



# Postgraduate Diploma Engineering Applied to Airport Infrastructure

» Modality: online

» Duration: 6 monthst

» Certificate: TECH Global University

» Credits: 18 ECTS

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-engineering-applied-airport-infrastructure

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> 06 Certificate





### tech 06 | Introduction

The increase in passenger demand, the constant movement of people between countries, as well as violent acts against civil aviation have completely changed the concept of airport infrastructure in recent decades. Thus, creating such facilities or making modifications to them implies a deep knowledge on the part of engineers of the operation and needs of the sector.

Thus, to be aware of the national and international regulations in force, to understand the airport administration and management, attending at all times to the real needs of the industry requires a mastery of this subject that is achievable through this 6-month Postgraduate Diploma.

This is an advanced program with a theoretical-practical approach that will lead students from day one to delve into the importance of airports within the transport system, to delve into the basic elements of infrastructure, planning, design based on passenger flow, the regulatory framework and the culture of security.

All of this is complemented by innovative didactic material based on video summaries of each topic, in-focus videos, specialized readings and case studies, accessible 24 hours a day, from any digital device with an Internet connection. In addition, thanks to the Relearning method, students can easily progress through the syllabus, consolidating the most important concepts in an agile way.

Undoubtedly, a unique learning opportunity through a flexible university program, which does not involve attendance at a center, nor does it have scheduled classes. In this way, the graduates will be able to manage their study time more freely and reconcile their personal and professional daily activities with an avant-garde education.

This **Postgraduate Diploma in Engineering Applied to Airport Infrastructure** contains the most complete and up-to-date program on the market. The most important features include:

- Development of case studies presented by experts in Aeronautical engineering
- 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 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



A program that gives you everything you need to know about putting a new airport into service"



This university program will allow you to design an airport infrastructure from start to finish, taking into account all the elements required"

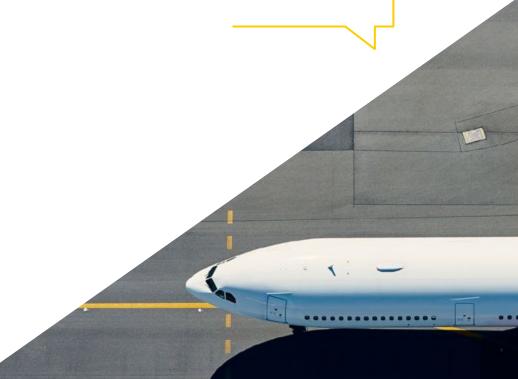
The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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.

A Postgraduate Diploma that will allow you to understand the planning, administration and operation of an airport.

Thanks to the Relearning method, you will advance progressively and naturally through the syllabus, consolidating the key concepts in a simple way.







### tech 10 | Objectives



### **General Objectives**

- Provide the professionals with the specific and necessary knowledge to perform, with a critical and informed opinion, in any phase of planning, design, manufacture, construction or operation in the various companies of the aviation sector
- Identify the problems in aeronautical designs and projects in order to know how to propose effective, viable and sustainable overall solutions
- Acquire the fundamental knowledge of existing technologies and innovations under development in transport systems, in order to be able to conduct research, development and innovation studies in aeronautical companies and technology centers
- Analyze the main conditioning factors involved in the aeronautical activity and how to
  efficiently apply the latest techniques used in the aviation sector today
- Acquire a specialized approach and be able to monitor the management of any aeronautical department, as well as to execute the general management and the technical management of designs and projects
- Delve into the knowledge of the different critical aeronautical areas according to their different relevant actors, as well as achieve the knowledge, understanding and ability to apply the applicable aeronautical or non-aeronautical legislation and regulations





