



Postgraduate Certificate Algorithmic Trading Strateg

Algorithmic Trading Strategies

» Modality: online» Duration: 6 weeks

» Certificate: TECH Global University

» Accreditation: 6 ECTS

» Schedule: at your own pace

» Exams: online

» Intended for: Graduates who have previously completed any degree in the fields of Social and Legal Sciences, Administrative and Business Sciences.

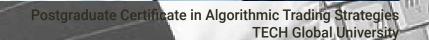
Website: www.techtitute.com/us/school-of-business/postgraduate-certificate/algorithmic-trading-strategies

Index

Why Study at TECH? Why Our Program? Objectives Welcome p. 4 p. 6 p. 10 p. 14 06 Study Methodology Our Students' Profiles Structure and Content p. 18 p. 24 p. 34 80 Course Management Impact on Your Career Benefits for Your Company p. 38 p. 42 p. 46 Certificate

01 **Welcome**

Algorithmic Trading has profoundly transformed global financial markets in recent years, allowing experts to take advantage of price fluctuations that go unnoticed by humans. In fact, a new report by the International Swaps and Derivatives Association reveals that more than 60% of stock market transactions in developed markets are performed using Machine Learning models. In this context, professionals require advanced skills to implement techniques based on mathematical models and data analysis to improve portfolio management. In response to this demand, TECH is launching a pioneering university program focused on the application of Big Data techniques in the financial field. In addition, it is based on a flexible online modality.









tech 08 | Why Study at TECH?

At TECH Technological University



Innovation

The university offers an online learning model that balances the latest educational technology with the most rigorous teaching methods. A unique method with the highest international recognition that will provide students with the keys to develop in a rapidly-evolving world, where innovation must be every entrepreneur's focus.

"Microsoft Europe Success Story", for integrating the innovative, interactive multi-video system.



The Highest Standards

Admissions criteria at TECH are not economic. Students don't need to make a large investment to study at this university. However, in order to obtain a qualification from TECH, the student's intelligence and ability will be tested to their limits. The institution's academic standards are exceptionally high...

95%

of TECH students successfully complete their studies



Networking

Professionals from countries all over the world attend TECH, allowing students to establish a large network of contacts that may prove useful to them in the future.

+100000

+200

executives prepared each year

different nationalities



Empowerment

Students will grow hand in hand with the best companies and highly regarded and influential professionals. TECH has developed strategic partnerships and a valuable network of contacts with major economic players in 7 continents.

+500

collaborative agreements with leading companies



Talent

This program is a unique initiative to allow students to showcase their talent in the business world. An opportunity that will allow them to voice their concerns and share their business vision.

After completing this program, TECH helps students show the world their talent.



Multicultural Context

While studying at TECH, students will enjoy a unique experience. Study in a multicultural context. In a program with a global vision, through which students can learn about the operating methods in different parts of the world, and gather the latest information that best adapts to their business idea.

TECH students represent more than 200 different nationalities.



Why Study at TECH? | 09 tech

TECH strives for excellence and, to this end, boasts a series of characteristics that make this university unique:



Analysis

TECH explores the student's critical side, their ability to question things, their problem-solving skills, as well as their interpersonal skills.



Academic Excellence

TECH offers students the best online learning methodology. The university combines the Relearning method (postgraduate learning methodology with the best international valuation) with the Case Study. Tradition and vanguard in a difficult balance, and in the context of the most demanding educational itinerary.



Economy of Scale

TECH is the world's largest online university. It currently boasts a portfolio of more than 10,000 university postgraduate programs. And in today's new economy, **volume + technology = a ground-breaking price**. This way, TECH ensures that studying is not as expensive for students as it would be at another university.



Learn with the best

In the classroom, TECH's teaching staff discuss how they have achieved success in their companies, working in a real, lively, and dynamic context. Teachers who are fully committed to offering a quality specialization that will allow students to advance in their career and stand out in the business world.

Teachers representing 20 different nationalities.



At TECH, you will have access to the most rigorous and up-to-date case analyses in academia"





tech 12 | Why Our Program?

This program will provide you with a multitude of professional and personal advantages, among which we highlight the following:



A Strong Boost to Your Career

By studying at TECH, students will be able to take control of their future and develop their full potential. By completing this program, students will acquire the skills required to make a positive change in their career in a short period of time.

