Advanced Master's Degree
Big Data and Blockchain

tech *global university*

tech global university

Advanced Master's Degree
Big Data and Blockchain

» Modality: **online**
» Duration: **2 years**
» Certificate: **TECH Global University**
» Accreditation: **120 ECTS**
» Schedule: **at your own pace**
» Exams: **online**

Website: **www.techtitute.com/us/information-technology/advanced-master-degree/advanced-master-degree-big-data-blockchain**

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01
Introduction to the Program

Technological evolution and the advancement of the web have transformed the management and analysis of large volumes of data through Big Data, while technologies such as Blockchain have revolutionized security and information transfer. This combination has driven the demand for specialists capable of optimizing processes, increasing productivity and ensuring protection against digital threats. In response to this need, TECH has designed a 100% online academic program, aimed at IT professionals, which offers practical and up-to-date training in data analysis and secure value transfer, equipping its graduates with skills that are highly valued in a competitive and constantly evolving job market.

Learn about a 100% online program to master Blockchain technologies and ensure security in cyberspace"

Technological development and advances in the web have radically transformed the way in which large volumes of data are managed and analyzed, while technologies such as the Blockchain have redefined security and information transfer. This impact is directly reflected in the growing demand from companies for specialists who can combine both disciplines to increase their productivity and protect against cyber threats. In this context, high-level preparation in these areas becomes essential, which is why TECH has designed this complete academic program.

With this approach, the syllabus covers the essential concepts of Big Data and Blockchain, exploring their practical applications in data collection, analysis and protection. It also delves into the most advanced techniques of secure value transfer and information management, taking the student from theory to implementation in real scenarios. This learning includes not only the technical fundamentals, but also the strategic skills needed to lead projects in a highly competitive digital environment. A comprehensive approach that allows professionals not only to keep up to date, but also to stand out in a constantly evolving market.

In addition, this program is developed in a 100% online format, which eliminates the need to travel or comply with rigid schedules. In this way, students have the freedom to organize their own learning pace, allowing them to combine their studies with other daily responsibilities. This flexible modality guarantees that each participant can make the most of the educational experience, adapting it to their personal and professional needs.

This **Advanced Master's Degree in Big Data and Blockchain** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- The development of case studies presented by experts in Big Data and Blockchain
- 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 in the direction of Big Data and Blockchain Theoretical lessons, questions to the expert, discussion forums on controversial topics and individual reflection papers
- Content that is accessible from any fixed or portable device with an Internet connection

Explore the latest trends in Big Data and Blockchain through exclusive Masterclasses taught by renowned International Guest Directors"

Enjoy the flexibility of a 100% online program that allows you to study from anywhere and on the schedule that best suits your needs.

TECH uses the most innovative educational methodology in the industry, designed to maximize learning in an effective and dynamic way.

"*Take advantage of the wide variety of practical resources in this program to consolidate your theoretical knowledge and apply it in real situations in the professional environment*"

Its teaching staff includes professionals from the field of computer science, who bring to this program the experience of their work, as well as renowned specialists from reference 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.

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.

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"

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.

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 eleven different languages, making us the largest educational institution in the world.

Forbes
Mejor universidad online del mundo

Plan
de estudios más completo

Profesorado
TOP
Internacional

La metodología más eficaz

nº1
Mundial
Mayor universidad online del mundo

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.

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 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 Partner PREMIER 2023

NBA Universidad online oficial de la **NBA**

4.9/5 ★★★★★ global score

99% Garantía de máxima empleabilidad

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 top-rated university by its students

The main review websites have positioned TECH as the best rated university in the world by its students. These review portals, recognized for their reliability and prestige due to the rigorous verification and validation of the authenticity of each opinion, have given TECH highly favorable ratings. These ratings place TECH as the absolute international university reference.

03
Syllabus

The materials that make up this program have been developed by a team of Big Data and Blockchain experts with extensive experience in the implementation of these technologies in business environments. Thanks to this approach, the curriculum will not only delve into the main data analysis technologies and Blockchain systems, but will also address key aspects such as information security, cryptography and large-scale database management. Graduates will be able to identify specific opportunities and design solutions tailored to current market needs. In addition, the syllabus includes innovative content that fosters the development of disruptive projects in sectors such as logistics, marketing, finance and public administration.

" *You will master Big Data and Blockchain technologies to ensure security in cyberspace and boost business competitiveness"*

Module 1. Visual Analytics in the Social and Technological Context

1.1. Technological Waves in Different Societies. Towards a Data Society
1.2. Globalization. Geopolitical and Social World Context
1.3. VUCA Environment. Always Living in the Past
1.4. Understanding New Technologies: 5G and IoT
1.5. Understanding the New 5G, IoT, Cloud and Edge Computing Technologies
1.6. Critical Thinking in Visual Analytics
1.7. The Know-Mads. Nomads Among Data
1.8. Learning to Engage in Visual Analytics
1.9. Anticipation Theories Applied to Visual Analytics
1.10. The New Business Environment. Digital Transformation

Module 2. Data Analysis and Interpretation

2.1. Introduction to Statistics
2.2. Measures Applicable to the Processing of Information
2.3. Statistical Correlation
2.4. Theory of Conditional Probability
2.5. Random Variable and Probability Distribution
2.6. Bayesian Inference
2.7. Sample Theory
2.8. Confidence Intervals
2.9. Hypothesis Testing
2.10. Regression Analysis

