

Master's Degree Blockchain Programming

Accreditation/Membership





Master's Degree Blockchain Programming

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Accreditation: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/law/master-degree/master-degree-blockchain-programming

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01

Introduction to the Program

The emergence of Blockchain technology has transformed not only financial environments but also the legal sector. According to the Blockchain Observatory of the Ministry of Economic Affairs, more than 60% of digital projects with institutional backing in 2024 incorporated this technology. In this regard, its ability to decentralize operations, guarantee traceability, and automate agreements through smart contracts presents new challenges. For this reason, it is essential that professionals have a comprehensive understanding of its technical foundations. To facilitate this, TECH has created an exclusive university program focused on the fundamentals of Blockchain Programming, delivered in a flexible online format, with a personalized approach and free access to content.



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An exhaustive and 100% online program, exclusive to TECH, with an international perspective backed by our affiliation with the Blockchain Council”

The growing adoption of Blockchain-based systems has accelerated the need for regulatory frameworks to support its development. In this context, experts must incorporate computational logic techniques into their daily practice to understand how self-executing codes work. Only then will they be able to guarantee legality in highly decentralized digital environments. Only then will they be able to guarantee legality in highly decentralized digital environments.

In this context, TECH presents an innovative Postgraduate Master's Degree in Blockchain Programming. Designed by leading experts in this field, the curriculum will explore the most relevant programming languages, platforms, and development frameworks within the decentralized ecosystem. Additionally, the syllabus will cover the technical and legal fundamentals governing business platforms such as Hyperledger Fabric. In line with this, the educational materials will provide students with the keys to interpret, audit, and code self-executing legal solutions. As a result, graduates will gain advanced competencies in implementing smart contracts with legal criteria. They will also ensure the regulatory validity of Blockchain developments and advise on configuring distributed architectures compatible with the current legal framework.

Furthermore, TECH relies on its disruptive Relearning methodology. This method consists of the progressive repetition of key concepts to ensure professionals assimilate essential concepts progressively. As such, they will not need to invest long hours in traditional memorization. All they will need is an electronic device with an internet connection to access the Virtual Campus, where they will find high-level educational content to enhance their knowledge. Additionally, a prestigious International Guest Director will conduct 10 intensive and exclusive Masterclasses.

Moreover, since TECH Global University is a member of the Blockchain Council, students will have access to specialized materials, guides, and advanced exercises for practice in this field. In addition, they will be able to attend academic events, receive discounts on publications, and connect with a broad international network of leading researchers, thereby strengthening their knowledge in this area.

This **Master's Degree in Blockchain Programming** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Blockchain Programming
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ 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



A renowned International Guest Director will offer 10 comprehensive Masterclasses on the latest trends in Blockchain Programming”

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You will delve into the technical parameters of Blockchain technology and its applicability in the legal environment”

The faculty includes professionals from the Blockchain Programming field, who bring their work experience to this program, along with recognized 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 an immersive learning experience designed to prepare for real-life situations.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

You will detect legal risks associated with the deployment of solutions based on decentralized environments at an early stage.

The Relearning system applied by TECH will train you with less effort and greater results, increasing your involvement in your professional specialization.



02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.



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Study at the largest online university in the world and ensure your professional success. The future begins at TECH”

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

Forbes

The best online university in the world

The most complete
syllabus

The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

TOP
international faculty



The most effective methodology

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.

World's No.1
The World's largest online university

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.



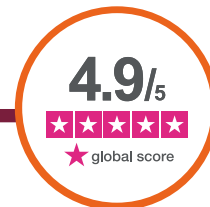
Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.



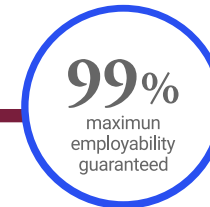
The official online university of the NBA

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The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.



Leaders in employability

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03

Syllabus

The academic itinerary complementing this university program will address Blockchain Programming, offering a comprehensive approach that will cover the legal implications arising from its adoption. Throughout the program, the mechanisms for data security, which are crucial for protecting information in digital environments, will be explored. Additionally, the impact of current regulations on the development and implementation of decentralized technologies will be analyzed. By understanding the interactions between technology and the legal framework, professionals will be able to effectively manage the legal challenges associated with Blockchain, strengthening their competencies in a secure digital environment.





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You will design advanced regulatory strategies for decentralized environments under the current global regulations”

Module 1. Public Blockchain Development: Ethereum, Stellar and Polkadot

- 1.1. Ethereum. Public Blockchain
 - 1.1.1. Ethereum
 - 1.1.2. EVM and GAS
 - 1.1.3. Etherscan
- 1.2. Ethereum Development. Solidity
 - 1.2.1. Solidity
 - 1.2.2. Remix
 - 1.2.3. Compilation and Execution
- 1.3. Ethereum Framework: *Brownie*
 - 1.3.1. *Brownie*
 - 1.3.2. Ganache
 - 1.3.3. Brownie Deployment
- 1.4. *Testing Smart Contracts*
 - 1.4.1. Test Driven Development (TDD)
 - 1.4.2. Pytest
 - 1.4.3. *Smart Contracts*
- 1.5. Web Connection
 - 1.5.1. Metamask
 - 1.5.2. web3.js
 - 1.5.3. Ether.js
- 1.6. Real Project: Fungible Token
 - 1.6.1. ERC20
 - 1.6.2. Creating Our Token
 - 1.6.3. Deployment and Validation
- 1.7. Stellar Blockchain
 - 1.7.1. Stellar Blockchain
 - 1.7.2. Ecosystem
 - 1.7.3. Compared to Ethereum
- 1.8. Stellar Programming
 - 1.8.1. Horizon
 - 1.8.2. Stellar SDK
 - 1.8.3. Fungible Token Project



- 1.9. Polkadot Project
 - 1.9.1. Polkadot Project
 - 1.9.2. Ecosystem
 - 1.9.3. Interaction with Ethereum and Other Blockchain
- 1.10. Polkadot Programming
 - 1.10.1. Substrate
 - 1.10.2. Substrate Parachain Creation
 - 1.10.3. Polkadot Integration