70% of students achieve positive career development in less than 2 years.



Develop a strategic and global vision of the company

TECH offers an in-depth overview of general management to understand how each decision affects each of the company's different functional fields.

Our global vision of companies will improve your strategic vision.



Consolidate the student's senior management skills

Studying at TECH means opening the doors to a wide range of professional opportunities for students to position themselves as senior executives, with a broad vision of the international environment.

You will work on more than 100 real senior management cases.



You will take on new responsibilities

The program will cover the latest trends, advances and strategies, so that students can carry out their professional work in a changing environment.

45% of graduates are promoted internally.



Access to a powerful network of contacts

TECH connects its students to maximize opportunities. Students with the same concerns and desire to grow. Therefore, partnerships, customers or suppliers can be shared.

You will find a network of contacts that will be instrumental for professional development.



Thoroughly develop business projects.

Students will acquire a deep strategic vision that will help them develop their own project, taking into account the different fields in companies.

20% of our students develop their own business idea.



Improve soft skills and management skills

TECH helps students apply and develop the knowledge they have acquired, while improving their interpersonal skills in order to become leaders who make a difference.

Improve your communication and leadership skills and enhance your career.



You will be part of an exclusive community

Students will be part of a community of elite executives, large companies, renowned institutions, and qualified teachers from the most prestigious universities in the world: the TECH Technological University community.

We give you the opportunity to study with a team of world-renowned teachers.





tech 16 | Objectives

TECH makes the goals of their students their own goals too. Working together to achieve them

The **Postgraduate Certificate in Algorithmic Trading Strategies** enables students to:



Acquire skills in processing and analyzing large volumes of financial data using Big Data technologies, such as Hadoop and Spark



Develop a thorough understanding of the ethical and regulatory challenges associated with the use of Artificial Intelligence in finance







Equip students with the tools and knowledge necessary to develop innovative financial solutions that integrate Artificial Intelligence



Apply Artificial Intelligence technologies in finance in an ethical and responsible manner, incorporating fairness, transparency and privacy considerations into their solutions





tech 20 | Structure and Content

Syllabus

TECH Global University's Postgraduate Certificate in Algorithmic Trading Strategies is an immersive program that will prepare students to overcome challenges in the field of Artificial Intelligence application in Stock and Financial Markets. In turn, it will help experts make highly informed strategic financial decisions supported by solid data.

Therefore, during this study, graduates will enjoy a virtual library filled with a myriad of multimedia resources including interactive summaries, case studies and explanatory videos. In addition, they will have at their disposal the latest evidence-based scientific research in the field.

The curriculum will delve into the design of automated Algorithmic Trading, which will enable professionals to execute trades immediately in order to take advantage of opportunities in volatile markets where prices can change rapidly. The program will also delve into state-of-the-art Machine Learning models for predicting the future direction of financial asset prices. In this way, students will identify patterns or anomalies that anticipate value movements that improve both buying and selling decisions.

Thanks to this, specialists will develop advanced skills to apply Big Data techniques to optimize investment opportunities more accurately and manage risks through the use of Machine Learning algorithms.

This Postgraduate Certificate is developed over 6 weeks and is divided into 1 module:

Module 1

Algorithmic Trading Strategies



Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Certificate in Algorithmic Trading Strategies completely online. During the 6 weeks of the specialization, the student will be able to access all the contents of this program at any time, which will allow them to self-manage their study time.

A unique, key, and decisive educational experience to boost your professional development and make the definitive leap.

