

Postgraduate Diploma Blockchain and Smart Contract Development



Postgraduate Diploma Blockchain and Smart Contract Development

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: www.techtute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-blockchain-smart-contract-development

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01

Introduction

One of the main applications of Blockchain technology is in the legal field. Thanks to this tool, contracts of all types can be created and executed automatically, in a totally transparent manner, with absolute traceability of operations and with the impossibility of altering the record. For that reason, more and more companies are using this utility to create Smart Contracts, and this program offers the computer scientist the possibility to specialize in this booming area, delving into sovereign identity, public Blockchains and cybersecurity applied to this field, among many other relevant issues.

A close-up, angled view of a gold-colored Ethereum coin. The word "ether" is embossed on the coin's surface in a lowercase, sans-serif font. The coin is partially obscured by a teal geometric shape in the bottom-left corner. The background is white with a diagonal split between white and a dark teal color.

ether

“

*Smart Contracts are already a reality:
specialize in Blockchain applied to this type of
contracts and achieve professional success"*

From recording transactions of various kinds, to tracing the provenance of animals and raw materials, Blockchain technology has burst onto the economic and business scene with great force. Therefore, this tool has been consolidated in many important areas, and one of them is the legal one. In this way, the concept of Smart Contract has emerged to describe the type of contract designed and executed using blockchain.

These contracts have many advantages: they are executed automatically, following the rules previously designed in the blockchain in question, they are very transparent, since the order of operations performed can be followed, and it is immutable, so it offers great security to all parties involved. For that reason, this Postgraduate Diploma in Blockchain and Smart Contract Development is a great opportunity for all those who wish to specialize in this sector with so much potential.

This qualification offers them the possibility to learn about the latest developments in aspects such as public Blockchains, especially Ethereum, Stellar and Polkadot, among many other issues. All this, following a 100% online teaching methodology that adapts to the circumstances of each student, and receiving the accompaniment of a high-level faculty that, through multimedia teaching content, will transfer all the keys about Blockchain and Smart Contracts.

The **Postgraduate Diploma in Blockchain and Smart Contract Development** contains the most complete and up-to-date educational program on the market. The most important features include:

- ◆ The development of case studies presented by Blockchain experts
- ◆ 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 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 work
- ◆ Content that is accessible from any fixed or portable device with an internet connection



Develop Blockchains dedicated to the execution of Smart Contracts with this Postgraduate Diploma"

“

Clients, entrepreneurs and investors need greater confidence when carrying out their operations and transactions and you can provide that with this qualification”

