

# Postgraduate Certificate Cloud Computing Applied in Systems Engineering and Computer Science



## Postgraduate Certificate Cloud Computing Applied in Systems Engineering and Computer Science

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

Official N° of Hours: **150 h.**

Website: [www.techtitute.com/information-technology/postgraduate-certificate/cloud-computing-applied-systems-engineering-computer-science](http://www.techtitute.com/information-technology/postgraduate-certificate/cloud-computing-applied-systems-engineering-computer-science)

# 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

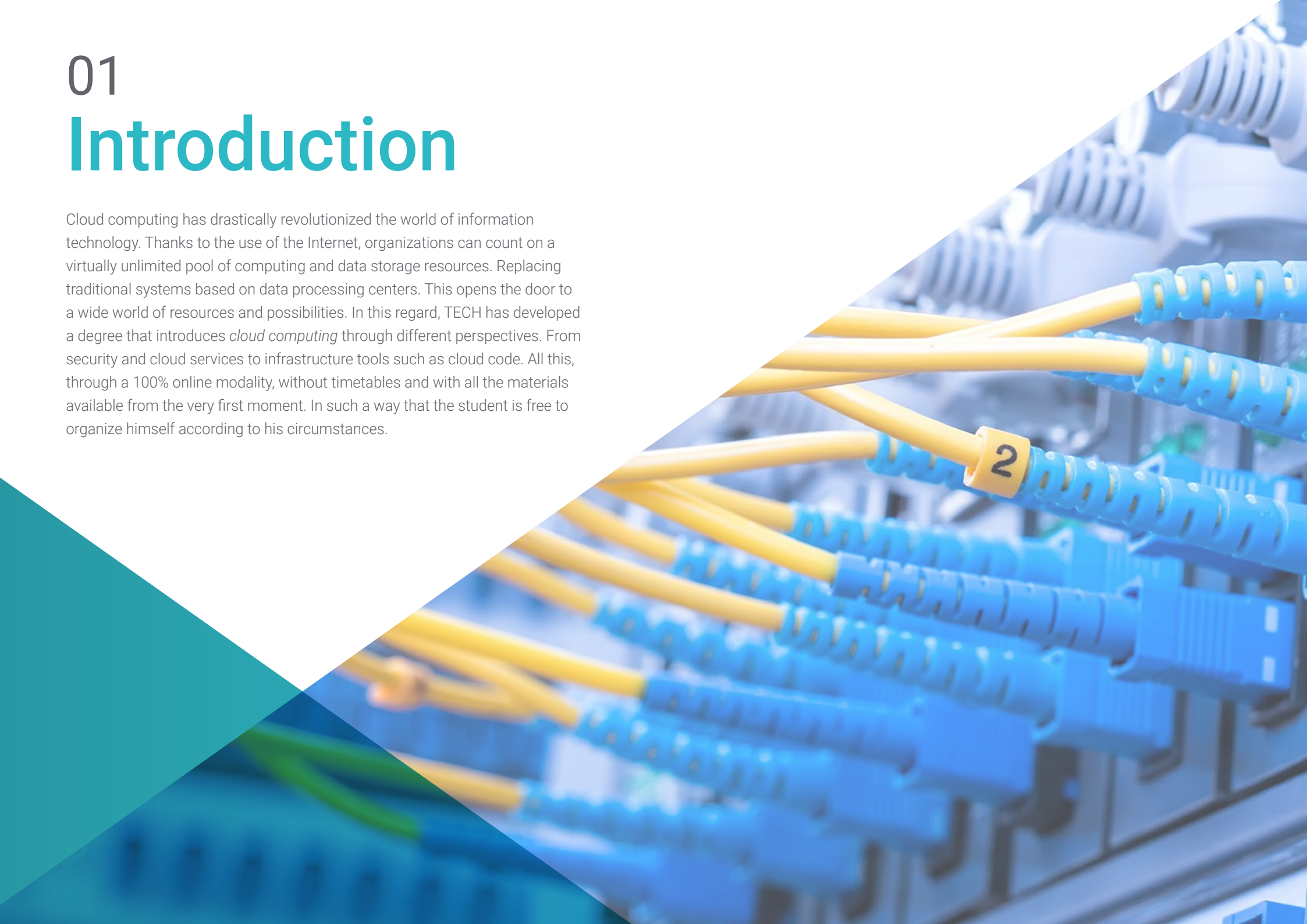
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*p. 28*

# 01

# Introduction

Cloud computing has drastically revolutionized the world of information technology. Thanks to the use of the Internet, organizations can count on a virtually unlimited pool of computing and data storage resources. Replacing traditional systems based on data processing centers. This opens the door to a wide world of resources and possibilities. In this regard, TECH has developed a degree that introduces *cloud computing* through different perspectives. From security and cloud services to infrastructure tools such as cloud code. All this, through a 100% online modality, without timetables and with all the materials available from the very first moment. In such a way that the student is free to organize himself according to his circumstances.