tech 22 | Structure and Content

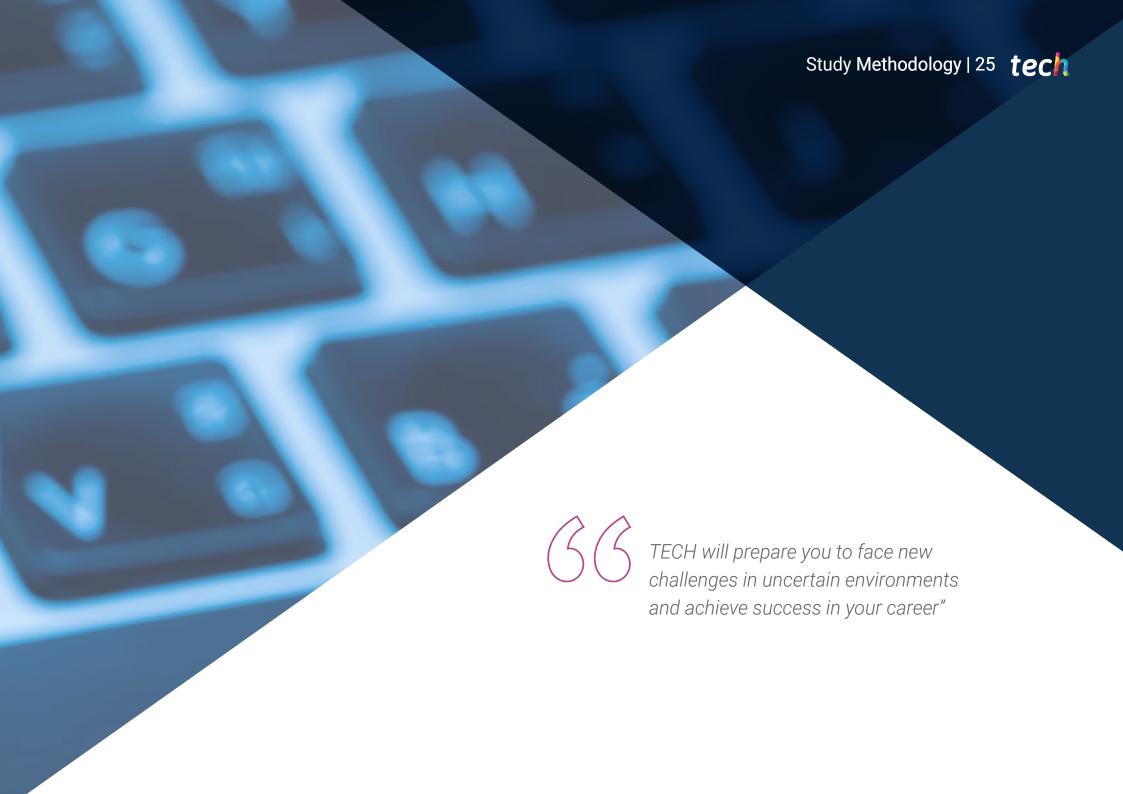
| Mod | lule 1. Algorithmic Trading Strategies | | | | | | |
|------------------|---|------------------|---|--------|---|--------|---|
| 1.1. | Fundamentals of Algorithmic Trading | 1.2. | Design of Automated Trading Systems | 1.3. | Backtesting and Evaluation of Trading Strategies | 1.4. | Optimizing Strategies with Machine Learning |
| 1.1.1. 1.1.2. | Key Technologies and Platforms for the | 1.2.1. | Trading System | | Methodologies for Effective Backtesting of Algorithmic Strategies | | Applying Supervised Learning Techniques in Strategy Improvement |
| | Development of Algorithmic Trading Algorithms | 1.2.2. | Algorithm Programming: from the Idea to the Implementation | 1.3.2. | Importance of Quality Historical Data in Backtesting | 1.4.2. | Using Particle Swarm Optimization and Genetic Algorithms |
| 1.1.3. | Advantages and Challenges of Automated Trading versus Manual Trading | 1.2.3. | Latency and Hardware Considerations in Trading Systems | 1.3.3. | Key Performance Indicators for Evaluating Trading Strategies | 1.4.3. | Challenges of Overfitting in Trading Strategy Optimization |
| 1.5. | High Frequency Trading (HFT) | 1.6. | Order Execution Algorithms | 1.7. | Arbitration Strategies in Financial Markets | 1.8. | Risk Management in Algorithmic Trading |
| 1.5.1. 1.5.2. | Impact of HFT on Market Liquidity and | 1.6.1. | Types of Execution Algorithms and Their Practical Application | 1.7.1. | Statistical Arbitrage and Price Merger in | 1.8.1. | Risk Measures for Algorithmic Trading |
| 1.5.3. | Volatility Common HFT Strategies and Their | 1.6.2. 1.6.3. | Algorithms for Minimizing the Market Impact Using Simulations to Improve Order | 1.7.2. | Markets Index and ETF Arbitrage | 1.8.2. | Integrating Risk Limits and Stop-Loss in Algorithms |
| | Effectiveness | | Execution | 1.7.3. | Technical and Legal Challenges of Arbitrage in Modern Trading | 1.8.3. | Specific Risks of Algorithmic Trading and How to Mitigate Them |
| 1.9. | Regulatory Aspects and Compliance in Algorithmic Trading | 1.10 | Future of Algorithmic Trading and Emerging Trends | | | | |
| 1.9.1. | Global Regulations Impacting Algorithmic Trading | 1.10.1 | . Impact of Artificial Intelligence on the Future Development of Algorithmic Trading | | | | |
| 1.9.2. | | 1.10.2 | New Blockchain Technologies and Their Application in Algorithmic Trading | | | | |
| 1.9.3. | Ethical Implications of Automated Trading | 1.10.3 | Trends in Adaptability and Customization of Trading Algorithms | | | | |





