Advanced Master's Degree
Big Data and Blockchain

tech technological university

Advanced Master's Degree
Big Data and Blockchain

- » Modality: **online**
- » Duration: **2 years**
- » Certificate: **TECH Technological University**
- » Schedule: **at your own pace**
- » Exams: **online**

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

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01
Introduction

The development of technology and the advances derived from the evolution of the web have had a significant influence on the production of a large amount of information that is processed, analyzed and classified every day by numerous modern computer programs. These processes, included within the tasks that encompass big data, have favored the emergence of techniques such as Blockchain, which allows us to provide and share data immediately and totally securely. This is why thousands of companies demand, every day, the presence of specialists who master both sectors, in order to increase their productivity, specialize their activity and protect themselves from attacks. For this reason, TECH has designed this very complete qualification aimed at IT professionals, which delves into the importance of the analysis and management of web information and the transfer of the active value without third party intervention. A comprehensive and 100% online program that will provide the graduate with a distinctive and highly valued knowledge in the labor market.
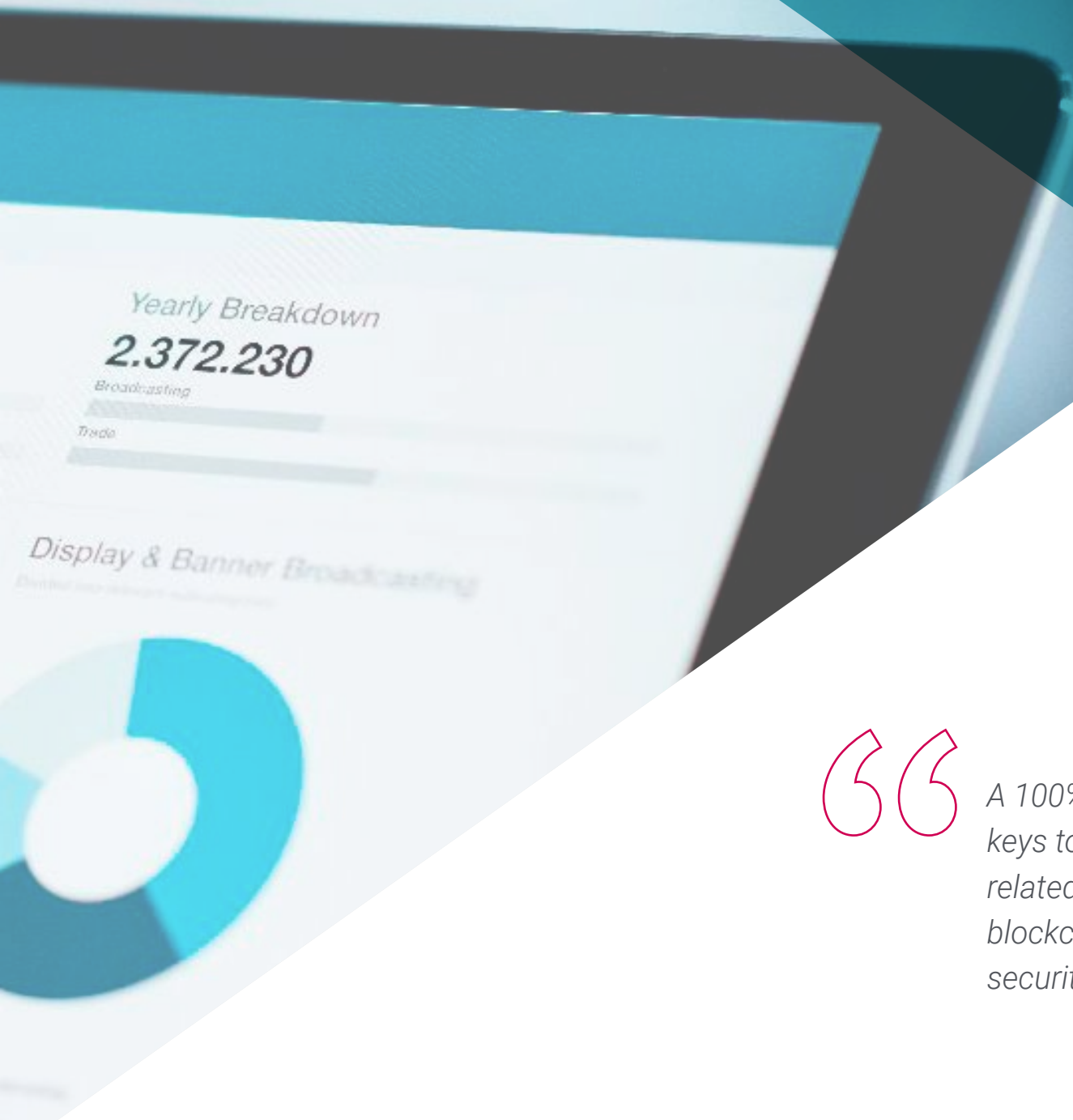
A 100% online program that will give you the keys to know in detail the latest developments related to the technologies involved in blockchain and the requirements to ensure security in cyberspace"

The volume of data that surfs the web internationally every day is incalculable. Thanks to the development of big data, nowadays millions of companies around the world have the possibility of gathering invaluable information that, with its analysis, allows them to obtain specific conclusions about their business model, as well as to make strategic decisions in the market. However, until a few years ago, the intervention of third parties in this management could mean a violation of the entity's vulnerability, putting its integrity at risk and allowing access to hackers. Everything changed with the emergence of Blockchain.

