Postgraduate Diploma

Programming and Development of Algorithmic Trading Systems

tech global university

tech global university

Postgraduate Diploma

Programming and Development of Algorithmic Trading Systems

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

Website: **www.techtitute.com/us/school-of-business/postgraduate-diploma/postgraduate-diploma-programming-development-algorithmic-trading-systems**

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Introduction to the Program

The volume of trading in global financial markets, driven by automation, has grown exponentially. According to a report by the United Kingdom's Financial Conduct Authority (FCA), automated trading accounts for a substantial portion of daily market activity, highlighting the urgent need for engineers and developers with advanced programming skills to design, implement, and manage robust and efficient trading systems. To meet this demand, TECH has developed this postgraduate program to provide the most relevant and up-to-date knowledge in the field. Through a 100% online methodology, professionals will immerse themselves in the core of this discipline, staying at the forefront of technological investment.

A 100% online, comprehensive university program covering the programming and development of algorithmic trading systems"

Trading in financial markets has evolved from manual intervention to large-scale automation. As a result, financial institutions, hedge funds, and individual traders are constantly seeking new ways to execute strategies with greater speed, precision, and discipline. This fundamental shift demands a deep understanding not only of market dynamics but also of software engineering, data management, and the optimization of essential technological infrastructures.

In this context, where the ability to code, test, and deploy technological solutions is as critical as the investment strategy itself, TECH's Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems emerges as a timely and essential academic response. Through a comprehensive approach, professionals will master the tools and practical knowledge required to build the technological backbone of an algorithmic trading system, enabling them to operate in the most demanding markets.

This university program delves into the programming of trading strategies, covering everything from the fundamentals of the most widely used languages to financial data manipulation with Python and automation of trade execution. The curriculum also addresses the design of custom indicators, the development of trading bots, algorithm testing and debugging, as well as the use of databases and integration with market APIs. In addition, it explores infrastructure design, algorithm deployment, and scalability optimization.

This academic credential is delivered through a 100% online methodology, offering professionals the flexibility they need to balance their academic development with personal and professional obligations. Course content will be accessible 24/7 from any device with an internet connection. Finally, the learning process is enhanced by the implementation of the Relearning method, which facilitates the assimilation of key concepts through structured repetition.

This **Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical case studies presented by experts in Programming and Development of Algorithmic Trading Systems
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an internet connection

You will be trained in the design, coding, and optimization of algorithmic trading systems capable of executing investment operations autonomously and efficiently"

You will consolidate your knowledge in Programming and Development of Algorithmic Trading Systems through the most innovative academic materials"

TECH will provide you with the most advanced instructional methodology available today, designed to help you master the complexities of trading automation.

You will study at your own pace and from anywhere in the world with this 100% online university program, taking your specialization in Algorithmic Trading wherever you choose.

The faculty includes professionals from the field of Programming and Development of Algorithmic Trading Systems, who bring to this program the expertise of their work, alongside renowned specialists from leading firms 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.

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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 relies on an enormous faculty of more than 6,000 professors of the highest international renown.

Study at the world's largest online university and guarantee your professional success. The future starts 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 ten different languages, making us the largest educational institution in the world.

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 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

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

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Syllabus

The academic itinerary of this Postgraduate Diploma has been developed by software engineers, quants, and traders with hands-on experience in building automated systems. As a result, the syllabus covers the fundamentals of programming, financial data manipulation, and the automation of trading strategies. It also delves into the development of trading bots, algorithm testing and debugging, integration with market APIs, system infrastructure, and deployment. In this way, professionals will master optimization and scalability, risk management, and the taxation of Algorithmic Trading.

You will design and program algorithmic trading systems, managing risks with precision to operate in the financial markets of the future"

Module 1. Programming and Development of Algorithms in Trading

1.1. Fundamentals of Programming for Trading
- 1.1.1. Most Common Programming Languages (Python, R, etc.)
- 1.1.2. Development Environments and Tools
- 1.1.3. Version Control

1.2. Financial Data Manipulation with Python
- 1.2.1. Essential Libraries (Pandas, NumPy, etc.)
- 1.2.2. Loading and Processing Historical Data
- 1.2.3. Analysis and Visualization

1.3. Automation of Trading Strategies
- 1.3.1. Developing Scripts for Automated Execution
- 1.3.2. Broker APIs and Market Connections
- 1.3.3. Automation of Analysis and Reporting

