Postgraduate Certificate

Corporate Networks and Infrastructures

tech global university

tech global university

Postgraduate Certificate

Corporate Networks and Infrastructures

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/information-technology/postgraduate-certificate/corporate-networks-infrastructures

Index

01
Introduction
p. 4

02
Objectives
p. 8

03
Structure and Content
p. 12

04
Methodology
p. 18

05
Certificate
p. 26

01

Introduction

Corporate networks require high-speed connections, which enable fast and secure network use. This program brings students closer to the corporate networks necessary to these system infrastructures, with an up-to-date and high-quality program. It is a comprehensive program that seeks to prepare students for success in their profession.

If you are looking for a quality Postgraduate Certificate that will help you specialize in one of the most promising professional fields, this is your best option"

Advances in telecommunications are happening all the time, as this is one of the fastest evolving areas. It is therefore necessary to have IT experts who can adapt to these changes and have first-hand knowledge of the new tools and techniques that are emerging in this field.

This Postgraduate Certificate in Corporate Networks and Infrastructures addresses the complete range of topics involved in this field. Its study has a clear advantage over other programs that focus on specific blocks, which prevents students from knowing the interrelation with other areas included in the multidisciplinary field of telecommunications. In addition, the teaching team of this educational program has made a careful selection of each of the topics of this program in order to offer students the most complete study opportunity possible and always linked to current events.

This educational program focuses on transport networks, WAN architectures, ATM-based networks, advanced queuing models, quality of service in corporate networks and the infrastructures required for this type of network, among other aspects. A program that will give you the skills to work in this field.

This Postgraduate Certificate is aimed at those interested in attaining expert knowledge of Corporate Networks and Infrastructures. The main objective is for students to specialize their knowledge in simulated work environments and conditions in a rigorous and realistic manner so they can later apply it in the real world.

Additionally, as it is a 100% online program, the student is not constrained by fixed timetables or the need to move to another physical location, but can access the contents at any time of the day, balancing their professional or personal life with their academic life.

This **Postgraduate Certificate in Corporate Networks and Infrastructures** contains the most complete and up-to-date program on the market. Its most notable features are:

- The development of practical cases presented by experts in Corporate Networks and Infrastructure
- 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 self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies in Corporate Networks and Infrastructure
- 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

Don't miss the opportunity to study this Postgraduate Certificate in Corporate Networks and Infrastructures with TECH. It's the perfect opportunity to advance your career"

This Postgraduate Certificate is the best investment you can make when selecting a refresher program to update your knowledge of and Corporate Networks and Infrastructures"

This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

This 100% online Postgraduate Certificate will allow you to combine your studies with your professional work.

The teaching staff includes professionals from the field of information technology, who bring their experience to this specialization program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. To do so, professionals will be assisted by an innovative interactive video system created by renowned and experienced experts in Corporate Networks and Infrastructures.

02

Objectives

The Postgraduate Certificate in Corporate Networks and Infrastructures is designed to facilitate professional performance in the field to acquire knowledge of the main developments in the sector.

Our goal is to make you the best professional in your sector. And for this we have the best methodology and content"

General Objectives

- Prepare students to be able to develop their work with total confidence and quality in the field of telecommunications, focused on Corporate Networks and Infrastructures

Get trained at the one of the world's leading private online universities"

Specific Objectives

- Master advanced aspects of infrastructure interconnection, essential when designing and planning high-speed networks
- Know the main characteristics and technologies of transport networks
- Understand the Architectures of: Classic WANs, All-Ethernet, MPLS, VPN
- Analyze the fundamental aspects of the evolution of networks to NGN (Next Generation Networks)
- Understand advanced requirements for quality of service, routing and congestion control and reliability
- Understand and know how to apply the international network standards