Thanks to the evolution of this technology, which encrypts transaction information and enables its transfer from one side to the other in a fairly secure manner, cryptocurrencies, NFT technology or numerous digital assets in science, politics and administration, for example, have been developed. The rapid growth and multiple applications of this technology, as well as the benefits that can arise from the combination with big data, has led thousands of companies around the world to increasingly demand the presence in their workforces of computer scientists specialized in both fields.

For that reason, TECH and its team of experts has decided to design this Advanced Master's Degree in Big Data and Blockchain, an intensive and comprehensive program, developed over 24 months and with which the graduates will be able to acquire a broad, updated and specialized knowledge about these two fields, allowing them to implement to their profile the skills of a highly qualified professional in the management of these technologies. The program delves into the characterization of data analysis, interpretation and management, as well as its techniques and tools. It also offers a broad vision of security in cyberspace and the development of public and private blockchains, so that the graduate can delve into each of its aspects.

It is a program presented in a convenient and accessible 100% online format, which will help you to organize this academic experience based on your availability and to balance it with any work activity. It also includes hundreds of hours of high-quality additional material, including case studies designed by the teaching team, which, in addition to actively participating in the design of this course, will be available to guide you through this academic experience that will mark a before and after in your professional career.

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

- Practical cases presented by experts in IT
- 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 in the domain of big data and blockchain technology
- 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

You will delve into blockchain configuration and key parameters for PoA and PoW, as well as Besu securitization"

" *In the Virtual Classroom you will find exercises on integration and creation of blockchain structures, so that you can put into practice and perfect your IT skills and abilities"*

You will have a module specialized in the development of enterprise blockchains, the characteristics of the different architectures and the most effective tools to design them.

Thanks to the quality of the content of this Advanced Master's Degree, you will improve your advanced management skills in Data-Drive organizations.

Its teaching staff includes professionals from the field of journalism, 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
Objectives

Given the importance that blockchains and big data have taken in recent years, TECH had to design a program that would meet the academic needs of its graduates. That is why the objective of this Advanced Master's Degree is to provide you with the tools that will allow you to update and implement the latest protocols, strategies and techniques in your professional practice. This will provide them with all the information they need to face the job market and succeed in this specialized IT sector.

"Detailed knowledge of the different agents involved in the creation of blockchains will help you design customized structures based on the needs of each sector"

General Objectives

- Offer students immersion in the new social and technological context in which visual analytics tools are used

- Obtain and enhance fact-based critical thinking for strategic decision-making

- Understand the value of the changing environment and facilitate students' connection to entrepreneurship and new knowmad ways of working

- Analyze the data produced and draw conclusions using statistical tools to make the most appropriate decisions at all times

- Acquire in-depth knowledge of the principles of probability that are the basis for inferential statistics, which will allow us to contrast conjectures (hypothesis testing) about what a given population is like

- Understand information sources and the value they bring to the creation of new innovative business models

- Know and use statistical tools to solve problems in the big data field

- Assimilate concepts, techniques, methodologies and knowledge of languages that will be useful to apply in big data mining

- Understand databases, from traditional to unstructured, where data requiring other types of processing, such as audio or video streams, will be stored

- Enhance management and leadership skills to successfully manage teams and projects.

- The student will become a resilient leader through the management of emotions, conflict and crisis, fundamental skills in the current context and others oriented to decision, negotiation and change management

- Understand the need for security in data storage, management and access along with the pillars of information security: integrity, confidentiality, availability and traceability

- Study, in-depth, the ethics of data and its possible uses in today's societies

- Obtain information based on data from web searches, in order to define a strategy based on realities, i.e., existing data

- Know how to differentiate the offer, therefore providing the ability to think in the same way as the consumer, detecting the attributes they want

- Expand knowledge on the use of open sources to combine with other existing data within the organization

- Draw conclusions regarding good security practices

- Consider the vulnerabilities associated with blockchain

- Analyze the future impact of running public blockchain

- Develop design criteria for applications on production Hyperledger Besu clients

- Promote best practices when developing applications with dependency on Blockchain networks, particularly those based on Ethereum and on Hyperledger Besu client

- Integrate the student's existing knowledge in a refined way based on the needs of industry and business with their notions of quality, effort measurement and development valuation, expanding their value as a Blockchain application developer

- Generate specialized knowledge about what Hyperledger Fabric encompasses and how it works