Module 2. Blockchain Technology: Technologies Involved and Cyberspace Security

- 2.1. Cryptography in Blockchain
- 2.2. Hashing in Blockchain
- 2.3. Private Sharing Multi-Hashing (PSM Hash)
- 2.4. Digital Signatures in Blockchain
- 2.5. Key Management, Wallets
- 2.6. Encryption
- 2.7. On-Chain and Off-Chain Data
- 2.8. Security and Smart Contracts

Module 3. Corporate Blockchain Development: Hyperledger Besu

- 3.1. Besu Configuration
 - 3.1.1. Key Configuration Parameters in Production Environments
 - 3.1.2. Finetuning for Connected Services
 - 3.1.3. Good Configuration Practices
- 3.2. Blockchain Configuration
 - 3.2.1. Key Configuration Parameters for PoA
 - 3.2.2. Key Configuration Parameters for PoW
 - 3.2.3. Genesis Block Configurations
- 3.3. Securing Besu
 - 3.3.1. Secure the RPC with TLS
 - 3.3.2. RPC Securitization with NGINX
 - 3.3.3. Securitization by Means of a Node Scheme

- 3.4. Besu in High Availability
 - 3.4.1. Node Redundancy
 - 3.4.2. Balancers for Transactions
 - 3.4.3. Transaction Pool over Messaging Queue
- 3.5. Off-Chain Tools
 - 3.5.1. Privacy - Tessera
 - 3.5.2. Identity - Alastria ID
 - 3.5.3. Data Indexing- Subgraph
- 3.6. Applications Developed on Besu
 - 3.6.1. ERC20 Tokens-Based Applications
 - 3.6.2. ERC 721 Tokens-Based Applications
 - 3.6.3. ERC 1155 Token-Based Applications
- 3.7. Deployment and Automation of Besu
 - 3.7.1. Besu on Docker
 - 3.7.2. Besu on Kubernetes
 - 3.7.3. Besu in Blockchain as a Service
- 3.8. Besu Interoperability with Other Clients
 - 3.8.1. Interoperability with Geth
 - 3.8.2. Interoperability with Open Ethereum
 - 3.8.3. Interoperability with Other DLTs
- 3.9. Plugins for Besu
 - 3.9.1. Most Common Plugins
 - 3.9.2. Plugin Development
 - 3.9.3. Installation of Plugins
- 3.10. Configuration of Development Environments
 - 3.10.1. Creation of a Developing Environment
 - 3.10.2. Creation of a Customer Integration Environment
 - 3.10.3. Creating a Pre-Production Environment for Load Testing

Module 4. Corporate Blockchain Development: Hyperledger Fabric

- 4.1. Hyperledger
 - 4.1.1. Hyperledger Ecosystem
 - 4.1.2. Hyperledger Tools
 - 4.1.3. Hyperledger Frameworks
- 4.2. Hyperledger Fabric - Components of its Architecture. State of the Art
 - 4.2.1. State of the Art of Hyperledger Fabric
 - 4.2.2. Nodes
 - 4.2.3. Orderers
 - 4.2.4. CouchDB and LevelDB
 - 4.2.5. CA
- 4.3. Hyperledger Fabric - Components of its Architecture. Transaction Process
 - 4.3.1. Transaction Process
 - 4.3.2. *Chaincodes*
 - 4.3.3. Membership Service Provider (MSP)
- 4.4. Enabling Technologies
 - 4.4.1. Go
 - 4.4.2. Docker
 - 4.4.3. Docker Compose
 - 4.4.4. Other Technologies
- 4.5. Pre-Requisite Installation and Environment Preparation
 - 4.5.1. Server Preparation
 - 4.5.2. Download Prerequisites
 - 4.5.3. Download from Official Hyperledger Repository
- 4.6. First Deployment
 - 4.6.1. Automated Test Deployment - Network
 - 4.6.2. Guided Test Deployment - Network
 - 4.6.3. Review of Deployed Components
- 4.7. Second Deployment
 - 4.7.1. Private Data Collection Deployment
 - 4.7.2. Integration with a Fabric Network
 - 4.7.3. Other Projects

- 4.8. *Chaincodes*
 - 4.8.1. Structure of a Chaincode
 - 4.8.2. Deployment and Upgrade of Chaincodes
 - 4.8.3. Other Important Functions in Chaincodes
- 4.9. Connection to other Hyperledger Tools (Caliper and Explorer)
 - 4.9.1. Hyperledger Explorer Installation
 - 4.9.2. Hyperledger Caliper Installation
 - 4.9.3. Other Important Tools
- 4.10. Certification
 - 4.10.1. Types of Official Certifications
 - 4.10.2. Preparation for CHFA
 - 4.10.3. Developer Profiles vs. Administrator Profiles

Module 5. Blockchain-Based Self-Sovereign Identity

- 5.1. Digital Identity
 - 5.1.1. Personal Data
 - 5.1.2. Social Media
 - 5.1.3. Control Over Data
 - 5.1.4. Authentication
 - 5.1.5. Identification
- 5.2. Blockchain Identity
 - 5.2.1. Digital Signature
 - 5.2.2. Public Networks
 - 5.2.3. Permitted Networks
- 5.3. Sovereign Digital Identity
 - 5.3.1. Needs
 - 5.3.2. Components
 - 5.3.3. Applications
- 5.4. Decentralized Identifiers (DIDs)
 - 5.4.1. Layout
 - 5.4.2. DID Methods
 - 5.4.3. DID Documents
- 5.5. Verifiable Credentials
 - 5.5.1. Components
 - 5.5.2. Flows
 - 5.5.3. Security and Privacy
 - 5.5.4. Blockchain to Register Verifiable Credentials
- 5.6. Blockchain Technologies for Digital Identity
 - 5.6.1. Hyperledger Indy
 - 5.6.2. Sovrin
 - 5.6.3. uPort
 - 5.6.4. IDAlastria
- 5.7. European Blockchain and Identity Initiatives
 - 5.7.1. eIDAS
 - 5.7.2. EBSI
 - 5.7.3. ESSIF
- 5.8. Digital Identity of Things (IoT)
 - 5.8.1. IoT Interactions
 - 5.8.2. Semantic Interoperability
 - 5.8.3. Data Security
- 5.9. Digital Identity of Processes
 - 5.9.1. Data
 - 5.9.2. Codes
 - 5.9.3. Interfaces
- 5.10. Blockchain Digital Identity Use Cases
 - 5.10.1. Health
 - 5.10.2. Education
 - 5.10.3. Logistics
 - 5.10.4. Public Administration