### **Specific Objectives**

### Module 1. Airport strategy and commissioning of a new airport

- Examine the structure of the airport industry, as well as its operating environment
- Identify the functional elements of the airport infrastructure
- Analyze airport business and strategic planning in airports
- Generate specialized knowledge on the key concepts associated with traffic demand analysis and airport capacity calculation
- Establish measures to avoid airport congestion
- Planning the treatment of stakeholders involved in airport operations
- Understand the airport certification process
- Establish the framework for airport economic regulation
- Develop the operational transition process for new infrastructures

### Module 2. Protection of the Airport and its surroundings: Integration of Evolutionary Models

- Recognize the different aerodromes according to their environment
- Identify the physical factors that condition the design of the infrastructure and the development of the activity
- Identify the risks generated by the airport on its environment and vice versa
- Specify the international regulatory framework for the protection of the airport and its surroundings
- Define aerodrome easements and justify their necessity in terms of operations
- Define external easements and justify their necessity based on the environment
- Establish the basis of the easement surveillance system

- Define the coordination mechanisms of the stakeholders involved in the validation of the various airport infrastructure development proposals
- Characterize intermodal development and coordination
- Present the evolution of airport models, based on the facilitation of new technologies

### Module 3. Security, Security against Unlawful Acts against Civil Aviation, AVSEC

- Examine national and international regulations
- Identify the most important aspects of implementing security measures
- Determine the various ways of reducing operational impact
- Analyze the human and material means used in the implementation of security measures
- Defining the safety culture and how to promote it
- Define how to ensure quality in the implementation of safety measures
- Propose how to integrate security into the daily operations of airports and airlines



Thanks to the multimedia pills, you will be able to quickly learn more about the national and international regulations governing airport security"



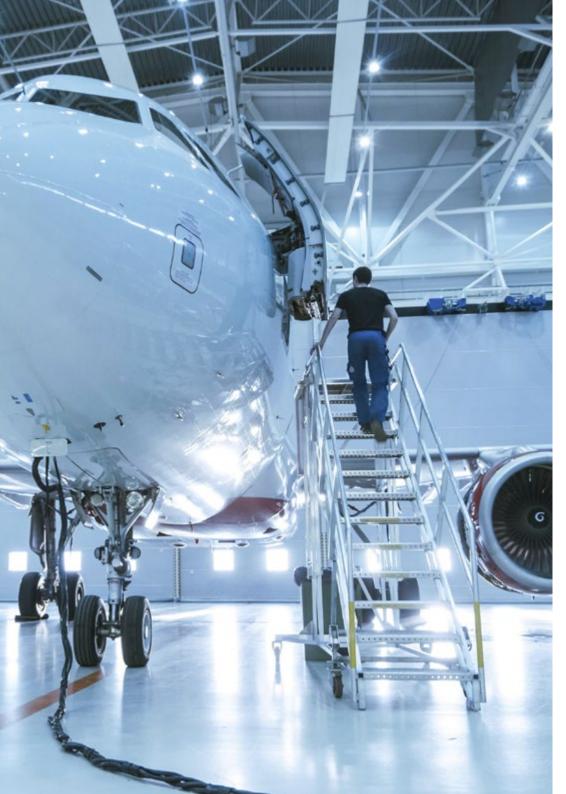


### Management



### D. Torrejón Plaza, Pablo

- Engineering Technician at ENAIRE
- Head of the Regulatory Unit of the National Airports Autonomous Organization
- Head of the Analysis Section of the National Airports Autonomous Organization Cabinet of the General Director
- Head of the Operations Section, Head of the Airport Security Office and Service Executive at Tenerife Sur Airport
- Head of the Procedures and Organization Section in the Office of the General Director of Aena Airports
- Head of the Programming Department and in the Office of the President of Aena
- Head of the Institutional Coordination and Parliamentary Affairs Division
- Associate Professor and Collaborator in the Aeronautical Management Degree at the Universidad Autónoma de Madrid
- Head of the Regulatory Unit of the National Airports Autonomous Organization
- Head of the Analysis Section of the National Airports Autonomous Organization Cabinet of the General Director
- Master's Degree in Airport Systems from the Polytechnic University of Madrid
- Master in Organizational Management in Knowledge Economy from the Universitat Oberta de Catalunya (Open University of Catalonia)
- Master's Degree in Executive MBA from the Instituto de Empresa in Madrid
- Aerospace Engineer from the University of León
- Aeronautical Technical Engineer by Universidad Politécnica de Madrid
- Aeronautical Manager from the Autonomous University of Madrid
- Honorary decoration "Alférez Policía Nacional del Perú Mariano Santos Mateos gran General de la Policía Nacional del Perú" for exceptional services in aeronautical consultancy and training