- Analyze the evolution of the crypto world up to today
- Identify the regulations applicable to the different business models offered by technology
- Establish the basics of knowledge of the crypto world and its key aspects
- Identify potential legal risks in real projects
- Determine the logistic processes to define the main needs and gaps of the current logistic process
- Implement the solution in phases so that value can be extracted from the beginning of the project and can be adjusted as use and learning occur
- Analyze why or why not to apply a blockchain solution in the professional environment
- Generate specialized knowledge on the logical concept of distributed technologies as a comparative advantage

Specific Objectives

Module 1. Visual Analytics in the Social and Technological Context

- Understand the new social, economic and business dynamics of the world
- Understand the value of new environments as an opportunity for entrepreneurship
- Develop analytical skills in changing environments
- Identify and focus on new scenarios and their opportunities
- Develop analytical and critical thinking for strategic decision making.
- Understand new profiles in the current context in order to define strategies adapted to them
- Generate differential value in our ability to make decisions
- Understand the new business environment in order to address transformation processes in organizations

Module 2. Data Analysis and Interpretation

- Know the different theories for data analysis and interpretation
- Identify the most common descriptors for a dataset
- Understand and assess the applicability of different descriptors to an existing dataset
- Know how to carry out hypothesis testing and its applicability to the world of data analysis
- Learn how to interpret the different existing regression techniques

Module 3. Data and AI Analysis Techniques

- Understand the different techniques for data analysis
- Design joint strategies of statistical and artificial intelligence techniques for the development of descriptive and predictive systems applied to the reality of a dataset
- Understand the operation and characteristics of common mass data processing techniques
- Identify techniques oriented to statistical analysis, artificial intelligence and mass data processing

Module 4. Data Analysis Tools

- Understand the environments most used by Data Scientists
- Know how to process data in different formats from different sources
- Learn from the need to guarantee the veracity of the data as a prior step to its processing
- Identify new technologies as pedagogical tools in the communication of the different business realities
- Know the latest trends in the creation of intelligent entities based on deep learning and neural networks

Module 5. Database Management and Data Parallelization Systems

- Know the artificial intelligence techniques applicable for massively parallelized data processing on a given data set and according to previously defined requirements
- Know how to manage large volumes of data in a distributed manner
- Understand the operation and characteristics of common mass data processing techniques
- Identify commercial and open software tools oriented to statistical analysis, artificial intelligence and mass data processing

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

- Know and develop the drive profile applied to mass data environments
- Understand what and why advanced management skills generate a differential value in data scientists
- Develop strategic communication and presentation techniques
- Understand the role of emotional intelligence in the context of visual analytics
- Identify key concepts in Agile team management
- Develop and leverage digital talent in data-driven organizations
- Develop emotional management skills as a key to performance-focused organizations

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

- Know the best practices in PMI applied to the world of big data.
- Learn Kimbal methodology
- Know the SQuID methodology and its applicability in the development of projects with large volumes of data
- Identify the legal issues of application related to the capture, storage and use of user data
- Know how privacy can be provided in big data
- Anticipate ethical risks and benefits derived from the application of big data techniques that may occur in real situations

Module 8. Client Analysis. Applying Data Intelligence to Marketing

- Know the different types of marketing and how they are applied in organizations and their influence on business strategies
- Be able to design a central intelligence system (CRM) for decision support based on data analysis and visualization, and focused on the company's own context.
- Provide an introduction to the Internet as a massive source of real data based on user searches that can be utilized for decision making
- Analyze the technologies underlying the various web systems
- Develop open-source intelligence solutions, exploiting available data sources
- Learn about application of data to improve marketing and sales in business organizations

Module 9. Interactive Visualization of Data

- Understand how patterns found in a data set can be made visible in order to generate a common interpretation of the underlying reality
- Understand the scalability of individual representations
- Understand the difference between Visual Analytics and information visualization.
- Understand the process of Keim's visual analysis
- Assess the different data visualization methods applicable depending on the information to be conveyed

Module 10. Visualization Tools

- Know how to generate diagrams that visually represent the chosen situation from a set of data
- Be able to combine the different techniques studied for the design of original visualizations
- Understand how, starting from a design and a set of previous data, a visualization implementation that meets the defined requirements can be carried out
- Identify the usability and interactivity needs of data visualization methods and be able to develop a new version of the visualization that improves these aspects
- Design a system that combines data capture and storage techniques, as well as data analysis and visualization, to represent existing patterns in that data set

Module 11. Blockchain Technology: Technologies Involved and Cyberspace Security

- Establish methodologies for information analysis and deception detection on the Internet
- Plan an Internet search strategy
- Determine the most appropriate tools to detect a criminal act on the Internet
- Deploy an environment with the following tools: Logstash, Elasticsearch and Kibana

- Address the risks faced by analysts in a research exercise
- Conduct research processes based on *wallet* or address availability
- Identify possible indications of use of *mixers* to blur transaction trails

