Postgraduate Certificate
Business Mathematics

tech *technological university*

Postgraduate Certificate
Business Mathematics

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**
- » Target Group: **University graduates and professionals in the field of Business Sciences who would like to further their studies in this field.**

Website: **www.techtitute.com/in/school-of-business/postgraduate-certificate/business-mathematics**

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01
Welcome

Business mathematics, understood as the science that studies mathematical knowledge applied to the field of economics and business, is on the rise, and companies are increasingly demanding professionals trained in this area. The information provided by these operations is ideal for extracting, analyzing and processing data to contribute to optimal decision-making at the core of business today. That is why TECH experts have designed this complete program that aims to provide professionals with the skills required to correctly keep an organization's books.

Postgraduate Certificate in Business Mathematics.
TECH Technological University

" *TECH puts in your hand the most complete compendium of contents in the field with a single purpose: To train you to make a sound use of business mathematics"*

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 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 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"

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 Technological University community.

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

04
Objectives

The objectives for this program are based on meeting the educational needs of Business Science professionals in the field of business accounting in various sectors and at various scales. In this sense, a complete and optimal program has been realistically established to lead students to academic excellence and encourage them to efficiently advance in their professional careers. For all these reasons, this specialization will be a journey of personal and professional growth for our students that will lead them to the highest quality in expert intervention in business calculations.

"

International experience, ethical commitment, and business acumen are some of the most sought-after characteristics in executives in the digital age"

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

The **Postgraduate Certificate in Business Mathematics** qualifies students to:

01 Achieve a global and general vision of the function of business mathematics and its implication in companies

02 Know the basic elements that make up business mathematics: linear and matrix algebra, matrices, matrix transposition, calculus, matrix inversion, systems of equations, etc.

03 Understand the different techniques and mathematical methods used within the financial framework of a company

04 Apply mathematical techniques and methods to the financial framework of the company

Structure and Content

The syllabus for this Postgraduate Certificate has been designed and created by a team of experts in the field to respond specifically to the needs of Business Science professionals. This compendium of content has also been designed with a focus on applied learning, which will allow professionals to successfully intervene by means of a broad vision of real environments in the profession. Thus, this syllabus will become our students' main asset to successfully insert themselves into a labor market that increasingly demands more specialized professionals in business mathematics.

The most complete syllabus on the market with a single purpose: To prepare the best business administrators"

Syllabus

Business Mathematics, understood as the process involved in identifying, extracting and adequately processing the continuous and dispersed data produced in an organization's environment, is an extremely important part of business management, as it helps to analyze and predict the future of the company and the decisions that must be taken to ensure its success with a higher rate of accuracy.

For this reason, TECH professionals have designed this complete Postgraduate Certificate that aims to provide business professionals with the methodologies and procedures that govern the operation of business mathematics, such as algebra, matrices, integrals, and others. This will empower our students to analyze various issues that directly concern business operations.

Throughout the training, students will analyze a multitude of practical cases through individual practice and teamwork that will facilitate an in-depth understanding of the function of business mathematics. This complete immersion in real situations will provide our students with a more complete and effective vision of this area and will help them understand how these operations will become the main professional asset when analyzing and predicting the status of an organization with a higher rate of success.

Further, the content included in this Postgraduate Certificate in Business Mathematics is designed to develop skills that enable more rigorous decision-making in uncertain environments. This will enable professionals to make use of various fruitful and success-oriented mathematical operations.

This Postgraduate Certificate is takes place over six weeks and is divided into a single module:

| Module 1 | Business Mathematics |

Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Certificate in Business Mathematics completely online. Over the course of 6 weeks, you will be able to access all the contents of this program at any time, allowing you to self-manage your study time.