### Course Management | 15 tech

#### **Professors**

### Dr. Rodríguez Sanz, Álvaro

- Aeronautical Operations and Services Technician in the Direct and Special Plans Division of Aena's Airport Planning and Regulatory Control Directorate
- Engineer and project manager at ENAIRE's air traffic management research and development subsidiary (CRIDA)
- Participant as researcher in European Union projects associated with the Horizon 2020 program
- Strategic planning and route and market development analyst for LATAM airline
- Consultant engineer for airport and air transport projects at INECO, a company attached to the Ministry of Transport, Mobility and Urban Agenda
- Associate Professor in the Department of Aerospace Systems, Air Transport and Airports at the Polytechnic University of Madrid
- PhD in Aerospace Engineering from the Polytechnic University of Madrid
- Master's Degree in Airport Planning and Management, Cranfield University
- Winner of the Madrid City Council Talent and Technology Award, 2022 edition, for the best doctoral thesis in the Research and Technological Development category
- Winner of the Luis Azcárraga Award of the XXV edition of the ENAIRE Foundation Awards, call 2020, in recognition of research and technological innovation in aerospace matters
- Winner of the Aeronautical Innovation Award 2020 of the Official College of Aeronautical Engineers of Spain (COIAE)

### tech 16 | Course Management

### D. Sanz Dodero, José

- Head of Aena's Safety Regulations Department
- Head of Aena's Safety Division
- Head of the Airline Service Division of the Adolfo Suarez Madrid-Barajas Airport
- Head of the Management Office of the Adolfo Suarez Madrid-Barajas Airport
- Head of the Services Division, Adolfo Suarez Madrid-Barajas Airport
- Deputy Director of Adolfo Suarez Madrid-Barajas Airport
- Director of Security at the Ministry of the Interior
- Strategy Management and Planning at the University of Deusto
- International Consultant for New Slot Policy for El Salvador Airport; ORAT Project in Panama; DGAC Bolivia Transport Project or ACDM definition for Lima Airport, Peru
- AVSEC, IATA, ICAO trainer
- IATA courses in Emergency Management, Airport Certification, Airport Operations Management and Airport Facilitation
- Aeronautical Engineer from the Polytechnic University of Madrid
- Order of Merit of the Civil Guard with white badge
- Cross of Police Merit with white badge
- Commendation of Merit of Isabel la Catolica





### Course Management | 17 tech

### D. Casas Guillén, David

- Head of Engineering and Maintenance Department of Fuerteventura Airport
- Head of the Airport Security Department at Fuerteventura Airport
- Head of the Visual Aids Department in the Infrastructures Directorate at Aena Central Services
- Head of the Electrical Engineering and Electronics Section in the Infrastructures Directorate at Aena Central Services
- Director of Projects and Works in the Infrastructure Directorate at Aena Servicios Centrales
- Team Leader for Aerial Delivery tests, A400M program (Airbus Military)
- Lecturer in the Master's Degree in Air and Airport Company Management
- Degree in Aeronautical Engineering from the Polytechnic University of Madrid



A unique, key, and decisive academic experience to boost your professional development"