Module 12. Development with Puvlic Blockchain: Ethereum, Stellar and Polkadot

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

Module 13. Development with Corporate Blockchain: Hyperledger Besu

- Identify key configuration points in the consensus protocols available with Hyperledger Besu
- Correctly measure a Besu Hyperledger service to support enterprise applications
- Develop automated test protocols for quality validation in Hyperledger Besu environments
- Establish safety criteria for a production environment with Hyperledger Besu
- Compile the different types of configurations on Hyperledger Besu clients
- Determining the sizing criteria for an application with Hyperledger Besu
- Strengthen knowledge of the functioning of the consensus mechanisms implemented in Hyperledger Besu
- Define the most interesting technological *stack* in the implementation of infrastructure and development of applications based on Hyperledger Besu

Module 14. Corporate Blockchain Development: Hyperledger Fabric

- Generate specialized knowledge about Hyperledger and Fabric
- Analyze what can be done with this technology
- Determine the inner workings of transactions
- Solve a problem with Fabric
- Deploy Fabric and gain experience using it

Module 15. Sovereign Identity Based on *Blockchain*

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

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

- Assess the importance of Stable Coins
- Examine Maker, Augur and Gnosis protocol
- Determine the AAVe protocol
- Identify the importance of Uniswap
- Study the Sushiswap philosophy in depth
- Analyze dY/dX and Synthetix
- Identifying the best markets for NFT exchange

Module 17. Blockchain. Legal implications

- Generate specialized knowledge on the whitepaper concept
- Determining the legal requirements for cryptoassets
- Establish the legal implications in the regulation of cryptocurrencies.
- Developing the regulation of tokens and ICOs
- Contrast and compare the current regulations against the EIDAS regulations.
- Examine the current regulation of NFTs

Module 18. Blockchain Architecture Design

- Develop the foundations of the architecture
- Generate specialized knowledge in *blockchain* networks
- Evaluating stakeholders
- Determine infrastructure requirements
- Identify deployment options
- Program for production start-up training

Module 19. Blockchain Applied to Logistics

- Examine the operational and systemic reality of the company to understand the needs for improvements and future solution with the blockchain
- Identify the To Be model with the solution best suited to the company's needs and challenges
- Analyze a Business Case with a plan and macro solution agreement for executive approval
- Demonstrate the potential and scope of the application and its benefits by means of a POC for operational approval

◆ Establish a project plan with the owner and stakeholders to start work on functional definition and prioritization of sprints

◆ Develop the solution according to the user stories to initiate testing and validation to go into production

◆ Carry out a specific Change Management and blockchain implementation plan to bring the whole team to a new digital mindset and a more collaborative culture

Module 20. Blockchain and Business

◆ Analyze why we should or should not implement a blockchain project in our environment

◆ Examine the challenges we face when implementing a product based on DLT technology

◆ Adapt our knowledge and mental tools to understand the concept of project-oriented blockchain

◆ Gather all the possibilities offered by the vast blockchain universe, distributed, DeFi, etc.

◆ Determine when a blockchain project is right or wrong

◆ Discern between a meaningful project and the Hype surrounding this technology

TECH's goal with this program is to help you exceed your academic goals, so that you are closer to achieving your most ambitious career goals in the big data and blockchain sector"

03

Skills

This Advanced Master's Degree has been developed with the aim of enabling graduates to perfect the skills required by the Big Data and Blockchain sector during the course of their studies. This will boost your ability to act in the different circumstances that may arise in the environment of data analysis and digital operations, from the simplest to the most complex, through a broad and specialized knowledge of the field and with weighty arguments based on the immediate topicality of the field.

Thanks to this Advanced Master's Degree, you will be able, in less time than you expect, to master DeFi and NFT applications"

General Skills

- Possess a strategic vision of the application of new data analysis technologies to the business world and apply them to the development of innovative services based on the information analyzed

- Determine to what extent information can be collected from Wallets that we physically hold and to what extent information can be collected only when we have an address

- Facing the deployment of a Hyperledger Fabric project

- Assess the impact on data privacy and security that current digital identity models present

- Identify the benefits of using *blockchain* technology for the deployment of digital identity-based solutions

- Analyze the different DeFI tools

- Assess new forms of passive income

- Examine the main advantages for citizens of the implementation of Self-Sovereign Digital Identity Models

- Compile use cases in which *blockchain*-based Digital Identity Models are transforming organizations' processes
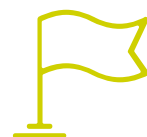
Specific Skills

◆ Acquire the necessary skills for professional practice in the field of visual analytics in the social and technological context

◆ Know how to analyze and interpret statistical data

◆ Use data evaluation and analysis techniques

◆ Know the tools to be used in data analysis

◆ Perform management and parallelization of databases of different types

◆ Put into practice advanced management skills in data organization

◆ Lead Visual Analytics and Big Data projects

◆ Applying data engineering to marketing

◆ Make data visible

◆ Using data visualization tools

◆ Generate specialized knowledge about Ethereum as a public blockchain

◆ Master the Stellar platform

◆ Specializing in Polkadot and Substrate

◆ Determining the right blockchain network

◆ Achieve a secure, stable and scalable blockchain network.