Through the innovative Relearning system developed by TECH, you will reduce the long hours of study and memorization. You will enjoy a completely natural learning experience!"



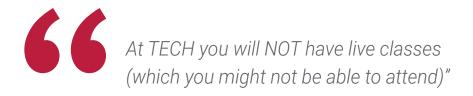


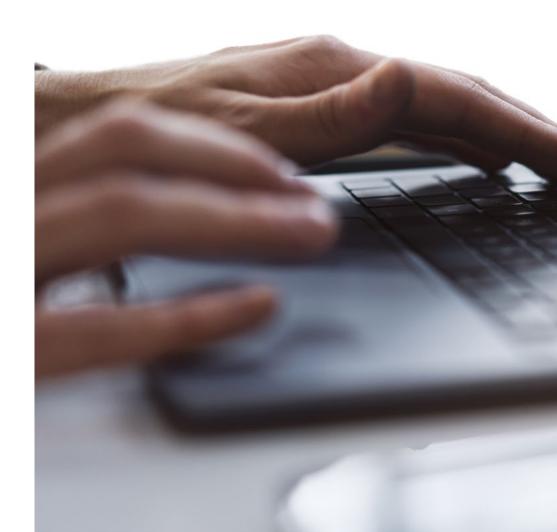
The student: the priority of all TECH programs

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.









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"

tech 28 | Study Methodology

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.



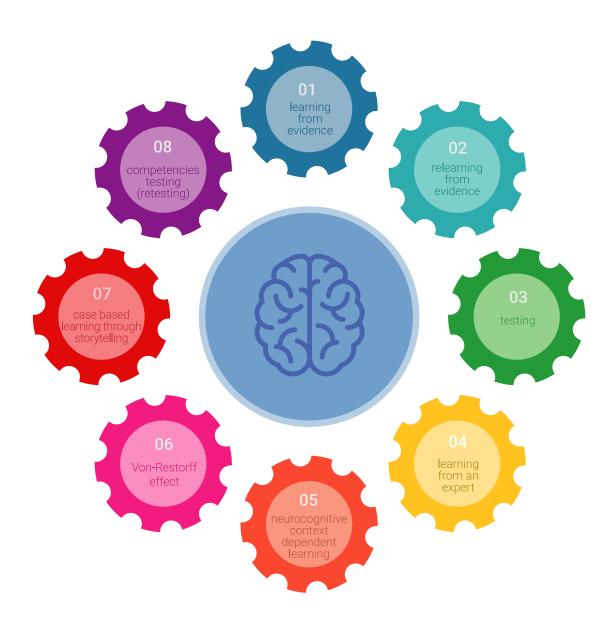
Relearning Methodology

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.



tech 30 | Study Methodology

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.