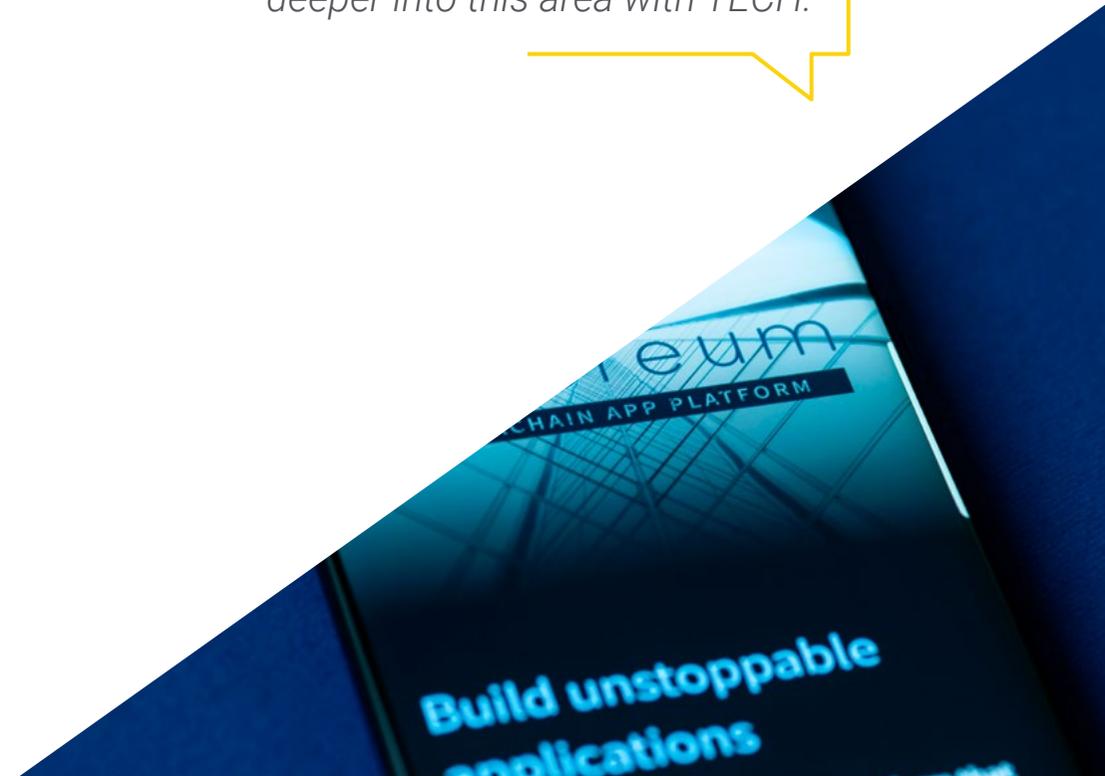
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 professionals must try to solve the different professional practice situations that arise throughout the program. This will be done with the help of an innovative system of interactive videos made by renowned experts.

Specialize in Smart Contracts and make rapid career advancement in the IT world.

Smart Contracts are one of the major applications of Blockchain technology. Don't miss this opportunity to delve deeper into this area with TECH.



02 Objectives

The main objective of the Postgraduate Diploma in Blockchain and Smart Contract Development is to provide computer scientists and engineers with the most innovative knowledge about this technological field, so that they can put it into practice in their professional careers. Blockchain is here to stay, and requires professionals to keep up to date, so this qualification is perfect for them, as it provides them with the latest developments in the discipline.



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*You'll be the biggest Smart
Contracts specialist in your field”*



General Objectives

- ◆ Determine the extent to which information can be collected from Wallets that are physically available and the extent to which information can be collected only when an address is held
- ◆ Draw conclusions regarding good security practices
- ◆ Consider the vulnerabilities associated with Blockchain
- ◆ Generate specialized knowledge about Ethereum as a public Blockchain
- ◆ Examine the Stellar platform
- ◆ Specialize computer engineers in Polkadot and Substrate
- ◆ Analyze the future impact of development on public blockchains
- ◆ Assess the impact on data privacy and security that current digital identity models present
- ◆ Examine the main advantages for citizens of implementing self-sovereign digital identity models
- ◆ Identify the benefits of using Blockchain technology for the deployment of digital identity-based solutions
- ◆ Compile use cases in which Blockchain-based Digital Identity Models are transforming organizations' processes





Specific Objectives

Module 1. Blockchain Technology: Technologies Involved and Cyberspace Security

- ◆ Establish methodologies for information analysis and deception detection on the Internet
- ◆ Plan an Internet search strategy
- ◆ Determine the most appropriate tools to detect a criminal act on the Internet
- ◆ Deploy an environment with the following tools: Logstash, Elasticsearch and Kibana
- ◆ Address the risks faced by analysts in a research exercise
- ◆ Conduct research processes based on wallet or address availability
- ◆ Identify possible indications of mixers being used to blur transaction trails

Module 2. Public Blockchain Development: Ethereum, Stellar and Polkadot

- ◆ Broaden skills in the world of blockchain development
- ◆ Develop practical examples based on cases
- ◆ Compile generic knowledge about blockchains in practice
- ◆ Analyze the operation of a public Blockchain
- ◆ Gain experience in Solidity
- ◆ Establish a relationship between the different public Blockchains
- ◆ Create a project on a public Blockchain