### tech 20 | Structure and Content

### Module 1. Airport strategy and commissioning of a new airport

- 1.1. Airports within the transportation system
  - 1.1.1. The airport as a fundamental node
  - 1.1.2. The structure of the airport industry
  - 1.1.3. The airport operating environment
- 1.2. Physical characteristics of the Infrastructure
  - 1.2.1. The movement area of an aerodrome
  - 1.2.2. Passenger terminal buildings
  - 1.2.3. Ancillary facilities for airport activities
- 1.3. Business models and airport strategy
  - 1.3.1. Airport business and operating models
  - 1.3.2. Commercial activity
  - 1.3.3. Development of new routes
- 1.4. Airport Demand Analysis
  - 1.4.1. Air Transport Demand
  - 1.4.2. Variables involved in demand analysis
  - 1.4.3. Fundamental methodologies for airport traffic forecasting
- 1. 5. Airport Capacity Analysis
  - 1.5.1. Airport infrastructure capacity
  - 1.5.2. Variables involved in airport capacity
  - 1.5.3. Fundamental methodologies for calculating airport capacity
- 1.6. Congestion, delay and capacity-demand management
  - 1.6.1. Quality of service and delay
  - 1.6.2. Strategies for airport capacity and demand management
  - 1.6.3. Slot coordination
- 1.7. Stakeholders in the airport environment
  - 1.7.1. Identification of stakeholders
  - 1.7.2. Characterization of stakeholders
  - 1.7.3. Stakeholder management and treatment

- 1.8. Aerodrome certification
  - 1.8.1. The Importance of Aerodrome Certification
  - 1.8.2. The aerodrome certification process
  - 1.8.3. Aeronautical safety studies
- 1.9. Airport economic regulation
  - 1.9.1. Airport economic regulation models
  - 1.9.2. Performance measures and airport benchmarking
  - 1.9.3. Airport competition and the role of Marketing
- 1.10. Start-up of a new airport and operational transition
  - 1.10.1. The chain of actions in a new airport infrastructure
  - 1.10.2. Start-up of a new infrastructure
  - 1.10.3. Operational transition and systems integration

## **Module 2.** Protection of the Airport and its surroundings: Integration of Evolutionary Models

- 2.1. The airport system. Global conception
  - 2.1.1. Evolution of the airport system concept
  - 2.1.2. Classification of aerodromes according to their environment
  - 2.1.3. Feasibility of adaptation to the environment
- 2.2. Airport design. Conditioning physical factors
  - 2.2.1. Orography and geology
  - 2.2.2. Climatological factors
  - 2.2.3. Environmental factors
- 2.3. Regulatory Framework
  - 2.3.1. Main regulatory agencies
  - 2.3.2. Environmental regulation
  - 2.3.3. Easement regulation
- 2.4. Protection of airport operations
  - 2.4.1. Radio-electric easements
  - 2.4.2. Aerodrome easements
  - 2.4.3. Operational easements
  - 2.4.4. Obstacle free zones