Module 3. Data Analysis and Artificial Intelligence Techniques

3.1. Predictive Analytics
3.2. Evaluation Techniques and Model Selection
3.3. Lineal Optimization Techniques
3.4. Montecarlo Simulations
3.5. Scenario Analysis
3.6. Machine Learning Techniques
3.7. Web Analytics
3.8. Text Mining Techniques
3.9. Methods of Natural Language Processing (NLP)
3.10. Social Network Analytics

Module 4. Data Analysis Tools

4.1. Data Science R Environment
4.2. Data Science Python Environment
4.3. Static and Statistical Graphs
4.4. Data Processing in Different Formats and Different Sources
4.5. Data Cleaning and Preparation
4.6. Exploratory Studies
4.7. Decision Trees
4.8. Classification and Association Rules
4.9. Neural Networks
4.10. Deep Learning

Module 5. Database Management and Data Parallelization Systems

5.1. Conventional Databases
5.2. Non-Conventional Databases
5.3. Cloud Computing: Distributed Data Management
5.4. Tools for the Ingestion of Large Volumes of Data
5.5. Types of Parallels
5.6. Data Processing in Streaming and Real Time
5.7. Parallel Processing: Hadoop
5.8. Parallel Processing: Spark
5.9. Apache Kafka
    5.9.1. Introduction to Apache Kafka
    5.9.2. Architecture
    5.9.3. Data Structure
    5.9.4. Kafka APIs
    5.9.5. Case Studies
5.10. Cloudera Impala

Module 6. Data-Driven Soft Skills in Strategic Management in Visual Analytics

6.1.   Drive Profile for Data-Driven Organizations
6.2.   Advanced Management Skills in Data-Driven Organizations
6.3.   Using Data to Improve Strategic Communication Performance
6.4.   Emotional Intelligence Applied to Management in Visual Analytics
6.5.   Effective Presentations
6.6.   Improving Performance Through Motivational Management
6.7.   Leadership in Data-Driven Organizations
6.8.   Digital Talent in Data-Driven Organizations
6.9.   Data-Driven Agile Organization I
6.10.   Data-Driven Agile Organization II

Module 7. Strategic Management of Visual Analytics and Big Data Projects

7.1.   Introduction to Strategic Project Management
7.2.   Best Practices in the Description of Big Data Processes (PMI)
7.3.   Kimball Methodology
7.4.   SQuID Methodology
7.5.   Introduction to SQuID Methodology to Approach Big Data Projects
    7.5.1.   Phase I. Sources
    7.5.2.   Phase II. Data Quality
    7.5.3.   Phase III. Impossible Questions
    7.5.4.   Phase IV. Discovering
    7.5.5.   Best Practices in the Application of SQuID in Big Data Projects
7.6.   Legal Aspects in the World of Data
7.7.   Big Data Privacy
7.8.   Cyber Security in Big Data
7.9.   Identification and De-Identification with Large Volumes of Data
7.10.   Data Ethics I
7.11.   Data Ethics II

Module 8. Client Analysis. Applying Data Intelligence to Marketing

8.1.   Concepts of Marketing. Strategic Marketing
8.2.   Relationship Marketing
8.3.   CRM as an Organizational Hub for Customer Analysis
8.4.   Web Technologies
8.5.   Web Data Sources
8.6.   Acquisition of Web Data
8.7.   Tools for the Extraction of Data from the Web
8.8.   Semantic Web
8.9.   OSINT: Open-Source Intelligence
8.10.   Master Lead or How to Improve Sales Conversion Using Big Data

Module 9. Interactive Visualization of Data

9.1.   Introduction to the Art of Making Data Visible
9.2.   How to Perform Storytelling with Data
9.3.   Data Representation
9.4.   Scalability of Visual Representations
9.5.   Visual Analytics vs. Information Visualization. Understanding That It Is Not The Same
9.6.   Visual Analysis Process (Keim)
9.7.   Strategic, Operative and Managerial Reports
9.8.   Types of Graphs and Their Application
9.9.   Interpretation of Reports and Graphs. Playing the Role of the Receiver
9.10.   Evaluation of Visual Analytics Systems

Module 10. Visualization Tools

10.1. Introduction to Data Visualization Tools
10.2. Many Eyes
10.3. Google Charts
10.4. jQuery
10.5. Data-Driven Documents I
10.6. Data-Driven Documents II
10.7. Matlab
10.8. Tableau
10.9. SAS Visual Analytics
10.10. Microsoft Power BI

Module 11. Blockchain Technology. Cryptography and Security

11.1. Cryptography in Blockchain
11.2. A Hash in Blockchain
11.3. Private Sharing Multi-Hasing (PSM Hash)
11.4. Digital Signatures in Blockchain
11.5. Key Management. Wallets
11.6. Encryption
11.7. On-Chain and Off-Chain Data
11.8. Security and Smart Contracts

Module 12. Public Blockchain Development: Ethereum, Stellar and Polkadot

12.1. Ethereum. Public Blockchain
    12.1.1. Ethereum
    12.1.2. EVM and GAS
    12.1.3. Etherescan
12.2. Running Ethereum: Solidity
    12.2.1. Solidity
    12.2.2. Remix
    12.2.3. Compilation and Execution