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*The program proposed by TECH includes the most appropriate regions to work with cloud computing, as well as those that generate the most errors”*

The use of *cloud* technology provides a number of essential capabilities today. For example, scalability, which makes it possible to increase or decrease capacity according to demand; availability and resilience, with fault-resistant architectures; or pay-per-use, allowing more effective resource management.

These and other benefits of *cloud computing* will be discussed throughout the program, which begins by defining the concept and characteristics of security and resilience, and continues by analyzing *networking* and cloud services.

It then goes into high-performance computing, storage, interaction and monitoring in the cloud. And finally, three topics have been dedicated to programming with *cloud native* development, infrastructure as code in the cloud and the creation of a hybrid infrastructure.

These contents will be offered in a totally online modality, without timetables and with all the materials available from the first day. All you need is a device with Internet access. In this way, students will be able to organize themselves according to their time and learning is enhanced.

This **Postgraduate Certificate in Cloud Computing Applied in Systems Engineering and Computer Science** contains the most complete and up-to-date educational program on the market. Its features are:

- ◆ The development of case studies presented by experts in cloud computing applied to systems engineering and computer science
- ◆ The graphic, schematic, and eminently 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

“ This certificate course analyzes in depth all the components of a software-defined network ”

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*Graduates will build hybrid infrastructures connected to data centers to keep services running in the event of an outage”*

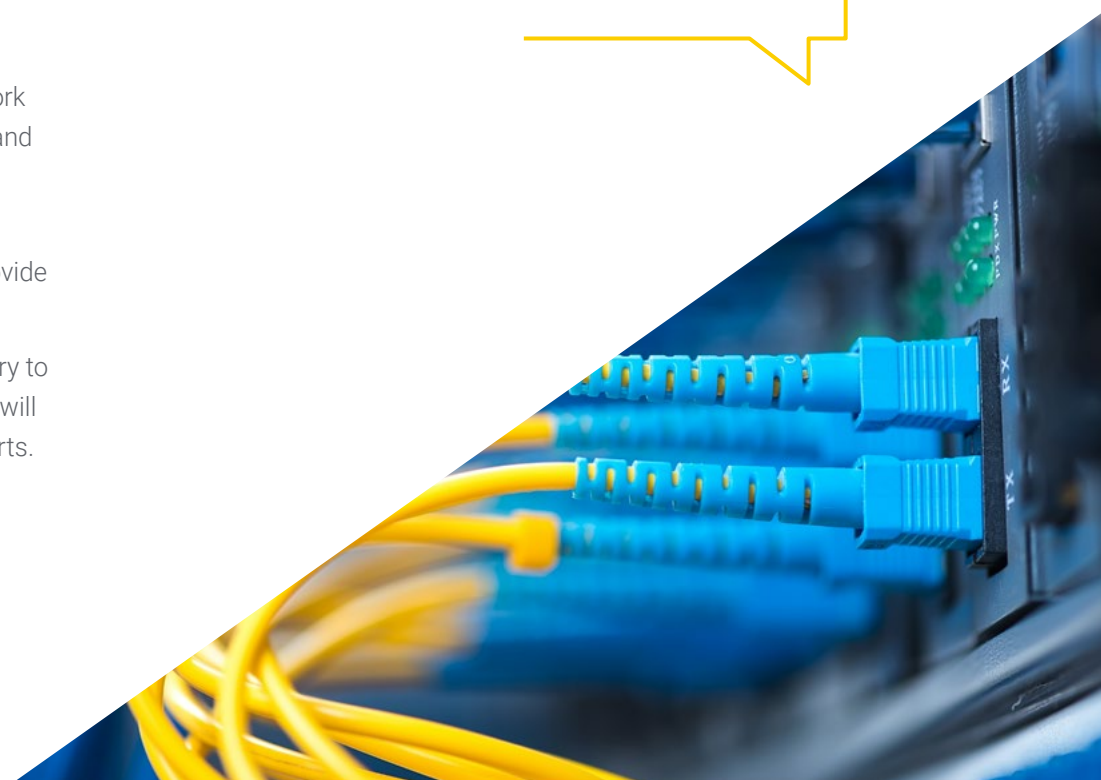
The program’s teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 training programmed to train 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. This will be done with the help of an innovative system of interactive videos made by renowned experts.

