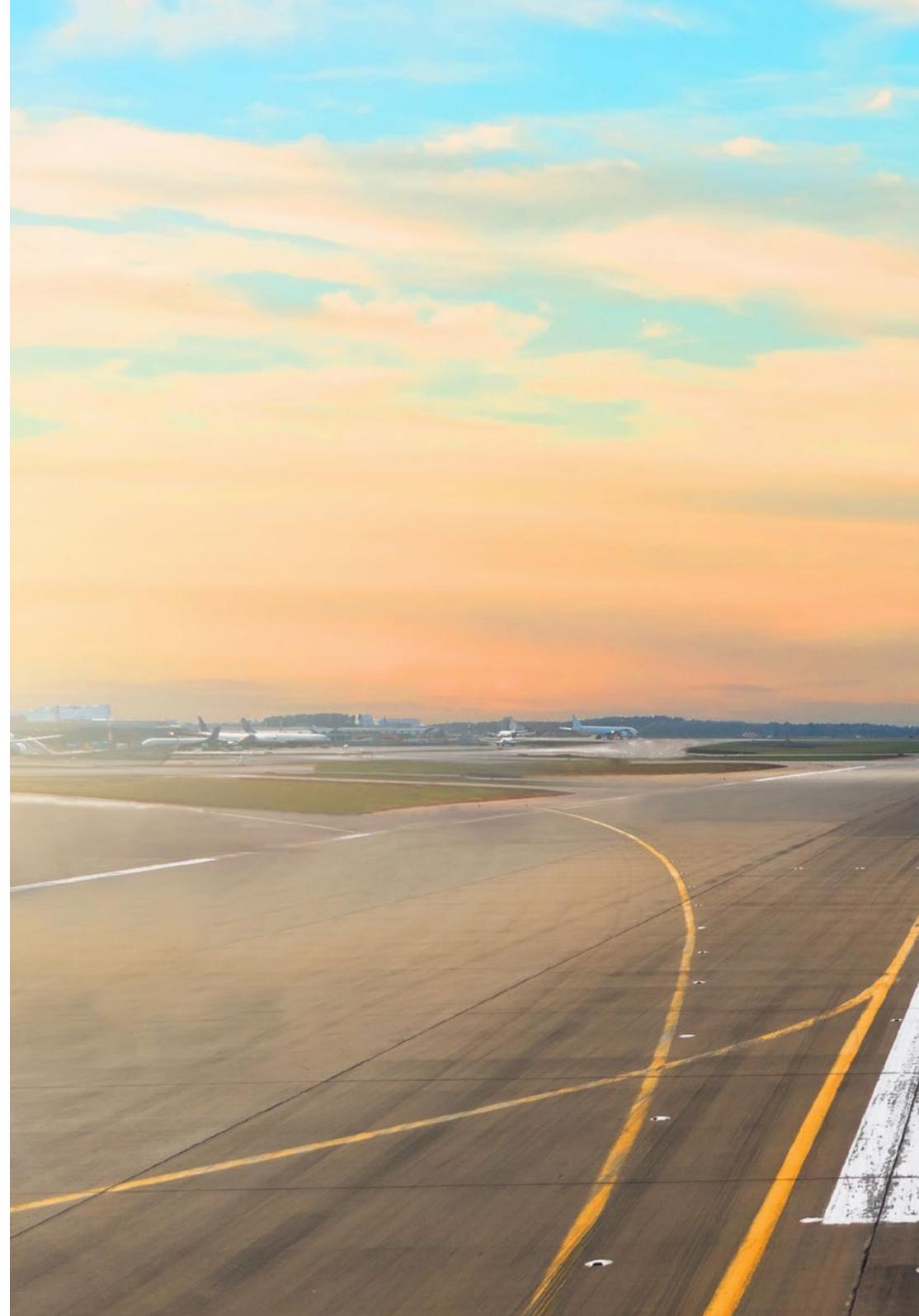


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*Become a pavement expert in airport  
concourse construction and inspection"*