1.4. Design of Custom Indicators
- 1.4.1. Creating Custom Technical Indicators
- 1.4.2. Combining Multiple Signals
- 1.4.3. Implementation in Code

1.5. Development of Trading Bots
- 1.5.1. Architecture of a Trading Bot
- 1.5.2. Order Execution and Management
- 1.5.3. Simulation of Trades

1.6. Testing and Debugging Algorithms
- 1.6.1. Identifying Common Errors
- 1.6.2. Debugging Tools
- 1.6.3. Unit Testing and Quality Control

1.7. Use of Databases in Algorithmic Trading
- 1.7.1. SQL vs. NoSQL in Trading
- 1.7.2. Efficient Storage of Historical Data
- 1.7.3. Query Optimization

1.8. Integration with Market Data APIs
- 1.8.1. APIs with Brokers and Data Feeders
- 1.8.2. Real-Time Data Extraction and Updates
- 1.8.3. Web Scraping and Alternative Data Sources

1.9. Infrastructure and Deployment of Algorithms
  1.9.1. Local Servers vs. *Cloud Computing*
  1.9.2. Deployment in Major Clouds (AWS, Google Cloud, Azure)
  1.9.3. Security and Maintenance
1.10. Optimization and Scalability of Algorithms
  1.10.1. Code Performance Improvement
  1.10.2. Parallelization and Distributed Processing
  1.10.3. Latency Management and Execution Times

Module 2. Implementation, Development, and Monitoring of Algorithmic Trading Strategies

2.1. From Development to Live Market Execution
  2.1.1. Transition Process from Backtesting to Live Trading
  2.1.2. Testing in Simulated Environments
  2.1.3. Final Adjustments and Calibrations
2.2. Selecting a Broker and Execution Platform
  2.2.1. Brokers for Algorithmic Trading
  2.2.2. Differences Between ECN, STP, and Market Maker
  2.2.3. Commissions and Hidden Costs
2.3. Implementation of Automated Execution Systems
  2.3.1. Types of Execution (Market, Limit, Stop)
  2.3.2. Smart Order Routing Algorithms
  2.3.4. Impact of Slippage on Strategies
2.4. Monitoring and Adjusting Strategies
  2.4.1. Real-Time Performance Evaluation
  2.4.2. Algorithmic Efficiency Indicators
  2.4.3. Adjustments on the Fly
2.5. Risk Management in Strategy Execution
  2.5.1. Loss and Exposure Control
  2.5.2. Dynamic Leverage Adjustment
  2.5.3. Identifying Execution Failures

2.6. Use of Dedicated Servers for Execution
- 2.6.1. Co-location and Low Latency Servers
- 2.6.2. Hardware and Software Considerations
- 2.6.3. Costs and Benefits

2.7. Costs and Benefits
- 2.7.1. Handling Emergencies and System Failures
- 2.7.2. Contingency Plans
- 2.7.3. Automation of Alerts and Notifications

2.8. Performance Metrics Evaluation
- 2.8.1. Risk-Adjusted Profitability
- 2.8.2. Drawdowns and Volatility
- 2.8.3. Analysis of Key Metrics (Sharpe, Sortino, Calmar)

2.9. Continuous Strategy Optimization
- 2.9.1. Machine Learning in Strategy Adjustment
- 2.9.2. Periodic Review of Models
- 2.9.3. Avoiding Over-Optimization

2.10. Regulatory Aspects of Algorithmic Execution
- 2.10.1. Regulations on Automated Trading
- 2.10.2. Transparency and Audit Requirements
- 2.10.3. Compliance Standards (MiFID, SEC, ESMA)

Module 3. Risk Analysis

3.1. The Importance of Risk Management in Trading
- 3.1.1. Types of Risk in Financial Markets
- 3.1.2. Importance of Risk Control
- 3.1.3. Quantitative vs. Qualitative Approaches

3.2. Market Risk and Volatility
- 3.2.1. Factors Influencing Volatility
- 3.2.2. Calculation and Use of Value at Risk (VaR)
- 3.2.3. Volatility Prediction Models

3.3. Liquidity and Implementation Risk
- 3.3.1. Liquidity and Execution Risk
- 3.3.2. Impact of Liquidity on Trading
- 3.3.3. Order Book Analysis

3.4. Credit and Counterparty Risk
- 3.4.1. Importance of Counterparty Risk
- 3.4.2. Evaluating Broker Solvency
- 3.4.3. Preventing Default Risk