Module 6. Blockchain and Its New Applications: DeFi and NFT

- 6.1. Financial Culture
 - 6.1.1. Evolution of Money
 - 6.1.2. FIAT Money vs. Decentralized Money
 - 6.1.3. Digital Bank vs. *Open Finance*
- 6.2. Ethereum
 - 6.2.1. Technology
 - 6.2.2. Decentralized Money
 - 6.2.3. *Stable Coins*
- 6.3. Other Technologies
 - 6.3.1. *Binance Smart Chain*
 - 6.3.2. Polygon
 - 6.3.3. Solana
- 6.4. DeFi (Decentralized Finance)
 - 6.4.1. DeFi
 - 6.4.2. Challenges
 - 6.4.3. Open Finance vs. DeFi
- 6.5. Information Tools
 - 6.5.1. Metamask and Decentralized Wallets
 - 6.5.2. CoinMarketCap
 - 6.5.3. Defi Pulse
- 6.6. *Stable Coins*
 - 6.6.1. Protocol Maker
 - 6.6.2. USDC, USDT, BUSD
 - 6.6.3. Forms of Collateralization and Risks
- 6.7. Exchanges and Decentralized Exchanges and Platforms (DEX)
 - 6.7.1. Uniswap
 - 6.7.2. SushiSwap
 - 6.7.3. AAVE
 - 6.7.4. dYdX /Synthetix

- 6.8. NFT Ecosystem (Non-Fungible Tokens)
 - 6.8.1. NFTs
 - 6.8.2. Typology
 - 6.8.3. Characteristics
- 6.9. Capitulation of Industries
 - 6.9.1. Design Industry
 - 6.9.2. Fan Token Industry
 - 6.9.3. Project Funding
- 6.10. NFT Markets
 - 6.10.1. Opensea
 - 6.10.2. Rarible
 - 6.10.3. Customized Platforms

Module 7. Blockchain Architecture Design

- 7.1. Blockchain Architecture Design
 - 7.1.1. Architecture
 - 7.1.2. Infrastructure Architecture
 - 7.1.3. Software Architecture
 - 7.1.4. Integration Deployment
- 7.2. Types of Networks
 - 7.2.1. Public Networks
 - 7.2.2. Private Networks
 - 7.2.3. Permitted Networks
 - 7.2.4. Differences
- 7.3. Participant Analysis
 - 7.3.1. Company Identification
 - 7.3.2. Customer Identification
 - 7.3.3. Consumer Identification
 - 7.3.4. Interaction Between Parties

- 7.4. Proof-of-Concept Design
 - 7.4.1. Functional Analysis
 - 7.4.2. Implementation Phases
- 7.5. Infrastructure Requirements
 - 7.5.1. *Cloud*
 - 7.5.2. Physical
 - 7.5.3. Hybrid
- 7.6. Security Requirements
 - 7.6.1. Certification
 - 7.6.2. HSM
 - 7.6.3. Encryption
- 7.7. Communications Requirements
 - 7.7.1. Network Speed Requirements
 - 7.7.2. I/O Requirements
 - 7.7.3. Transaction Requirements Per Second
 - 7.7.4. Affecting Requirements with the Network Infrastructure
- 7.8. Software Testing, Performance and Stress Testing
 - 7.8.1. Unit Testing in Development and Pre-Production Environments
 - 7.8.2. Infrastructure Performance Testing
 - 7.8.3. Pre-Production Testing
 - 7.8.4. Production Testing
 - 7.8.5. Version Control
- 7.9. Operation and Maintenance
 - 7.9.1. Support: Alerts
 - 7.9.2. New Versions of Infrastructure Components
 - 7.9.3. Risk Analysis
 - 7.9.4. Incidents and Changes
- 7.10. Continuity and Resilience
 - 7.10.1. *Disaster Recovery*
 - 7.10.2. *Backup*
 - 7.10.3. New Participants

Module 8. Blockchain Applied to Logistics

- 8.1. Operational AS IS Mapping and Possible Gaps
 - 8.1.1. Identification of Manually Executed Processes
 - 8.1.2. Identification of Participants and Their Particularities
 - 8.1.3. Case Studies and Operational Gaps
 - 8.1.4. Presentation and Mapping Executive Staff
- 8.2. Map of Current Systems
 - 8.2.1. Current Systems
 - 8.2.2. Master Data and Information Flow
 - 8.2.3. Governance Model
- 8.3. Application of Blockchain to Logistics
 - 8.3.1. Blockchain Applied to Logistics
 - 8.3.2. Traceability-Based Architectures for Business Processes
 - 8.3.3. Critical Success Factors in Implementation
 - 8.3.4. Practical Tips
- 8.4. TO BE Model
 - 8.4.1. Operational Definition for Supply Chain Control
 - 8.4.2. Structure and Responsibilities of the Systems Plan
 - 8.4.3. Critical Success Factors in Implementation
- 8.5. Construction of the Business Case
 - 8.5.1. Cost Structure
 - 8.5.2. Projected Benefits
 - 8.5.3. Approval and Acceptance of the Plan by the Owners
- 8.6. Creation of Proof of Concept (POC)
 - 8.6.1. Importance of a POC for New Technologies
 - 8.6.2. Key Aspects
 - 8.6.3. Examples of POCs with Low Cost and Effort
- 8.7. Project Management
 - 8.7.1. Agile Methodology
 - 8.7.2. Decision of Methodologies Among All Participants
 - 8.7.3. Strategic Development and Deployment Plan

- 8.8. Systems Integration: Opportunities and Needs
 - 8.8.1. Structure and Development of the Systems Planning
 - 8.8.2. Data Master Model
 - 8.8.3. Roles and Responsibilities
 - 8.8.4. Integrated Management and Monitoring Model
- 8.9. Development and Implementation with the Supply Chain Team
 - 8.9.1. Active Participation of the Customer (Business)
 - 8.9.2. Systemic and Operational Risk Analysis
 - 8.9.3. Event Key: Test Models and Post-Production Support
- 8.10. Change Management: Follow-Up and Updating
 - 8.10.1. Management Implications
 - 8.10.2. Rollout Plan and Training Program
 - 8.10.3. KPI Tracking and Management Models

