Postgraduate Certificate
Data Analytics Through Programming Languages

tech technological university

Postgraduate Certificate
Data Analytics Through Programming Languages

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/in/school-of-business/postgraduate-certificate/data-analytics-through-programming-languages**

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01
Welcome

With the diversity of information that exists today, both for companies and consumers. Data being a source of incalculable business value and, generating the need for techniques and tools that allow their analysis in order to take advantage of each of them. It is essential to use more automated and practical tools. With this program the professional is expected to master the tasks of exploration, visualization, transformation and analysis of data using Python and R programming languages, focusing on the libraries available to carry out each of them. In addition, a comparison of both languages will be made so that students will be able to tackle a problem using the most appropriate tool in each case. Through a dynamic design of the syllabus by experts, which will allow an agile learning process and with the convenience of connecting from any device with internet by using the online methodology.

Postgraduate Certificate in Data Analytics through Programming Languages.
TECH Technological University

Specialize in the most advanced programming languages such as Python and R, for the application of business intelligence processes and data analysis in just 6 weeks"

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 center for intensive managerial skills education.

"

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 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 executives prepared 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* methodology (the most internationally recognized postgraduate learning methodology) with Harvard Business School case studies. A complex balance of traditional and state-of-the-art methods, within the most demanding academic framework.

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"

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 education of the highest academic level"

tech

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

01

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.

02

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.

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

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.

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 fields 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 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.

04
Objectives

In order to guarantee that the student reaches the professional level they desire, TECH has created this Postgraduate Certificate in Data Analytics Using Programming Languages. Where the professional will face various essential tasks in data analytics, finally being able to summarize the information with statistics and graphs that collect the essential data generated after analysis. It is also intended that this program serves as a technical basis to provide students with the ability to design a flow of information extraction from a set of data that adds value to the achievement of objectives.

This program will allow you to understand data analytics from a technical and specialized perspective to provide solutions"

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

This **Postgraduate Certificate in Data Analytics through Programming Languages** enables students to:

