

# Postgraduate Diploma Business Data Analysis





## Postgraduate Diploma Business Data Analysis

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

Website: [www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-business-data-analysis](http://www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-business-data-analysis)

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# 01 Introduction

Companies are currently in a race to adapt to digital transformation. The most successful are those that carry out quality information processing and data management while making the best use of it. In this sense, it is important for computer engineers to develop a set of skills that will allow them to achieve this change. The program focused on Business Data Analysis will thus provide future graduates with the appropriate tools to propose business and loyalty plans based on market research, as well as to analyze the different software tools for graphing and exploratory data analysis.





“

Analyze the benefits of using data analytic techniques in every company department”

The purpose of this program is to train computer engineers in the analyses performed in each company department so they can identify the most important needs and applications in each case. In this way, specialized knowledge will be acquired in order to choose an appropriate methodology. This is crucial if we take into account the enormous amount of data generated in companies on a daily basis.

In view of the above, it is essential to have professionals who are familiar with current problems and can study viable solutions. There are different techniques and software tools thanks to which data can be analyzed and interpreted in a much more efficient way. With these tools, companies, analysts and scientists can understand and interpret data correctly.

Each module contained in this Postgraduate Diploma will review the fundamental aspects that computer engineers interested in this field need to know, which will allow them to develop the theoretical bases to produce the most appropriate graphical representations when using data science techniques. It also analyzes models that present greater versatility and adaptation for the analysis of time series, such as the models associated to economic series.

Furthermore, it is a 100% online Postgraduate Diploma that provides students with comfortable study and ease, wherever and whenever they want it. All you need is a device with Internet access to take your career one step further. A modality in accord with the current times and all the guarantees to position engineers in a highly demanded field.

This **Postgraduate Diploma in Business Data Analysis** contains the most complete and up to date academic program in the university landscape. The most important features of the program include:

- ◆ Practical case studies are presented by experts in engineering in data analysis
- ◆ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where the self assessment process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Gain specialized knowledge to perform predictive analytics and become a top level engineer”*

“

*Make this program the perfect opportunity to develop the formulation and basic properties in univariate time series models”*

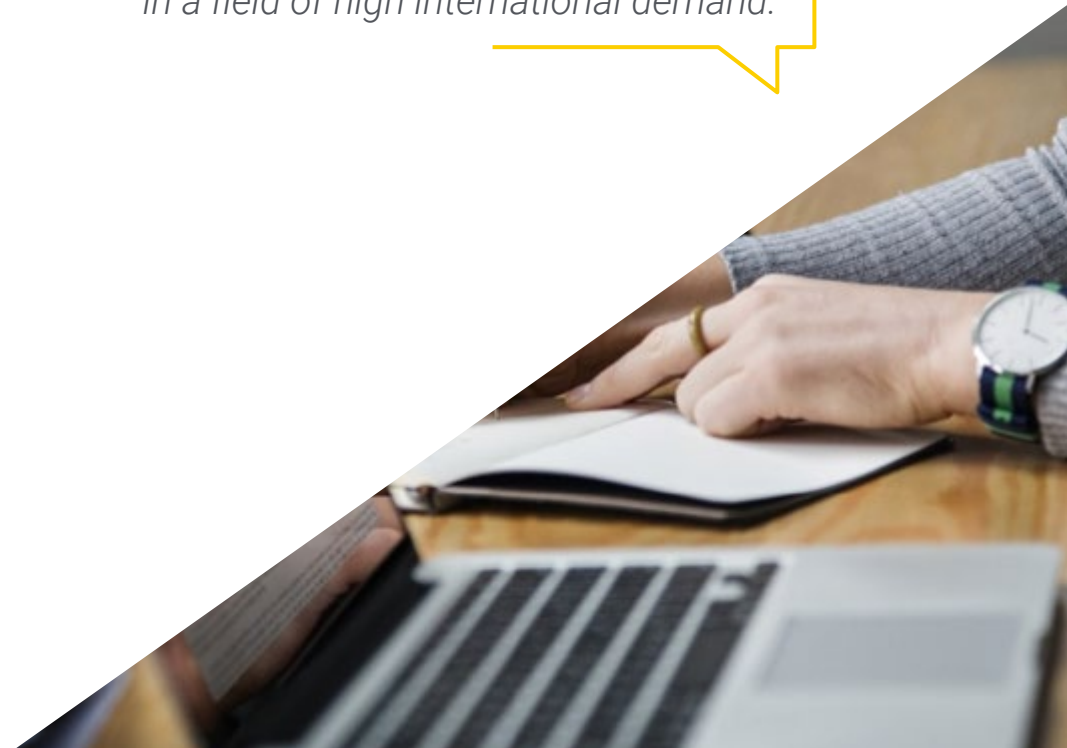
The program’s teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