03

Structure and Content

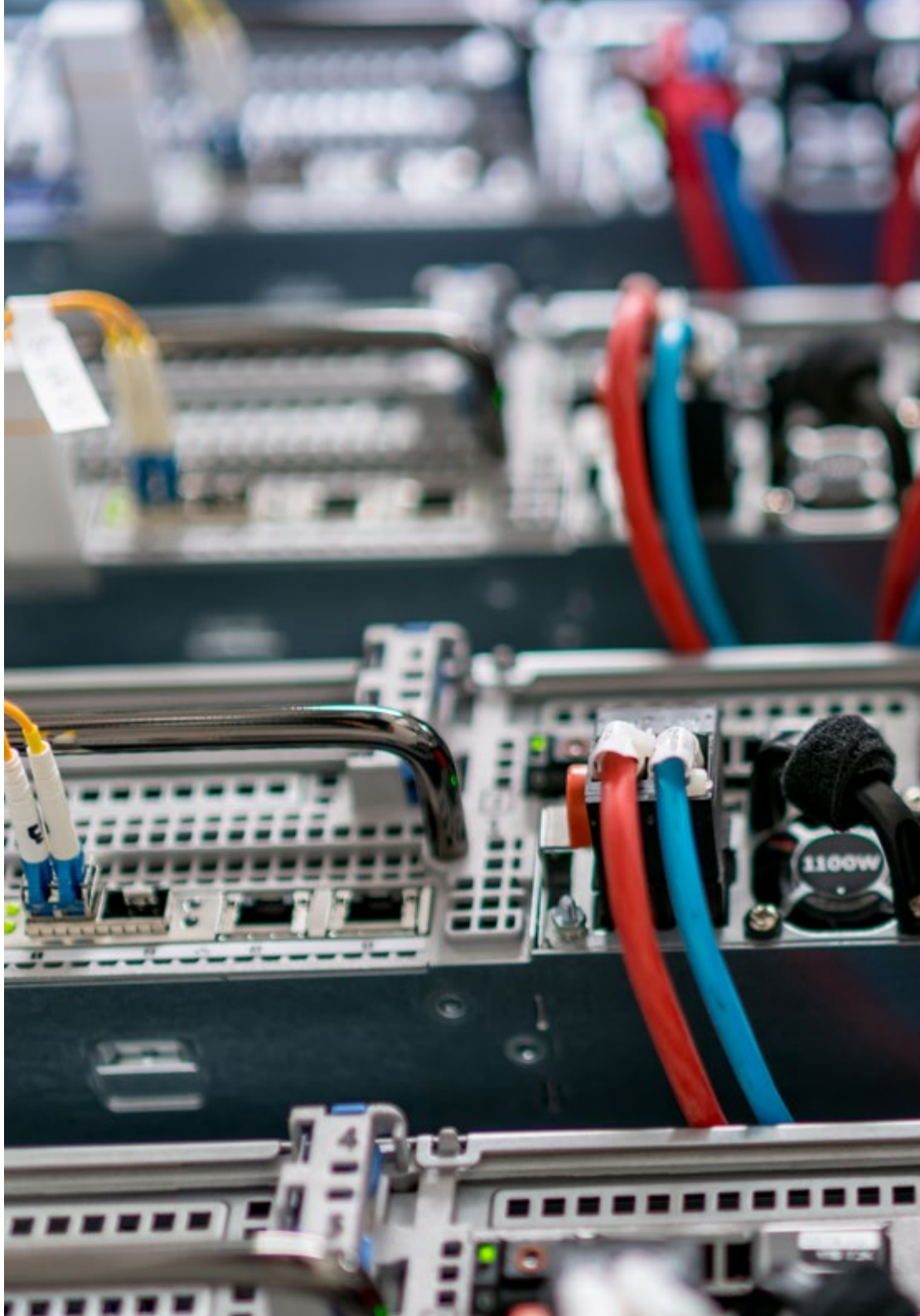
The structure of the contents has been designed by the best professionals in the from the engineering sector, with extensive experience and recognized prestige in the profession.