01 Identify the most appropriate tool to solve each type of problem

02 Analyze and examine data using appropriate libraries to extract relevant information

03 Evaluate the results obtained using quantitative and qualitative information

04 Generate graphs to present information in a summarized, visual and attractive way

05 Demonstrate basic skills in using Python and R as tools for data analysis

06 Identify the strengths and weaknesses of the languages in order to adapt their use accordingly

07 Evaluate the necessary libraries and identify existing modules maximizing the reuse of available resources
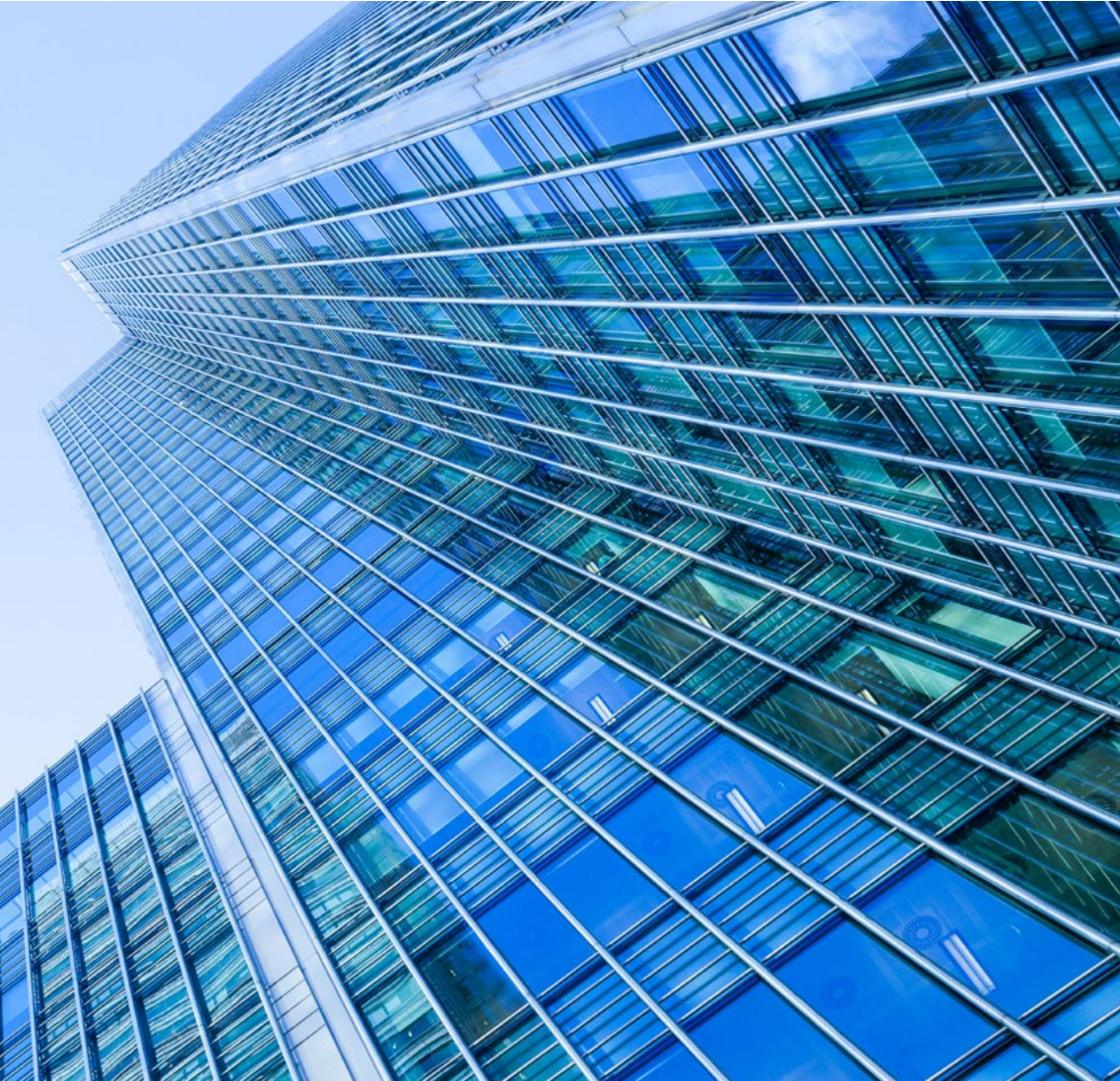
08 Define the strategy to address a problem by adding value to data

09 Justify the use of techniques and methods using qualitative and quantitative analysis

10 Develop the ability to establish and propose combinations of preprocessing methods that improve data quality

11 Adequately present the information, using the power of languages to synthesize the conclusions of the analysis in an explanatory way

12 Evaluate, in broad terms, some of the most widely used technological solutions in use today

05
Structure and Content

The Postgraduate Certificate in Data Analytics through Programming Languages perfectly covers all the needs and professional requirements demanded by the sector. Always thinking about the development of its students, TECH has created this program with the help of an excellent group of experts who will show, in a practical and dynamic way, that students will be able to perform the tasks of exploration, visualization, transformation and analysis of data using Python and R programming languages, focusing on the libraries available to carry out each of them.

"

Learn in a secure and 100% online environment, the most used Programming Languages in Data Analytics"

Syllabus

The current reality of organizations and the constant scientific and technological advances make it necessary to manage data in a conscientious manner in companies. To analyze large amounts of data is not easy when you do not have the specialized tools and personnel to handle them properly.

This program seeks precisely to provide the professional with the qualities needed to analyze data using programming languages appropriate to each requirement. And it is up to the good professional to go into the details to adjust to the reality of their company or project.

This syllabus has been designed by experts in the area of business analysis, business and finance, which provides specific and quality content for its correct learning by the professional. Who wants to be equipped with the technical knowledge to provide agile solutions in their work environment.

The Postgraduate Certificate in Data Analytics through Programming Languages addresses all the theoretical and practical content in a dynamic way. Through various formats distributed in the virtual campus, 100% online. With the support of the teaching team through meeting rooms, forums and private chat.

In only 150 hours or 6 weeks, the aim is to provide students with the ability to design an information extraction flow from a set of data that provides added value. In addition to making a comparison of different languages so that students are able to tackle a problem using the most appropriate tool in each case.

