Postgraduate Certificate

Design and Management of Distributed Systems and Networks

tech global university

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Postgraduate Certificate

Design and Management of Distributed Systems and Networks

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

Website: www.techtitute.com/us/information-technology/postgraduate-certificate/design-management-distributed-systems-networks

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01

Introduction

In recent years, leading hardware manufacturers are launching components with high computational capacity. However, this is not enough when you want to tackle demanding digitization processes that require high storage and processing capacity. Therefore, distributed systems play a fundamental role, helping to implement digital platforms that support complex scenarios and require a differential technological ecosystem. The program includes the characteristics, advantages, types, architectures, technologies and infrastructures of distributed systems. In addition to cloud computing, client-server communications, integration architectures, distributed logging technologies and blockchain as a distributed system. These contents will be taught in a 100% online mode and without schedules, so that the student has freedom of organization and learning is enhanced.

In TECH you will learn how to create intuitive interfaces by analyzing APIs within the topic dedicated to integration architectures"

Distributed systems offer greater computational and storage capacity and speed because they behave as a single system, even though they are made up of independent resources. This is the most accepted and used software architecture today, allowing to design and implement demanding digital platforms.

In this Postgraduate Certificate, students will learn about the characteristics, advantages, and types of distributed systems. As well as their architectures and infrastructures, the latter divided into hardware, communications, software and security.

Subsequently, the definition, types and advantages of cloud computing and client-server communication will be discussed. Leaving room for integration architectures and distributed logging technologies.

Finally, two topics have been reserved to discuss blockchain technology as a distributed system. Defining key concepts such as tokens, consensus systems, mining, hashing, and security.

All these contents will be taught in a totally online modality, without timetables and with 100% of the syllabus available from the first day. All you need is a device with internet access. This way, the student can organize their study time in the way that suits them best, promoting better understanding and retention of the concepts.

This **Postgraduate Certificate in Design and Management of Distributed Systems and Networks** contains the most complete and up-to-date program on the market. The most important features include:

- The development of case studies presented by experts in the design and management of distributed systems and networks.
- The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

At TECH, you will have access to everything you need to know about the four key architectures of a distributed system: functional, application, management, and technological"

Thanks to TECH, you will gain a deep understanding of the essential principles behind reactive architectures. A modern pattern for building systems that are robust, flexible, and better equipped to meet today's demands"

Learn with TECH the best client-server communication models to select the one that best fits your business.

This program details the advantages of cloud computing as applied to distributed systems.

The program includes in its teaching staff, professionals from the sector who bring to this program their work experience, in addition to recognized specialists from prestigious reference societies and 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 course. For this purpose, it will be aided by an innovative system of interactive videos produced by renowned experts.

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Objectives

Upon completion of the Postgraduate Certificate in Design and Management of Distributed Systems and Networks, you will have an up-to-date vision of distributed systems. Determining the advantages of digital solutions based on these systems. The cloud first model will also be consolidated as the reference platform for distributed systems and the key aspects of a client-server model will have been studied in depth. Finally, the graduate will have a global vision of blockchain technology as the main disruptive exponent of a distributed system today.

In this Postgraduate Certificate, you will learn how hashing works to prevent fraudulent transactions using blockchain technology"

General Objectives

- Present a holistic view of distributed systems.
- Consolidate the knowledge of distributed systems with an updated vision of them in view of their evolution in recent years
- Modernize the vision of distributed systems on aspects and fundamentals that are current in the market
- Examine the importance of moving towards distributed systems models for improved user experience

Graduates will understand the advantages of private, public, and hybrid cloud environments for client-server communications"

Specific Objectives

- Determine the characteristics and advantages of digital solutions based on distributed systems
- Analyze the main types of distributed systems, their advantages, their operation and the main differences between them
- Establish the types, characteristics and advantages of going to a Cloud First Model as reference platforms for a distributed system
- Deepen the key aspects of a client-server model, the basis of communications for distributed systems
- Generate specialized knowledge on the main integration architectures, based on distributed systems models that are currently being implemented by important customers in different sectors
- Analyze Blockchain technology as the main disruptive exponent of a distributed system today

03

Course Management

Distributed systems are a relatively new technology. As a result, knowledge in this area is not yet widely disseminated. However, for this Postgraduate Certificate, a faculty team with extensive professional and academic experience has been carefully selected. This ensures that students learn under the guidance of experts capable of addressing even the most technical questions.