12.3. Ethereum Framework: Brownie
    12.3.1. Brownie
    12.3.2. Ganache
    12.3.3. Brownie Deployment
12.4. Testing Smart Contracts
    12.4.1. Test Driven Development (TDD)
    12.4.2. Pytest
    12.4.3. Smart Contracts
12.5. Web Connection
    12.5.1. Metamask
    12.5.2. web3.js
    12.5.3. Ether.js
12.6. Real Project: Fungible Token
    12.6.1. ERC20
    12.6.2. Creating Our Token
    12.6.3. Deployment and Validation
12.7. Stellar Blockchain
    12.7.1. Stellar Blockchain
    12.7.2. Ecosystem
    12.7.3. Compared to Ethereum
12.8. Programming in Stellar
    12.8.1. Horizon
    12.8.2. Stellar SDK
    12.8.3. Fungible Token Project
12.9. Polkadot Project
    12.9.1. Polkadot Project
    12.9.2. Ecosystem
    12.9.3. Interaction with Ethereum and Other Blockchain
12.10. Programming Polkadot
    12.10.1. Substrate
    12.10.2. Creating Parachain on Substrate
    12.10.3. Polkadot Integration

Module 13. Corporate Blockchain Development: Hyperledger Besu

13.1.   Besu Configuration

13.1.1.   Key Configuration Parameters in Production Environments

13.1.2.   Finetuning for Connected Services

13.1.3.   Good Configuration Practices

13.2.   Blockchain Configuration

13.2.1.   Key Configuration Parameters for PoA

13.2.2.   Key Configuration Parameters for PoW

13.2.3.   Genesis Block Configurations

13.3.   Securing Besu

13.3.1.   Secure the RPC with TLS

13.3.2.   RPC Securitization with NGINX

13.3.3.   Securitization by Means of a Node Scheme

13.4.   Besu in High Availability

13.4.1.   Node Redundancy

13.4.2.   Balancers for Transactions

13.4.3.   Transaction Pool over Messaging Queue

13.5.   Offchain Tools

13.5.1.   Privacy - Tessera

13.5.2.   Identidad - Alastria ID

13.5.3.   Data Indexing - Subgraph

13.6.   Applications Developed on Besu

13.6.1.   ERC20 Token-Based Applications

13.6.2.   ERC 721 Token-Based Applications

13.6.3.   ERC 1155 Token-Based Applications

13.7.   Besu Deployment and Automation

13.7.1.   Besu over Docker

13.7.2.   Besu over Kubernetes

13.7.3.   Besu in Blockchain as a Service

13.8.   Besu Interoperability with Other Clients

13.8.1.   Interoperability with Geth

13.8.2.   Interoperability with Open Ethereum

13.8.3.   Interoperability with Other DLTs

13.9.   Plugins for Besu

13.9.1.   Most Common Plugins

13.9.2.   Plugin Development

13.9.3.   Installation of Plugins

13.10. Configuration of Development Environments

13.10.1. Creation of a Developing Environment

13.10.2. Creation of a Customer Integration Environment

13.10.3. Creating a Pre-Production Environment for Load Testing

Module 14. Corporate Blockchain Development: Hyperledger Fabric

14.1.   Hyperledger

14.1.1.   Hyperledger Ecosystem

14.1.2.   Hyperledger Tools

14.1.3.   Hyperledger Frameworks

14.2.   Hyperledger Fabric – Components of its Architecture. State of the Art

14.2.1.   State of the Art of Hyperledger Fabric

14.2.2.   Nodes

14.2.3.   Orderers

14.2.4.   CouchDB and LevelDB

14.2.5.   CA

14.3.   Hyperledger Fabric-Components of Its Architecture. Process of a Transaction

14.3.1.   Process of a Transaction

14.3.2.   Chain Codes

14.3.3.   MSP

14.4.   Enabling Technologies

14.4.1.   Go

14.4.2.   Docker

14.4.3.   Docker Compose

14.4.4.   Other Technologies

14.5.   Pre-Requisite Installation and Environment Preparation

14.5.1.   Server Preparation

14.5.2.   Download Prerequisites

14.5.3.   Download from Official Hyperledger Repository

Module 19. Blockchain Applied to Logistics

You'll be able to study whenever and wherever you want from your computer, tablet or smartphone

Teaching Objectives

Given the growing prominence of Big Data and Blockchains in recent years, TECH has developed a program that responds to current market demands. The main objective of this program is to provide professionals with advanced tools that allow them to update their knowledge and integrate protocols, strategies and innovative techniques in their professional practice. In this way, graduates will be fully prepared to address the challenges of the working environment and stand out in the competitive specialized IT sector.

tech

Knowing the key players of Blockchains allows for the design of customized structures according to the needs of each sector"

General Objectives

- Develop a strategic vision to apply advanced data analytics technologies in the business domain, driving innovative services based on the interpretation of valuable information

- Assess the impact of privacy and security on digital identity data, identifying the benefits of Blockchain technology in self-sovereign identity solutions

- Tackle the implementation of projects with Hyperledger Fabric, understanding its deployment and adapting it to the specific needs of each business environment

- Analyze DeFi tools, identify opportunities for passive revenue and study cases where Blockchain-based models transform key organizational processes