This Postgraduate Certificate takes place over 6 weeks and it consists of 1 module:

Module 1   Data Analytics Through Programming Languages

Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Certificate in Data Analytics through Programming Languages completely online. During the 6 weeks that the specialization program lasts, the student will be able to access all the contents of this program at any time, which will allow them to manage their own study time.

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

Module 1. Data Analytics Through Programming Languages

1.1. Python and R
1.1.1. History and characteristics of languages
1.1.2. Python Setup
1.1.3. Installation of R
1.1.4. Other Tools

1.2. Types of Data in Python
1.2.1. Basic Types
1.2.2. Complex Types
1.2.3. Data Operations
1.2.4. Control Structures
1.2.5. File Operations

1.3. Types of Data in R
1.3.1. Basic Types
1.3.2. Complex Types
1.3.3. Data Operations
1.3.4. Control Structures
1.3.5. File Operations

1.4. Information extraction and visualization with Python
1.4.1. Main statistical summaries
1.4.2. Univariate Analysis
1.4.3. Multivariate Analysis

1.5. Information extraction and visualization with R
1.5.1. Main statistical summaries
1.5.2. Univariate Analysis
1.5.3. Multivariate Analysis

1.6. Preprocessing in Python
1.6.1. Outlier detection and analysis
1.6.2. Subsampling and resampling
1.6.3. Dimensionality Reduction

1.7. Preprocessing in R
1.7.1. *Outlier* detection and analysis
1.7.2. Subsampling and resampling
1.7.3. Dimensionality Reduction

1.8. Modeling in Python
1.8.1. Division of the Data Set
1.8.2. Basic modeling and main libraries
1.8.3. Prediction and evaluation of metrics

1.9. Modeling in R
1.9.1. Division into data sets
1.9.2. Basic modeling and main libraries
1.9.3. Prediction and evaluation of metrics

1.10. Language comparison
1.10.1. Strengths and Weaknesses
1.10.2. Good Practices
1.10.3. Conclusion and Bookstores of Interest

Data is the fuel of commerce. The current situation indicates that you have to know how to analyze it"

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.

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.

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.

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%

10%

8%

3%

30%

15%

4%

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".

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

This Postgraduate Certificate in Data Analytics Through Programming Languages is intended for those professionals specialized in the field of technology, IT or business marketing who wish to take their career to the next level. It is also for those who wish to take a different path and offer the service in an autonomous way. Whatever the model to take, education is the key to someone who wants to grow and meet short, medium and long term goals.
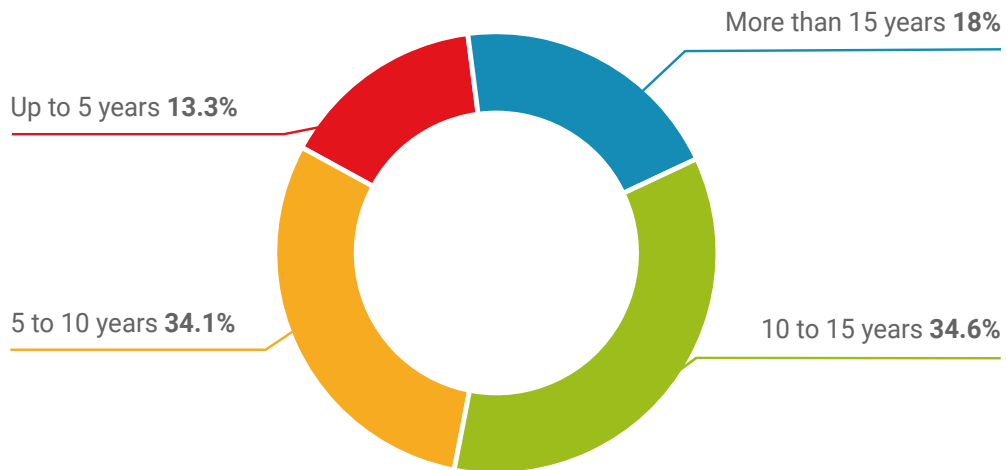
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"