The faculty of this program will define the different types of blockchain networks and present real-world use cases to facilitate concept assimilation"

Management

Mr. Olalla Bonal, Martín

- Client Technical Specialist Blockchain in IBM
- Blockchain Hyperledger and Ethereum Architecture Manager at Blocknitive
- Director of the Blockchain area at PSS Information Technologies.
- Chief Information Officer at 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

Mr. Castro Robredo, Alejandro Enrique

- Head of the Digital Architecture Department at KPMG.
- Head of the Innovation Lab in Digital Architecture at Everis
- Technical Manager in the Technology Unit of the Digital Architecture team at Everis
- Techincal Business Manager at Ganetec
- Business Manager and Pre-Sales Manager at TCP Sistemas e Ingeniería
- Team Leader at Capgemi
- Degree in Technical Engineering in Computer Management from the University of Las Palmas de Gran Canaria

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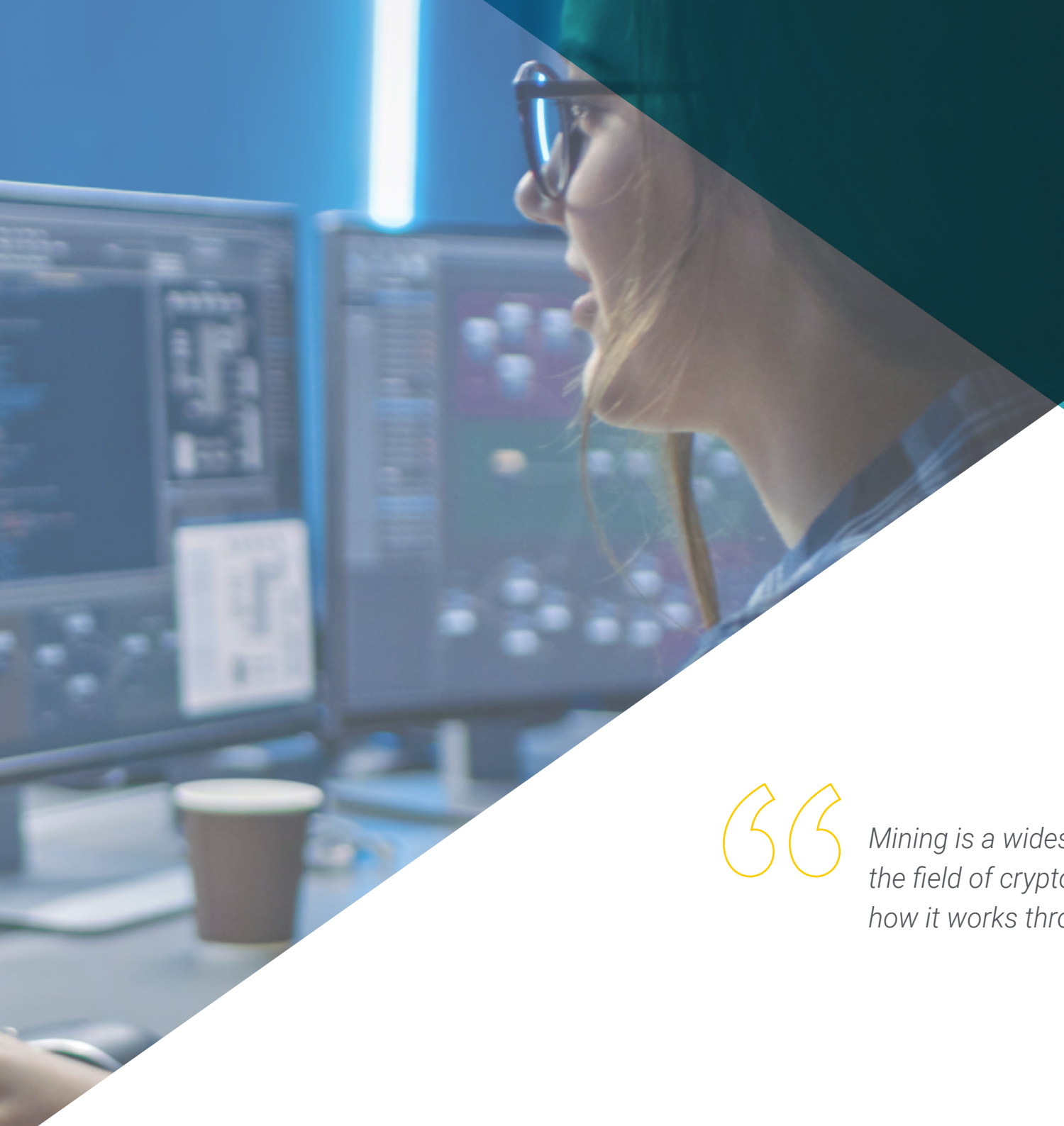
Structure and Content

The syllabus begins with a broad overview of distributed systems. Providing its definition, characteristics, advantages, types, architectures, infrastructures and technologies. Not to mention cloud computing for distributed systems, client-server communications and integration architectures. Finally, blockchain technology as a distributed system will be analyzed, differentiating the types of networks and tokens, among other related content.