Module 3. Sovereign Identity Based on Blockchain

- ◆ Analyze the different Blockchain technologies that enable the development of Digital Identity models
- ◆ Analyze self-sovereign digital identity proposals
- ◆ Assess the impact on public administration of implementing self-sovereign digital identity models
- ◆ Foundations for developing Blockchain-based Digital Identity solutions
- ◆ Generate specialized knowledge on Digital Identity
- ◆ Analyze what can be done with this technology
- ◆ Determine the inner workings of identities in Blockchain



Learn all the latest news about Blockchain applied to Smart Contracts with this high-level qualification"

03

Course Management

These specific contents require the teaching of a highly specialized and expert teaching staff. For this reason, TECH has ensured that the best professors, active professionals who know Blockchain technology and its application in Smart Contracts to perfection, teach this program. As a result, the students who take the course will have the best knowledge transmitted directly by the best teachers.



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Get to know all the particularities of Blockchain and Smart Contracts from the hand of a high-level teaching staff”

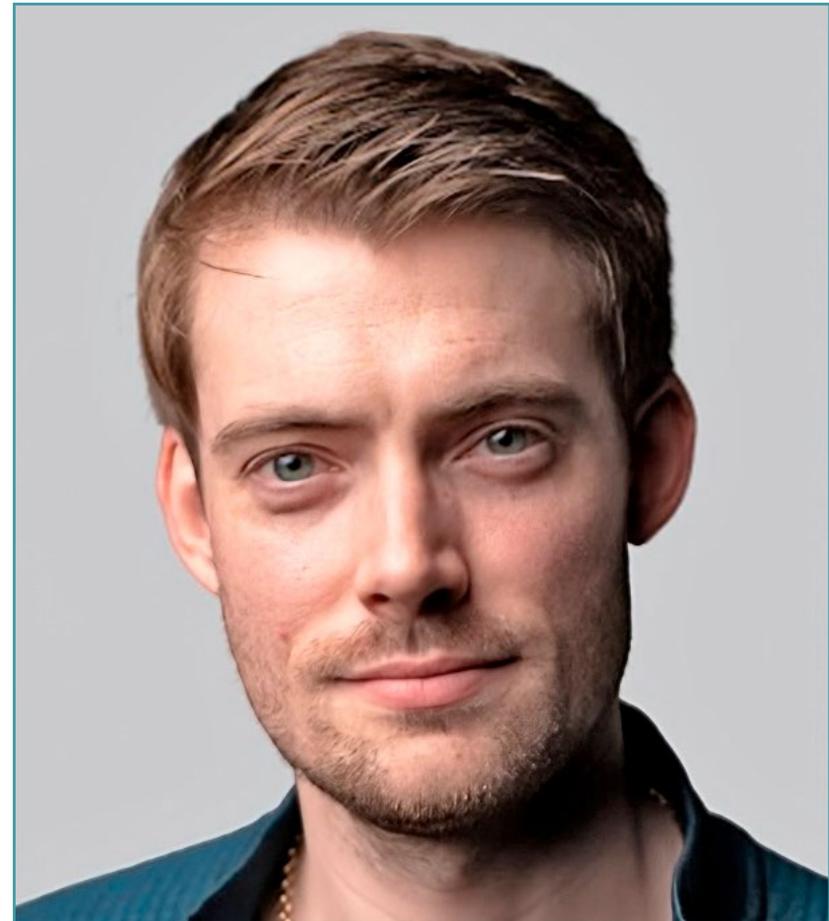
International Guest Director

Chris Sutton is a leading professional with extensive experience in the field of technology and finance, specializing in the Blockchain area. In fact, he has held the senior position of Director of the Blockchain and Digital Assets Department at Mastercard. In addition, he has been the Founder of the consulting firm N17 Capital, in which he offers advice to companies in the field of Blockchain and digital assets. So, one of his functions has been to identify the components that make up these new tools, analyze them and create working strategies.