*In TECH you will create high-performance clusters, necessary for demanding projects.*

*Learn to program like a pro with the Command Line Interface section.*



# 02

# Objectives

Graduates of this Postgraduate Certificate will understand the cloud computing paradigm. Identifying the degree of automation, knowing the pieces that make up a cloud architecture and knowing how to differentiate it from an on-premise architecture. They will also have worked with the different cloud deployment options, defined the economic principles of cloud computing or analyzed its security features.





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*At TECH you will learn about the different cloud provider offers so that you can choose the one that best suits your budget and the characteristics of your project or business"*



## General Objectives

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- ◆ Analyze the Cloud Computing Paradigm
- ◆ Identify the different approaches based on the degree of automation and service
- ◆ Examining the main pieces of a cloud architecture
- ◆ Establishing the differences with an *on-premise* architecture

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*This program covers the definitions of CAPEX and OPEX costs and teaches you how to calculate both”*





## Specific Objectives

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- ◆ Determine the different *Cloud deployment options*: *multi-cloud*, *Hybrid Cloud*, etc.
- ◆ Delve into the benefits inherent in cloud computing
- ◆ Analyze the principles of cloud computing economics: shift from CAPEX to OPEX
- ◆ Examine commercial offerings from different *cloud* providers
- ◆ Evaluate cloud supercomputing capabilities
- ◆ Analyzing security in cloud computing

03

# Course Management

TECH is aware of the technical nature of this degree, as cloud computing is a subject that includes very specific specifications. For this reason, professionals with extensive academic and work experience have been selected for the teaching staff of this certificate course. Specialists in the field who are up to date with innovations in the sector and who will accompany the student throughout the learning process.





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*The faculty of this degree will teach you to work with multiservice architectures, known as Tenant”*

## Management



### D. Olalla Bonal, Martín

- ◆ Technical sales blockchain specialist en IBM
- ◆ Blockchain Hyperledger and Ethereum Architecture Manager at Blocknitive
- ◆ Director of the Blockchain area at PSS Information Technologies.
- ◆ Director de Información en ePETID - Global Animal Health
- ◆ IT Infrastructure Architect at Bankia - wdoIT (IBM - Bankia Join Venture)
- ◆ Project director and manager at Daynet integral services
- ◆ Director of Technology at Wiron Construcciones Modulares
- ◆ Head of IT Department at Dayfisa
- ◆ Head of IT department at Dell Computer, Majsa and Hippo Viajes
- ◆ Electronics Technician in IPFP Juan de la Cierva