Mining is a widespread technique in the field of cryptocurrencies. Learn how it works through this program"

Module 1. Design and Management of Distributed Systems and Networks

1.1. Distributed Systems
- 1.1.1. Distributed Systems
- 1.1.2. Distributed Systems. Characteristics
- 1.1.3. Distributed Systems. Advantages

1.2. Type of Distributed Systems
- 1.2.1. Cluster
- 1.2.2. Grid
- 1.2.3. Cloud

1.3. Distributed System Architectures
- 1.3.1. Functional Architecture (Business)
- 1.3.2. Application Architecture
- 1.3.3. Management Architecture (Government)
- 1.3.4. Technological Architecture

1.4. Infrastructure in a Distributed System
- 1.4.1. Hardware
- 1.4.2. Communications
- 1.4.3. Software
- 1.4.4. Security

1.5. Cloud Computing in Distributed Systems
- 1.5.1. Cloud Computing
- 1.5.2. Systems Cloud Computing. Types
- 1.5.3. Systems Cloud Computing. Advantages

1.6. Client-Server Communications
- 1.6.1. Transmission Types
- 1.6.2. Communication Models
- 1.6.3. Event-Driven Communication

1.7. Integration Architectures
- 1.7.1. APIs
- 1.7.2. Microservice Architectures
- 1.7.3. Event-Driven Architectures
- 1.7.4. Reactive Architectures

1.8. Distributed Registration Technologies
- 1.8.1. Distributed Registration Technologies
- 1.8.2. Distributed Registration Technologies. Typology
- 1.8.3. Distributed Registration Technologies. Advantages

1.9. Blockchain as a Distributed System
- 1.9.1. Blockchain as a Distributed System
- 1.9.2. Blockchain Networks. Typology
- 1.9.3. Tokens and Redes Blockchain. Typology
- 1.9.4. Blockchain Technologies
- 1.9.5. Use Case

1.10. Blockchain. Decentralized Blockchain Paradigm
- 1.10.1. Consensus Systems
- 1.10.2. Mining
- 1.10.3. Hashing
- 1.10.4. Security

"The main challenge blockchain faces as a distributed system is security. Learn all the essential strategies to protect yourself through this Postgraduate Certificate"

05

Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.

TECH will prepare you to face new challenges in uncertain environments and achieve success in your career"

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.
The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

"At TECH you will NOT have live classes (which you might not be able to attend)"

The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

> *TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want"*

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.

Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

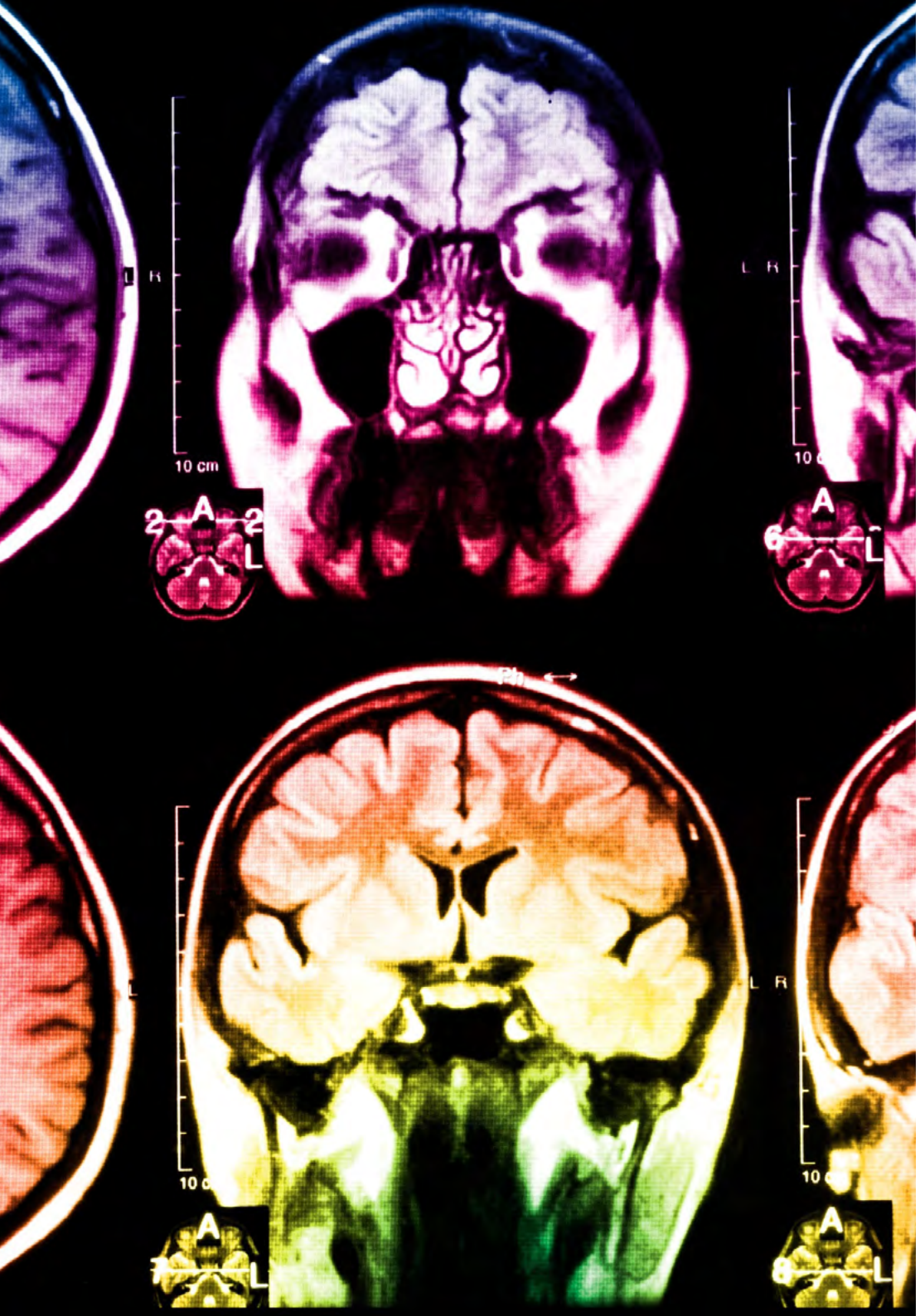
In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.

"The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.

As such, the best educational materials, thoroughly prepared, will be available in this program:

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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.