◆ Establish the best solution and applicability of the blockchain for the need of the company and all participants.

◆ Explore the capability of certain blockchain implementations and their impact on the financial and pharmaceutical field

◆ Analyze the best way to implement a blockchain, process focusing on the basics of the technology

Course Management

The teaching team of this program is composed of a large group of active experts from different fields, but who have in common years of experience in their respective professions: data consultants, blockchain architects, computer engineers and logisticians. The variety of its faculty is what allows TECH and this program to offer a current, broad and critical vision of the sector, as well as different perspectives that will benefit the graduate in the context of information. They are professionals with knowledge of the current market and the most cutting-edge technologies, who will be at your disposal for any questions that may arise during the course of this academic experience.

"

The faculty's experience in data management and public and private blockchain development will guide you in creating a secure strategy with guaranteed great results"

International Guest Director

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

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

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

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

D. Sutton, Chris

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

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

Management

Mr. Galindo, Luis Ángel

* Senior High Performance Consultant with 16 years of experience
* Definition, development and implementation of a successful open innovation model, with +10% year-on-year revenue growth leveraged on innovative assets
* Definition, development and implementation of successful Digital Transformation Programs for more than 8 years and 700+ people leading a pioneering role in the industry
* Implementation of 20+ complex consulting projects worldwide for large companies in artificial intelligence, economic intelligence, cybersecurity, business development, digital transformation, risk assessment, process optimization and people management
* Expert in understanding customers and translating their needs into actual sales

Mr. Torres Palomino, Sergio

* Blockchain Architect Telefónica
* Blockchain Architect Signeblock
* Blockchain Developer Blocknitive
* Big Data Engineer Golive Services
* Big Data Engineer IECISA
* Degree in Computer Engineering from San Pablo CEU University
* Master's Degree in Big Data Architecture
* Master's Degree in Big Data and Business Analytics

Professors

Mr. Alonso Frech, Eduardo
- Cloud Business Senior Manager in Huawei Technologies
- Professional with more than 30 years of experience in the ICT industry, from Telco to IT, in different fields ranging from product marketing and business development to engineering and network technology and service platforms
- Director at Telefónica in different areas reporting to CTO and CIO, leading large and highly qualified teams
- Multinational experience working with operators, manufacturers and consulting companies

Ms. Cordero García, Marta
- Professor of the Polytechnic School of Madrid
- Technical School of Aerospace Engineering. Department: Mathematics applied to Aerospace Engineering

Dr. Lominchar, José
- PhD in Law (Labor Law Program) (UCJC)
- Honorary PhD from the Legal Studies University Center in Mexico, 2018.
- Law Degree (UCM)
- MBA: Master of Business Administration (MBA)

Mr. Almansa, Antonio
- 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 Fco. Sancha DC
- Design, implementation and integration of the Contingency Center in DC Julián Camarillo

Ms. Álvarez de las Cuevas, Mónica
- IT Engineer
- Project management with direct experience in the field of technical education and digital marketing solutions
- Coordination and management of both technical and business teams for status analysis and improvement of business procedures and implementation of new digital solutions

Mr. Mora, José Juan
- Kolokium Blockchain Technologies. CTO
- Telefónica Electronic Purchasing. Systems Manager
- Systems Manager
- Ydilo AVS. Systems Administrator
- Systems Administrator at Telefónica Mobile Solutions
- Postgraduate Certificate in Computer Science from the University of Huelva.
- MBA, Master's Degree in Business Administration from the UNED (UNED)

Mr. Callejo, Carlos
- Academic Director for 5 editions of the Master's Degree in Applied Blockchain at UEMC and UCAM
- CEO Block Impulse
- CTO Stocken Capital
- Master's Degree in Applied Blockchain
- FP2 Information Systems and Telecommunications
- Co-author of the book Cryptocurrencies For Dummies
- Trainer in the infoproduct Cryptocurrencies for everyone Plus

Ms. Carrascosa, Cristina
- Lawyer and Managing Partner of ATH21
- Degree in Law from the University of Valencia
- Master's Degree in Business Consulting from IE Law School and Master's Degree in Taxation and Taxation from CEF
- Director of the Blockchain Program at IE Law School
- Co-author of Blockchain: the industrial revolution of the internet

Mr. Herencia, Jesús
- Blockchain and DLT Consultant
- IT Director in Banking (Credit Agricole)
- Certificate in Computer Systems in Engineering UPM
- Co-Director of Blockchain Specialist Course at the School of Legal Practice at UCM
- Lecturer at EAE on Cryptoassets and Blockchain