Module 9. Blockchain and Business

- 9.1. Applying Technology throughout the Company
 - 9.1.1. Applying Blockchain
 - 9.1.2. Blockchain Benefits
 - 9.1.3. Common Implementation Mistakes
- 9.2. Blockchain Implementation Cycle
 - 9.2.1. From P2P to Distributed Systems
 - 9.2.2. Key Aspects for Proper Implementation
 - 9.2.3. Improving Current Implementations
- 9.3. Blockchain vs. Traditional Technologies. Foundations
 - 9.3.1. APIs Data and Flows
 - 9.3.2. Tokenization as a Cornerstone for Projects
 - 9.3.3. Incentives
- 9.4. Selecting Blockchain Type
 - 9.4.1. Public Blockchain
 - 9.4.2. Private Blockchain
 - 9.4.3. Consortiums

- 9.5. Blockchain and the Public Sector
 - 9.5.1. Blockchain in the Public Sector
 - 9.5.2. Central Bank Digital Currency (CBDC)
 - 9.5.3. Conclusions
- 9.6. Blockchain and the Financial Sector Start
 - 9.6.1. CBDC and Banking
 - 9.6.2. Native Digital Assets
 - 9.6.3. Where It Does Not Fit
- 9.7. Blockchain and the Pharmaceutical Sector
 - 9.7.1. Searching for Meaning in the Field
 - 9.7.2. Logistics or Pharmacy
 - 9.7.3. Application
- 9.8. Pseudo-Private Blockchains. Consortia: Their Purpose
 - 9.8.1. Reliable Environments
 - 9.8.2. Analysis and Delving Deeper
 - 9.8.3. Valid Implementations
- 9.9. Blockchain. Use Case in Europe: EBSI
 - 9.9.1. EBSI (European Blockchain Services Infraestructure)
 - 9.9.2. The Business Model
 - 9.9.3. Future Perspectives
- 9.9. The Future of Blockchain
 - 9.10.1. Trilemma
 - 9.10.2. Automation
 - 9.10.3. Conclusions



“ You will be highly prepared to act legally in cases of delinquency and insolvency, especially in credit institutions”

04

Teaching Objectives

This university program offers legal experts advanced competencies at the intersection of Blockchain technology and legal regulations. In this way, professionals will be capable of both analyzing and coding smart contracts. Furthermore, graduates will draft self-executing legal clauses with maximum technical precision. Additionally, they will develop skills to evaluate business platforms such as Ethereum, understanding their legal, fiscal, and regulatory implications. They will also acquire key knowledge in sovereign digital identity, data protection, and compliance systems in crypto assets. This will allow them to intervene confidently in complex and decentralized digital environments.





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You will apply sophisticated techniques in cryptography, hashing, and wallets to advise on legal security in Blockchain environments”



General Objectives

- Understand the technical and legal fundamentals of the Blockchain ecosystem
- Analyze the structure and functioning of smart contracts from a legal perspective
- Interpret the legal impact of crypto assets and their global regulation
- Identify the legal risks associated with the use of decentralized technologies
- Apply data protection principles in distributed digital environments
- Design effective legal strategies for the implementation of Blockchain-based solutions
- Analyze the regulations applicable to digital identity and its legal recognition
- Explore the governance principles of Blockchain networks and their relationship with law



The specialized readings will allow you to further expand the rigorous academic content provided in this program”





Specific Objectives

Module 1. Public Blockchain Development: Ethereum, Stellar and Polkadot

- ♦ Apply technical knowledge of smart contracts to evaluate their legal validity
- ♦ Identify the legal risks in the use of tokens on public networks

Module 2. Blockchain Technology: Technologies Involved and Cyberspace Security

- ♦ Understand cryptographic mechanisms and their relevance to the legal protection of data
- ♦ Analyze the legal implications of the main digital signature systems in Blockchain

Module 3. Corporate Blockchain Development: Hyperledger Besu

- ♦ Explore the legal requirements for privacy and security in business environments
- ♦ Interpret programmable contracts from a compliance perspective

Module 4. Corporate Blockchain Development: Hyperledger Fabric

- ♦ Delve into the various models of legal governance in permissioned networks
- ♦ Design testing environments to verify the legal compliance of deployed software

Module 5. Blockchain-Based Self-Sovereign Identity

- ♦ Investigate the legal validity of decentralized identifiers
- ♦ Recognize the impact of verifiable credentials on the right to privacy

Module 6. Blockchain and Its New Applications: DeFi and NFT

- ♦ Explore the legality of decentralized financial protocols
- ♦ Analyze the legal mechanisms for the protection of rights associated with NFTs

Module 7. Blockchain Architecture Design

- ♦ Create Blockchain architectures based on legal principles of transparency and traceability
- ♦ Ensure compliance with regulatory requirements in the deployment of decentralized platforms

Module 8. Blockchain Applied to Logistics

- ♦ Analyze various legal frameworks for traceability and supply chain management
- ♦ Delve into the legal implications of automated data processing in logistics environments

Module 9. Blockchain and Business

- ♦ Establish legal criteria for the adoption of Blockchain in regulated sectors
- ♦ Investigate the legal viability of business projects based on distributed technology

05

Career Opportunities

This university degree from TECH represents a valuable opportunity for legal professionals seeking to master the technical fundamentals of Blockchain Programming. Through a rigorous and practical approach, graduates will acquire key competencies to understand the computational logic of smart contracts, interpret their legal implications, and analyze decentralized systems from a regulatory perspective. In this way, this academic opportunity facilitates a strong integration between legal knowledge and disruptive new technologies. As a result, students will optimize their daily practice and significantly enhance their career prospects.





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Do you want to work as a Legal Consultant in Cryptoassets and Tokenization? Achieve it with this university program”

Graduate Profile

The graduate of this Postgraduate Master's Degree will master the fundamental principles of the legal framework governing digital assets, with a practical focus on Blockchain programming. In fact, they will possess advanced skills to interpret and apply regulatory standards in decentralized environments, facilitating the integration of emerging technologies within the legal framework. Additionally, they will be capable of advising on resolving complex legal challenges related to cryptocurrencies and smart contracts, standing out for their ability to innovate and adapt legal solutions in an ever-evolving digital environment.