Master top management in Big Data and Blockchain, leading innovative technology projects"
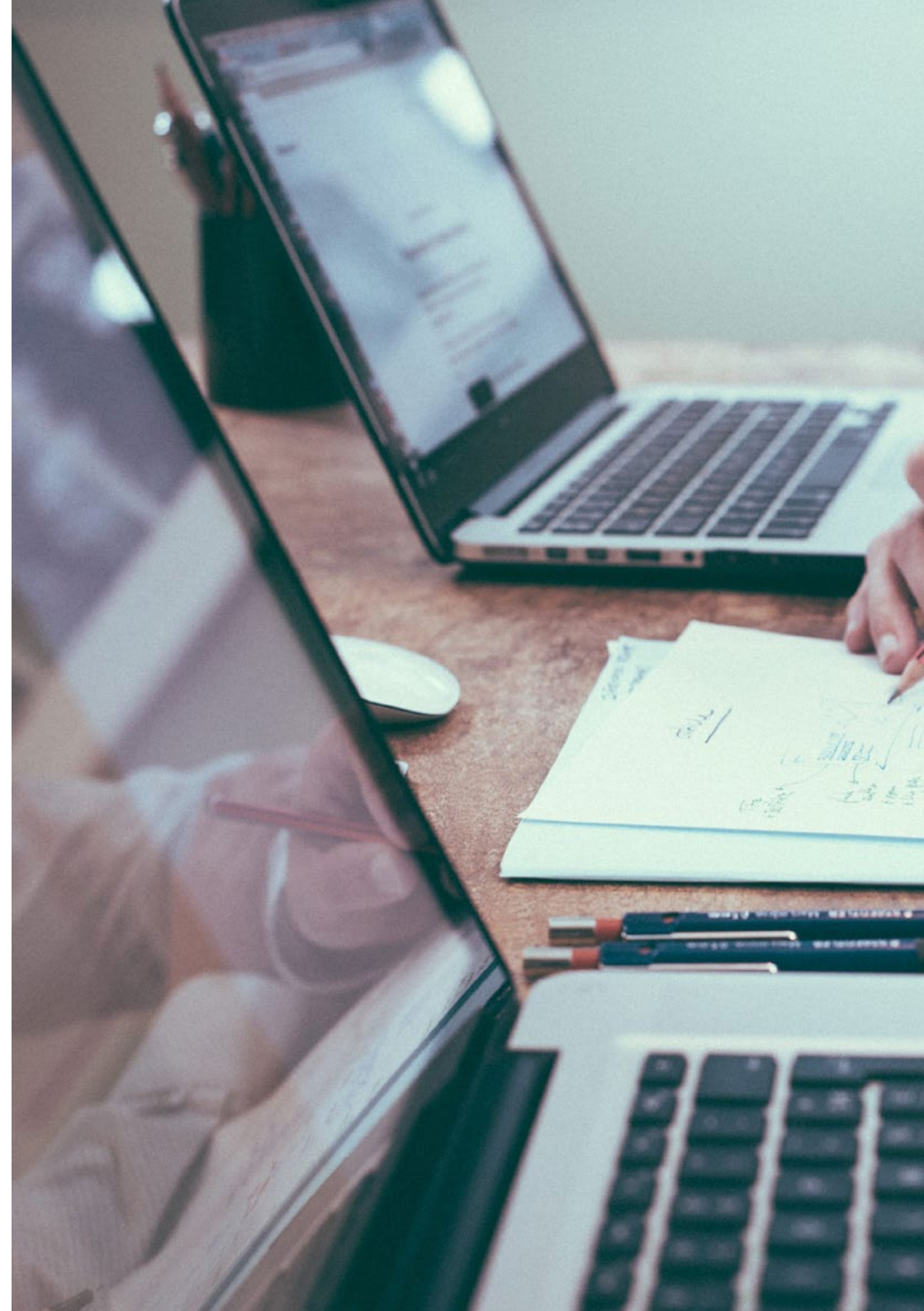
Specific Objectives

Module 1. Visual Analytics in the Social and Technological Context
- Train in the application of visual analytics techniques for interpreting and analyzing complex data within social and technological contexts
- Improve understanding of the underlying patterns and relationships in large volumes of data

Module 2. Data Analysis and Interpretation
- Develop skills in the interpretation of data, using statistical and visual tools
- Draw meaningful conclusions that facilitate decision making based on facts and evidence

Module 3. Data Analysis and Artificial Intelligence Techniques
- Provide the necessary knowledge on advanced data analysis and artificial intelligence techniques
- Use predictive and machine learning models to improve decision-making processes

Module 4. Data Analysis Tools
- Train in the use of data analysis tools and platforms, such as R, Python, Excel and Tableau
- Manage, process and visualize data efficiently and accurately in different business contexts

Module 5. Database Management and Data Parallelization Systems
- Provide the necessary knowledge to manage complex databases
- Apply data parallelization techniques, improving the performance and scalability of systems for storing and processing large volumes of information

Module 6. Data-Driven Soft Skills in Strategic Management in Visual Analytics

- Develop data-driven soft skills for the strategic management of visual analytics projects
- Improve decision making, communication and team management through effective use of visual data

Module 7. Strategic Management of Visual Analytics and Big Data Projects

- Train in the direction and management of visual analytics and Big Data projects
- Develop effective strategies for the implementation of data-driven solutions that align organizational objectives with technological opportunities

Module 8. Client Analysis. Applying Data Intelligence to Marketing

- Teach how to apply data intelligence to analyze customer behavior, using data analysis techniques
- Optimize marketing strategies and improve the personalization of products and services

Module 9. Interactive Visualization of Data

- Train in the creation of interactive data visualizations, using advanced tools and techniques
- Explore and analyze data dynamically, improving understanding and decision making

Module 10. Visualization Tools

- Provide the skills to use a variety of visualization tools, such as Tableau, Power BI and D3.js
- Transform complex data into clear and effective visual representations that facilitate the analysis and communication of results