Mr. Olalla, Martín
- Blockchain Technical Specialist at IBM SPGI
- Blockchain Technical Sales Specialist. IBM
- Director of Architecture. Blocknitive
- Digital Electronics Technician
- Blockchain Architect, IT Infrastructure Architect, IT Project Manager Business areas: Software, Infrastructure, Telecommunications

Mr. de Araujo, Rubens Thiago
- Program/Project Manager IT Blockchain for Supply Chain at Telefónica Global Technology
- Logistics Innovation and Projects Manager at Telefónica Brazil
- Graduate in Technological Logistics and Master in PMI Project Management from SENAC University (Brazil)
- Master's Degree in PMI Project Management from SENAC University (Brazil)
- Graduate in Technological Logistics from SENAC University (Brazil)
- Lecturer in Internal Training Leadership at Telefónica Brazil for Supply Chain Training and the use of new technologies "Logistics 4.0"
- Teacher in Multiplier of internal mini-courses of Change Management in Integrated Logistics

Mr. García de la Mata, Íñigo
- Architecture Leader at Grant Thornton, Innovation Department
- Bachelor's Degree in Industrial Engineering with a Major in Electronics
- Master's Degree in Electronics from Comillas Pontifical University
- Degree in Computer Engineering from the Spanish Open University (UNED)
- Lecturer in *Blockchain* University courses at UNIR
- Lecturer and Blockchain Bootcamp and Geekshub
- Final Thesis Tutor at the Pontifical University of Comillas

Ms. Foncuberta, Marina

- Lawyer ATH21, Blockchain, Cybersecurity, IT, Privacy and Data Protection
- Attorney Pinsent Masons, Blockchain Cybersecurity, IT, Privacy and Data Protection Department
- Lawyer as part of the 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 Universidad Pontifica Comillas
- Master's Degree in Intellectual and Industrial Property, Comillas Pontifical University (ICADE), Madrid
- Program on Law and Blockchain: "Blockchain: Legal implications
- Professor at San Pablo CEU University: subject "Law and new technologies: Blockchain"

Ms. Salgado Iturrino, María

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

05

Structure and Content

This Advanced Master's Degree has been designed based on three fundamental pillars: the most up-to-date information on the context of big data and blockchain, the professional criteria of a group of experts in the sector, and the teaching methodology of relearning. Therefore, TECH has been able to create a multidisciplinary and intensive program that will provide the graduate with the latest and most exhaustive knowledge in the field. In addition, thanks to the amount of additional material you will find in the Virtual Classroom, you will be able to delve deeper into the aspects of the syllabus that interest you most, so that you can get the most out of this great academic experience.

> *You will have access to hundreds of hours of the best content on visual analytics and the analysis and interpretation of data, including in-depth knowledge of new technologies in the industry"*

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. Knowing New Technologies: 5G and IoT
1.5. Knowing New Technologies: Cloud and Edge Computing
1.6. Critical Thinking in Visual Analytics
1.7. The Know-mads. Nomads Among Data
1.8. Learning to Be an Entrepreneur 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 and AI Analysis 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 Uses
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
  7.4.1. Introduction to SQuID Methodology to Approach Big Data Projects
  7.4.2. Phase I. Sources
  7.4.3. Phase II. Data Quality
  7.4.4. Phase III. Impossible Questions
  7.4.5. Phase IV. Discovering
  7.4.6. Best Practices in the Application of SQuID in Big Data Projects
7.5.   Legal Aspects in the World of Data
7.6.   Privacy in Big Data
7.7.   Cyber Security in Big Data
7.8.   Identification and De-Identification with Large Volumes of Data
7.9.   Data Ethics I
7.10. 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's 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: Technologies Involved and Cyberspace Security

11.1. Cyber Research Techniques
  11.1.1. Intelligence Analysis
  11.1.2. Potential Deception on the Internet
  11.1.3. Advanced Use of Search Tools

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

Module 13. Enterprise Blockchain Development: Hyperledger Besu

Module 14. Enterprise 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 Technology

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

14.6. First Deployment
    14.6.1.   Automatic Test-Network Deployment
    14.6.2.   Guided Test-NetworkDeployment
    14.6.3.   Review of Deployed Components

14.7. Second Deployment
    14.7.1.   Deployment of Private Data Collection
    14.7.2.   Integration against a Fabric Network
    14.7.3.   Other Projects

14.8. Chain Codes
    14.8.1.   Structure of a Chaincode
    14.8.2.   Deployment and Upgrade of Chaincodes
    14.8.3.   Other Important Chaincode Functions

14.9. Connection to other Hyperledger Tools (Caliper and Explorer)
    14.9.1.   Hyperledger Explorer Installation
    14.9.2.   Other Important Tools

14.10. Certification
    14.10.1. Types of Official Certifications
    14.10.2. Preparation for CHFA
    14.10.3. Developer vs. Administrator Profiles