Learn how to master the tools for data analysis like an expert. Enroll now and move towards the goal"
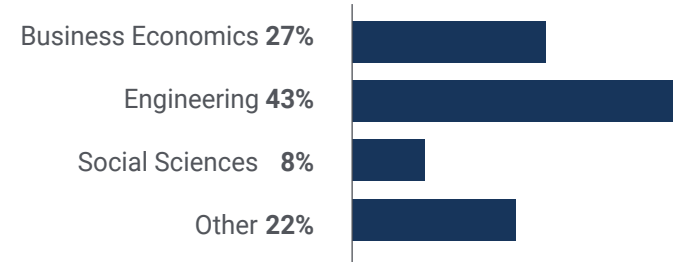
Average Age

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

Years of Experience

More than 15 years **18%**

Up to 5 years **13.3%**

5 to 10 years **34.1%**

10 to 15 years **34.6%**

Training

Business Economics **27%**

Engineering **43%**

Social Sciences **8%**

Other **22%**

Educational Profile

Industry **40%**

Services **20%**

Entrepreneurs **26%**

Other **14%**
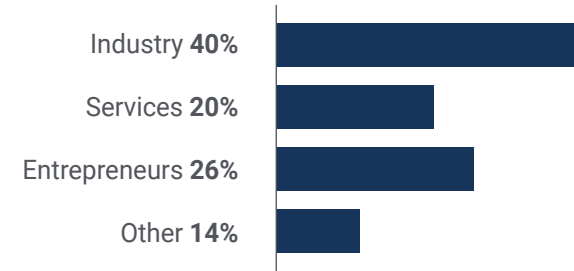
Geographical Distribution

USA **16%**

Spain **43%**

Mexico **32%**

Colombia **9%**
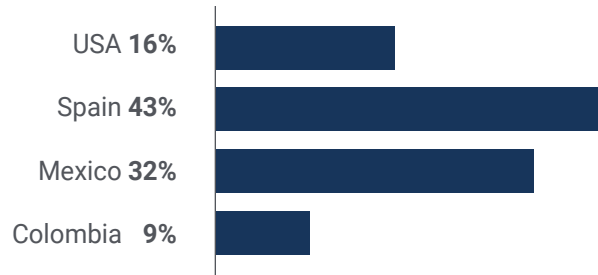
Javier Pérez Hernández

Big Data Analyst

"I decided to enter this program, because as a Data Analyst I needed to seek further growth and updating. I needed to improve my work situation and aspire to a better position within the company or open myself to other opportunities. When I saw the syllabus and the methodology applied by TECH, I did not think twice and I enrolled. Today I have been recognized by my company by giving them a 7% effectiveness in their processes in the last quarter. It is satisfying to be able to contribute and be recognized"

Course Management

The teaching team of this Postgraduate Certificate is composed of working professionals who know perfectly all the techniques in Data Analytics through Programming Languages to be implemented in the business environment. They will offer students the opportunity to learn how to summarize the information with statistics and graphs that gather the essential information generated after the analysis. Therefore, at the end of this program the student will be in the best position to offer his services as an expert.

To be a competitive professional in your environment you must train with the best. TECH teaches you with the most expert teachers"

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
- 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

Ms. Pedrajas Perabá, María Elena

- ◆ Business Analyst in Management Solutions in Madrid
- ◆ 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

"

This syllabus has been designed to meet the current needs of the professional market, so you are in front of the program that will make you progress in the short term"

Impact on Your Career

In the business and economic environment, discovering trends and behaviors are relevant aspects for decision making within organizational processes. That is why, by mastering Data Analytics through Programming Languages and all the dynamics of the environment, the graduate will have the profile of the professional that any company requires. This will allow them to offer better results and the ability to be more competitive.

Transform your career with the most up-to-date content in Data Analytics Through Programming Languages. A 100% online training dedicated to the forward-thinking professional"

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

The Postgraduate Certificate in Data Analytics Through Programming Language by TECH is an intensive program that prepares you to face challenges and make decisions in the field of data analytics. The main objective is to promote your personal and professional growth. Helping you achieve success.