3.5. Operational Risk in Algorithmic Trading
- 3.5.1. Technical Failures and Execution Errors
- 3.5.2. Risks Associated with Data and Market Feeds
- 3.5.3. Mitigation Strategies

3.6. Systemic Risk and Financial Crises
- 3.6.1. Crisis Trigger Factors
- 3.6.2. Domino Effect in Markets
- 3.6.3. Hedging Strategies in Crises

3.7. Managing Drawdown and Loss Control
- 3.7.1. Evaluating Drawdowns in Strategies
- 3.7.2. Loss Reduction Techniques
- 3.7.3. Psychology of Risk and Loss Aversion

3.8. Diversification and Portfolio Management
- 3.8.1. Diversification Across Strategies and Markets
- 3.8.2. Asset Correlations
- 3.8.3. Using Portfolio Optimization Models

3.9. Risk Management Tools and Software
- 3.9.1. Specialized Platforms
- 3.9.2. Adverse Scenario Simulation
- 3.9.3. Evaluation of Key Metrics

3.10. Regulatory Framework and Compliance in Risk Management
- 3.10.1. International Risk Regulations
- 3.10.2. Regulatory Requirements for Funds and Traders
- 3.10.3. Transparency and Auditing in Risk Management

04

Teaching Objectives

The syllabus design of this Postgraduate Diploma aims to equip finance professionals with advanced skills in programming and software development, enabling them to build, test, and deploy robust algorithmic trading systems. They will also acquire expertise in the efficient handling of financial data, optimization of execution algorithms, and management of technological infrastructure. As a result, this academic opportunity will enhance graduates' ability to design automated trading strategies, monitor their performance in real time, and manage technical contingencies by offering innovative solutions.

You will transform your financial perspective through the programming and development of algorithmic trading systems to automate your strategies and conquer the markets"

General Objectives

- Master the fundamentals of trading-focused programming, including the most widely used languages and development environments
- Develop the ability to manipulate and analyze large volumes of financial data using Python and its essential libraries
- Automate trading strategies through script creation, broker API integration, and automated reporting
- Design and code custom technical indicators for identifying trading opportunities
- Build and simulate the operation of trading bots, understanding their architecture and order management
- Apply testing and debugging techniques to ensure the reliability and quality control of trading algorithms
- Manage financial databases, optimizing the storage and querying of historical data
- Integrate systems with market data APIs for real-time data extraction and updating
- Plan algorithm deployment infrastructure, evaluating server and security options
- Optimize and scale trading algorithms, improving code performance and managing execution latency

Specific Objectives

Module 1. Programming and Development of Algorithms in Trading

- Analyze the fundamentals of programming and key languages for developing trading algorithms
- Manipulate financial data using Python libraries and automate trading strategies
- Design custom indicators and build trading bots
- Manage databases, integrate APIs, and optimize algorithm deployment infrastructure

Module 2. Implementation, Development, and Monitoring of Algorithmic Trading Strategies

- Understand the transition from development to execution in real-market environments
- Select appropriate brokers and execution platforms for algorithmic trading
- Implement automated execution systems and monitor their real-time performance
- Continuously optimize algorithmic strategies and ensure regulatory compliance

Module 3. Risk Analysis

- Assess the importance of risk management in algorithmic trading
- Calculate market, liquidity, and credit risk in financial markets
- Identify and mitigate operational and systemic risks in automated trading
- Develop portfolio diversification strategies and understand the regulatory framework for risk management

05

Career Opportunities

Thanks to the rigorous training provided by this university program, professionals will be prepared to take on key roles in financial algorithm development teams, work as quantitative analysts, or join innovation and technology departments within banks, hedge funds, and fintech companies. They will also be qualified to work as programmers specializing in Python or R for financial environments, consultants in investment strategy automation, or managers of technological infrastructure for automated execution systems.

You will advance your career in finance and master the creation, execution, and optimization of algorithmic trading systems, unlocking a wide range of opportunities in high-tech investment"

Graduate Profile

Graduates of this Postgraduate Diploma will master the Programming and Development of Algorithmic Trading systems to operate efficiently in financial markets. They will be capable of building and optimizing algorithms, understanding the required technological infrastructure, and integrating with various real-time data sources. In addition, these experts will be prepared to manage the operational and technical risks of such systems and understand the regulatory aspects of automated execution, bringing value to highly complex trading environments.

A cutting-edge professional profile through mastery of programming and the development of algorithmic trading systems to shape the future of automated investments.