Module 15. Sovereign Identity Based on Blockchain

15.1. Digital Identity
    15.1.1.   Personal Data
    15.1.2.   Social Media
    15.1.3.   Control Over Data
    15.1.4.   Authentication
    15.1.5.   Identification

15.2. Blockchain Identity
    15.2.1.   Digital Signature
    15.2.2.   Public Networks
    15.2.3.   Permitted Networks

15.3. Sovereign Digital Identity
    15.3.1.   Requirements
    15.3.2.   Components
    15.3.3.   Applications

15.4. Decentralized Identifiers (DIDs)
    15.4.1.   Layout
    15.4.2.   DID Methods
    15.4.3.   DID Documents

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

16.1. Financial Culture
    16.1.1. Evolution of Money
    16.1.2. FIAT Money Vs. Decentralized Money
    16.1.3. Digital Banking Vs. Open Finance

16.2. Ethereum
    16.2.1. Technology
    16.2.2. Decentralized Money
    16.2.3. Stable Coins

16.3. Other Technology
    16.3.1. Binance Smart Chain
    16.3.2. Polygon
    16.3.3. Solana

16.4. DeFi (Decentralized Finance)
    16.4.1. DeFi
    16.4.2. Challenges
    16.4.3. Open Finance Vs. DeFi

16.5. Information Tools
    16.5.1. Metamask and Decentralized Wallets
    16.5.2. CoinMarketCap
    16.5.3. DefiPulse

16.6. Stable Coins
    16.6.1. Protocol Maker
    16.6.2. USDC, USDT, BUSD
    16.6.3. Forms of Collateralization and Risks

16.7. Exchanges and Decentralized Exchanges and Platforms (DEX)
    16.7.1. Uniswap
    16.7.2. SushiSwap
    16.7.3. AAVe
    16.7.4. dYdX/Synthetix

16.8. NFT Ecosystem (Non-Fungible Tokens)
    16.8.1. NFTs
    16.8.2. Typology
    16.8.3. Features

16.9. Capitulation of Industries
    16.9.1. Design Industry
    16.9.2. Fan Token Industry
    16.9.3. Project Financing

16.10. NFT Markets
    16.10.1. Opensea
    16.10.2. Rarible
    16.10.3. Customized Platforms

Module 17. Blockchain. Legal implications

17.1. Bitcoin
    17.1.1. Bitcoin
    17.1.2. Whitepaper Analysis
    17.1.3. Operation of the Proof of Work

17.2. Ethereum
    17.2.1. Ethereum: Origins
    17.2.2. Proof of Stake Operation
    17.2.3. DAO Case

17.3. Current Status of the Blockchain
    17.3.1. Growth of Cases
    17.3.2. Blockchain Adoption by Large Companies

17.4. MiCA (Market in Cryptoassets)
    17.4.1. Birth of the Standard
    17.4.2. Legal Implications (Obligations, Obligated Parties, etc.)
    17.4.3. Summary of the Standard

Module 18. Blockchain Architecture Design

Module 19. Blockchain Applied to Logistics

Module 20. Blockchain and Business

By enrolling in this program, you will be accessing intensive, multidisciplinary education that will elevate your knowledge of big data and blockchain to world-class levels"

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

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

"
At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

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

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

❝

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

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, students will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.

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)

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Practising Skills and Abilities

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.

20%

25%

4%

3%
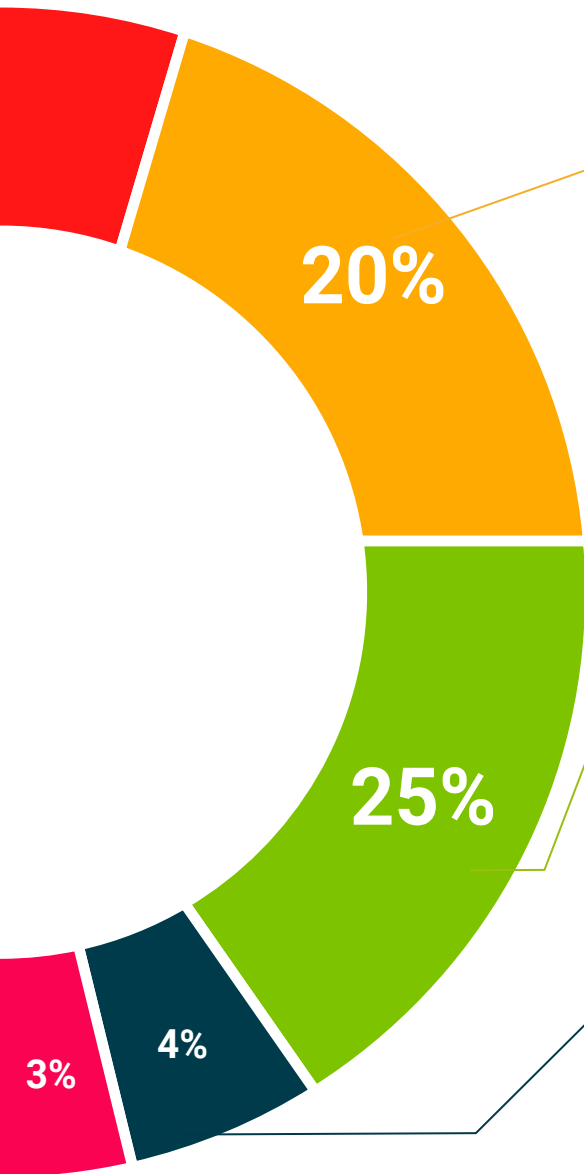
Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

07
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 issued by TECH Technological University.