You will provide comprehensive advice to administrations wishing to implement distributed registers in areas such as identity, public contracting, or property through Blockchain.

- ♦ **Legal-Technical Understanding:** Interpret the structure of Blockchain networks and smart contracts from a legal perspective, facilitating the connection between programming languages and regulatory frameworks.
- ♦ **Critical and Regulatory Thinking:** Analyze the legal implications of decentralized systems, assessing their alignment with legal principles such as transparency, traceability, and security.
- ♦ **Legal Technological Adaptation:** Incorporate Blockchain technologies into legal and regulatory processes, maintaining regulatory integrity in emerging digital environments.
- ♦ **Legal Technological Adaptation:** Incorporate Blockchain technologies into legal and regulatory processes, maintaining regulatory integrity in emerging digital environments.



After completing this university program, you will be able to apply your knowledge and skills in the following positions:

- 1. Smart Contracts Specialist:** Responsible for drafting, reviewing, and validating smart contracts; interpreting their code and ensuring compliance with the applicable legal framework.
- 2. Legal Advisor in Blockchain Projects:** Supervisor of regulatory compliance in the design or development of Blockchain-based solutions, ensuring their legal validity.
- 3. Legal Consultant in Cryptoassets and Tokenization:** Responsible for providing advisory services in regulatory matters related to digital assets, ICOs, NFTs, or DeFi platforms with a technical-legal focus.
- 4. Blockchain Compliance Program Administrator:** In charge of implementing regulations such as MiCA and even tax regulations in various Blockchain solutions.

“ You will stay up-to-date on the tax regulations related to digital assets, ensuring compliance in transactions and operations ”

06

Software Licenses Included

TECH is a leading reference in the academic world for combining the latest technology with teaching methodologies to enhance the teaching-learning process. To achieve this, it has established a network of alliances that allows it to access the most advanced software tools used in the professional world.



“

Upon enrolling, you will receive, completely free of charge, academic credentials for the following professional software applications”

TECH has established a network of professional alliances with the leading providers of software applied to various professional fields. These alliances allow TECH to access hundreds of software applications and licenses, making them available to its students.

The academic software licenses will allow students to use the most advanced applications in their professional field, so they can become familiar with them and master their use without incurring additional costs. TECH will be responsible for managing the licensing process so that students may use these tools without limitations throughout their enrollment in the Master's Degree in Blockchain Programming, completely free of charge.

TECH will provide free access to the following software applications:



Google Career Launchpad

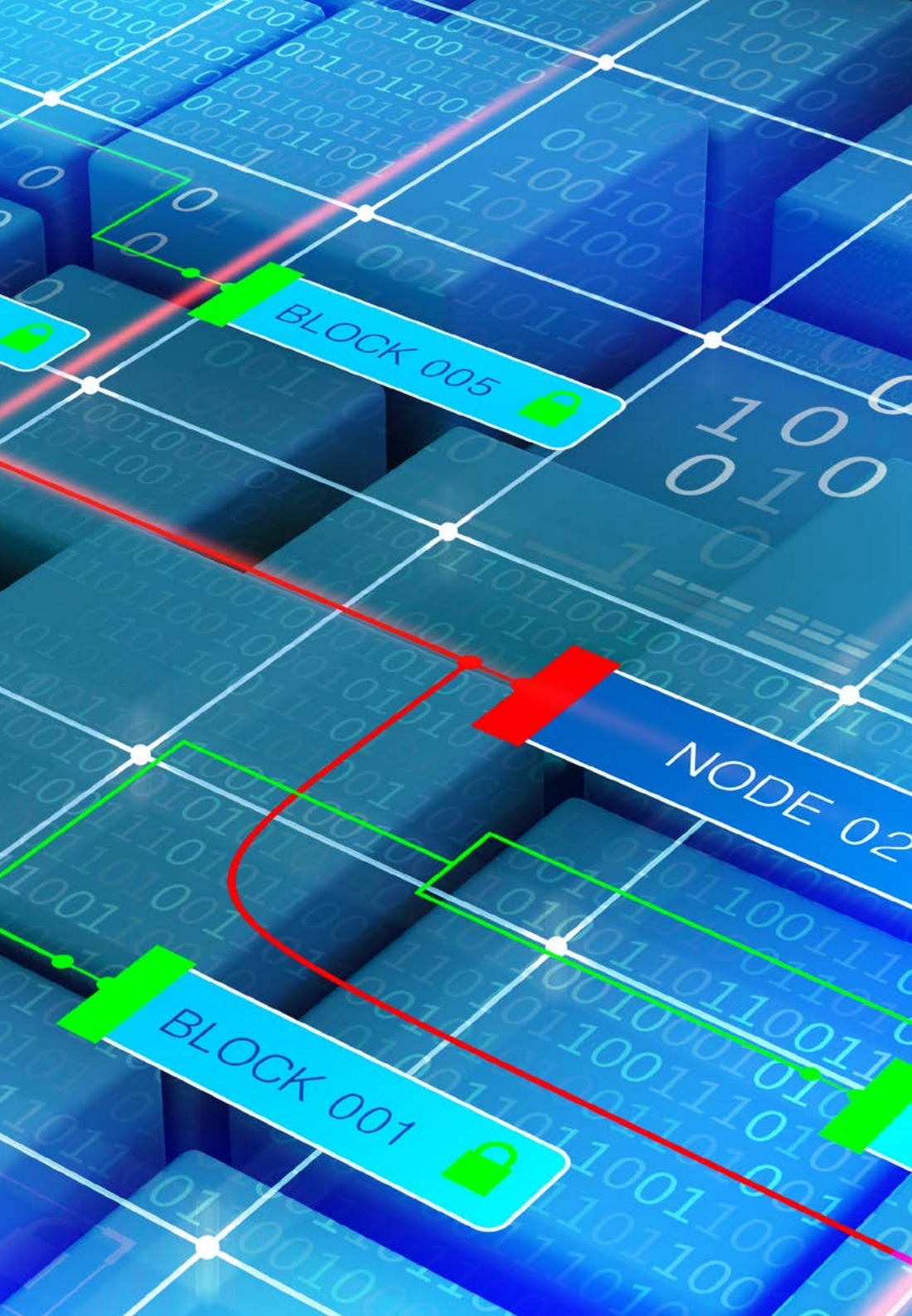
Google Career Launchpad is a solution for developing digital skills in technology and data analysis. With an estimated value of **5,000 dollars**, it is included **for free** in TECH's university program, providing access to interactive labs and certifications recognized in the industry.