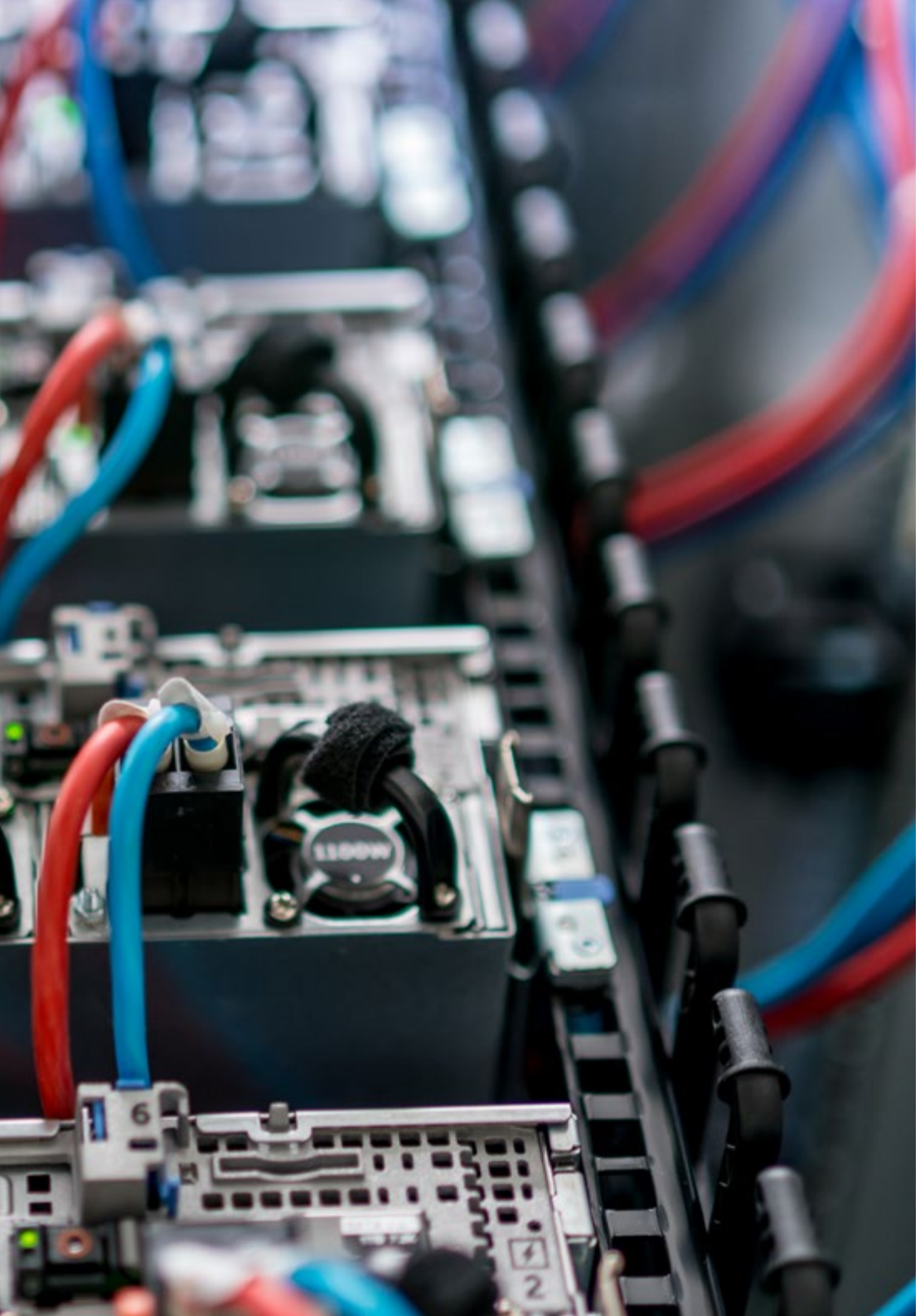
We have the most complete and up-to-date educational program on the market. We strive for excellence and for you to achieve it too"