The design of this program focuses on Problem Based Learning, which means the student must try to solve the different real life situations of that arise throughout the academic program. For this purpose, the student will be assisted by an innovative, interactive video system created by renowned and experienced experts.

*Determine the creation of dashboards and KPI's depending on the department with a program that will boost your career.*

*Gain specialized knowledge in data representation and analytics and stand out in a field of high international demand.*



# 02 Objectives

Data science needs professionals trained in the fundamental aspects found in the field. Therefore, a series of general and specific objectives have been established to guide student learning at all times. Fulfilling them will ensure computer engineers develop their maximum potential to make quality decisions, examining every advantage and disadvantage for the organization.







“

*Be part of a program that will train  
you to become an elite professional”*



## General Objectives

- ◆ Analyze the benefits of applying data analytic techniques in every company department
- ◆ Develop the basis for understanding the needs and applications of each department
- ◆ Generate specialized knowledge to select the right tool
- ◆ Propose techniques and objectives in order to be as productive as possible according to the department



*Broaden your professional horizons and analyze the different software tools for graphing and exploratory data analysis”*





## Specific Objectives

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### Module 1. Data Analysis in a Business Organization

- ◆ Develop analytical skills in order to make quality decisions
- ◆ Examine effective marketing and communication campaigns
- ◆ Determine how to create scorecards and KPIs according to the department
- ◆ Generate specialized knowledge to develop predictive analytics
- ◆ Propose business and loyalty plans based on market research
- ◆ Develop the ability to listen to the customer
- ◆ Apply statistical, quantitative and technical knowledge in real situations

### Module 2. Graphical Representation of Data Analysis

- ◆ Generate specialized knowledge in data analysis and representation
- ◆ Examine the different types of grouped data
- ◆ Establish the most used graphic representations in different fields
- ◆ Determine the design principles in data visualization
- ◆ Introduce graphic narrative as a tool
- ◆ Analyze the different software tools for graphing and exploratory data analysis

### Module 3. Predictability and Analysis of Stochastic Phenomena

- ◆ Analyze time series
- ◆ Develop the formulation and basic properties of univariate time series models
- ◆ Examine the methodology of modeling and prediction of real time series
- ◆ Assess univariate models including outliers
- ◆ Apply dynamic regression models and apply the methodology for the construction of such models from observed series
- ◆ Address the spectral analysis of univariate time series, as well as the fundamentals related to periodogram-based inference and interpretation
- ◆ Estimate the probability and trend in time series for a given time horizon

03

# Course Management

TECH has assembled an excellent teaching staff to ensure a quality education that meets computer engineers' expectations. Thus, the teaching staff that makes up the program has multiple years of experience and professional training. That is why students interested in this field can be sure to receive current and specific knowledge of this booming international field.





“

*It competes at an international level thanks to the academic support of an excellent teaching staff”*

## Management



### Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometheus Global Solutions
- CTO at Korporate 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

### Ms. Martínez Cerrato, Yésica

- ◆ Electronic Security Product Technician at Securitas Security Spain
- ◆ Business Intelligence Analyst at Ricopia Technologies (Alcalá de Henares) Degree in Electronic Communications Engineering at the Polytechnic School, University of Alcalá
- ◆ Responsible for training new recruits on commercial management software (CRM, ERP, INTRANET), product and procedures in Ricopia Technologies (Alcalá de Henares)
- ◆ Responsible for training new scholarship holders incorporated to the Computer Classrooms at the University of Alcalá
- ◆ Project Manager in the area of Key Accounts Integration at Correos and Telégrafos (Madrid)
- ◆ Computer Technician-Responsible for computer classrooms OTEC, University of Alcalá (Alcalá de Henares)
- ◆ Computer instructor at ASALUMA Association, Alcalá de Henares
- ◆ Training scholarship as a Computer Technician at OTEC, University of Alcalá, Alcalá de Henares