## Professors

### D. Gómez Gómez, Borja

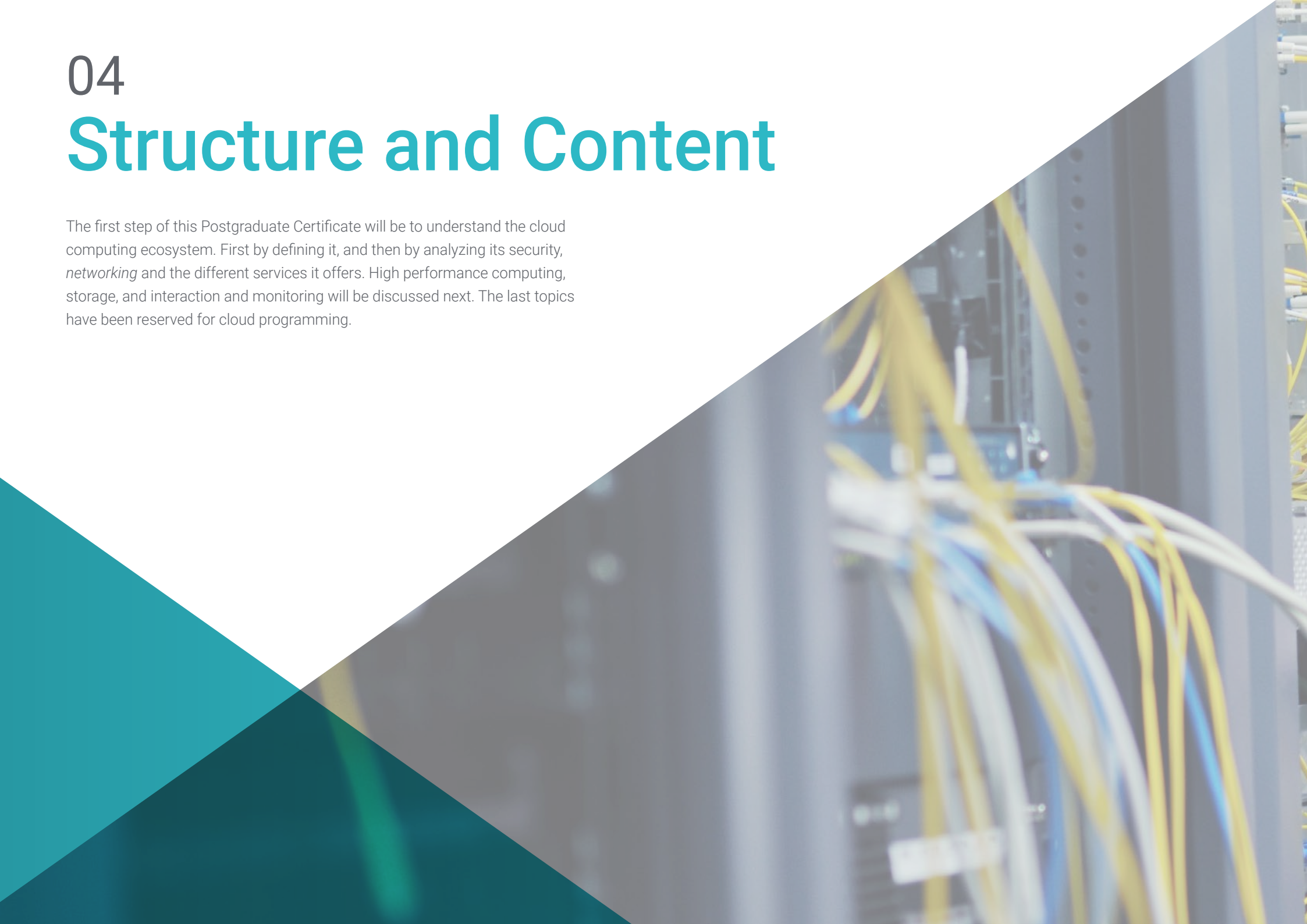
- ◆ Business Development Manager at Oracle
- ◆ Head of Blockchain and pre-sales architecture solutions at Paradigma Digital.
- ◆ Senior IT Architect at Atmira
- ◆ SOA Architect and TCP SI Consultant
- ◆ Analyst and consultant at Everis
- ◆ Degree in Computer Engineering from the Complutense University of Madrid.
- ◆ Master's Degree in Science Computer Engineering at the Complutense University of Madrid.



# 04

# Structure and Content

The first step of this Postgraduate Certificate will be to understand the cloud computing ecosystem. First by defining it, and then by analyzing its security, *networking* and the different services it offers. High performance computing, storage, and interaction and monitoring will be discussed next. The last topics have been reserved for cloud programming.