Module 1. Corporate Networks and Infrastructure

1.1. Transport Networks
- 1.1.1. Functional Architecture of Transport Networks
- 1.1.2. SDH Network Node Interface
- 1.1.3. Network Element
- 1.1.4. Network Quality and Availability
- 1.1.5. Transport Network Management
- 1.1.6. Evolution of Transportation Networks

1.2. Classic WAN Architectures
- 1.2.1. WAN Wide Area Networks
- 1.2.2. WAN Standards
- 1.2.3. WAN Encapsulation
- 1.2.4. WAN Devices
  - 1.2.4.1. Router
  - 1.2.4.2. Modem
  - 1.2.4.3. Switch
  - 1.2.4.4. Communication Servers
  - 1.2.4.5. Gateway
  - 1.2.4.6. Firewall
  - 1.2.4.7. Proxy
  - 1.2.4.8. NAT
- 1.2.5. Connection Types
  - 1.2.5.1. Point-to-Point Links
  - 1.2.5.2. Circuit Switching
  - 1.2.5.3. Packet Switching
  - 1.2.5.4. WAN Virtual Circuits





1.3. ATM-Based Networks
- 1.3.1. Introduction, Characteristics and Layer Model
- 1.3.2. ATM Physical Access Layer
  - 1.3.2.1. Physical Environment Dependent Sublayer PM
  - 1.3.2.2. TC Transmission Convergence Sublayer
- 1.3.3. ATM Cell
  - 1.3.3.1. Heading
  - 1.3.3.2. Virtual Connection
  - 1.3.3.3. ATM Switching Nodes
  - 1.3.3.4. Flow Control (Link Loading)
- 1.3.4. AAL Cell Adaptation
  - 1.3.4.1. AAL Service Types

1.4. Advanced Queuing Models
- 1.4.1. Introduction
- 1.4.2. Fundamentals of Queuing Theory
- 1.4.3. Queuing Theory Basic Systems
  - 1.4.3.1. M/M/1, M/M/m and M/M/∞ Systems
  - 1.4.3.2. M/M/1 and K/M/ M/M/∞ Systems
- 1.4.4. Advanced System Queuing Theory
  - 1.4.4.1. M/G/1 System
  - 1.4.4.2. M/G/1 System with Priorities
  - 1.4.4.3. Queuing Networks
  - 1.4.4.4. Communication Network Modeling

1.5. Quality of Service in Corporate Networks
- 1.5.1. Fundamentals
- 1.5.2. QoS factors in Converged Networks
- 1.5.3. QoS Concepts
- 1.5.4. QoS Policies
- 1.5.5. Methods for Implementing QoS
- 1.5.6. QoS Models
- 1.5.7. Mechanisms for Deploying DiffServ QoS
- 1.5.8. Application Examples

1.6. Corporate Networks and All-Ethernet Infrastructures
- 1.6.1. Ethernet Network Topologies
  - 1.6.1.1. Bus Topology
  - 1.6.1.2. Star Topology
- 1.6.2. Ethernet and IEEE 802.3 Frame Format
- 1.6.3. Switched Ethernet Network
  - 1.6.3.1. Virtual VLANs
  - 1.6.3.2. Port Aggregation
  - 1.6.3.3. Connection Redundancy
  - 1.6.3.4. QoS Management
  - 1.6.3.5. Safety Functions
- 1.6.4. Fast Ethernet
- 1.6.5. Gigabit Ethernet