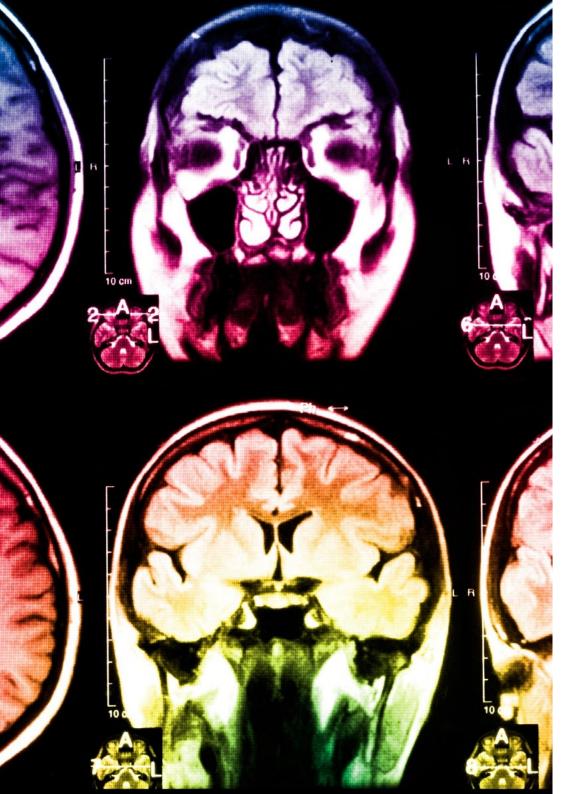


The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the quality of teaching, quality of materials, course structure and objectives is excellent. Not surprisingly, the institution became the best rated university by its students on the Trustpilot review platform, 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.



tech 32 | Study Methodology

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

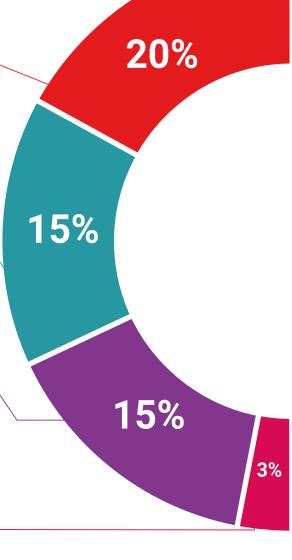
You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



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

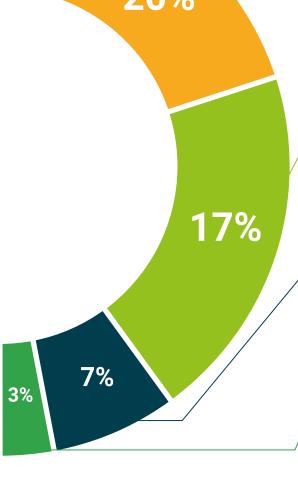
There is scientific evidence suggesting that observing third-party experts can be useful.



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

Quick Action Guides

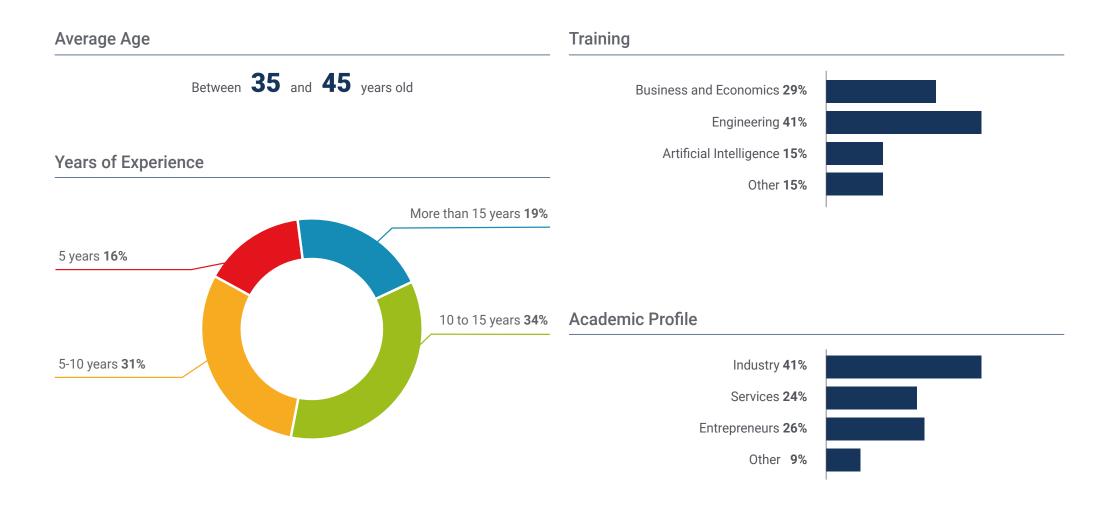
TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.