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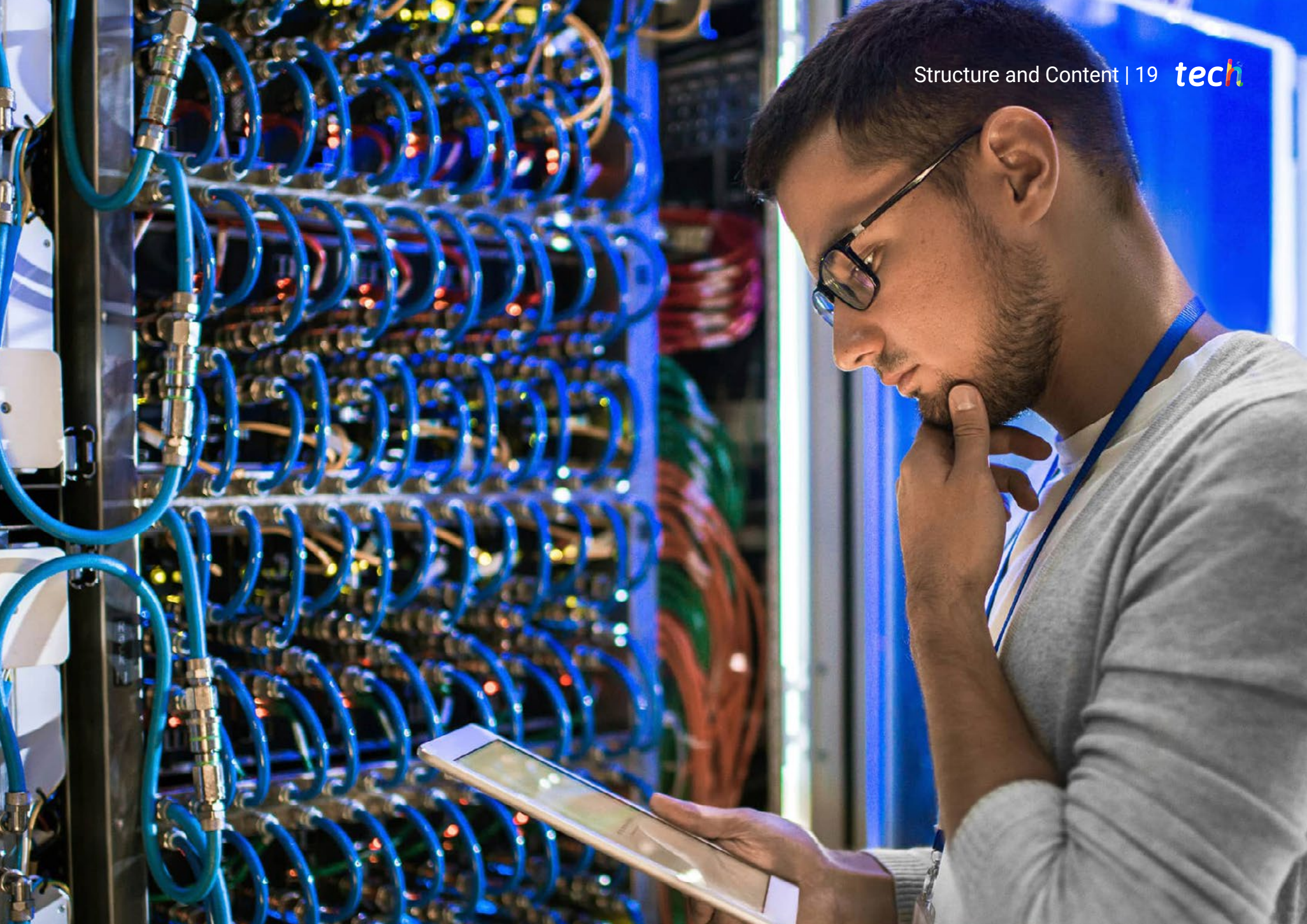
*High performance computing is one of the most useful applications of the cloud. TECH is committed to teach you all its keys"*

## Module 1. Cloud Computing in Computer and Information Systems Engineering

- 1.1. Cloud Computing
  - 1.1.1. State of the Art of the IT Landscape
  - 1.1.2. Cloud
  - 1.1.3. Cloud Computing
- 1.2. Security and Resilience in the Cloud
  - 1.2.1. Regions, Availability and Failure Zones
  - 1.2.2. Tenant or *Cloud* Account Management
  - 1.2.3. Cloud Identity and Access Control
- 1.3. Cloud *Networking*
  - 1.3.1. Software-Defined Virtual Networks
  - 1.3.2. Network Components of a Software-Defined Network
  - 1.3.3. Connection with other Systems
- 1.4. Cloud Services
  - 1.4.1. Infrastructure as a Service
  - 1.4.2. Platform as a Service
  - 1.4.3. Serverless Computing
  - 1.4.4. Software as a Service
- 1.5. High-Performance Computing
  - 1.5.1. High-Performance Computing
  - 1.5.2. Creation of a High-Performance Cluster
  - 1.5.3. Application of High-Performance Computing
- 1.6. Cloud Storage
  - 1.6.1. Block Storage in the Cloud
  - 1.6.2. Block Storage in the Cloud
  - 1.6.3. Block Storage in the Cloud
- 1.7. Block Storage in the Cloud
  - 1.7.1. Cloud Monitoring and Management
  - 1.7.2. Interaction with the Cloud: Administration Console
  - 1.7.3. Interaction with Command Line Interface
  - 1.7.4. API-Based Interaction
- 1.8. *Cloud-Native* Development
  - 1.8.1. *Cloud-Native* Development
  - 1.8.2. Containers and Container Orchestration Platforms
  - 1.8.3. Continuous Cloud Integration
  - 1.8.4. Use of Events in the Cloud
- 1.9. Infrastructure as Code in the Cloud
  - 1.9.1. Management and Provisioning Automation in the Cloud
  - 1.9.2. *Terraform*
  - 1.9.3. Scripting Integration
- 1.10. Creation of a Hybrid Infrastructure
  - 1.10.1. Interconnection
  - 1.10.2. Interconnection with Datacenter
  - 1.10.3. Interconnection with other Clouds



