

# Postgraduate Certificate Security and Good Practices in Cloud Environments





## Postgraduate Certificate Security and Good Practices in Cloud Environments

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Global University
- » Credits: 12 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/information-technology/postgraduate-certificate/security-good-practices-cloud-environments](http://www.techtute.com/us/information-technology/postgraduate-certificate/security-good-practices-cloud-environments)

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# 01

# Introduction

More than half of the companies that work with the Cloud consider there to be a high risk in the cloud against possible hacker attacks. A climate of reluctance that is reversed by providing security and best practices by IT professionals. This course addresses how to deploy secure services and Cloud infrastructures, which tools to use and how to configure a cloud environment that provides guarantees to the client. A program that delves into the design of Cloud architecture with a specialized teaching team and in a 100% online mode that gives students flexibility and convenience in learning.





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*Lead projects in Cloud environments  
guaranteeing security Specialize in  
this Postgraduate Certificate”*

Advances in new technologies are becoming faster and faster, a continuous change that improves the features and services offered to companies and users, but at the same time increases the risk of vulnerabilities. This program, aimed at IT professionals, delves into the security of information and systems.

This program leads students to the programming of Cloud Computing architecture, provides the keys to the identification and development of the key aspects in the design, establishing guidelines for running an application in production. A correct structure prevents vulnerable points in the cloud.

In this current framework, this program addresses the role of infrastructure providers as co-responsible for security with end customers. Knowing the essential tools they provide to ensure security in the deployment of information systems is key to guaranteeing the peace of mind of the company hiring the cloud service.

An excellent opportunity for professionals who wish to specialize in a technological field that more and more companies around the world are joining. The 100% online educational system allows students to distribute the teaching load as best suits their lifestyle, since there are no schedules or in-person attendance. You only need an internet connection to access the virtual platform where you will have at your disposal a comprehensive syllabus with interactive content that will facilitate the foundation of knowledge.

This **Postgraduate Certificate in Security and Good Practices in Cloud Environments** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ Development of practical cases presented by experts in Cloud Programming
- ◆ The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with Internet connection



*Delve into Blockchain Architecture in Cloud Environments. Enroll now. The best largest technology companies are waiting for you"*

“

*Design and implement a secure network with all the guarantees, thanks to this Postgraduate Certificate”*

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

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

The design of this program focuses on Problem-Based Learning, by means of which professionals must try to solve the different professional practice situations that are presented to them throughout the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Companies fear for the security of their data in the cloud Improve your knowledge with this program and give them peace of mind. Enroll now.*

*A specialized teaching team will guide you in designing a professional Hyperledger Fabric network.*



# 02

# Objectives

During this course, IT professionals will acquire the necessary knowledge to develop a Cloud Computing architecture and will be able to identify the main risks of a public Cloud infrastructure deployment. Thus, upon completion of the six-week program, students will determine the security requirements to be applied in the cloud for a company and the best practices to be followed to avoid security breaches. The specialized teaching team will guide the professionals in this learning process so that they can progress in their career.



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*Add one more step forward in your professional career. Specialize and put into practice everything you learn in this program”*



