Postgraduate Certificate
Programming for Data Analysis

tech global university

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Postgraduate Certificate
Programming for
Data Analysis

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Global University**
- » Credits: **6 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**
- » Target Group: **Computer engineers who wish to reorient their work towards the world of business intelligence, or established professionals in the field of BI who need to update, deepen and improve their skills and knowledge.**

Website: **www.techtitute.com/us/school-of-business/postgraduate-certificate/programming-data-analysis**

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01
Welcome

The objective of this Postgraduate Certificate in Programming for Data Analysis is to analyze how, starting from a set of raw data, data can be transformed by evaluating their characteristics and distribution, so as to add value to them and remove noise from the dataset. In addition, it analyzes modeling techniques that allow conclusions to be drawn from the *datasets*, as well as evaluating the results obtained with predictions and metrics and extrapolating these techniques to other data analysis problems. Through the use of programming languages, various essential tasks in data analytics are addressed and the student will be equipped with the ability to summarize the information with statistics and graphs that summarize the conclusion of the analysis. Finally, the program compiles the most advanced tools for data analytics, especially useful for dealing with a problem by making use of the most appropriate tool in each case.

Postgraduate Certificate in Programming for Data Analysis.
TECH Global University

" Acquire the tools you need to develop high-level skills in summarizing information with statistics and graphs that accurately capture the conclusion of your data analysis"

Why Study at TECH?

TECH is the world's largest 100% online business school. It is an elite business school, with a model based on the highest academic standards. A world-class centre for intensive managerial skills training.

tech

"
TECH is a university at the forefront of technology, and puts all its resources at the student's disposal to help them achieve entrepreneurial success"

At TECH Global University

Innovation

The university offers an online learning model that combines 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.

100,000+ executives trained each year

200+ 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.

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 (a postgraduate learning methodology with the highest international rating) with the Case Study. A complex balance between tradition and state-of-the-art, within the context of the most demanding academic 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.
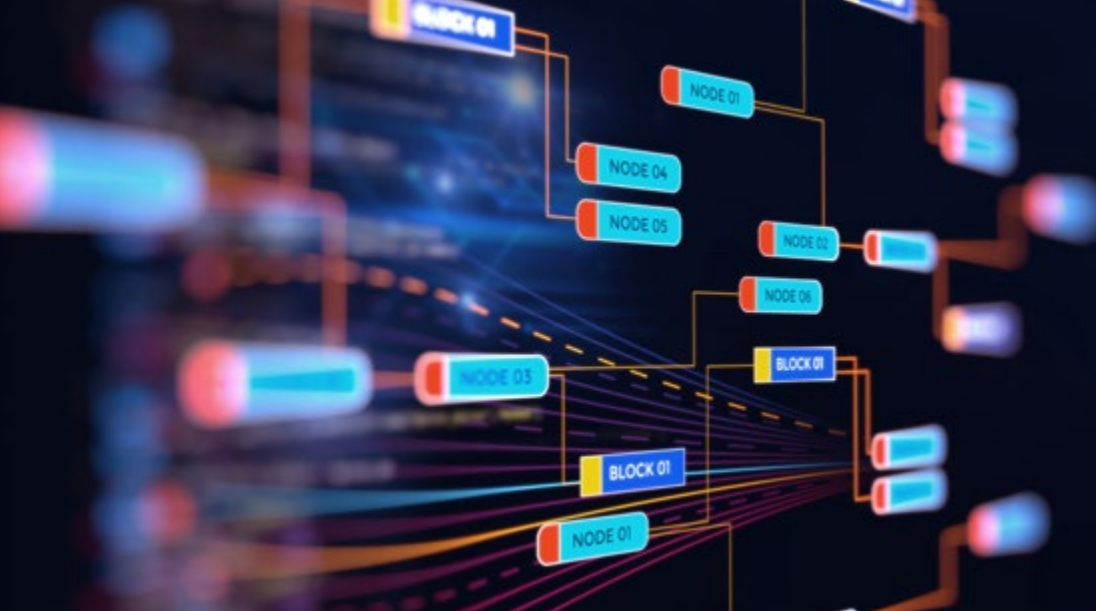
Learn with the best

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 studies in the academic community"

03
Why Our Program?

Studying this TECH program means increasing the chances of achieving professional success in senior business management.