This platform combines technical training with practical cases, using technologies such as BigQuery and Google AI. It offers simulated environments to work with real data, along with a network of experts for personalized guidance.

Key Features:

- ♦ **Specialized Courses:** Updated content in cloud computing, machine learning, and data analysis
- ♦ **Live Labs:** Hands-on practice with real Google Cloud tools, no additional configuration required
- ♦ **Integrated Certifications:** Preparation for official exams with international validity
- ♦ **Professional Mentoring:** Sessions with Google experts and technology partners
- ♦ **Collaborative Projects:** Challenges based on real-world problems from leading companies

In conclusion, **Google Career Launchpad** connects users with the latest market technologies, facilitating their entry into fields such as artificial intelligence and data science with industry-backed credentials.



“

Thanks to TECH, you will have free access to the best software applications in your professional field”

07

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

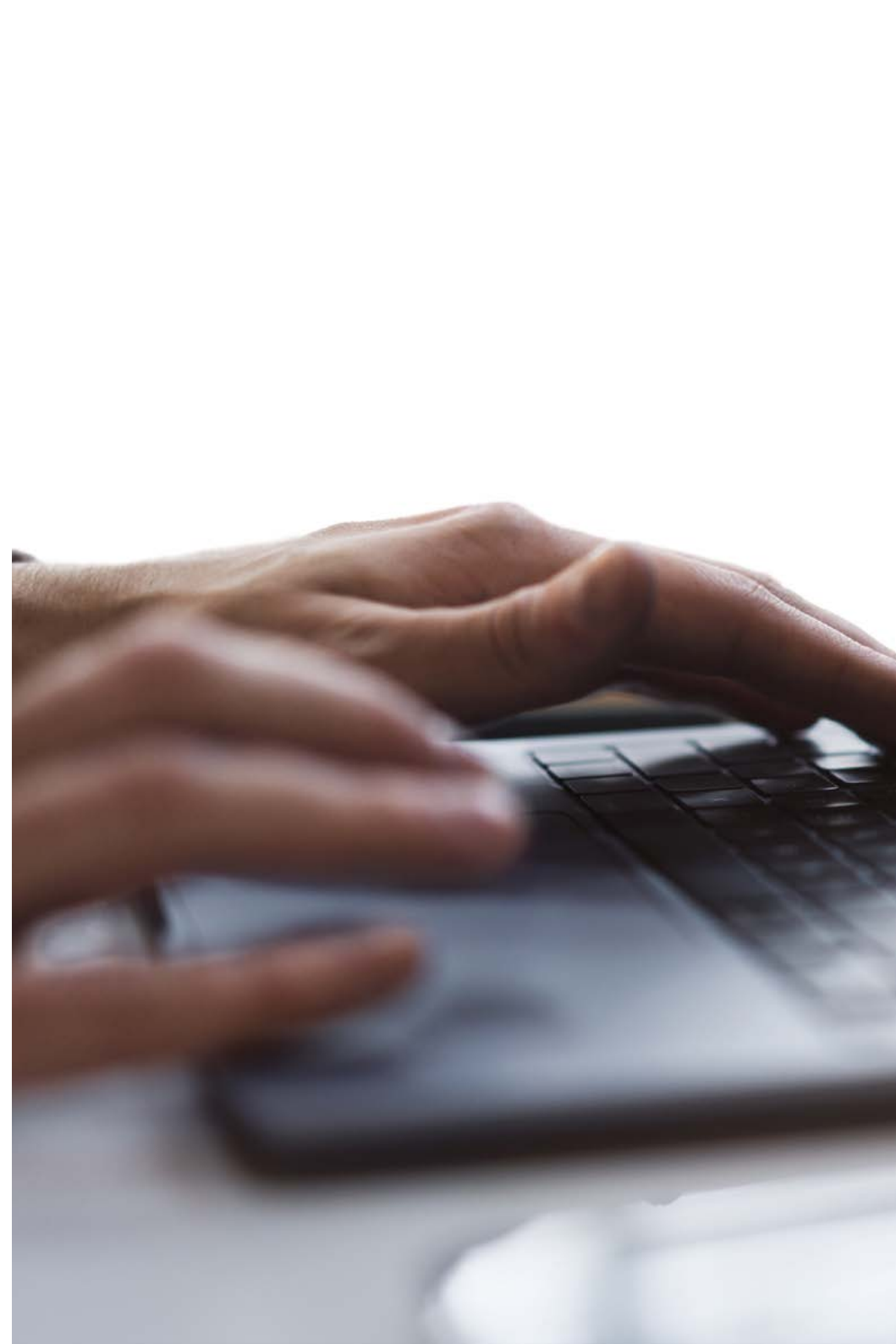
In TECH's study methodology, the student is the main protagonist.

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.

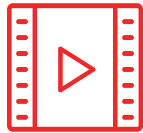
The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