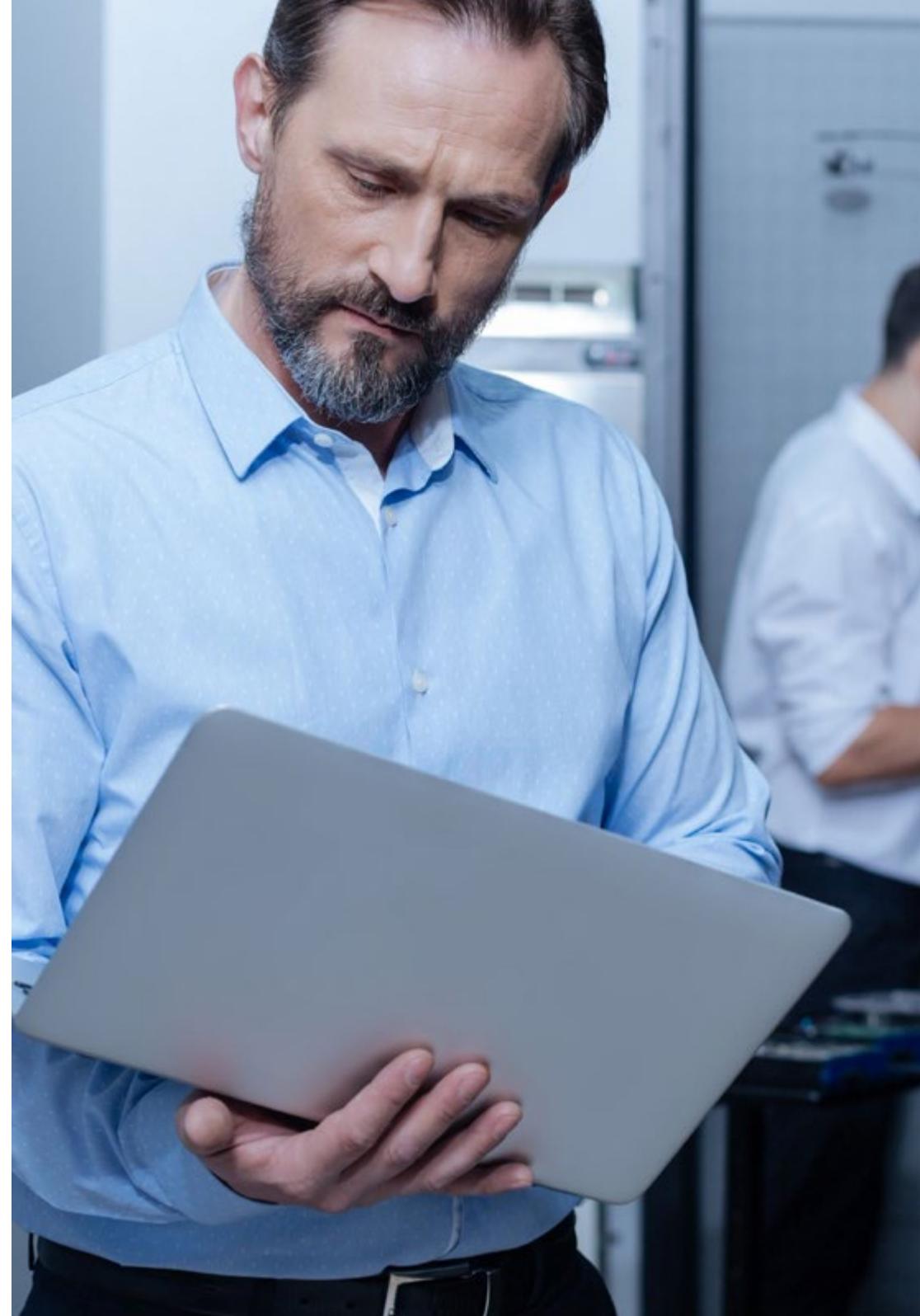
## General Objectives

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- ◆ Analyze the different approaches to cloud adoption and their contexts
- ◆ Acquire specialized knowledge to determine the appropriate Cloud
- ◆ Develop a virtual machine in Azure
- ◆ Establish the sources of threats in application development and best practices to apply
- ◆ Evaluate the differences in the specific implementations of different public Cloud vendors
- ◆ Determine the different technologies applied to containers
- ◆ Identify the key aspects of a Cloud Native adoption strategy
- ◆ Justify and evaluate the programming languages most commonly used in Big Data, necessary for data analysis and processing

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*Thanks to this program, you will be able to develop a security plan for a fail-save Cloud deployment. We have been waiting for you”*





## Specific Objectives

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- ◆ Specialize the student in the knowledge of Cloud infrastructures
- ◆ Evaluate advantages and disadvantages of deploying On Premise or in the Cloud
- ◆ Determine infrastructure requirements
- ◆ Identify deployment options
- ◆ Train for the implementation of a Cloud infrastructure in production
- ◆ Design and define the operation and maintenance of a Cloud architecture
- ◆ Identifying risks of a public cloud infrastructure deployment
- ◆ Analyze security risks in application development
- ◆ Determine security requirements
- ◆ Developing a security plan for a cloud deployment
- ◆ Establish guidelines for a logging and monitoring system
- ◆ Propose incident response actions