Module 11. Blockchain Technology. Cryptography and Security

- Provide an in-depth understanding of Blockchain technology, with an emphasis on cryptographic and security aspects
- Implement secure and decentralized solutions based on this technology

Module 12. Public Blockchain Development: Ethereum, Stellar and Polkadot

- Develop and deploy smart contracts on Ethereum with Solidity and Brownie
- Create and integrate tokens and parachains in Stellar and Polkadot

Module 13. Corporate Blockchain Development: Hyperledger Besu

- Train in the development of applications based on public blockchains such as Ethereum, Stellar and Polkadot
- Address their features, advantages and use cases, and learning how to create smart contracts and decentralized applications

Module 14. Corporate Blockchain Development: Hyperledger Fabric

- Teach the use of Hyperledger Besu, an open source enterprise blockchain, to create private and permissioned Blockchain solutions
- Apply best practices for enterprise systems integration and secure networking

Module 15. Sovereign Identity Based on Blockchain

- Develop skills in the implementation of Blockchain-based sovereign identity solutions
- Create decentralized identity systems that allow users to control and manage their own identity data

Module 16. Blockchain and Its New Applications: DeFi and NFT

- Explore new lBockchain applications such as Decentralized Finance (DeFi) and Non-Fungible Tokens (NFT)
- Analyze the creation, management, and trading of decentralized digital assets on these emerging platforms

Module 17. Blockchain. Legal Implications

- Provide an in-depth understanding of the legal implications of Blockchain use
- Address issues such as privacy, data protection, financial legislation and regulations surrounding cryptocurrencies and smart contracts

Module 18. Blockchain Architecture Design

- Train in the design and development of efficient and secure Blockchain architectures
- Manage best practices for building scalable, interoperable and robust Blockchain networks for various business applications

Module 19. Blockchain Applied to Logistics

- Apply Blockchain technology to optimize logistics processes
- Design a secure, transparent and traceable solution for tracking products throughout the supply chain

Module 20. Blockchain and Business

- Train in the integration of Blockchain in business models
- Delve into how to implement Blockchain solutions to improve transparency, operational efficiency and security in business transactions and organizational processes

Career Opportunities

After completing this program, professionals will acquire in-depth knowledge of data analysis and Blockchain technology, enabling them to lead innovative projects in various sectors. Graduates will be able to design strategies based on Big Data and Blockchain, optimizing business processes and ensuring digital security. In this way, experts will broaden their professional perspectives, positioning themselves as leaders in the field of advanced technology.

"

You will implement technological solutions based on data and blockchain to transform organizational processes and maximize operational efficiency"

Graduate Profile

Graduates of the Big Data and Blockchain program will be highly qualified to design, implement and manage solutions based on these technologies. They will possess advanced skills in data analysis, optimization of information systems and strategic application of Blockchain in multiple areas. They will be prepared to identify business opportunities, develop advanced security systems and lead teams in dynamic digital environments, adapting to constant technological and regulatory changes.

You will develop technical and strategic skills in data analysis, Blockchain architecture design and innovative technology project management.

- **Effective Communication:** Master data visualization and analysis tools, facilitating the interpretation and strategic communication of complex information
- **Project Management:** Lead technology initiatives, optimizing resources and time through agile methodologies and data-driven approaches
- **Critical Thinking:** Apply advanced analytical techniques to solve complex problems and make decisions based on reliable data
- **Digital Competence:** Manage data analytics platforms and Blockchain development, ensuring innovation in the business environment

After completing the Advanced Master's Degree, you will be able to apply your knowledge and skills in the following positions:

1. **Chief Data Officer (CDO):** In charge of leading data strategy in global organizations
2. Blockchain Architect: Designer of solutions based on blockchain technology to optimize business processes
3. **Big Data Specialist:** Expert analyst in extracting and processing large volumes of data for decision making
4. **Digital Transformation Consultant:** Advisor in the integration of advanced technologies in companies of different sectors
5. **Technology Project Manager:** Leader in the execution of innovation projects based on data analytics and Blockchain
6. **Developer of DeFi and NFT Solutions:** Creator of decentralized financial applications and projects related to non-fungible tokens

Complete this program and achieve professional excellence, accessing key positions in technology and data analytics"