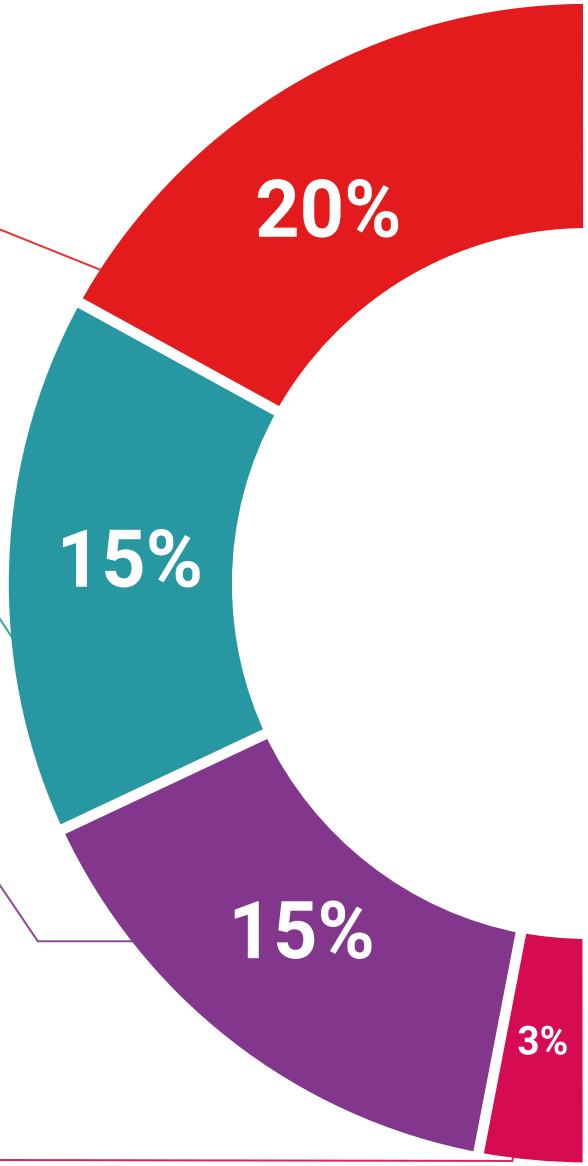
Interactive Summaries

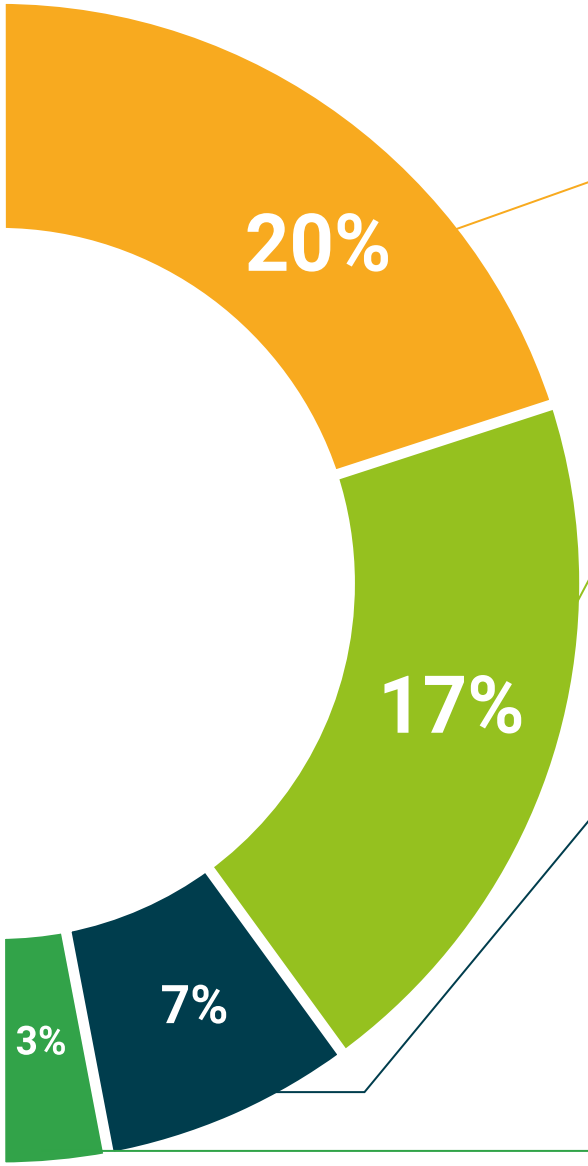
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

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 for future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

06

Certificate

This Postgraduate Certificate in Design and Management of Distributed Systems and Networks guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the 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 private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Design and Management of Distributed Systems and Networks** 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.

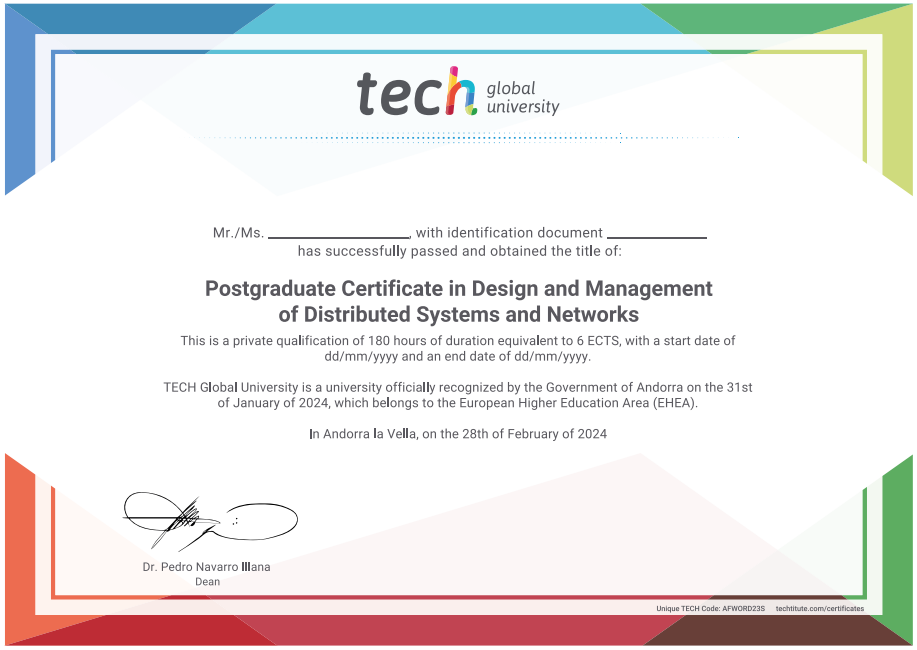
This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Design and Management of Distributed Systems and Networks**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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

Postgraduate Certificate in Design and Management of Distributed Systems and Networks

This is a private qualification 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
Dean

Unique TECH Code: AFWORD23S techtitute.com/certificates

*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 Certificate
Design and Management of Distributed Systems and Networks

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

Postgraduate Certificate

Design and Management of Distributed Systems and Networks

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