It is a challenge that demands effort and dedication, but it opens the door to a promising future. Students will learn from the best teaching staff and with the most flexible and innovative educational methodology.

We have highly qualified teachers and the most complete syllabus on the market, which allows us to offer you training of the highest academic level"

This program will provide students with a multitude of professional and personal advantages, particularly the following:

01

A significant career boost

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 participants achieve positive career development in less than 2 years.

02

Develop a strategic and global vision of companies

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

Our global vision of companies will improve your strategic vision.

03

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.

04

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.

05 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.

06 Thoroughly develop business projects

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

20% of our students develop their own business idea.

07 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.

08 Be part of an exclusive community

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

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

04
Objectives

This program is designed to strengthen students' skills in data analysis through programming, as well as to develop new skills that will be essential for their professional development and success in this field. After completing the program, the professional will be able to develop successful data analysis in any company, oriented with a global approach and digital thinking, from an innovative perspective and with a unique business vision focused on business results.

"

In this Postgraduate Certificate you will learn how to develop a successful end-to-end process to obtain conclusions from the exploitation of information"

TECH makes the objectives of its students its own.
Working together to achieve them.

The **Postgraduate Certificate in Programming for Data Analysis** enables students to:

01   Examine data quality and define processes that include added value

02   Analyze a problem analytically, extracting quantitative and qualitative results

03 Present the information in a synthesized form, with graphs and statistics

04 Develop an end-to-end process to draw conclusions from the exploitation of the information

05
Structure and Content

The content of the Postgraduate Certificate in Programming for Data Analysis is an exceptional program that challenges the professional by directing their attention to success in this competitive environment based on the possibilities offered by the tools of programming in the data environment. It is a program that has been structured in such a way that the student not only acquires all the knowledge and skills they need, but also presents a unique and stimulating experience that will take them to the top of their professional capacity, becoming a key figure in any company today.

You will learn to identify patterns and techniques appropriate to known problems in data analysis"

Syllabus

The Postgraduate Certificate in Programming for Data Analysis at TECH Global University is an intensive program that prepares students to face challenges and strategic decisions in the corporate environment with the programming tools. Therefore, the content of the program is designed to make use of the possible applications of Business Intelligence (BI) in companies.

Throughout 180 hours of preparation, the student analyzes a multitude of practical cases through individual work and teamwork. It is, therefore, an authentic immersion in real business situations.

In this way, this Postgraduate Certificate deals in depth with the concept of Business Intelligence to implement it in business management so that it brings positive results to the company, from a disruptive, complete and up-to-date perspective, focused on solving the real needs of the business world. It is designed to train professionals who understand Business Intelligence with a strategic, international and innovative approach.

A syllabus fully designed for the student, focused on their professional improvement, preparing them to achieve excellence. A program that understands both the needs of the student and the company, through innovative content based on the latest trends, supported by the best educational methodology and an exceptional faculty.

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

| Module 1 | Programming for Data Analysis |

Where, when and how is it taught?

TECH offers its students the possibility of taking this program completely online. Throughout the six week of training, they will be able to access all the program contents at any time, allowing them to self-manage their own study time.

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

Module 1. Programming for Data Analysis

1.1. Programming for Data Analysis
1.1.1. Language for Data Analysis
1.1.2. Evolution and Characteristics of the Main Tools
1.1.3. Installation and Configuration

1.2. Types of Data
1.2.1. Basic Types
1.2.2. Complex Types
1.2.3. Other Structures

1.3. Structures and Operations
1.3.1. Data Operations
1.3.2. Control Structures
1.3.3. File Operations

1.4. Data Extraction and Analysis
1.4.1. Statistical Summaries
1.4.2. Univariate Analysis
1.4.3. Multivariate Analysis

1.5. Visualisation
1.5.1. Univariate Graphs
1.5.2. Multivariable Graphs
1.5.3. Other Charts of Interest

1.6. Pre-Processing
1.6.1. The Importance of Data Quality
1.6.2. Outlier Detection and Analysis
1.6.3. Other Dataset Quality Factors