His professional experience has included high-level roles in leading companies in the sector, such as Oasis Pro Market, where he has performed duties as Director of Blockchain Services. In addition, he has worked as Mergers and Acquisitions Product Manager at Cisco, and as Product Manager at IBM. These positions have allowed him to stand out internationally for his ability to lead teams, develop innovative strategies and manage large-scale projects.

Throughout his career, he has participated in important technological and financial events. In this sense, Chris Sutton has given presentations and has been part of international panels, along with other leading experts in this sector. In this way, on the occasion of the 15th anniversary of the white paper on Bitcoin, he participated in the events of the FinTech week in Hong Kong. He also presented his expertise at a conference organized by Mastercard in Dubai on banking in the digital age and the impact of digital assets. Likewise, his analyses have focused on delving into the history, principles and future of the Blockchain.

In short, his strategic vision and outstanding skills in programming and algorithms have been key to his success in the international market, consolidating him as a leader in his field.



D. Sutton, Chris

- Director of Blockchain and Digital Assets at Mastercard, Miami, U.S.A.
- Founder of N17 Capital
- Director of Blockchain Services at Oasis Pro Market
- Mergers and Acquisitions Product Manager at Cisco
- Product Manager at IBM
- Contributor at Cointelegraph
- Master's degree in Financial Systems Engineering from University College London
- Bachelor's Degree in Computer Science from Florida International University

“

Thanks to TECH, you will be able to learn with the best professionals in the world”

Management



Mr. Torres Palomino, Sergio

- Blockchain Architect Telefónica
- Blockchain Architect Signeblock
- Blockchain Developer Blocknitive
- Big Data Engineer Golive Services
- Big Data Engineer IECISA
- 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

Professors

Ms. Salgado Iturrino, María

- ♦ Blockchain Manager Iberia & LATAM Inetum
- ♦ Identity Comission Core Team Leader Alastria
- ♦ Conwet Research Lab. niversidad Politécnica de Madrid
- ♦ Software Developer Internship Indra
- ♦ Professor of Blockchain Applied to Business Polytechnic University of Madrid
- ♦ Degree in Software Engineering from the Complutense University of Madrid (UCM)
- ♦ Master's Degree in Computer Engineering from the Polytechnic University of Madrid (UPM)

Mr. Vaño Francés, Juan Francisco

- ♦ Solidity Engineer at Vivatopia
- ♦ Computer Science Engineer at the Polytechnic University of Valencia.
- ♦ Senior Computer Technician at R. Belda Lloréns
- ♦ Data Science Tools Course
- ♦ Specialized in DApp programming and Smart Contract development with Solidity