03

# Course Management

TECH builds specialized teaching teams for each program it offers. In this way, students receive an education that guarantees quality and a current approach to their sector. In this case, the IT professional has at their disposal a teaching staff with experience in Cloud Computing, Big Data and Blockchain development. Their knowledge and incursion in cloud projects will provide an updated and relevant content in the field of new technologies.

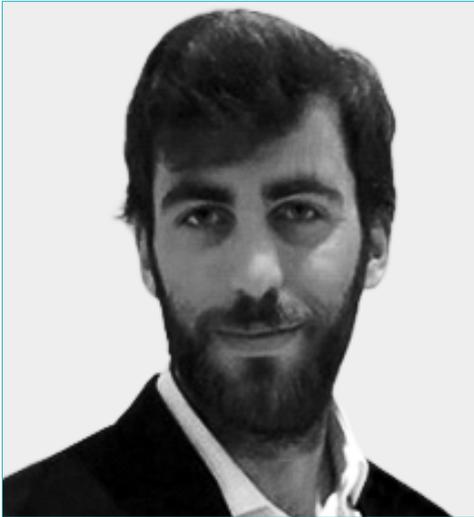




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*TECH provides you with a relevant and experienced teaching team in Cloud Computing. Only they will be able to bring out the best in you”*

## Management



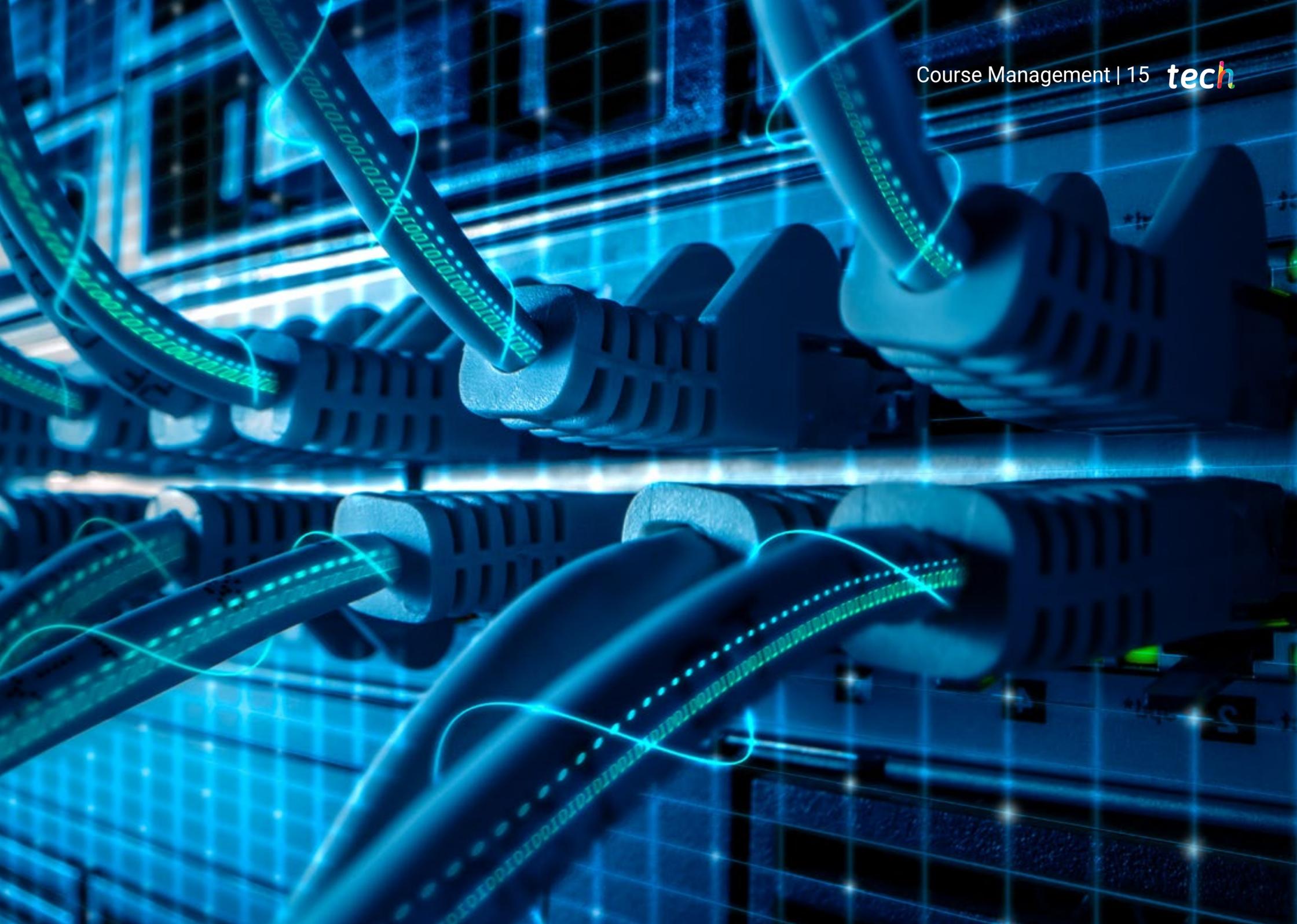
### Mr. Bressel Gutiérrez-Ambrossi, Guillermo