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

Start now in the educational program that will elevate you to a better professional level.

Get that project off the ground and increase your profits. Exploit your potential in data analysis with this Postgraduate Certificate.

Time of Change

During the program	During the first year	After 2 years
14%	**59%**	**27%**

Type of Change

Internal Promotion **49.5%**

Change of Company **43.8%**

Entrepreneurship **6.7%**
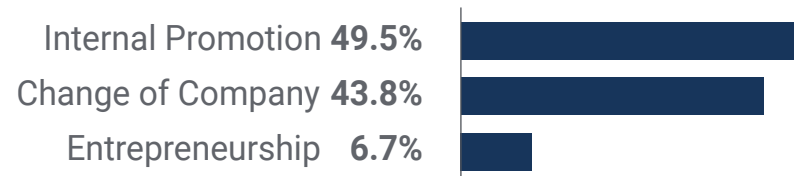
Salary Increase

This program represents a salary increase of more than **21.45%** for our students.

Salary before	A salary increase of	Salary after
$52,380	**21.45%**	**$63,615**

10

Benefits for Your Company

Every company or business nowadays needs to handle different volumes of data. Therefore, it is essential to run their processes, to have automated systems that speed up the obtaining of results. This Postgraduate Certificate in Data Analytics through Programming Languages, provides the professional with the technical knowledge required in any process of information extraction and visualization, for its complete modeling and preprocessing. In this way, the company obtains better trained professionals and more efficient results in the expected time frame.

" *Education for more specialized professionals in more productive companies*"

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

01

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.

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.

tech

05

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.

06

Increased competitiveness

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

11

Certificate

The Postgraduate Certificate in Data Analytics through Programming Languages guarantees, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"
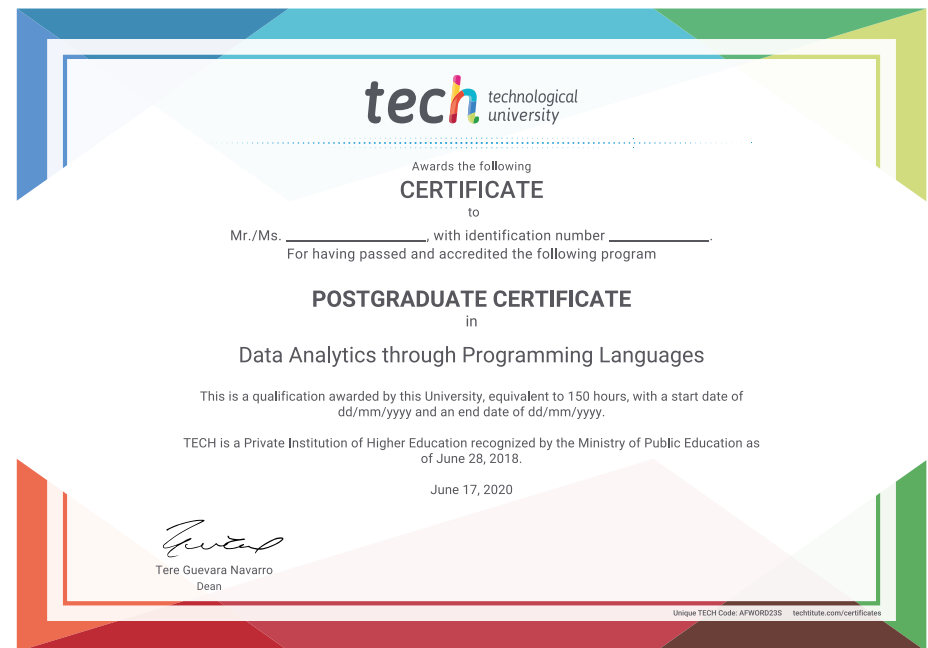
This **Postgraduate Certificate in Data Analytics through Programming Languages** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Certificate in Data Analytics through Programming Languages**

Official Nº of Hours: **150 h.**

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Awards the following

CERTIFICATE
to

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

POSTGRADUATE CERTIFICATE
in

Data Analytics through Programming Languages

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

June 17, 2020

Tere Guevara Navarro
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

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

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