1.7. MPLS Infrastructures
- 1.7.1. Introduction
- 1.7.2. MPLS
  - 1.7.2.1. MPLS Background and Evolution
  - 1.7.2.2. MPLS Architecture
  - 1.7.2.3. Reshipment of Labeled Packages
  - 1.7.2.4. Label Distribution Protocol (LDP)
- 1.7.3. VPN MPLS
  - 1.7.3.1. VPN Definition
  - 1.7.3.2. VPN Models
  - 1.7.3.3. MPLS VPN Model
  - 1.7.3.4. MPLS VPN Architecture
  - 1.7.3.5. Virtual Routing Forwarding (VRF)
  - 1.7.3.6. RD
  - 1.7.3.7. RouteTarget (RT)
  - 1.7.3.8. VPNv4 Route Propagation in an MPLS VPN
  - 1.7.3.9. Packet Forwarding in an MPLS VPN Network
  - 1.7.3.10. BGP
  - 1.7.3.11. Extended BGP Community: RT
  - 1.7.3.12. Label Transport with BGP
  - 1.7.3.13. Route Reflector (RR)
  - 1.7.3.14. Group RR
  - 1.7.3.15. BGP Route Selection
  - 1.7.3.16. Package Forwarding
- 1.7.4. Common Routing Protocols in MPLS Environments
  - 1.7.4.1. Vector Distance Routing Protocols
  - 1.7.4.2. Link-State Routing Protocols
  - 1.7.4.3. OSPF
  - 1.7.4.4. ISIS

1.8. Carrier Services and VPNs
- 1.8.1. Introduction
- 1.8.2. Basic VPN Requirements
- 1.8.3. Types of VPN
  - 1.8.3.1. Remote VPN Access
  - 1.8.3.2. Point-to-Point VPN
  - 1.8.3.3. VPN Interna (over LAN)
- 1.8.4. Protocols Used in VPN
- 1.8.5. Implementations and Connection Types

1.9. NGN (Next Generation Networks)
- 1.9.1. Introduction
- 1.9.2. Background
  - 1.9.2.1. Definition and Characteristics of NGN Networks
  - 1.9.2.2. Migration to Next Generation Networks
- 1.9.3. NGN Architecture
  - 1.9.3.1. Primary Connectivity Layer
  - 1.9.3.2. Access Layer
  - 1.9.3.3. Service Layer
  - 1.9.3.4. Management Layer
- 1.9.4. IMS
- 1.9.5. Standardizing Organizations
- 1.9.6. Regulatory Trends

1.10. ITU and IETF Standards Review
- 1.10.1. Introduction
- 1.10.2. Standardization
- 1.10.3. Some Standard Organizations
- 1.10.4. WAN Physical Layer Protocols and Standards
- 1.10.5. Examples of Medium Oriented Protocols

This program will allow you to advance in your career comfortably"

04

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 has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. 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 course, students 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