- ◆ Specialist in Systems Administration and Computer Networks
- ◆ Storage and SAN Network Administrator at Experis IT (BBVA)
- ◆ Network Administrator at IE Business School
- ◆ Graduate in Computer Systems and Network Administration at ASIR (ASIR)
- ◆ Ethical Hacking course at OpenWebinar
- ◆ Powershell course at OpenWebinar

## Professors

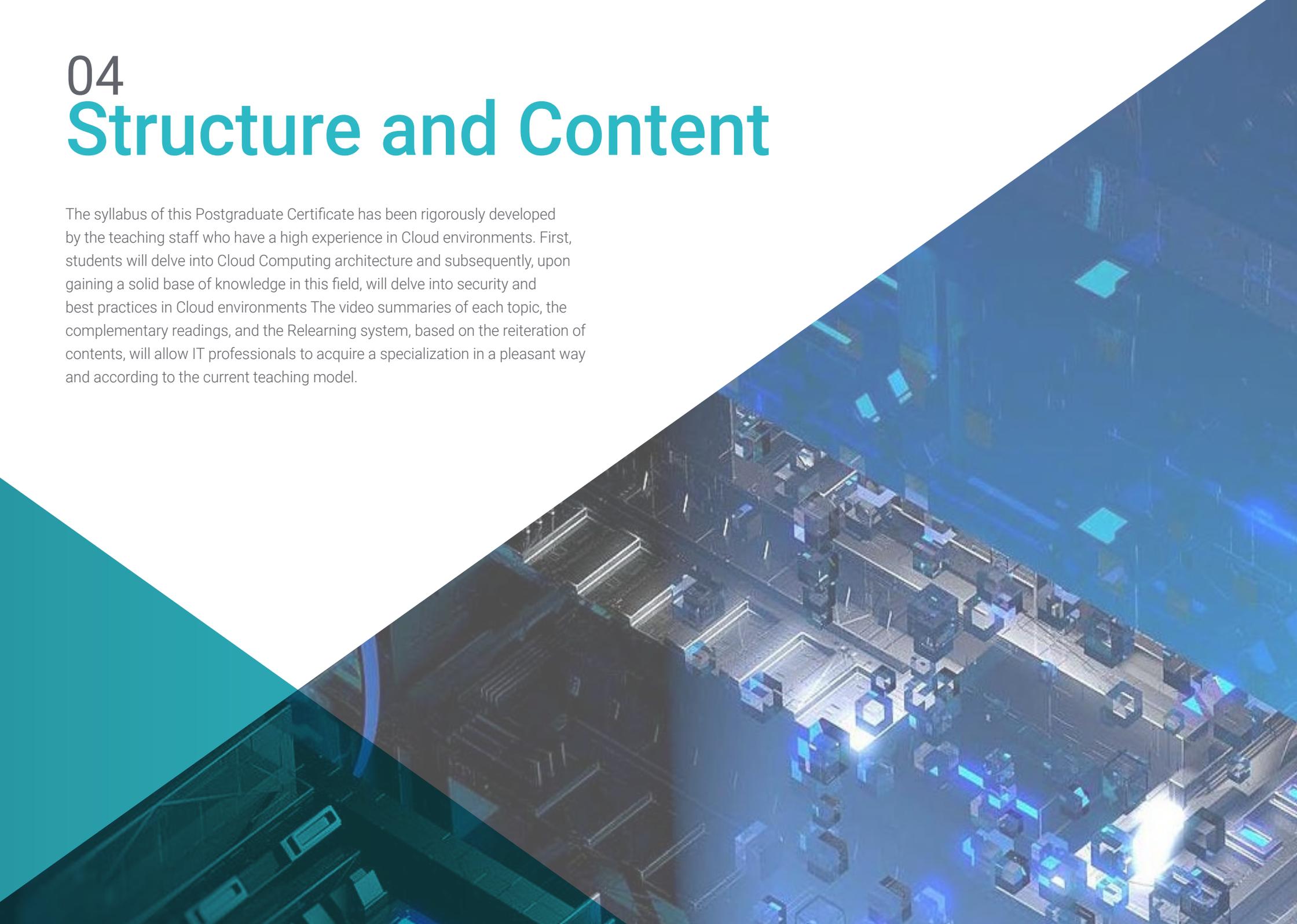
### Mr. Torres Palomino, Sergio

- ◆ IT Engineer with expertise in Blockchain
- ◆ Blockchain Lead at Telefónica
- ◆ Blockchain Architect at Signeblock
- ◆ Blockchain Developer at Blocknitive
- ◆ Writer and Publisher at O'Really Media Books
- ◆ Lecturer in postgraduate studies and Blockchain related courses
- ◆ Degree in Computer Engineering from San Pablo CEU University
- ◆ Master's Degree in Big Data Architecture
- ◆ Master's Degree in Big Data and Business Analytics



# 04 Structure and Content

The syllabus of this Postgraduate Certificate has been rigorously developed by the teaching staff who have a high experience in Cloud environments. First, students will delve into Cloud Computing architecture and subsequently, upon gaining a solid base of knowledge in this field, will delve into security and best practices in Cloud environments. The video summaries of each topic, the complementary readings, and the Relearning system, based on the reiteration of contents, will allow IT professionals to acquire a specialization in a pleasant way and according to the current teaching model.