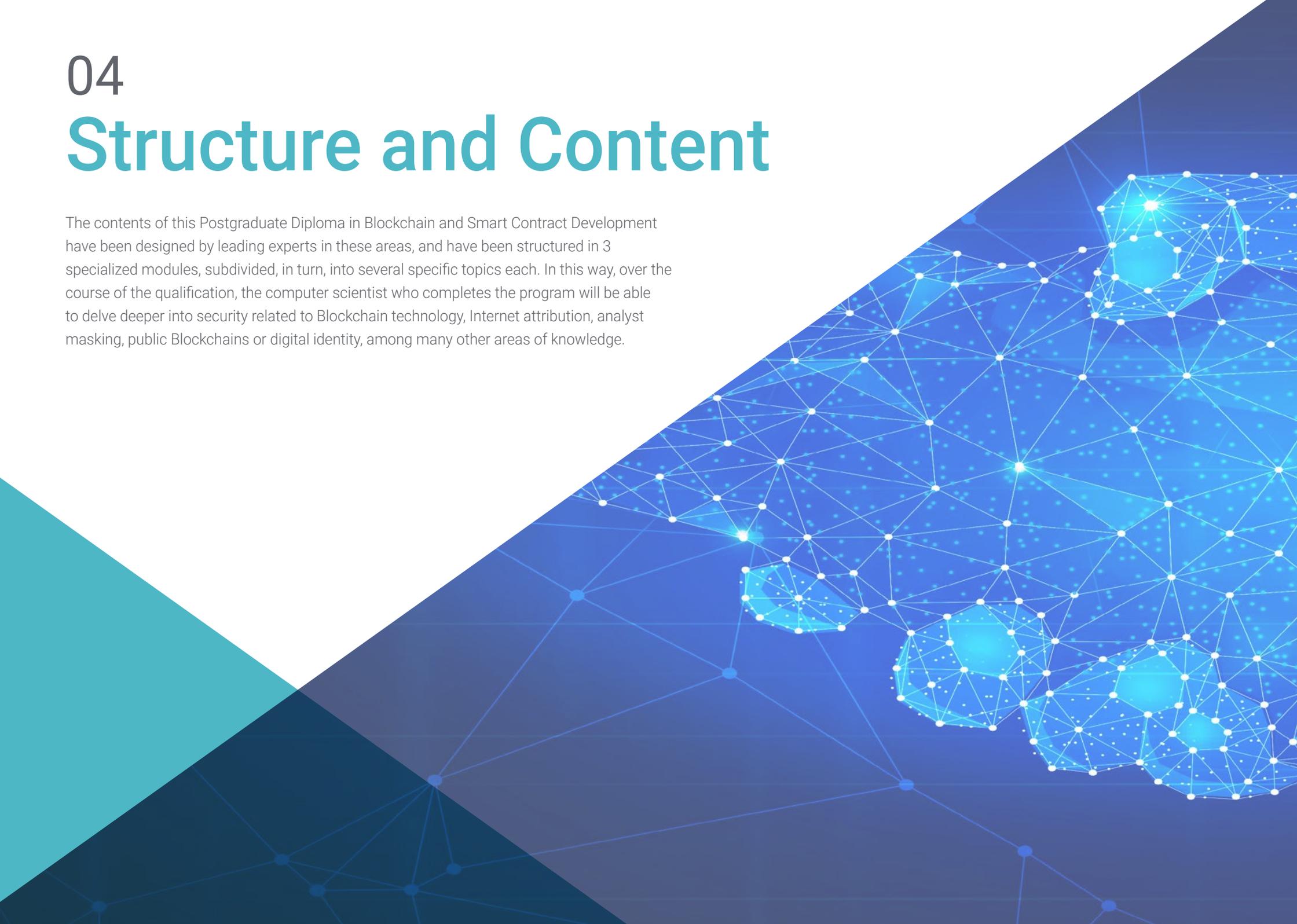
Mr. Triguero Tirado, Enrique

- ◆ Blockchain Infrastructure Technical Manager at UPC-Threepoints
- ◆ Chief Technical Officer at Ilusiak
- ◆ Project Management Officer at Ilusiak and Deloitte
- ◆ ELK Engineer at Everis
- ◆ Systems Architect at Everis
- ◆ Degree in Technical Engineering in Computer Systems at the Polytechnic University of Valencia
- ◆ Master's Degree in Blockchain and its Business Applications from ThreePoints and the Polytechnic University of Valencia.

04

Structure and Content

The contents of this Postgraduate Diploma in Blockchain and Smart Contract Development have been designed by leading experts in these areas, and have been structured in 3 specialized modules, subdivided, in turn, into several specific topics each. In this way, over the course of the qualification, the computer scientist who completes the program will be able to delve deeper into security related to Blockchain technology, Internet attribution, analyst masking, public Blockchains or digital identity, among many other areas of knowledge.