## Module 1. Airport Pavements

- 1.1. Airport Pavement Typology
  - 1.1.1. Pavements in the Life of the Airport
  - 1.1.2. Pavement Types and Design Parameters
  - 1.1.3. Economic Management of Pavements
- 1.2. Materials to Build Pavements
  - 1.2.1. Bituminous Mixtures
  - 1.2.2. Concretes
  - 1.2.3. Granular Bases
- 1.3. Design and Preparation of the Esplanade
  - 1.3.1. Types of Soils
  - 1.3.2. Parameters that Determine the Strength of a Slab
  - 1.3.3. Land Improvements
- 1.4. Design of Flexible Airport Pavements
  - 1.4.1. Standard Flexible Pavement Cross-Sections and Minimum Cross-Sections
  - 1.4.2. Design of Flexible Pavements Airport Regulations
  - 1.4.3. Design of Flexible Resistance Pavements Airport Regulations
- 1.5. Design of Rigid Airport Pavements
  - 1.5.1. Typical rigid Pavement Cross-Sections and Minimum Cross-Sections
  - 1.5.2. Design of Resistant Rigid Pavements Under Airport Regulations
  - 1.5.3. Design of NO Resistant Rigid Pavements Under Airport Regulations
  - 1.5.4. FAARFIELD Case Study
- 1.6. Evaluation of Surface Parameters
  - 1.6.1. Coefficient of Friction
  - 1.6.2. Surface Texture
  - 1.6.3. Surface Regularity
  - 1.6.4. Pavement Condition Index (PCI)



- 1.7. Evaluation of Structural Parameters
  - 1.7.1. Non-Destructive Testing for Structural Capacity Determination
  - 1.7.2. Destructive Testing to Determine Structural Capacity
  - 1.7.3. Notification and Action Procedures
- 1.8. Skill Evaluation
  - 1.8.1. Type of Esplanades
  - 1.8.2. Strength of Compacted Soils (CBR test)
  - 1.8.3. Strength of Compacted Soils (plate load)
- 1.9. Catalog of Pavement Defects
  - 1.9.1. Defects in Flexible Pavements
  - 1.9.2. Defects in Rigid Pavements
  - 1.9.3. Defects in Esplanades
- 1.10. Screening, Reinforcement or Deep Reclamation
  - 1.10.1. Pavement Service Life Analysis
  - 1.10.2. Screeds to Improve Pavement Surface Condition
  - 1.10.3. Reinforcements and Deep Rehabilitation to Improve the Structural Condition of the Pavement



*Learn the keys to paving and materials for airport concourses with this fully online Postgraduate Certificate"*

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.



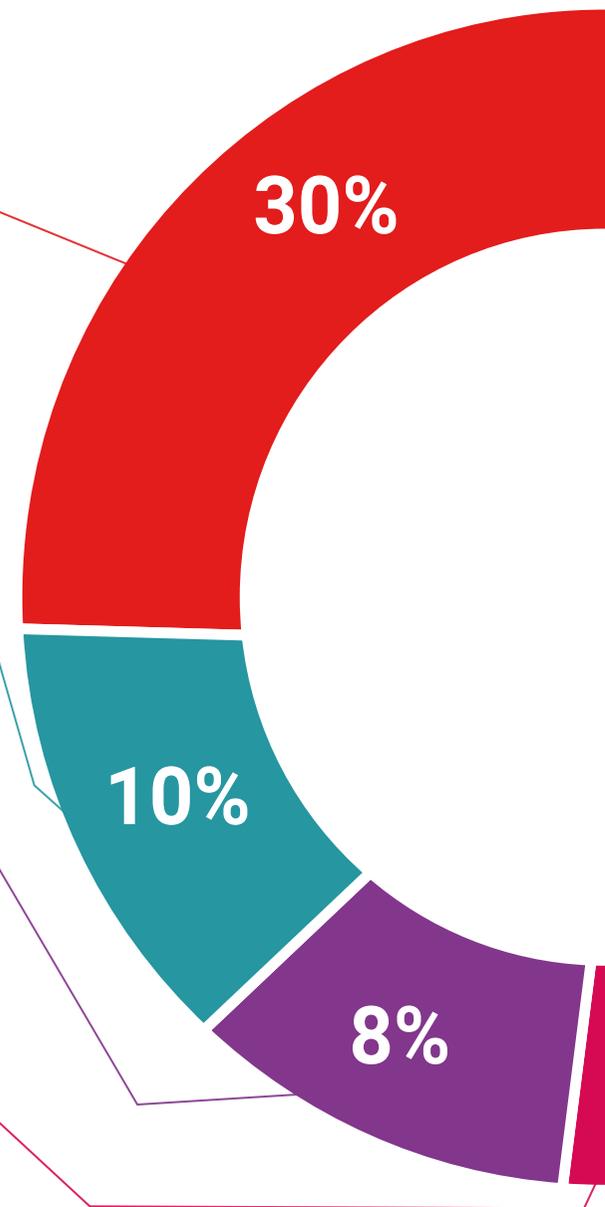
### Practising Skills and Abilities

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 Airport Pavements 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 Airport Pavements** 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 Airport Pavements**

Official N° of hours: **150 h.**



\*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.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



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- » Exams: **online**

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