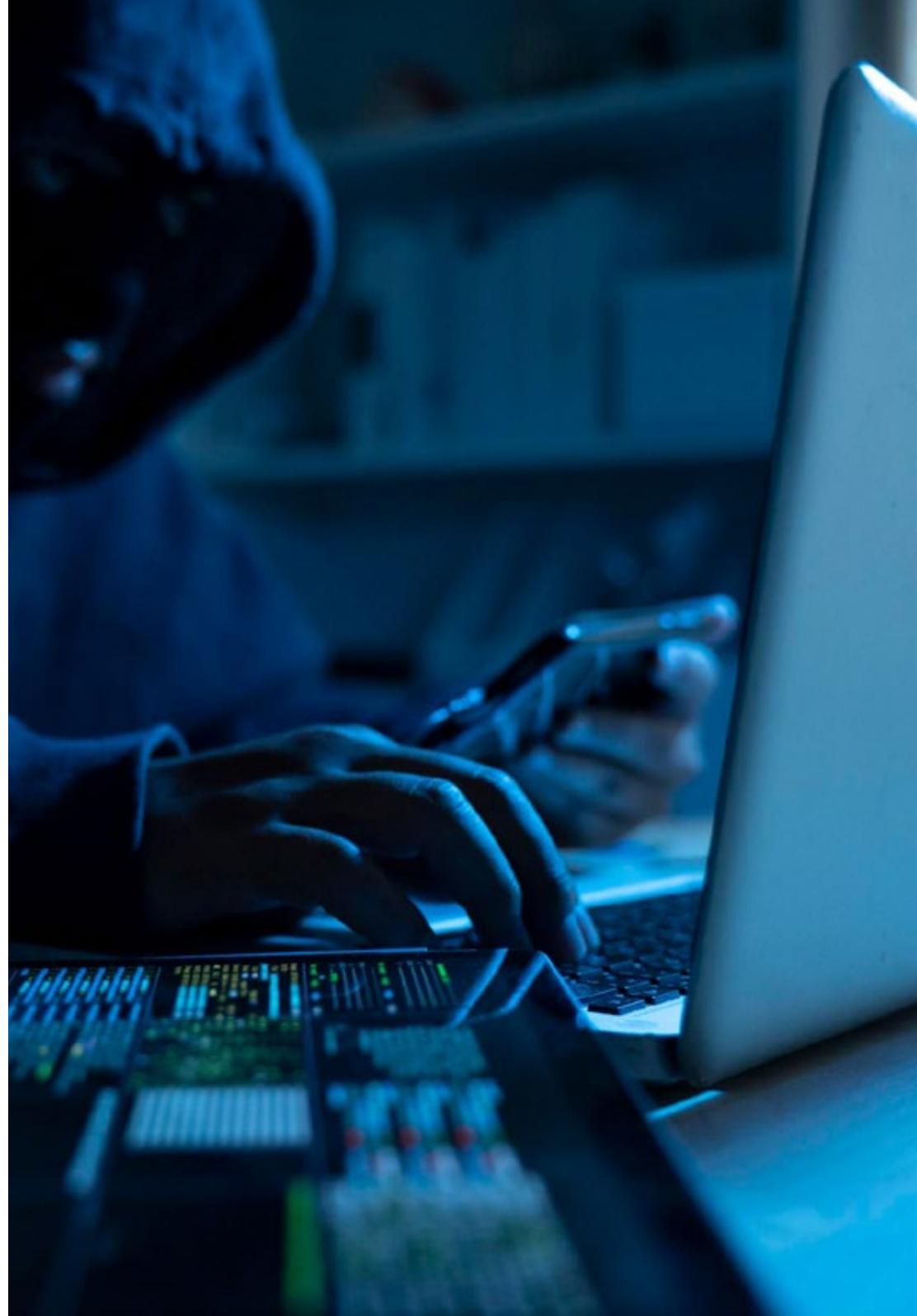


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*Delve into Azure, Oracle Cloud or AWS and Public Security services. Become an expert with this postgraduate certificate”*

## Module 1. Architecture Programming in Cloud Computing

- 1.1. Cloud Architecture for a University Network. Cloud Provider Selection. Practical Example
  - 1.1.1. Cloud Architecture Approach for a University. Network According to Cloud Provider
  - 1.1.2. Cloud Architecture Components
  - 1.1.3. Analysis of Cloud Solutions According to Proposed Architecture
- 1.2. Economic Estimation of the Project for the Creation of a University Network. Financing
  - 1.2.1. Cloud Provider Selection
  - 1.2.2. Economical Estimation According to Components
  - 1.2.3. Project Financing
- 1.3. Estimation of Human Resources of the Project. Composition of a Software Team
  - 1.3.1. Composition of the Software Development Team
  - 1.3.2. Roles in a Development Team Typology
  - 1.3.3. Assessment of the Economic Estimation of the Project
- 1.4. Execution Schedule and Project Documentation
  - 1.4.1. Agile Project Schedule
  - 1.4.2. Project Feasibility Documentation
  - 1.4.3. Documentation to Be Provided for Project Execution
- 1.5. Legal Implications of a Project
  - 1.5.1. Legal Implications of a Project
  - 1.5.2. Data Protection Policy
    - 1.5.2.1. GDPR General Data Protection Regulation
  - 1.5.3. Responsibility of the Integrating Company
- 1.6. Design and Creation of a Cloud Blockchain Network for the Proposed Architecture
  - 1.6.1. Blockchain – Hyperledger Fabric
  - 1.6.2. Hyperledger Fabric Basics
  - 1.6.3. Design of an International University Hyperledger Fabric Network
- 1.7. Proposed Architecture Expansion Approach
  - 1.7.1. Creation of the Proposed Architecture with Blockchain
  - 1.7.2. Proposed Architecture Expansion
  - 1.7.3. Configuration of a High Availability Architecture