1.7. Advanced Pre-Processing
1.7.1. Subsampling
1.7.2. Resampling
1.7.3. Dimensionality Reduction

1.8. Data Modeling
1.8.1. Modeling Phases
1.8.2. Division of the Data Set
1.8.3. Metrics for Prediction

1.9. Advanced Data Modeling
1.9.1. Unsupervised Models
1.9.2. Supervised Models
1.9.3. Libraries for Modeling

1.10. Tools and Good Practices
1.10.1. Best Practices for Modeling
1.10.2. The Tools of a Data Analyst
1.10.3. Conclusion and Bookstores of Interest

You will be an expert in designing the possible applications of Business Intelligence (BI) in the company"

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"

TECH Business School uses the 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"*

This program prepares you to face business challenges in uncertain environments and achieve business success.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch to present executives with challenges and business decisions at the highest level, whether at the national or international level. 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 business reality is taken into account.

" *You will learn, through collaborative activities and real cases, how to solve complex situations in real business environments"*

The case method has been the most widely used learning system among the world's leading business 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They must integrate all their knowledge, research, argue and defend their ideas and decisions.

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

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.

Our online system will allow you to organize your time and learning pace, adapting it to your schedule. You will be able to access the contents from any device with an internet connection.

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 online business school is the only one in the world licensed to incorporate 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. With this methodology we have 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, markets, and financial 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 specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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.

30%

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.

10%

Management Skills Exercises

They will carry out activities to develop specific executive competencies in each thematic area. Practices and dynamics to acquire and develop the skills and abilities that a high-level manager needs to develop in the context of the globalization we live in.

8%

3%

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.

30%

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 senior management 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".

15%

4%

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.

Our Students' Profiles

The Postgraduate Certificate in Programming for Data Analysis is aimed at computer engineers who wish to reorient their work towards the world of business intelligence, or established professionals in the field of AI who need to update, deepen and improve their skills and knowledge in programming.

On the other hand, the diversity of participants with different academic profiles and from multiple nationalities makes up the multidisciplinary approach of this program, with global involvement.

In addition, professionals with a degree in any area and two years of work experience in the field of BI, data analysis or business may also study the Postgraduate Certificate.
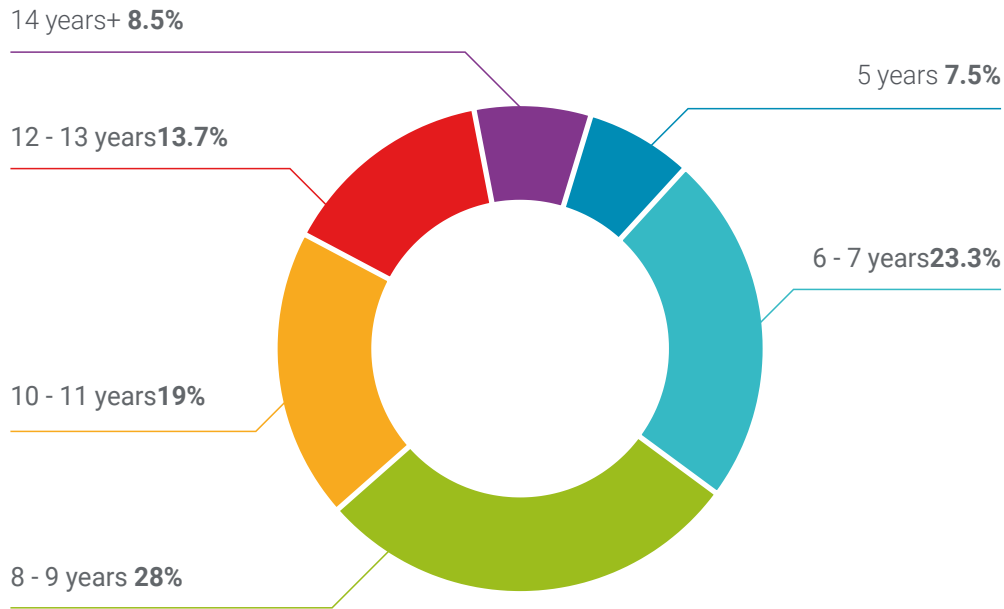
Develop your skills through the TECH method and achieve the best combination of techniques to maximize the quality of the results"
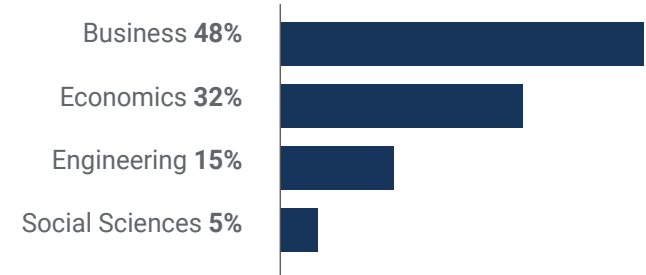
Average Age