06
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)"
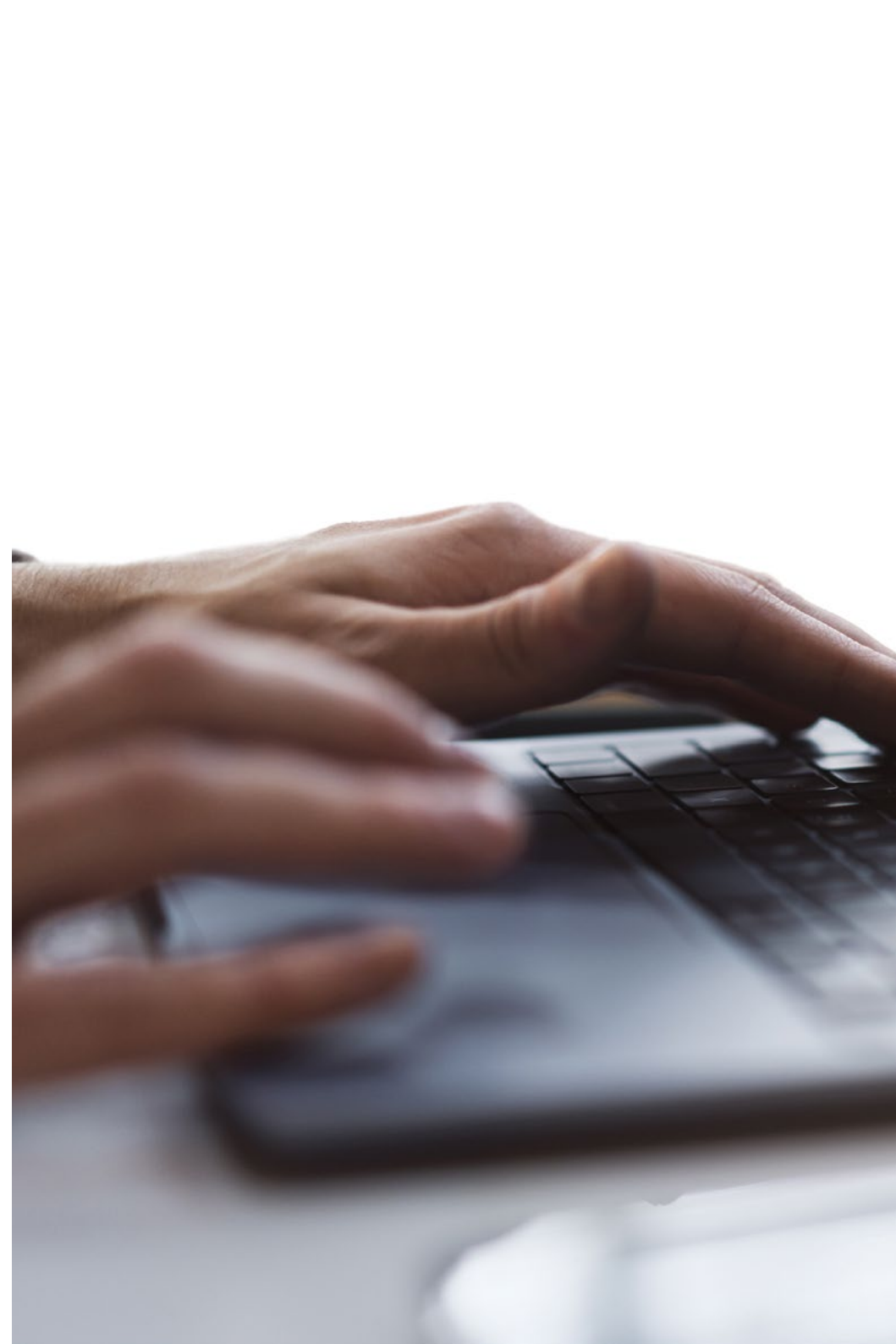
The most comprehensive study plans at the international level

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.

01
learning from evidence

02
relearning from evidence

03
testing

04
learning from an expert

05
neurocognitive context dependent learning

06
Von-Restorff effect

07
case based learning through storytelling

08
competencies testing (retesting)

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.

20%

15%

15%

3%

20%

17%

7%

3%

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.

Teaching Staff

The teaching team of this program is made up of active experts with extensive experience in various areas, including data consulting, Blockchain architecture, computer engineering and logistics. This diversity allows TECH and this program to offer an up-to-date, comprehensive and critical perspective of the sector, providing students with training adapted to the needs of the market. These professionals, specialists in the most advanced technologies, will be available to resolve any concerns that arise during this academic experience.

Leverage their expertise in data and Blockchains to design secure strategies and achieve exceptional results"

International Guest Director

Recognized as one of the best experts in Data Science by Forbes magazine, Robert Morgan is a distinguished **mathematician** highly specialized in the field of **Computational Statistics**. His extensive knowledge in this field has allowed him to be part of international reference institutions, such as the multinational Unilever.

In this way, he has led the **Data Science** strategy at a global level. In this sense, he has supervised multiple projects that use advanced analysis to optimize the strategic operations of companies. Among his major achievements, he has improved the **shopping experience** of multiple customers by offering them **personalized product recommendations** based on their preferences. As a result, it has enabled users to establish **loyal relationships** with brands. He has also employed **Digital Twins** in the manufacturing network, managing to monitor soap production in real time and significantly improving its quality.

Moreover, his philosophy focuses on the use of data systems to solve complex problems in the business environment and drive innovation. In the same vein, in his spare time he develops **software** and participates in open source projects. As such, he stays at the forefront of the latest trends in subjects such as **Bayesian Statistics**, *Big Data* and **Artificial Intelligence**, among others.

In addition, his work has been rewarded on multiple occasions in the form of awards. For example, he recently received the "Business Achievement" award from Unilever for his contribution to the **digital transformation** of the company. In this regard, it is worth noting that the integration of technologies has enabled companies to improve their **operational efficiency** by **automating** repetitive tasks. This has considerably reduced human errors in the logistics chain, resulting in both time and cost savings.