*Learn from our faculty  
about the benefits and  
problems of cloud storage"*



# 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"*

## At TECH we use the Case Method

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

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*At TECH, you will experience a way of learning that is shaking the foundations of traditional universities around the world”*



*We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.*



### A learning method that is different and innovative

This intensive Information Technology program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard *case studies*, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

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*Our program prepares you to face new challenges in uncertain environments and achieve success in your career”*

*The student will learn, through collaborative activities and real cases, how to solve complex situations in real business environments.*

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

Our university is the first in the world to combine Harvard University case studies with a 100%-online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance Harvard case studies 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 university 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.



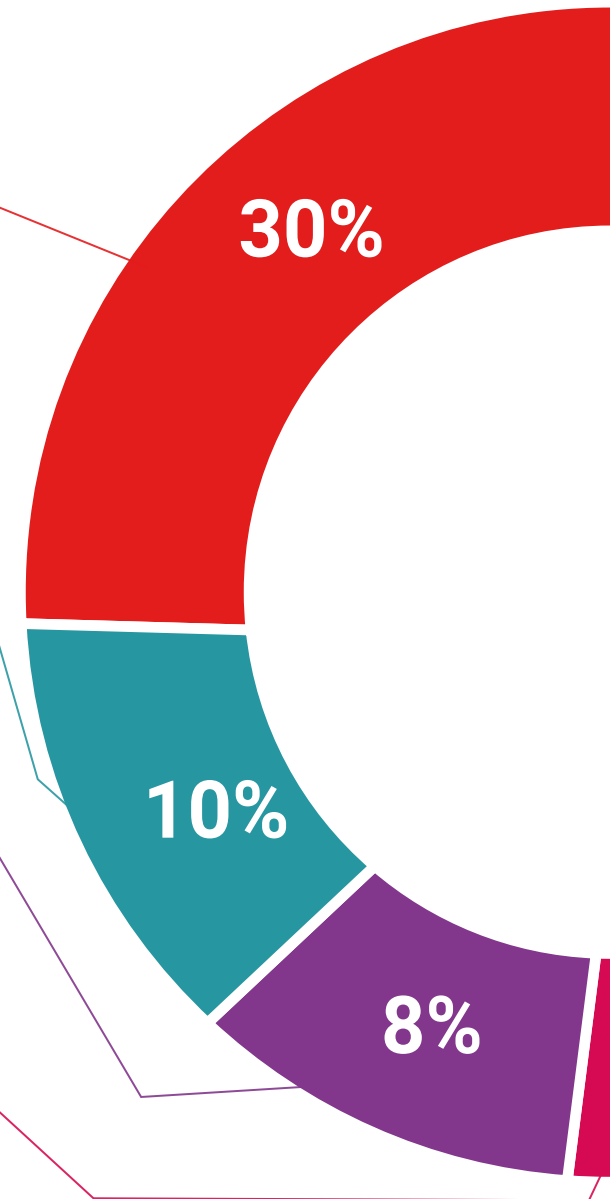
### Practising Skills and Abilities

They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



### 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

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management 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 multimedia content presentation training Exclusive system 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 your goals.



# 06 Certificate

The Postgraduate Certificate in Applied Cloud Computing in Systems Engineering and Computer Science guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.





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*Successfully complete this training program  
and receive your university certificate  
without travel or laborious paperwork”*

This **Postgraduate Certificate in Cloud Computing Applied in Systems Engineering and Computer Science** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Cloud Computing Applied in Systems Engineering and Computer Science**

Official N° of Hours: **150 h.**



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

future

health

confidence people

education

information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

**tech** technological  
university

personalized service innovation

knowledge

present

online training

development languages

virtual classroom

**Postgraduate Certificate**

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in Systems Engineering  
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Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

Official N° of Hours: **150 h.**

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