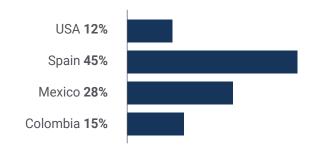




tech 36 | Our Students' Profiles



Geographical Distribution





Rodrigo Álvarez Figueroa

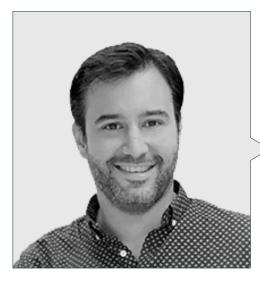
Algorithmic Trading Software Engineer

"TECH's Postgraduate Certificate in Algorithmic Trading Strategies has been a transformative experience, providing me with the tools necessary to apply predictive models with confidence. Thanks to this, I have been able to improve my financial operations and design automated strategies with maximum effectiveness"



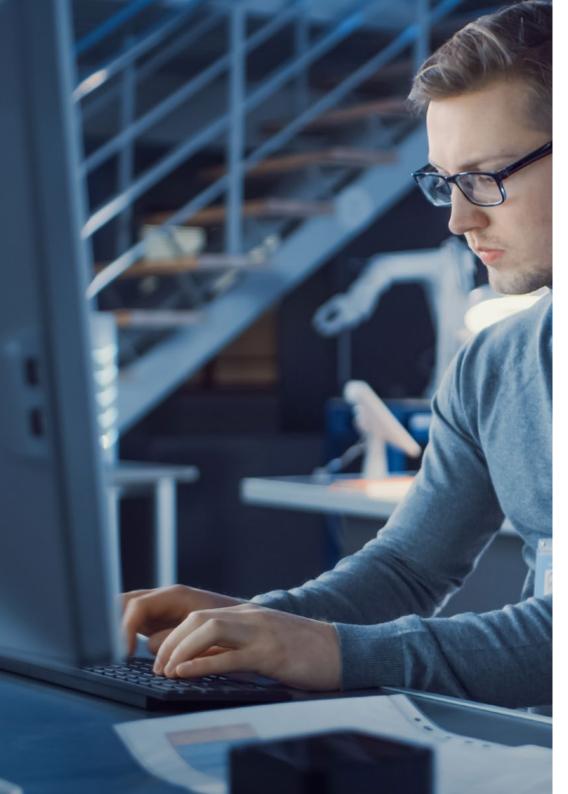


Management



Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO at Korporate Technologies
- CTO at AI Shepherds GmbH
- Consultant and Strategic Business Advisor at Alliance Medical
- Director of Design and Development at DocPath
- PhD in Psychology from the University of Castilla La Mancha
- PhD in Economics, Business and Finance from the Camilo José Cela University
- PhD in Psychology from University of Castilla La Mancha
- Master's Degree in Executive MBA from the Isabel I University
- Master's Degree in Sales and Marketing Management, Isabel I University
- Expert Master's Degree in Big Data by Hadoop Training
- Master's Degree in Advanced Information Technologies from the University of Castilla La Mancha
- Member of: SMILE Research Group



Course Management | 41 tech

Professors

Mr. Sánchez Mansilla, Rodrigo

- Digital Advisor at Al Shepherds GmbH
- Digital Account Manager at Kill Draper
- Head of Digital at Kuarere
- Digital Marketing Manager at Arconi Solutions, Deltoid Energy and Brinergy Tech
- Founder and National Sales and Marketing Manager
- Master's Degree in Digital Marketing (MDM) by The Power Business School
- Bachelor's Degree in Business Administration (BBA) from the University of Buenos Aires



Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"





tech 44 | Impact on Your Career

Are you ready to take the leap? Excellent professional development awaits you

TECH's Postgraduate Certificate in Algorithmic Trading Strategies is an intensive program that prepares you to face challenges and business decisions in the field of Artificial Intelligence applied to the Stock Market and Financial Markets. The main objective is to promote your personal and professional growth. Helping you achieve success.

If you want to improve yourself, make a positive change at a professional level and interact with the best, this is the place for you.

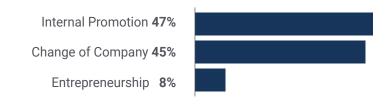
You will be able to skillfully use simulation tools to evaluate the feasibility of different Algorithmic Trading Strategies before their implementation in real economic environments.

Do you aspire to access roles of greater responsibility in financial institutions? This qualification will help you achieve it.