- **Design and Construction of Trading Algorithms:** Conceptualize, program, and implement algorithmic trading strategies, as well as design custom indicators and develop functional trading bots
- **Infrastructure Management and Financial Data:** Manipulate large volumes of financial data using Python, manage databases, integrate market APIs, and deploy algorithms on local or cloud-based infrastructures
- **Ethical Commitment and Risk Management:** Apply ethical principles and regulatory standards in the development and execution of trading algorithms, ensuring transparency and effective mitigation of financial and operational risks
- **Interdisciplinary Collaboration:** Work effectively with finance professionals, data analysts, and other specialists to facilitate the development and implementation of robust algorithmic trading systems

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

1. **Algorithmic Trading Systems Developer:** responsible for designing, coding, and optimizing automated trading platforms and algorithms.
2. **Quantitative Trading Engineer:** in charge of building and maintaining the technological infrastructure that supports high-frequency trading strategy execution.
3. **Algorithmic Implementation Analyst:** manages the transition of trading strategies from simulated environments to live markets, ensuring proper configuration and monitoring.
4. **Market Automation Lead:** tasked with developing solutions for fast and efficient order execution in financial markets, minimizing slippage.
5. **Quantitative Financial Programmer:** responsible for coding mathematical and statistical models for market analysis and the creation of custom indicators.
6. **Trading Platform Architect:** leads the design of the technological architecture of algorithmic trading systems, ensuring scalability and security.
7. **Financial Data Integration Specialist:** manages connections to various market data sources and the extraction of real-time information for trading systems.
8. **Algorithmic Trading Development Consultant:** advisor focused on providing expertise in the design and optimization of automated trading solutions for financial institutions.

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.

A 100% online Virtual Campus with the best teaching resources

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

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

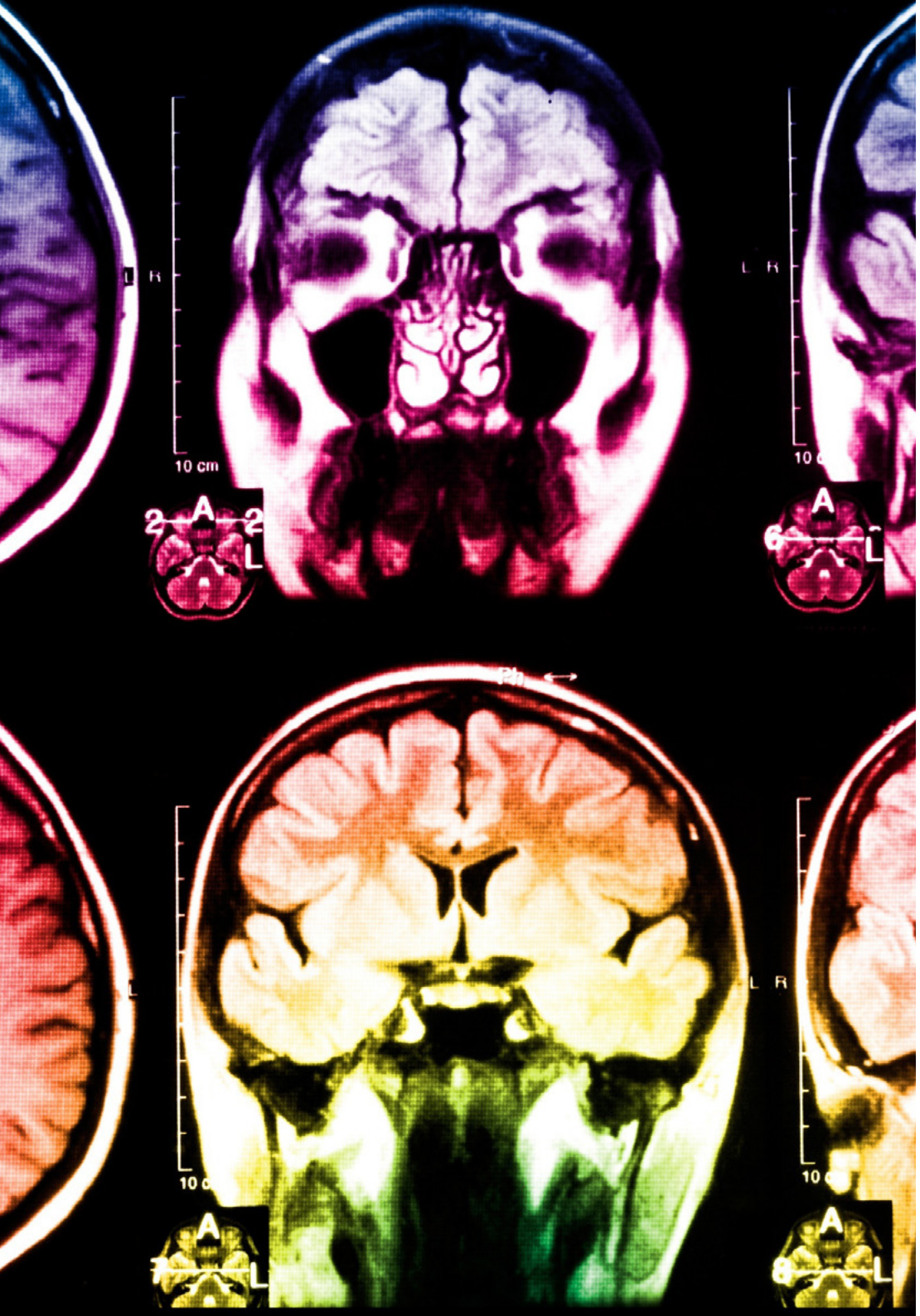
In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