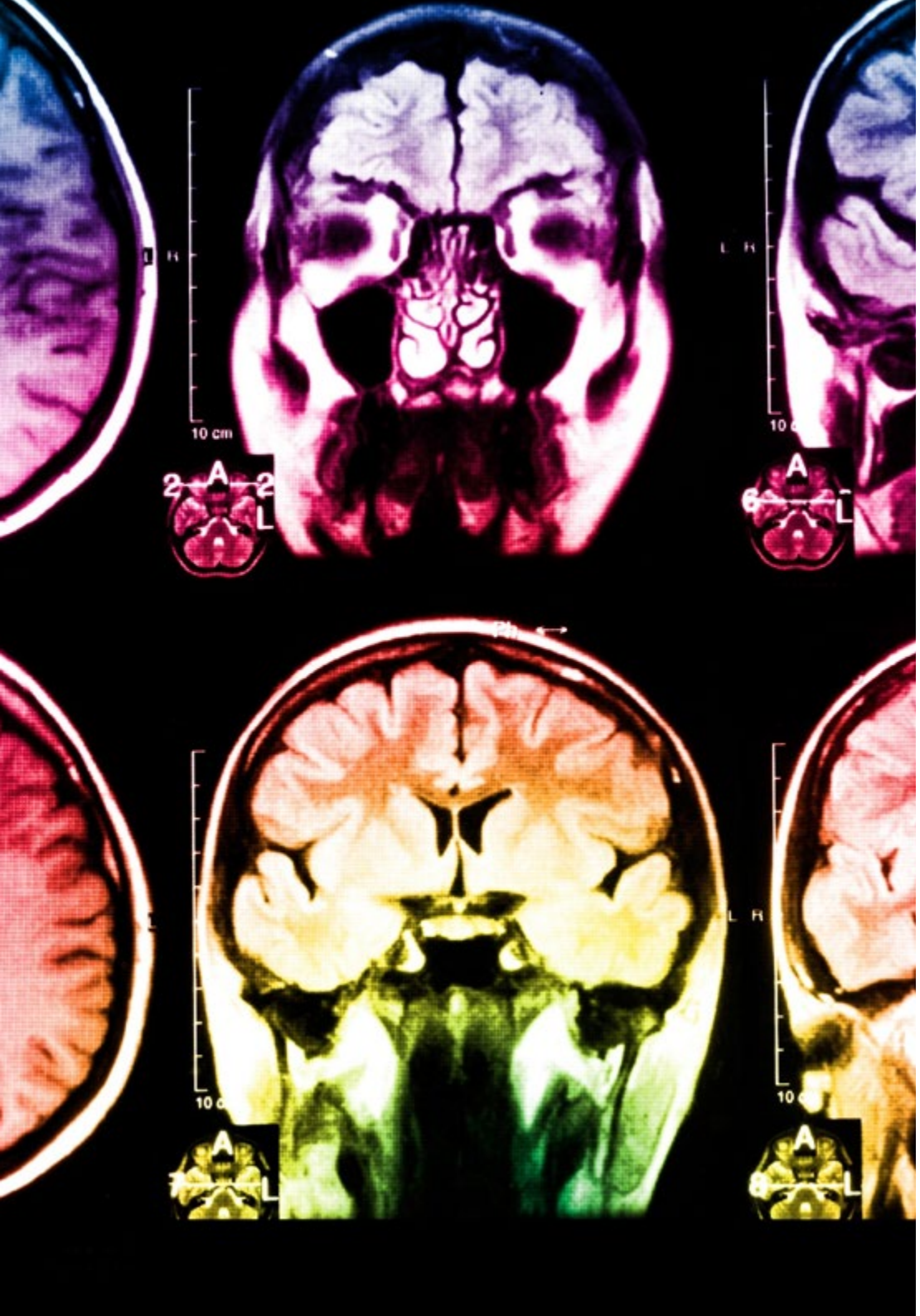
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

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.

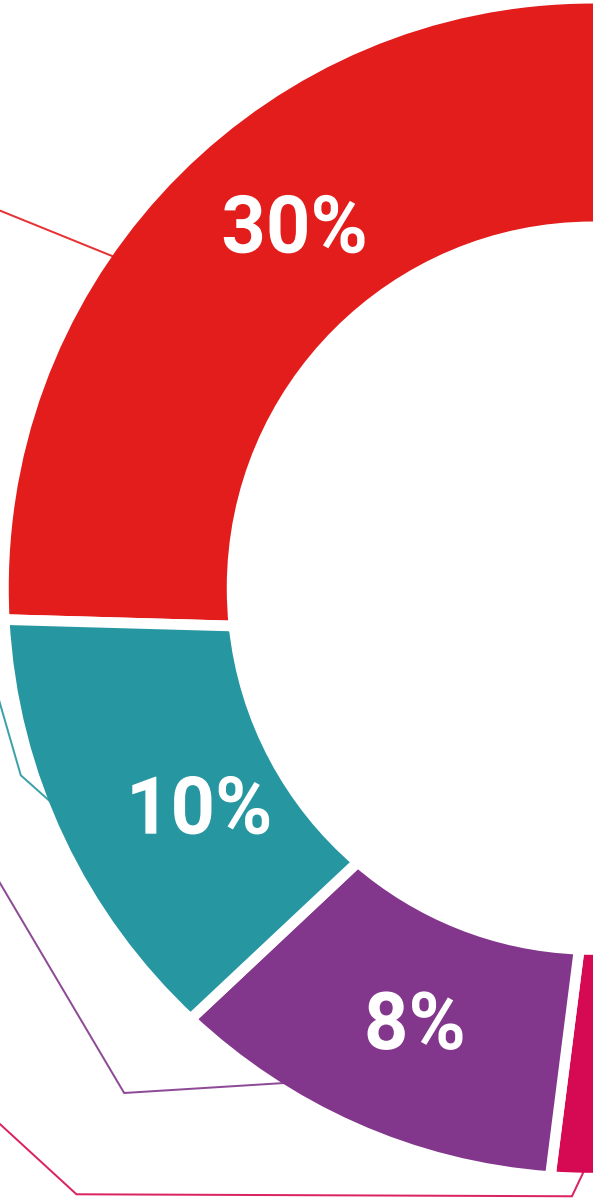
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