“

Deepen your knowledge of Smart Contracts applications with this program, which prepares you to learn about their particularities, guarantees and risks”

Module 1. Blockchain Technology: Technologies Involved and Cyberspace Security

- 1.1. Cyber Research Techniques
 - 1.1.1. Intelligence Analysis
 - 1.1.2. Potential Deception on the Internet
 - 1.1.3. Advanced Use of Search Tools
- 1.2. ELK Stacks
 - 1.2.1. Logstash
 - 1.2.2. ElasticSearch
 - 1.2.3. Kibana
- 1.3. Internet Attribution Techniques
 - 1.3.1. Social Media Research Tools
 - 1.3.2. Domain and Address Research Tools
 - 1.3.3. VirusTotal
- 1.4. OPSEC and Privacy in Web Research
 - 1.4.1. Identity Management
 - 1.4.2. Masking the Analyst
 - 1.4.3. Operating Systems
- 1.5. Structural Analysis Techniques
 - 1.5.1. Hypothesis Generation and Testing
 - 1.5.2. Hypotheses Generation Techniques
 - 1.5.3. Structured Hypothesis Refutation Techniques
- 1.6. Threat Modeling
 - 1.6.1. STIX Format
 - 1.6.2. MITRE ATT&CK Framework
 - 1.6.3. TLP Information Classification
 - 1.6.4. Intelligence Competition Strategies
 - 1.6.5. Documenting Threats with OpenCTI
- 1.7. Researching Wallets and Purses
 - 1.7.1. Wallet Operations
 - 1.7.2. Cracking Wallets
 - 1.7.3. Transaction Monitoring

- 1.8. Connected Services Vulnerabilities
 - 1.8.1. Difference between *Bugs*, Vulnerabilities and *Exploits*
 - 1.8.2. Vulnerability Assessment Metrics
 - 1.8.3. Obligations upon Detecting Personal Data Affection
- 1.9. Metasploit
 - 1.9.1. Object Identification
 - 1.9.2. Information Gathering
 - 1.9.3. Exploiting Vulnerabilities
 - 1.9.4. Malicious App Example
- 1.10. Smart Contracts Security
 - 1.10.1. Tools to Search for Vulnerable Systems
 - 1.10.2. Known Ethereum Attack Vectors
 - 1.10.3. Exercises on CTF Ethernaut

Module 2. Public Blockchain Development: Ethereum, Stellar and Polkadot

- 2.1. Ethereum: Public Blockchain
 - 2.1.1. Ethereum
 - 2.1.2. EVM and GAS
 - 2.1.3. Etherscan
- 2.2. Running Ethereum: Solidity
 - 2.2.1. Solidity
 - 2.2.2. Remix
 - 2.2.3. Compilation and Execution
- 2.3. Ethereum Framework: Brownie
 - 2.3.1. Brownie
 - 2.3.2. Ganache
 - 2.3.3. Brownie Deployment
- 2.4. Testing Smart Contracts
 - 2.4.1. Test Driven Development (TDD)
 - 2.4.2. Pytest
 - 2.4.3. Smart Contracts
- 2.5. Web Connection
 - 2.5.1. Metamask
 - 2.5.2. Web3.js
 - 2.5.3. Ether.js

- 2.6. Real Project: Fungible Token
 - 2.6.1. ERC20
 - 2.6.2. Creating Our Token
 - 2.6.3. Deployment and Validation
- 2.7. Stellar Blockchain
 - 2.7.1. Stellar Blockchain
 - 2.7.2. Ecosystem
 - 2.7.3. Compared to Ethereum
- 2.8. Programming Stellar
 - 2.8.1. Horizon
 - 2.8.2. Stellar SDK
 - 2.8.3. Fungible Token Project
- 2.9. Polkadot Project
 - 2.9.1. Polkadot Project
 - 2.9.2. Ecosystem
 - 2.9.3. Interacting with Ethereum and Other Blockchains
- 2.10. Programming Polkadot
 - 2.10.1. Substrate
 - 2.10.2. Creating Parachain on Substrate
 - 2.10.3. Polkadot Integration