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

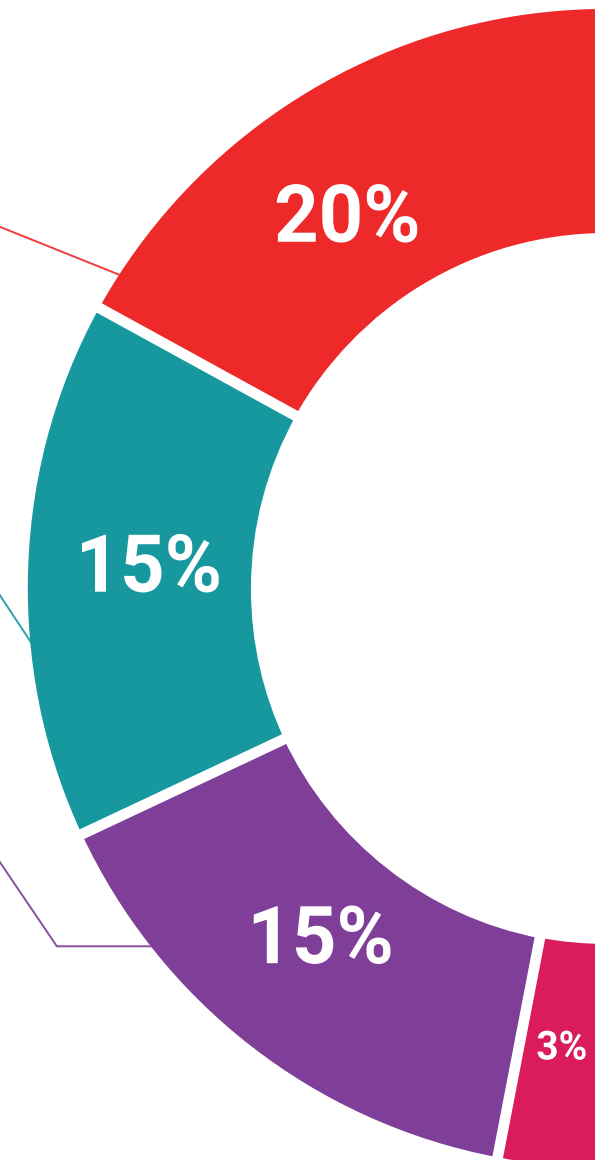
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

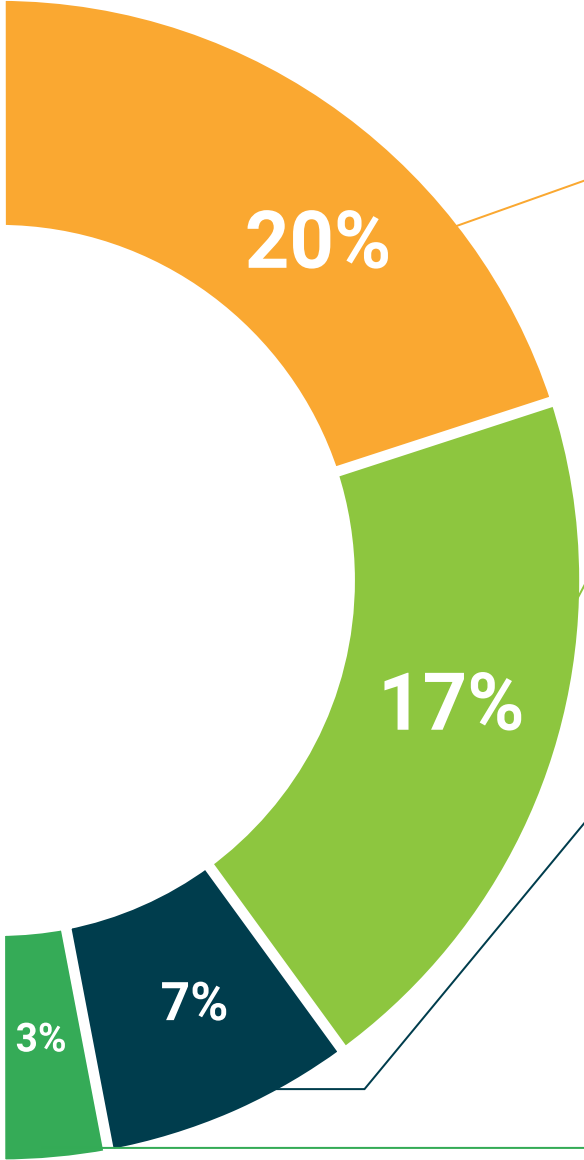
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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.



08

Teaching Staff

The faculty of this Master's Degree consists of experts with a profound understanding of Blockchain technology and its application in the legal field. These specialists have developed a variety of educational materials characterized by their excellent quality and their alignment with the demands of the current job market. Thanks to this, graduates will immerse themselves in a high-intensity academic experience that will significantly expand their professional horizons.



“

You will enjoy an academic itinerary designed by true leaders in Blockchain Programming”

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 is the **Founder** of the consulting firm **N17 Capital**, in which he offers advice to companies in the field of **Blockchain** and **digital assets**. Therefore, one of his functions has been to identify the components that make up these new tools, analyze them and create work strategies.

His professional experience has included high-level roles in leading companies in the sector, such as **Oasis Pro Market** where he has worked 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. Thus, 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 knowledge at a conference organized by **Mastercard**, in **Dubai**, on **banking in the digital era** and the **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 his outstanding skills in **programming** and **algorithms** have been key to his success in the **International market** consolidating him as a reference in his field.



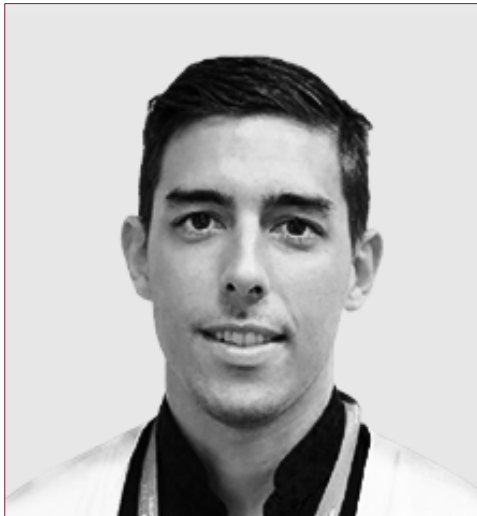
Mr. Sutton, Chris

- Director of Blockchain and Digital Assets at Mastercard, Miami, United States
- 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

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

Faculty

Mr. Olalla Bonal, Martín

- ♦ Senior Blockchain Practice Manager at EY
- ♦ Blockchain Client Technical Specialist for IBM
- ♦ Director of Architecture for Blocknitive
- ♦ Team Coordinator in Non-Relational Distributed Databases for WedoIT, a subsidiary of IBM
- ♦ Infrastructure Architect at Bankia
- ♦ Head of Layout Department at T-Systems
- ♦ Department Coordinator for Bing Data España SL