Time of Change



Type of change



Salary increase

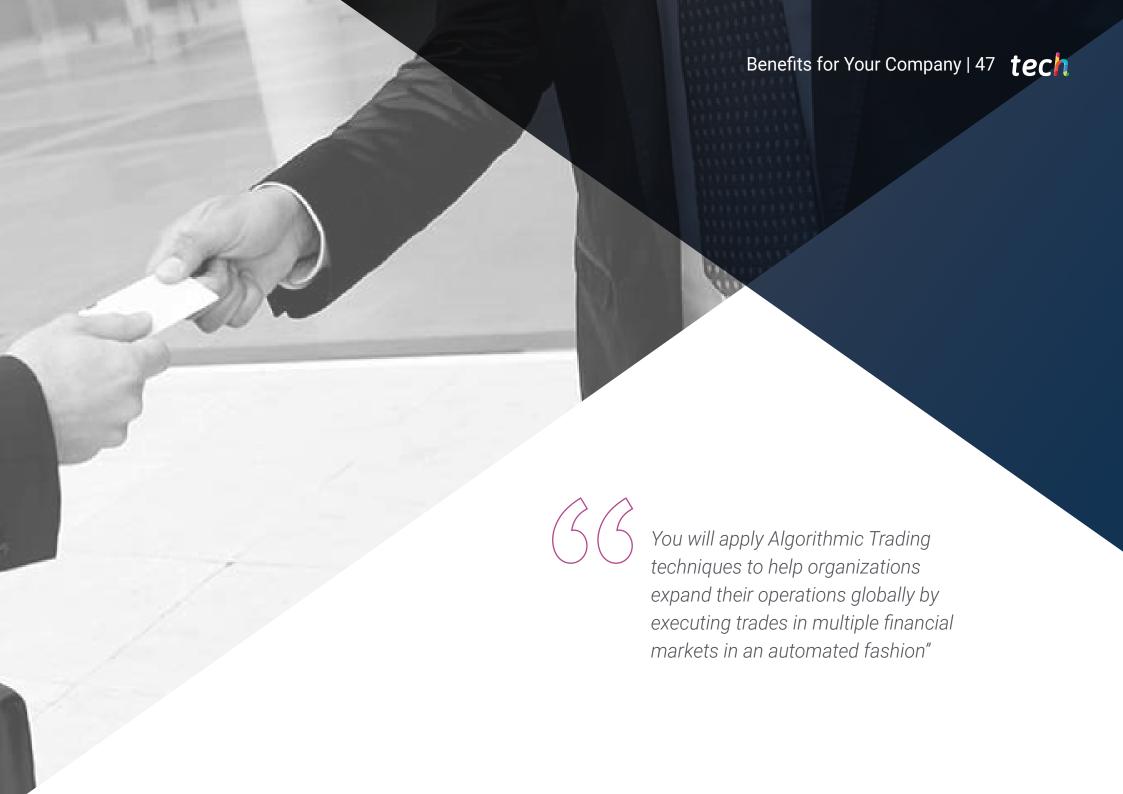
This program represents a salary increase of more than 26.24% for our students

\$52,000

A salary increase **26.24%**

\$65,644





tech 48 | Benefits for Your Company

Developing and retaining talent in companies is the best long-term investment.



Growth of talent and intellectual capital

The professional will introduce the company to new concepts, strategies, and perspectives that can bring about significant changes in the organization.



Retaining high-potential executives to avoid talent drain

This program strengthens the link between the company and the professional and opens new avenues for professional growth within the company.



Building agents of change

You will be able to make decisions in times of uncertainty and crisis, helping the organization overcome obstacles.



Increased international expansion possibilities

Thanks to this program, the company will come into contact with the main markets in the world economy.





Project Development

The professional can work on a real project or develop new projects in the field of R & D or business development of your company.



Increased competitiveness

This program will equip students with the skills to take on new challenges and drive the organization forward.





tech 52 | Certificate

This private qualification will allow you to obtain a **Postgraduate Certificate in Algorithmic Trading Strategies** 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 Certificate in Algorithmic Trading Strategies

Modality: online

Duration: 6 weeks

Accreditation: 6 ECTS



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

Postgraduate Certificate in Algorithmic Trading Strategies

This is a private qualification of 180 hours of duration equivalent to 6 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 Ia Vella, on the 28th of February of 2024



^{*}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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