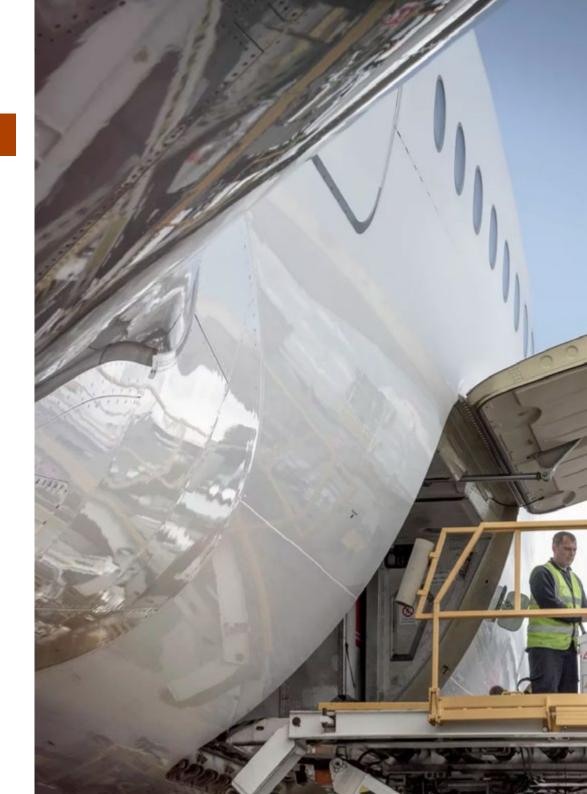
### Structure and Content | 21 tech

- 2.5. Protection of the airport system environment
  - 2.5.1. Environmental Protection
  - 2.5.2. Noise Protection Noise maps and acoustic easements
  - 2.5.3. Maritime airport environments
  - 2.5.4. Strategic environmental statements/documents
- 2.6. Characterization of the risks to sustainable and coordinated development
  - 2.6.1. Operational Risks
  - 2.6.2. Environmental risks
  - 2.6.3. Economic risks
- 2.7. The monitoring of easements
  - 2.7.1. Actors involved and functions
  - 2.7.2. Surveillance mechanisms
  - 2.7.3. Limitation of activities
  - 2.7.4. Coordination mechanisms
- 2.8. Intermodal coordination
  - 2.8.1. Evolution of intermodality
  - 2.8.2. Modal spaces
  - 2.8.3. Coordination with surface transport
- 2.9. Socio-economic impact
  - 2.9.1. Characterization of the global impact of aviation on society
  - 2.9.2. The role of international associations in global development
  - 2.9.3. Local impact. Coordination committees: airport-environment
- 2.10. Future challenges in airport development
  - 2.10.1. Operational constraints and traffic growth
  - 2.10.2. The present and rise of UAVs and the surveillance of easements
  - 2.10.3. The risks of urban and aeronautical innovations
  - 2.10.4. Adaptation of the Regulatory Framework

### tech 22 | Structure and Content

## **Module 3.** Security, Security against Unlawful Acts against Civil Aviation, AVSEC

- 3.1. Security/Safety
  - 3.1.1. Definition of Security according to ICAO Annex 17
  - 3.1.2. History of Security
  - 3.1.3. Evolution of Security Attacks/Measures
- 3.2. Regulations
  - 3.2.1. Security Regulations
  - 3.2.2. International Civil Aviation and EU Regulations
  - 3.2.3. One Stop Security and other agreements between countries
- 3.3. Facilitation vs. Security/Safety
  - 3.3.1. Analysis of the balance that must exist between security and facilitation for the correct functioning of the airport operation
  - 3.3.2. Existing Regulations
  - 3.3.3. Necessary Equipment
- 3.4. Material Resources. Equipment
  - 3.4.1. Available Equipment
  - 3.4.2. Certification, Homologation
  - 3.4.3. New Technologies
- 3.5. Material Resources. Facilities
  - 3.5.1. Integral Security Systems
  - 3.5.2. Physical Resources
  - 3.5.3. Electronic Security Means
- 3.6. Infrastructure Planning
  - 3.6.1. The influence of security on the design of airports
  - 3.6.2. Materials
  - 3.6.3. Passenger Flows
  - 3.6.4. Adequate Facilities for Security Systems
- 3.7. Human Resources
  - 3.7.1. Education
  - 3.7.2. Roles and Responsibilities
  - 3.7.2. Management of Private Security Services