Ms. Carrascosa Cobos, Cristina

- ♦ Lawyer expert in Technology Law and use of ICTs
- ♦ Director and Founder of ATH21
- ♦ Columnist at CoinDesk
- ♦ Lawyer at Cuatrecasas Law Firm
- ♦ Lawyer at Broseta Law Firm
- ♦ Lawyer at Pinsent Masons Law Firm
- ♦ Master's Degree in Business Consultancy from IE Law School
- ♦ Master's Degree in Taxation and Taxation by CEF
- ♦ Degree in Law from the University of Valencia

Mr. Vaño Francés, Juan Francisco

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

Ms. Foncuberta, Marina

- ♦ Senior Associate Attorney at ATH21, Blockchain, Cybersecurity, IT, Privacy and Data Protection.
- ♦ Professor at CEU San Pablo University of Law and New Technologies: Blockchain
- ♦ Attorney Pinsent Masons, Blockchain Cybersecurity, IT, Privacy and Data Protection Department
- ♦ Lawyer as part of Secondment Program, Technology, Privacy and Data Protection Department, Wizink
- ♦ Lawyer as part of the Secondment Program, Cybersecurity, IT, Privacy and Data Protection Department, IBM.
- ♦ Law Degree and Postgraduate Certificate in Business Studies from the Comillas Pontifical University
- ♦ Master's Degree in Intellectual and Industrial Property from Comillas Pontifical University (ICADE)
- ♦ Program on Blockchain: Legal Implications

Mr. Herencia, Jesús

- ♦ Director of Digital Assets at OARO
- ♦ Founder and Blockchain Consultant at Shareyourworld
- ♦ IT Manager at Crédit Agricole Leasing & Factoring
- ♦ CEO of Blockchain Open Lab
- ♦ IT Manager at Mediasat
- ♦ Diploma in Computer Systems Engineering from the Polytechnic University of Madrid
- ♦ Secretary General of AECHAIN
- ♦ Member of: Academic Committee for the Promotion of Cryptoassets and DLT Technology Research, Ethereum Madrid and AECHAIN

Mr. Callejo González, Carlos

- ♦ CEO and Founder of Block Impulse
- ♦ Chief Technology Officer at Stoken Capital
- ♦ Advisor at Crypto Actual Club
- ♦ Advisor in Cryptocurrencies for All Plus
- ♦ Master's Degree in Applied *Blockchain*
- ♦ Superior Degree in Information Systems and Telecommunications

Mr. de Araujo, Rubens Thiago

- ♦ Manager of the IT Blockchain for Supply Chain Project at Telefónica Global Technology
- ♦ Logistics Innovation and Projects Manager at Telefónica Brazil
- ♦ Teacher of university programs in his specialty
- ♦ Master's Degree in PMI Project Management from SENAC University. Brazil
- ♦ Graduate in Technological Logistics from SENAC University. Brazil

Ms. Salgado Iturrino, María

- ◆ Software Engineer with expertise in Blockchain
- ◆ Blockchain Manager Iberia & LATAM at Inetum
- ◆ Identity Comission Core Team Leader at Alastria Blockchain Ecosystem
- ◆ Software Developer at Indra
- ◆ Teacher in postgraduate studies related to Blockchain
- ◆ Degree in Software Engineering from the Complutense University of Madrid
- ◆ Master's Degree in Computer Engineering from the Polytechnic University of Madrid
- ◆ University Expert in Blockchain Application Development

Mr. Triguero Tirado, Enrique

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





Mr. García de la Mata, Íñigo

- ♦ Senior Manager and Software Architect of the Innovation Team at Grant Thornton
- ♦ Blockchain Engineer at Alastria Blockchain Ecosystem
- ♦ Professor in Blockchain University courses at UNIR
- ♦ Professor and Blockchain Bootcamp and Geekshub
- ♦ Consultant at Ascendo Consulting Healthcare & Pharma
- ♦ Engineer at ARTECHE
- ♦ Bachelor's Degree in Industrial Engineering with a Major in Electronics
- ♦ Master's Degree in Electronics and Control from Comillas Pontifical University
- ♦ Degree in Computer Engineering from the Spanish Open University (UNED)
- ♦ TFG tutoring at Comillas Pontifical University

“

Take the step to get up to date with the latest developments in Blockchain Programming”

09

Certificate

The Master's Degree in Blockchain Programming guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Master's Degree 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 **Master's Degree in Blockchain Programming** 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 private qualification from **TECH Global University** is a European continuing education and professional development program that guarantees the acquisition of competencies in its area of expertise, providing significant curricular value to the student who successfully completes the program.

TECH Global University is a member of the **Blockchain Council**, an international organization dedicated to promoting and developing academic and professional capabilities in blockchain, cryptoassets, and decentralized environments.

Accreditation/Membership

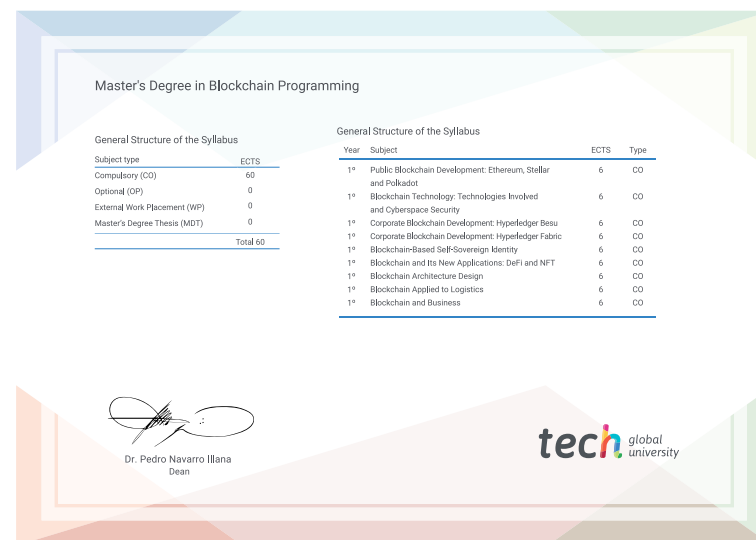


Title: **Master's Degree in Blockchain Programming**

Modality: **online**

Duration: **12 months**

Accreditation: **60 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.



Master's Degree Blockchain Programming

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Accreditation: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Master's Degree Blockchain Programming

Accreditation/Membership