### Ms. Fernández Meléndez, Galina

- ◆ Data Analyst in ADN Mobile Solution
- ◆ ETL processes, data mining, data analysis and visualization, establishment of KPI's, Dashboard design and implementation, management control R development, SQL management, among others
- ◆ Pattern determination, predictive modeling, machine learning Bachelor's Degree in Business Administration Bicentenario de Aragua-Caracas University
- ◆ Diploma in Planning and Public Finance Venezuelan School of Planning, School of Finance
- ◆ Professional Master's Degree in Data Analysis and Business Intelligence. University of Oviedo
- ◆ MBA in Business Administration and Management (Escuela De Negocios Europea De Barcelona)
- ◆ Master in Big Data and Business Intelligence (Escuela de Negocios Europea de Barcelona)

# 04

# Structure and Content

The syllabus for this Postgraduate Diploma has been designed following the requirements and recommendations of the faculty, so each module offers a broad and detailed view of the spectral analysis of univariate time series, as well as the fundamental aspects related to the inference based on the periodogram and its interpretation. It also stands out in developing students' analytical skills, which will enable them to make coherent decisions in a competitive work environment.





	Global Equities	Global Bond	MSCI EM
Jan-08	4.3	2.5	3.5
Jan-01	2.4	4.4	1.8
Jan-04	2	2	3



“

*Estimate the probability and trend of a time series for a set time horizon and become a differentiating agent in your company”*

## Module 1. Data Analysis in a Business Organization

- 1.1. Business Analysis
  - 1.1.1. Business Analysis
  - 1.1.2. Data Structure
  - 1.1.3. Phases and Elements
- 1.2. Data Analysis in the Business
  - 1.2.1. Departmental Scorecards and KPIs
  - 1.2.2. Operational, Tactical and Strategic Reports
  - 1.2.3. Data Analytics Applied to Each Department
    - 1.2.3.1. Marketing and Communication
    - 1.2.3.2. Commercial
    - 1.2.3.3. Customer Service
    - 1.2.3.4. Purchasing
    - 1.2.3.5. Administration
    - 1.2.3.6. Human Resources (HR)
    - 1.2.3.7. Production
    - 1.2.3.8. IT
- 1.3. Marketing and Communication
  - 1.3.1. KPIs to be Measured, Applications and Benefits
  - 1.3.2. Marketing Systems and *Data Warehouse*
  - 1.3.3. Implementation of a Data Analytics Framework in Marketing
  - 1.3.4. Marketing and Communication Plan
  - 1.3.5. Strategies, Prediction and Campaign Management
- 1.4. Commerce and Sales
  - 1.4.1. Contributions of Data Analytics in the Commercial Area
  - 1.4.2. Sales Department Needs
  - 1.4.3. Market Research
- 1.5. Customer Service
  - 1.5.1. Loyalty
  - 1.5.2. Personal Coaching and Emotional Intelligence
  - 1.5.3. Customer Satisfaction
- 1.6. Purchasing
  - 1.6.1. Data Analysis for Market Research
  - 1.6.2. Data Analysis for Competency Research
  - 1.6.3. Other Applications
- 1.7. Administration
  - 1.7.1. Needs of the Administration Department
  - 1.7.2. Data Warehouse and Financial Risk Analysis
  - 1.7.3. Data Warehouse and Credit Risk Analysis
- 1.8. Human resources.
  - 1.8.1. HR and the Benefits of Data Analysis
  - 1.8.2. Data Analytics Tools in the HR Department
  - 1.8.3. Data Analytics Applications in the HR Department
- 1.9. Production
  - 1.9.1. Data Analysis in a Production Department
  - 1.9.2. Applications
  - 1.9.3. Benefits
- 1.10. IT
  - 1.10.1. IT Department
  - 1.10.2. Data Analysis and Digital Transformation
  - 1.10.3. Innovation and Productivity