Module 3. Sovereign Identity Based on Blockchain

- 3.1. Digital Identity
 - 3.1.1. Personal Data
 - 3.1.2. Redes sociales
 - 3.1.3. Control Over Data
 - 3.1.4. Authentication
 - 3.1.5. Identification
- 3.2. Blockchain Identity
 - 3.2.1. Digital Signature
 - 3.2.2. Public Networks
 - 3.2.3. Permitted Networks
- 3.3. Sovereign Digital Identity
 - 3.3.1. Requirements
 - 3.3.2. Components
 - 3.3.3. Applications
- 3.4. Decentralized Identifiers (DIDs)
 - 3.4.1. Layout
 - 3.4.2. DID Methods
 - 3.4.3. DID Documents
- 3.5. Verifiable Credentials
 - 3.5.1. Components
 - 3.5.2. Flows
 - 3.5.3. Security and Privacy
 - 3.5.4. Blockchain to Register Verifiable Credentials
- 3.6. Blockchain Technologies for Digital Identity
 - 3.6.1. Hyperledger Indy
 - 3.6.2. Sovrin
 - 3.6.3. uPort
 - 3.6.4. ID Alastria
- 3.7. European Blockchain and Identity Initiatives
 - 3.7.1. eIDAS
 - 3.7.2. EBSI
 - 3.7.3. ESSIF
- 3.8. Digital Identity of Things (IoT)
 - 3.8.1. IoT Interactions
 - 3.8.2. Semantic Interoperability
 - 3.8.3. Data Security
- 3.9. Digital Identity of Processes
 - 3.9.1. Date:
 - 3.9.2. Code
 - 3.9.3. Interfaces
- 3.10. Blockchain Digital Identity Use Cases
 - 3.10.1. Health
 - 3.10.2. Education
 - 3.10.3. Logistics
 - 3.10.4. Public Administration

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.



A close-up photograph of a person's hands typing on a laptop keyboard. The image is partially obscured by a teal diagonal graphic element that covers the top right and bottom right portions of the page.

“

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

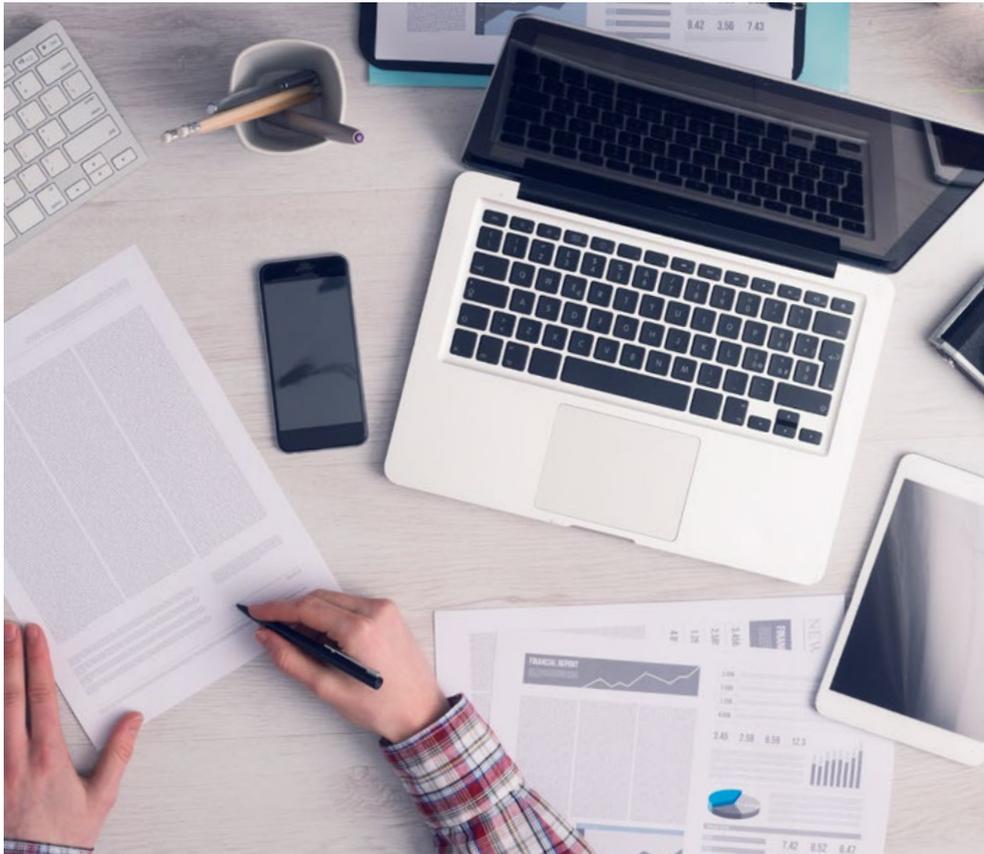
Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