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

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

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

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



The university methodology top-rated by its students

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

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

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

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

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

Study Material

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

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

Practicing Skills and Abilities

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

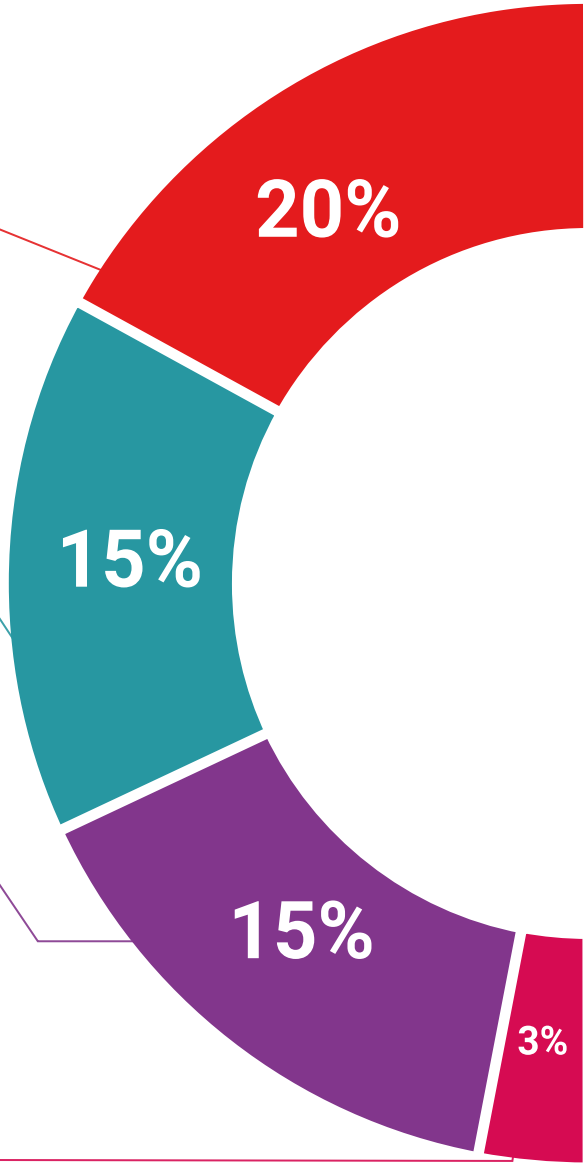
Interactive Summaries

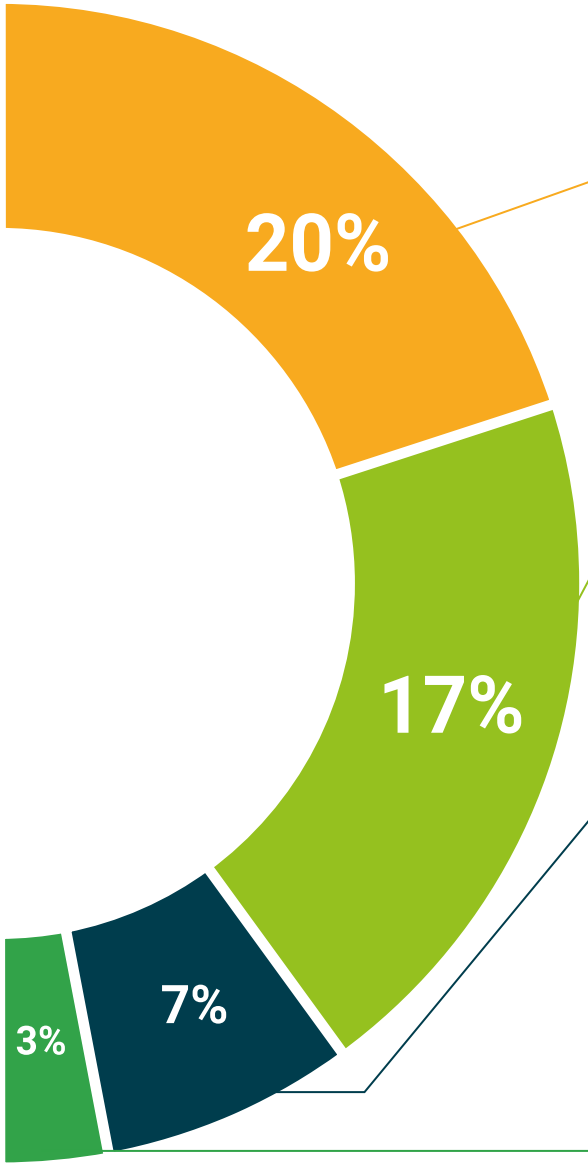
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Case Studies

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

Testing & Retesting

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

Classes

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

Learning from an expert strengthens knowledge and memory, and generates confidence for future difficult decisions.

Quick Action Guides

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

07

Teaching Staff

The faculty team has been carefully selected for its strong professional and academic background in Programming and Development of Algorithmic Trading Systems. These professionals possess not only deep theoretical knowledge but also extensive practical experience in building high-frequency algorithms, implementing execution platforms, and optimizing trading infrastructure. As a result, their expertise in programming languages and financial data management ensures that graduates receive training aligned with the latest industry trends.

This renowned faculty, composed of leading experts in Programming and Development of Algorithmic Trading Systems, will guide you with real-world experience and a forward-looking vision of the industry"

Management

Dr. Gómez Martínez, Raúl

- Founding Partner and CEO of Open 4 Blockchain Fintech
- Founding Partner of *InvestMood Fintech*
- Apara's CEO
- PhD in Business Economics and Finance from the University Rey Juan Carlos de Madrid
- Bachelor's Degree in Economics and Business Administration, Complutense University of Madrid
- Master's Degree in Economic Analysis and Financial Economics, Complutense University of Madrid

Dr. Lara Bocanegra, Ana María

- Company Owner (Financial)
- Ph.D. from the University of Seville