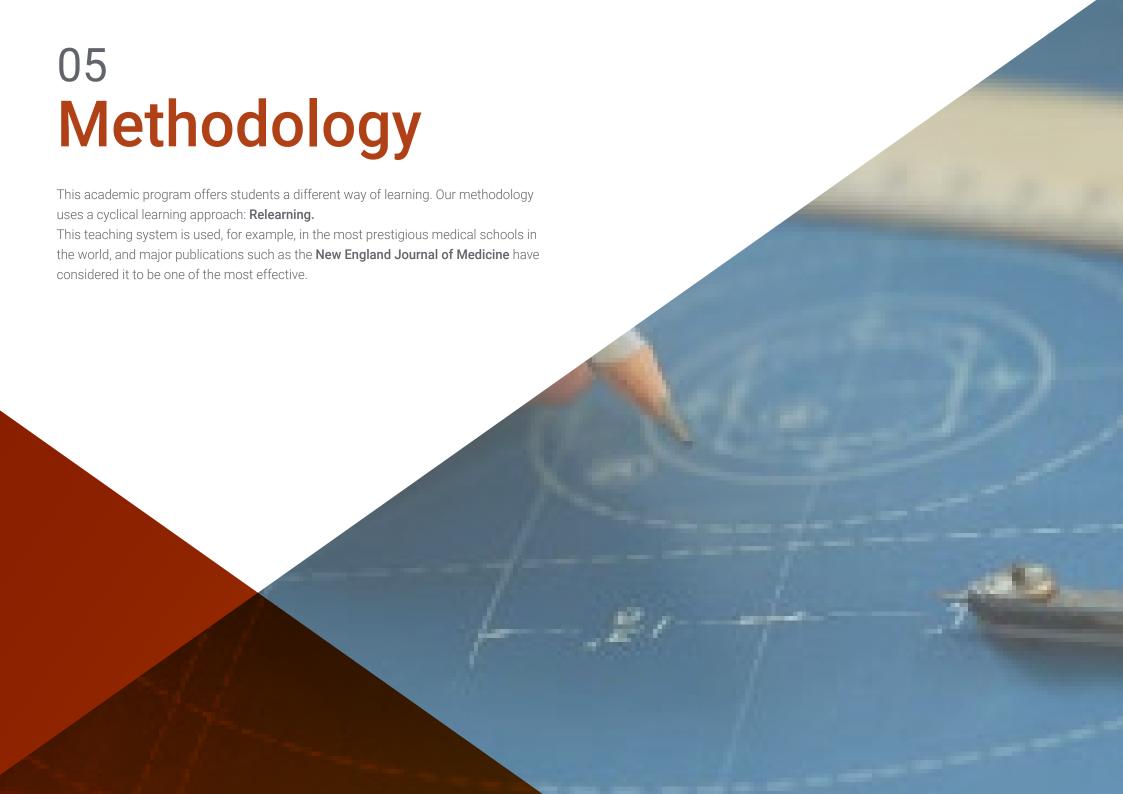


### Structure and Content | 23 tech

- 3.8. Airline Security
  - 3.8.1. Aircraft
  - 3.8.2. Facilities
  - 3.8.3. Reference Standards
  - 3.8.4. Special Measures
- 3.9. Air Cargo Security
  - 3.9.1. Weight
  - 3.9.2. Mail
  - 3.9.3. Onboard supplies
  - 3.9.4. Airport supplies
- 3.10. Safety Quality
  - 3.10.1. Quality Control Plan
  - 3.10.2. Audits
  - 3.10.3. Corrective Actions



An academic option that will allow you to deepen your knowledge of existing international safety regulations in an agile way"





### tech 26 | 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 | 27 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 28 | 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 | 29 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.

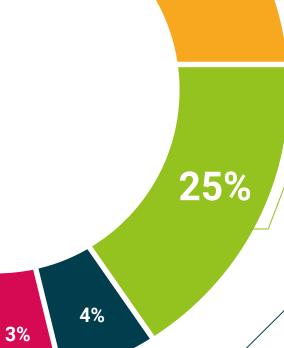


This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

### **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.





20%





### tech 34 | Certificate

This program will allow you to obtain your **Postgraduate Diploma in Engineering Applied to Airport Infrastructure** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra (*official bulletin*). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: Postgraduate Diploma in Engineering Applied to Airport Infrastructure

Modality: online

Duration: 6 months

Accreditation: 18 ECTS



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

#### Postgraduate Diploma in Engineering Applied to Airport Infrastructure

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024



<sup>\*</sup>Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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### Postgraduate Diploma Engineering Applied to Airport Infrastructure

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