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.

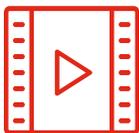
Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

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

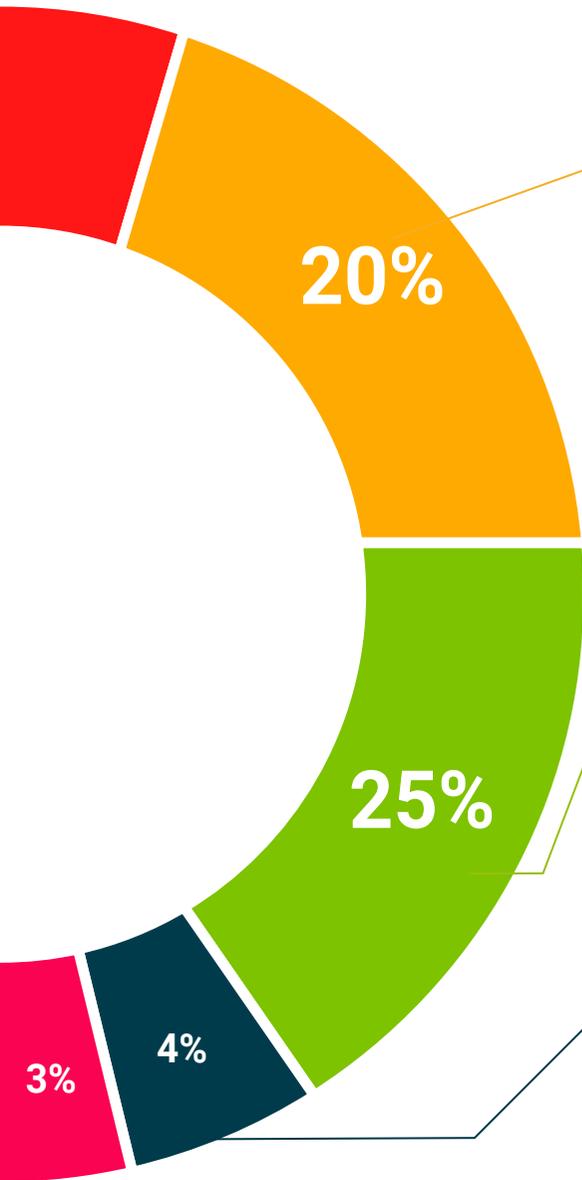
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 Diploma in Blockchain and Smart Contract Development guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



“

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

The Postgraduate Diploma in **Professional Master's Degree diploma in Blockchain Business Management** guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by **TECH Global 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: **Professional Master's Degree in Blockchain Blockchain Business Management**

ECTS: **18**

Official N° of Hours: **450 h.**



*Apostille Convention. In the event that the student wishes to have their paper diploma 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

personalized service innovation

knowledge present

online training

development language

virtual classroom

tech global
university

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