- 1.8. Administration of the Proposed Cloud Architecture
  - 1.8.1. Adding a New Participant to the Initial Proposed Architecture
  - 1.8.2. Administration of the Cloud Architecture
  - 1.8.3. Project Logic Management – Smart Contracts
- 1.9. Administration and Management of Specific Components in the Proposed Cloud Architecture
  - 1.9.1. Management of Network Certificates
  - 1.9.2. Security Management of Various Components: CouchDB
  - 1.9.3. Blockchain Network Nodes Management
- 1.10. Modification of an Initial Basic Installation in the Creation of a Blockchain Network
  - 1.10.1. Adding a Node to the Blockchain Network
  - 1.10.2. Addition of Extra Data Persistence
  - 1.10.3. Smart Contracts Management
  - 1.10.4. Addition of a New University to the Existing Network
  - 1.10.5. Disaster Recovery Plan

## Module 2. Cloud Environments: Security/Safety

- 2.1. Cloud Environments: Security/Safety
  - 2.1.1. Cloud Environments, Security
    - 2.1.1.1. Cloud Security
    - 2.1.1.2. Security Position
- 2.2. Cloud Shared Security Management Model
  - 2.2.1. Security Elements Managed by Vendor
  - 2.2.2. Elements Managed by Customer
  - 2.2.3. Security Strategy
- 2.3. Cloud Prevention Mechanisms
  - 2.3.1. Authentication Management Systems
  - 2.3.2. Authorization Management System Access Policies
  - 2.3.3. Key Management Systems

- 2.4. Cloud Infrastructure Data Security
  - 2.4.1. Securing Storage Systems:
    - 2.3.1.1. Block
    - 2.4.1.2. Object Storage
    - 2.4.1.3. File Systems
  - 2.4.2. Protection of Database Systems
  - 2.4.3. Securing Data in Transit
- 2.5. Cloud Infrastructure Protection
  - 2.5.1. Secure Network Design and Implementation
  - 2.5.2. Security in Computing Resources
  - 2.5.3. Tools and Resources for Infrastructure Protection
- 2.6. Application Risks and Vulnerabilities
  - 2.6.1. Application Development Risks
  - 2.6.2. Critical Safety Risks
  - 2.6.3. Vulnerabilities in Software Development
- 2.7. Application Defenses against Attacks
  - 2.7.1. Application Development Design
  - 2.7.2. Securitization through Verification and Testing
  - 3.7.3. Secure Programming Practices
- 2.8. DevOps Environment Security
  - 2.8.1. Security in Virtualized and Container Environments
  - 2.8.2. Security in Development and Operations (DevSecOps)
  - 2.8.3. Best Security Practices in Containerized Production Environments
- 2.9. Security in Public Clouds
  - 2.9.1. AWS
  - 2.9.2. Azure
  - 2.9.3. Oracle Cloud
- 2.10. Security Regulations, Governance and Compliance
  - 2.10.1. Security Compliance
  - 2.10.2. Risk Management
  - 2.10.3. Processes in Organizations

# 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 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.



# 06 Certificate

The Postgraduate Certificate in Security and Good Practices in Cloud Environments 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 Security and Good Practices in Cloud Environments** 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 Security and Good Practices in Cloud Environments**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 ECTS**



\*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.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

**tech** global  
university

personalized service innovation

knowledge present Security and Good Practices  
in Cloud Environments

online training

development languages

virtual classroom

## Postgraduate Certificate Security and Good Practices in Cloud Environments

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