Between **35** and **45** years old

Years of Experience

14 years+ **8.5%**

12 - 13 years **13.7%**

10 - 11 years **19%**

8 - 9 years **28%**

5 years **7.5%**

6 - 7 years **23.3%**

Training

Business **48%**

Economics **32%**

Engineering **15%**

Social Sciences **5%**

Academic Profile

Operations **20%**

Sales and Marketing **17%**

Finance **15%**

General Management **13%**

Project Management **13%**

Consulting **12 %**

Planning and Accounting **7%**
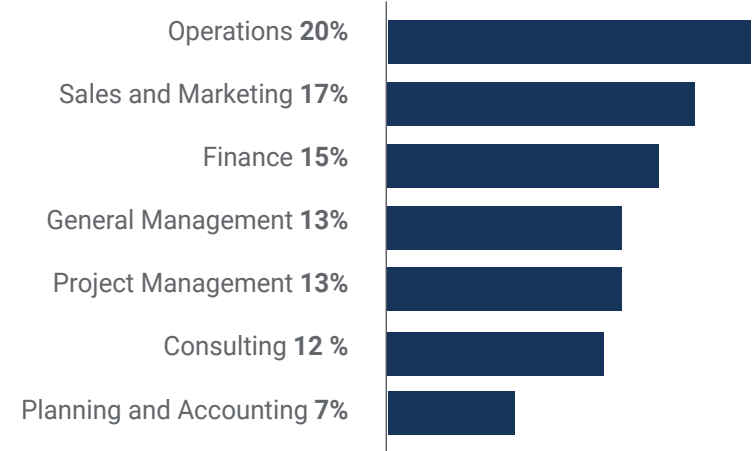
Geographical Distribution

Country	%
USA	**3%**
Spain	**46%**
Brazil	**4%**
Mexico	**15%**
Colombia	**8%**
Chile	**4%**
Argentina	**7%**
Peru	**7%**
Ecuador	**7%**
Dominican Republic	**3%**
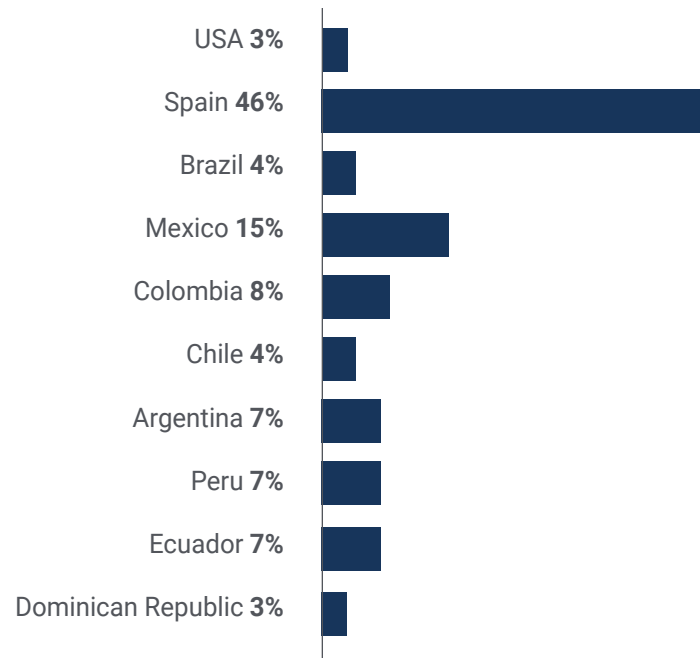
Primitivo Suárez

CEO

"I needed to master certain programming tools to make a more comprehensive data analysis, in addition to updating my knowledge in this field that does not stop evolving by leaps and bounds. This Postgraduate Certificate has more than achieved this, I am very happy with the results and I recommend it"

Course Management

This Postgraduate Certificate in Programming for Data Analysis has a select group of experts with multiple years of experience. Therefore, together, they have created a program that will enhance the students' skills in a practical and educational way.