" *By successfully completing this program, you will receive your TECH qualification without the need for complicated paperwork"*
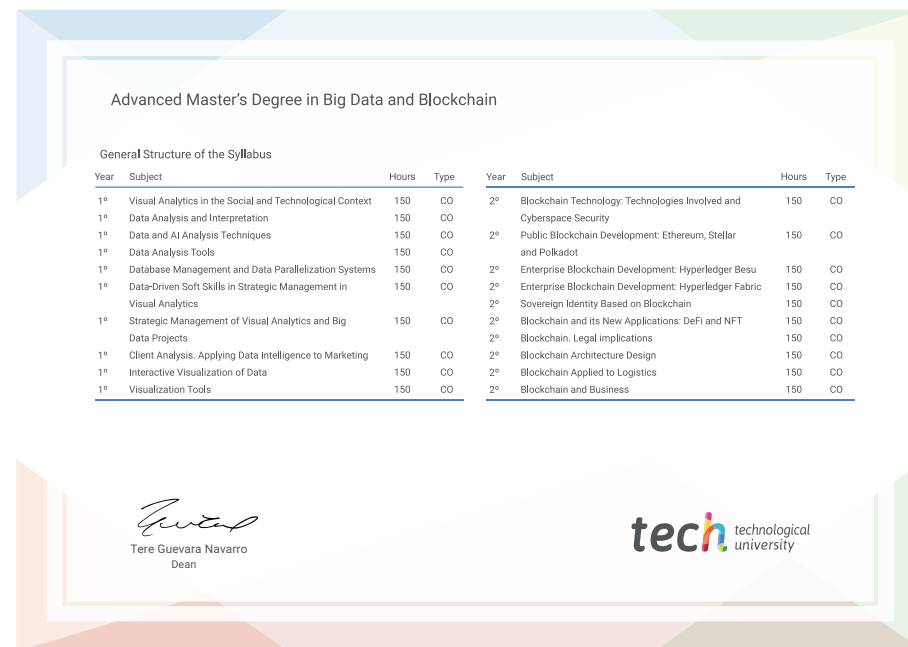
This **Advanced Master's Degree in Big Data and Blockchain** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Advanced Master's Degree in Big Data and Blockchain**
Official Nº of hours: **3,000 h.**

tech technological university

Awards the following
CERTIFICATE
to

Mr./Ms. _____, with identification number _____.
For having successfully passed and accredited the following program

ADVANCED MASTER'S DEGREE
in

Big Data and Blockchain

This is a qualification awarded by this University, equivalent to 3,000 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

Advanced Master's Degree in Big Data and Blockchain

General Structure of the Syllabus

Year	Subject	Hours	Type	Year	Subject	Hours	Type
1º	Visual Analytics in the Social and Technological Context	150	CO	2º	Blockchain Technology: Technologies Involved and Cyberspace Security	150	CO
1º	Data Analysis and Interpretation	150	CO	2º	Public Blockchain Development: Ethereum, Stellar and Polkadot	150	CO
1º	Data and AI Analysis Techniques	150	CO	2º	Enterprise Blockchain Development: Hyperledger Besu	150	CO
1º	Data Analysis Tools	150	CO	2º	Enterprise Blockchain Development: Hyperledger Fabric	150	CO
1º	Database Management and Data Parallelization Systems	150	CO	2º	Sovereign Identity Based on Blockchain	150	CO
1º	Data-Driven Soft Skills in Strategic Management in Visual Analytics	150	CO	2º	Blockchain and its New Applications: DeFi and NFT	150	CO
1º	Strategic Management of Visual Analytics and Big Data Projects	150	CO	2º	Blockchain. Legal implications	150	CO
1º	Client Analysis. Applying Data Intelligence to Marketing	150	CO	2º	Blockchain Architecture Design	150	CO
1º	Interactive Visualization of Data	150	CO	2º	Blockchain Applied to Logistics	150	CO
1º	Visualization Tools	150	CO	2º	Blockchain and Business	150	CO

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Dean

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

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Advanced Master's Degree
Big Data and Blockchain

- » Modality: **online**
- » Duration: **2 years**
- » Certificate: **TECH Technological University**
- » Schedule: **at your own pace**
- » Exams: **online**

Advanced Master's Degree
Big Data and Blockchain

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