- Trader of NYSE Stocks at World Trade Securities
- Junior Trader at Swiftrad
- Mechanical Behaviour of Materials from University of Seville
- Experimental Techniques II from University of Seville
- Materials Science from University of Seville
- Advanced Trading Stocks Techniques from University of Seville

Teachers

Dr. Guerra Moruno, Lucía

- Responsible for content planning and technical strategies at Scientia System S.L.U
- Ph.D. in Big Data and Quantitative Finance
- Head of Content Creation and Programming Strategies at Scientia System S.L
- Technical Consultant and Programmer at Incubadora de Traders S.L.U
- Master's Degree in Banking and Quantitative Finance
- Graduate in Physics

Mr. Martín Moreno, David

- Specialist in Financial Management by European University Miguel de Cervantes Business School
- Master's Degree in Financial Planning and Advice from the Rey Juan Carlos University
- Bachelor's Degree in Accounting and Finance from Rey Juan Carlos University

Mr. Segura Pacho, Felipe Marcelo

- Back Office at Indra BPO Services SLU
- Accountant at JC Segura Construcciones SA
- Specialist in Corporate Finance at the Catholic University of Salta
- Master's Degree in Financial Planning and Advice from the Rey Juan Carlos University
- Master's Degree in Business Management from the Public University of Navarra
- Collaborator of the project "Trading in Stock Exchange and Financial Markets

08

Certificate

This Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems guarantees students, in addition to the most rigorous and up-to-date education, access to a diploma for the Postgraduate 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 diploma for the **Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems** endorsed by TECH Global University, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra ***(official bulletin)***. Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

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

Title: **Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Diploma in Programming and Development of Algorithmic Trading Systems

This is a private qualification of 540 hours of duration equivalent to 18 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

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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.

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Postgraduate Diploma

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- Modality: **online**
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Postgraduate Diploma

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