It is the best time to learn! The program has an excellent faculty"

International Guest Director

Mick Gram is synonymous with innovation and excellence in the field of Business Intelligence internationally. His successful career is linked to leadership positions in multinationals such as Walmart and Red Bull. Likewise, this expert stands out for his vision to identify emerging technologies that, in the long term, achieve an everlasting impact in the corporate environment.

On the other hand, the executive is considered a pioneer in the use of data visualization techniques that simplified complex sets, making them accessible and facilitating decision making. This ability became the pillar of his professional profile, transforming him into a desired asset for many organizations that bet on gathering information and generating concrete actions from them.

One of his most outstanding projects in recent years has been the Walmart Data Cafe platform, the largest of its kind in the world that is anchored in the cloud aimed at Big Data analysis. In addition, he has held the position of Director of Business Intelligence at Red Bull, covering areas such as Sales, Distribution, Marketing and Supply Chain Operations. His team was recently recognized for its constant innovation regarding the use of Walmart Luminate's new API for Shopper and Channel insights.

In terms of education, the executive has several Master's degrees and postgraduate studies at prestigious centers such as the University of Berkeley, in the United States, and the University of Copenhagen, in Denmark. Through this continuous updating, the Postgraduate Diploma has achieved cutting-edge competencies. Thus, he has come to be considered a born leader of the new global economy, centered on the impulse of data and its infinite possibilities.

Mr. Gram, Mick

- Business Intelligence Solutions Architect for Walmart Data Café
- Independent Business Intelligence and Data Science Consultant
- Business Intelligence Director at Capgemini
- Chief Analyst at Nordea
- Chief Business Intelligence Consultant for SAS
- Executive Education in AI and Machine Learning at UC Berkeley College of Engineering
- Executive MBA in e-commerce at the University of Copenhagen
- Bachelor's Degree and Professional Master's Degree in Mathematics and Statistics at the University of Copenhagen

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

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO en Corporate Technologies in Corporate Technologies
- CTO in AI Shephers GmbH
- Doctorate in Psychology from the University of CastillaLa
- PhD in Economics, Business and Finance from the Camilo José Cela University. Outstanding Award in her PhD
- PhD in Psychology, University of CastillaLa Mancha
- Master's Degree in Advanced Information Technologies from the University of Castilla la Mancha
- Master MBA+E (Master's Degree in Business Administration and Organisational Engineering) from the University of Castilla la Mancha
- Associate lecturer, teaching undergraduate and master's degrees in Computer Engineering at the University of Castilla la Mancha
- Professor of the Master in Big Data and Data Science at the International University of Valencia
- Lecturer of the Master's Degree in Industry 4.0 and the Master's Degree in Industrial Design and Product Development
- Member of the SMILe Research Group of the University of Castilla la Mancha

Professors

Dr. Pedrajas Parabás, Elena
- Business Analyst in Management Solutions
- Collaborator with the Department of Numerical Analysis at the University of Cordoba Professional Experience
- Researcher in the Department of Computer Science and Numerical Analysis at the University of Cordoba
- Researcher at the Singular Center for Research in Intelligent Technologies in Santiago de Compostela
- Degree in Computer Engineering Master's Degree in Data Science and Computer Engineering Teaching Experience

09
Impact on Your Career

TECH is aware that studying a program like this entails great economic, professional and, of course, personal investment. The ultimate goal of this major effort should be to grow professionally, to be one step ahead. TECH is committed to helping students achieve this objective through the design of competitive programs with the best experts in the sector.

By presenting the synthesized information, visually summarizing the characteristics of the data and its distribution you will see clearly where the company should focus"

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

TECH's Postgraduate Certificate in Data Visualization is an intensive program that prepares students to face challenges and business decisions in a competitive environment full of strategies, metadata and the latest advances in technology to boost the management of a company through Business Intelligence and Artificial Intelligence.

Therefore, its purpose is to promote the personal and professional growth of the student so that they may prosper in this field of work.

Demonstrate your ability to extract valuable information in order to exploit it wisely and responsibly.

Enter the world of Programming for Data Analysis with this amazing program that TECH has created for you.