Mr. Morgan, Robert

- Global Director of Data Science at Unilever in New York, United States
- Head of Analytics and Data Science at Dunnhumby, New York
- Statistician at Unilever, New York
- M.Sc. in Computational Statistics from the University of Bath
- M.Sc. in Statistical Research from the University of Bristol
- B.Sc. in Mathematics from Cardiff University
- Certificate in Statistical Learning from Stanford University
- Certificate in Programming from Johns Hopkins University

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

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 **Founderr** 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.
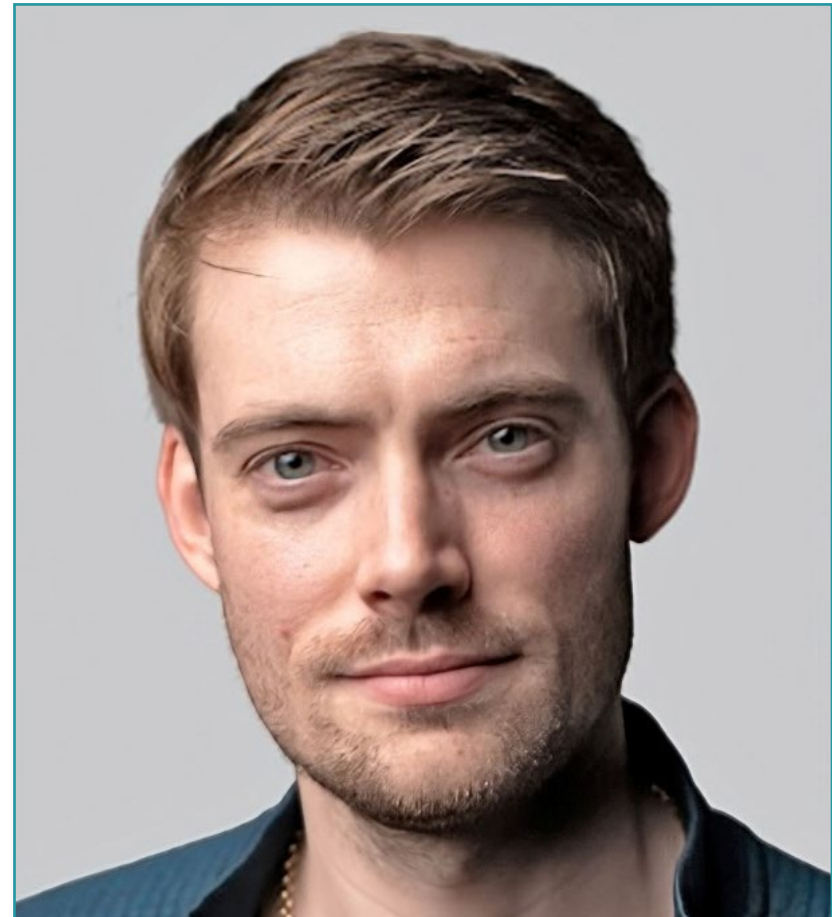
Mr. Sutton, Chris

- 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

A unique, crucial and decisive learning experience to boost your professional development

Management

Dr. Galindo, Luis Ángel
- Executive Director of Innovation at Telefónica
- Feasibility Analysis Manager at Telefónica Móviles
- Development Supervisor at Motorola
- Doctorate in Managerial Economics and Generation of New Business Models from the Polytechnic University of Madrid
- Master's Degree in Business Administration from the University of Navarra
- Master's Degree in IP Network Services and Security from the Polytechnic University of Madrid
- Postgraduate Diploma in Network and Advanced Internet Services from the Carlos III University of Madrid
- Telecommunications Engineer, Polytechnic University of Madrid

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

Professors

Mr. Frech, Eduardo Alonso
- Senior Manager in the ICT Industry
- Cloud Business Senior Manager at Huawei Technologies
- Sales and Business Development Executive at Azure Telecommunications Consulting
- Senior Business Development Manager at SMS Group
- Network Technology Consultant at Delta Partners
- Director of Engineering and Technology Services Platforms at Telefónica Spain
- Director of Network Technology and Certification at Telefónica Móviles
- Product Marketing Manager at Ericsson
- Visiting Researcher at WINLAB's Wireless Information Network Laboratory at Rutgers University
- Degree in Physics from the Autonomous University of Madrid
- Certified Cloud Professional by Amazon Web Services (AWS)

Ms. Cordero García, Marta
- Specialist in Applied Mathematics and Aerospace Engineering
- Researcher of the Group Methods and Numerical Applications to Aerospace Technology
- Full Professor at the Polytechnic University of Madrid
- Senior Technician in Aerospace Engineering

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 in Applied Blockchain
- Superior Degree in Information Systems and Telecommunications

Dr. Lominchar Jiménez, José
- Doctor in Law, International Consultant and Lecturer
- Director of the International Consultancy of High Performance (CIAR), Intelligence & Consulting
- University Professor
- International Speaker and TED Speaker
- Researcher
- Managing Director at Next International Business School
- International Advisor at ICONO sud Network
- Vice President of the Spanish Association of Executive and Business Coaching (AECEE)
- Doctor in Law from the Labor Law Program at UCJC, Spain
- Honorary Doctorate from the University Center for Legal Studies, Mexico
- Law Degree from the Complutense University of Madrid, Spain
- MBA: Master's Degree of Business Administration

Mr. Almansa, Antonio
- Data management and visual analytics specialist
- Design, implementation and integration of the Julian Camarillo DC contingency center
- Senior Technician: operation, engineering and architecture of the Data Center (DC) networks located in Independencia and Orduña, as well as the transport network at national level for tariffs and discharges.
- Level 2 Expert: design and implementation of the networks (with technological change) of the DC of Fco. Sancha and later Manuel Tovar

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

Ms. Álvarez de las Cuevas, Mónica
- Computer Engineer
- Project Management and Direction at COO MiBizPartners
- Project Team Management at Factor Ideas
- Training Coordinator at the School of Technical Excellence at Accenture
- IT Department Manager at Geditec
- Training Manager at Telefónica Educación Digital
- B.S. in Computer Engineering from the University of Southern Mississippi