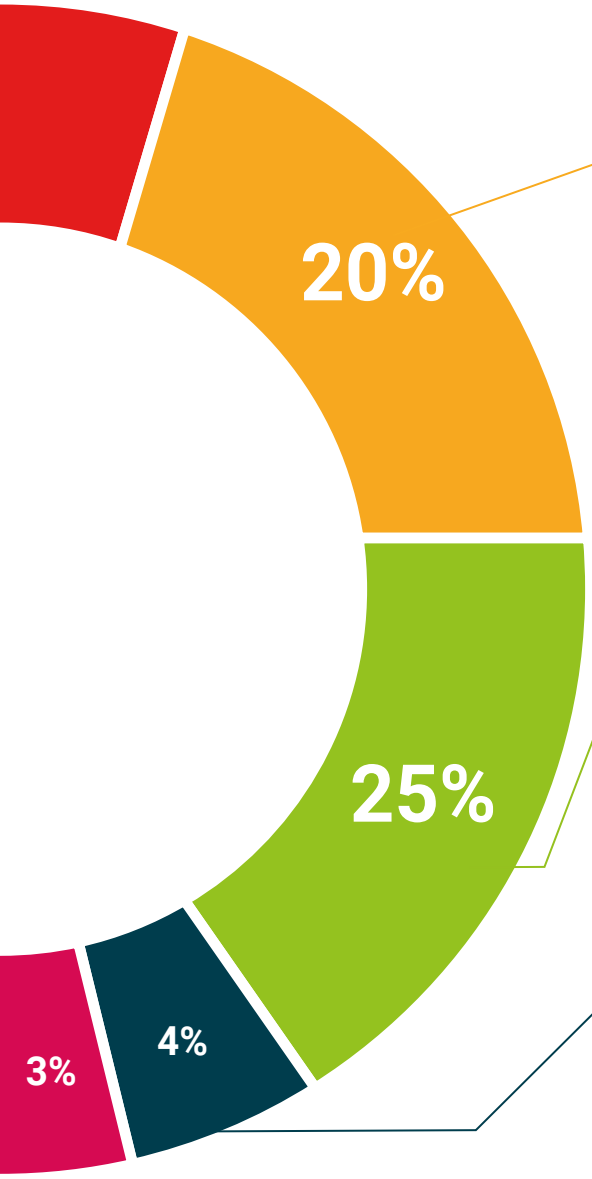
Practising Skills and Abilities

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.

05

Certificate

The Postgraduate Certificate in Corporate Networks and Infrastructures guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Certificate in Corporate Networks and Infrastructures** 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 Certificate in Corporate Networks and Infrastructures**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

tech global university

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

Postgraduate Certificate in Corporate Networks and Infrastructures

This is a program of 180 hours of duration equivalent to 6 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

Dr. Pedro Navarro Illana
Rector

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

tech global university

Postgraduate Certificate

Corporate Networks and Infrastructures

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Postgraduate Certificate

Corporate Networks and Infrastructures

tech global university