When the change occurs

During the program	During the first year	After 2 years
11%	**63%**	**26%**
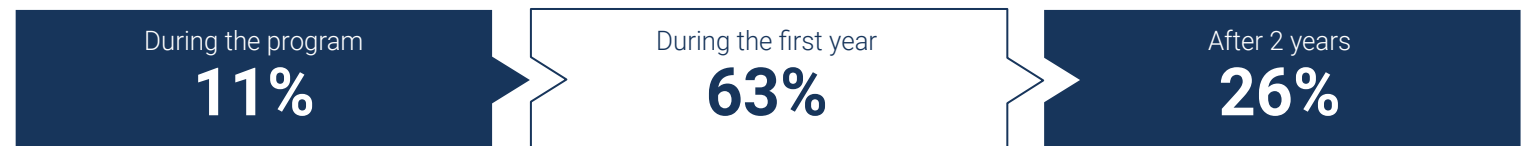
Type of change

Internal Promotion **46%**

Change of Company **44%**

Entrepreneurship **10%**

Salary increase

This program represents a salary increase of more than **25%** for our students.

Salary before	A salary increase of	Salary after
$59,800	**25.26%**	**$74,905**

10

Benefits for Your Company

The Postgraduate Certificate in Programming for Data Analysis contributes to elevate the organization's talent to its maximum potential by training high-level leaders. Studying this Postgraduate Certificate is, therefore, a unique opportunity to access a powerful network of contacts in which to find future professional partners, customers or suppliers thanks to the possibilities offered by BI and the benefits of programming applied to data analysis.

"
Increase the competitiveness of your employees by offering them qualifications like this and you will see results that benefit everyone"

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

01

Intellectual Capital and Talent Growth

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

02

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.

03

Building agents of change

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

04

Increased international expansion possibilities

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

05

Project Development

The professional can work on a real project or develop new projects in the BI or Data field.

06

Increased competitiveness

This Postgraduate Certificate will equip your professionals with the skills to take on new challenges and thus drive the organization forward.

11

Certificate

The Postgraduate Certificate in Programming for Data Analysis guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Postgraduate Certificate in Programming for Data Analysis** 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.
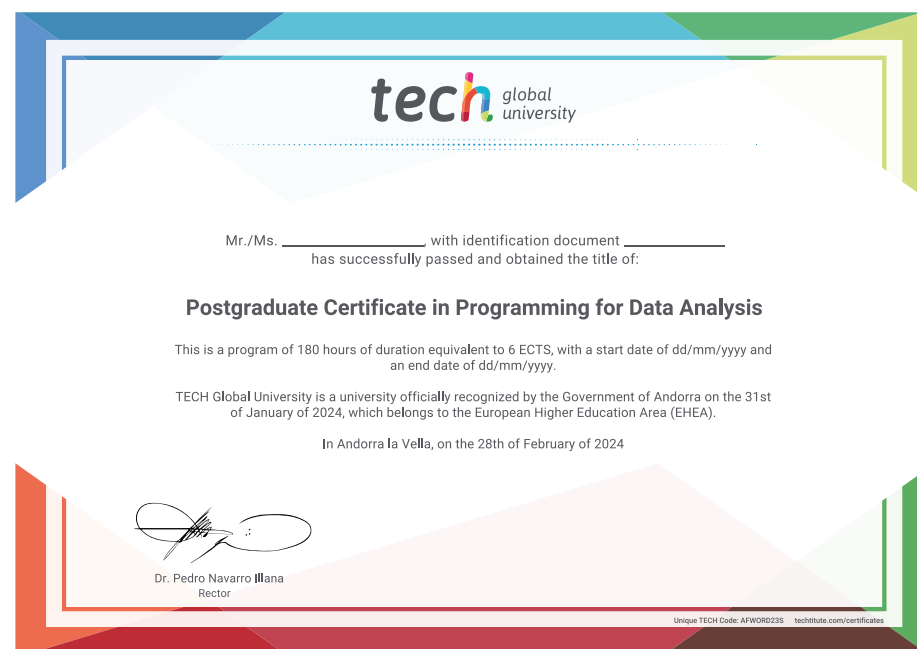
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Programming for Data Analysis**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

tech global university

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

Postgraduate Certificate in Programming for Data Analysis

This is a program 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 la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

Unique TECH Code: AFWORD23S   techtitute.com/certificates

*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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