Mr. Mora, José Juan
- Founder and CTO at Kolokium Blockchain Technologies
- Professor at EOI
- Head of Systems at Telefónica Compras Electrónicas
- Head of Operating Systems at Adquira
- Systems Manager at SADESI
- Systems Administrator at Ydilo AVS
- Systems Administrator at Telefónica Mobile Solutions
- Degree in Computer Science from the University of Huelva
- MBA, Master's Degree in Business Administration from the UNED

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. 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. 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

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

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

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

08
Certificate

The Advanced Master's Degree in Big Data and Blockchain guarantees students, in addition to the most rigorous and up-to-date education, access to an Advanced Master's Degree diploma 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 **Advanced Master's Degree in Big Data and Blockchain** 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.
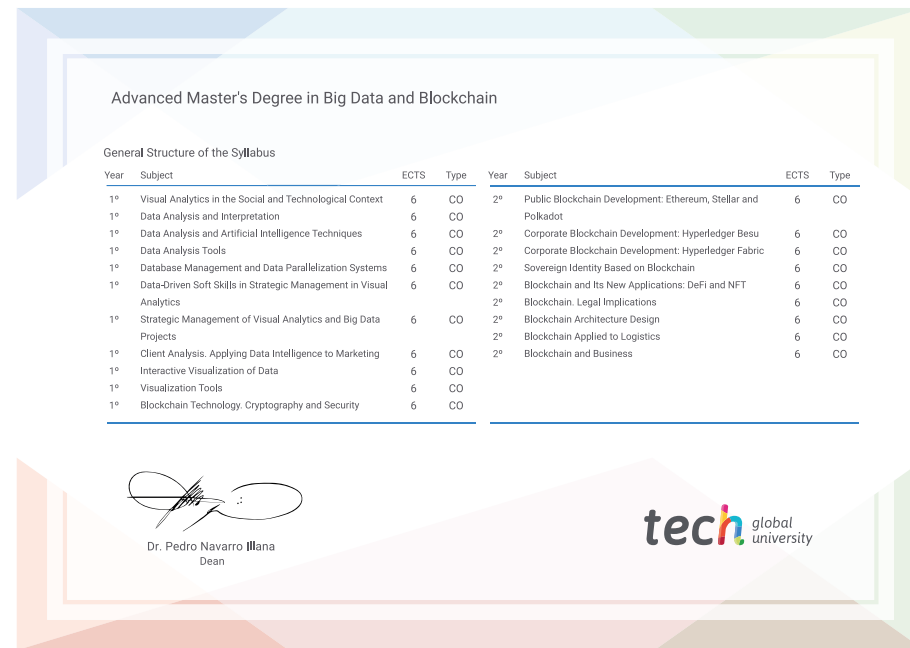
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Advanced Master's Degree in Big Data and Blockchain**

Modality: **online**

Duration: **2 years**

Accreditation: **120 ECTS**

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

Advanced Master's Degree in Big Data and Blockchain

This is a private qualification of 3,600 hours of duration equivalent to 120 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: AFW0RD23S   techtitute.com/certificates

Advanced Master's Degree in Big Data and Blockchain

General Structure of the Syllabus

Year	Subject	ECTS	Type	Year	Subject	ECTS	Type
1º	Visual Analytics in the Social and Technological Context	6	CO	2º	Public Blockchain Development: Ethereum, Stellar and Polkadot	6	CO
1º	Data Analysis and Interpretation	6	CO	2º	Corporate Blockchain Development: Hyperledger Besu	6	CO
1º	Data Analysis and Artificial Intelligence Techniques	6	CO	2º	Corporate Blockchain Development: Hyperledger Fabric	6	CO
1º	Data Analysis Tools	6	CO	2º	Sovereign Identity Based on Blockchain	6	CO
1º	Database Management and Data Parallelization Systems	6	CO	2º	Blockchain and Its New Applications: DeFi and NFT	6	CO
1º	Data-Driven Soft Skills in Strategic Management in Visual Analytics	6	CO	2º	Blockchain. Legal Implications	6	CO
1º	Strategic Management of Visual Analytics and Big Data Projects	6	CO	2º	Blockchain Architecture Design	6	CO
				2º	Blockchain Applied to Logistics	6	CO
1º	Client Analysis. Applying Data Intelligence to Marketing	6	CO	2º	Blockchain and Business	6	CO
1º	Interactive Visualization of Data	6	CO				
1º	Visualization Tools	6	CO				
1º	Blockchain Technology. Cryptography and Security	6	CO				

Dr. Pedro Navarro Illana
Dean

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*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.

Advanced Master's Degree
Big Data and Blockchain

» Modality: **online**
» Duration: **2 years**
» Certificate: **TECH Global University**
» Accreditation: **120 ECTS**
» Schedule: **at your own pace**
» Exams: **online**

Advanced Master's Degree
Big Data and Blockchain

```
rmPassword) {
ot match.');

with form input
= {
req.body.email,
: req.body.name,
favoriteBook: req.body.favoriteBook,
password: req.body.password
};

32
33    // use schema's `create` method to insert document into Mongo
34    User.create(userData, function (error, user) {
35        if (error) {
36           return next(error);
```

JavaScript-Authentication-Mongo-Express/routes/index.js   1:1

LF   UTF-8   JavaScript   0 files

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