## Module 2. Graphical Representation of Data Analysis

- 2.1. Exploratory Analysis
  - 2.1.1. Representation for Information Analysis
  - 2.1.2. The Value of Graphical Representation
  - 2.1.3. New Paradigms of Graphical Representation
- 2.2. Optimization for Data Science
  - 2.2.1. Color Range and Design
  - 2.2.2. Gestalt in Graphic Representation
  - 2.2.3. Errors to Avoid and Advice
- 2.3. Basic Data Sources
  - 2.3.1. For Quality Representation
  - 2.3.2. For Quantity Representation
  - 2.3.3. For Time Representation
- 2.4. Complex Data Sources
  - 2.4.1. Files, Lists and Databases
  - 2.4.2. Open Data
  - 2.4.3. Continuous Data Generation
- 2.5. Types of Graphs
  - 2.5.1. Basic Representations
  - 2.5.2. Block Representation
  - 2.5.3. Representation for Dispersion Analysis
  - 2.5.4. Circular Representations
  - 2.5.5. Bubble Representations
  - 2.5.6. Geographical Representations
- 2.6. Types of Visualization
  - 2.6.1. Comparative and Relational
  - 2.6.2. Distribution
  - 2.6.3. Hierarchical

- 2.7. Report Design with Graphic Representation
  - 2.7.1. Application of Graphs in Marketing Reports
  - 2.7.2. Using Graphs in Scorecards and KPIs
  - 2.7.3. Application of Graphs in Strategic Plans
  - 2.7.4. Other Uses: Science, Health, Business
- 2.8. Graphic Narration
  - 2.8.1. Graphic Narration
  - 2.8.2. Evolution
  - 2.8.3. Uses
- 2.9. Tools Oriented Towards Visualization
  - 2.9.1. Advanced Tools
  - 2.9.2. Online Software
  - 2.9.3. *Open Source*
- 2.10. New Technologies in Data Visualization
  - 2.10.1. Systems for Virtualization of Reality
  - 2.10.2. Reality Enhancement and Improvement Systems
  - 2.10.3. Intelligent Systems

### Module 3. Predictability and Analysis of Stochastic Phenomena

- 3.1. Time Series
  - 3.1.1. Time Series
  - 3.1.2. Utility and Applicability
  - 3.1.3. Related Case Studies
- 3.2. Time Series
  - 3.2.1. Seasonal Trend of ST
  - 3.2.2. Typical Variations
  - 3.2.3. Waste Analysis
- 3.3. Typology
  - 3.3.1. Stationary
  - 3.3.2. Non-Stationary
  - 3.3.3. Transformations and Settings

- 3.4. Time Series Schemes
  - 3.4.1. Additive Scheme (Model)
  - 3.4.2. Multiplicative Scheme (Model)
  - 3.4.3. Procedures to Determine the Type of Model
- 3.5. Basic *Forecast Methods*
  - 3.5.1. Media
  - 3.5.2. Naïve
  - 3.5.3. Seasonal Naïve
  - 3.5.4. Method Comparison
- 3.6. Waste Analysis
  - 3.6.1. Autocorrelation
  - 3.6.2. ACF of Waste
  - 3.6.3. Correlation Test
- 3.7. Regression in the Context of Time Series
  - 3.7.1. ANOVA
  - 3.7.2. Fundamentals
  - 3.7.3. Practical Applications
- 3.8. Predictive Methods of Time Series
  - 3.8.1. ARIMA
  - 3.8.2. Exponential Smoothing
- 3.9. Manipulation and Analysis of Time Series with R
  - 3.9.1. Data Preparation
  - 3.9.2. Identification of Patterns
  - 3.9.3. Model Analysis
  - 3.9.4. Prediction
- 3.10. Combined Graphical Analysis with R
  - 3.10.1. Normal Situations
  - 3.10.2. Practical Application for the Resolution of Simple Problems
  - 3.10.3. Practical Application for the Resolution of Advanced Problems



# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





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

## Case Study to contextualize all content

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

“

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



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





### A learning method that is different and innovative

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

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

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

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

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

## Relearning Methodology

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

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

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

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

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



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

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

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



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



#### Study Material

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

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



#### Classes

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

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



#### Practising Skills and Abilities

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



#### Additional Reading

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





#### Case Studies

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



#### Interactive Summaries

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

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



#### Testing & Retesting

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



06

# Certificate

The Postgraduate Diploma in Business Data Analysis guarantees students, in addition to the most rigorous and up to date education, access to a Postgraduate Diploma 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 Diploma in Business Data Analysis** 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

**Title: Postgraduate Diploma in Business Data Analysis**

**Official N° of hours: 450 h.**



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



health future  
confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
online training  
development language  
classroom



## Postgraduate Diploma Business Data Analysis

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

# Postgraduate Diploma Business Data Analysis