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

Module 1. Business Mathematics

1.1. Basic Elements of Linear and Matrix Algebra
1.1.1. The Vector Space of IRn, Functions and Variables
1.1.2. Graphical Representation of Sets in R
1.1.3. Basic Concepts of Functions of Several Real Variables. Operations with Functions
1.1.4. Function Types
1.1.5. Weierstrass Theorem
1.1.6. Optimization with Inequality Constraints
1.1.7. Two-Variable Graphical Method
1.1.8. Function Types
1.1.9. Separate Variables
1.1.10. Polynomial Variables
1.1.11. Rational Variables
1.1.12. Quadratic Forms

1.2. Matrices: Types, Concepts and Operations
1.2.1. Basic Definitions
1.2.2. Matrix of Order m by n
1.2.3. Square Matrices
1.2.4. Identity Matrix
1.2.5. Matrix Operations
1.2.6. Matrix Addition
1.2.7. Scalar Multiplication
1.2.8. Matrix Multiplication

1.3. Transpose
1.3.1. Diagonalizable Matrix
1.3.2. Transpose Properties
1.3.3. Involution

1.4. Determinants: Calculation and Definition
1.4.1. The Concept of Determinants
1.4.2. Determinant Definition
1.4.3. Square Matrix of Order 2.3 and Greater Than 3
1.4.4. Triangular Matrices
1.4.5. Determinant of Triangular Matrices
1.4.6. Determinant of Non-Triangular Square Matrices
1.4.7. Properties of Determinants
1.4.8. Simplifying Calculations
1.4.9. Calculation in any Case

1.5. Invertible Matrices
1.5.1. Properties of Invertible Matrices
1.5.2. The Concept of Inversion
1.5.3. Definitions and Basic Concepts
1.5.4. Invertible Matrix Calculation
1.5.5. Methods and Calculation
1.5.6. Exceptions and Examples
1.5.7. Expression Matrices and Matrix Equations
1.5.8. Expression Matrices
1.5.9. Matrix Equations

1.6. Solving Systems of Equations
1.6.1. Linear Equations
1.6.2. Discussion of the System. Rouché–Capelli Theorem
1.6.3. Cramer's Rule: Solving the System
1.6.4. Homogeneous Systems
1.6.5. Vector Spaces
1.6.6. Properties of Vector Spaces
1.6.7. Linear Combination of Vectors
1.6.8. Linear Dependence and Independence
1.6.9. Coordinate Vectors
1.6.10. The Basis Theorem

1.7. Quadratic Forms
1.7.1. Concept and Definition of Quadratic Forms
1.7.2. Quadratic Matrices
1.7.3. Law of Inertia for Quadratic Forms
1.7.4. Study of the Sign by Eigenvalues
1.7.5. Study of the Sign by Minors

1.8. Functions of One Variable
1.8.1. Analysis of the Behavior of a Magnitude
1.8.2. Local Analysis
1.8.3. Continuity
1.8.4. Restricted Continuity

1.9. Limits of Functions, Domain and Image in Real Functions
1.9.1. Functions of Several Variables
1.9.2. Vector of Several Variables
1.9.3. The Domain of a Function
1.9.4. Concept and Applications
1.9.5. Function Limits
1.9.6. Limits of a Function at a Point
1.9.7. Lateral Limits of a Function
1.9.8. Limits of Rational Functions
1.9.9. Indeterminacy
1.9.10. Indeterminacy in Functions with Roots
1.9.11. Indetermination 0/0
1.9.12. The Domain and Image of a Function
1.9.13. Concept and Characteristics
1.9.14. Domain and Image Calculation

1.10. Derivatives: Behavior Analysis

1.10.1. Derivatives of a Function at a Point
1.10.2. Concept and Characteristics
1.10.3. Geometric Interpretation
1.10.4. Differentiation Rules
1.10.5. Derivative of a Constant
1.10.6. Derivative of a Sum or Differentiation
1.10.7. Derivative of a Product
1.10.8. Derivative of an Opposite Function
1.10.9. Derivative of a Compound Function

1.11. Application of Derivatives to Study Functions

1.11.1. Properties of Differentiable Functions
1.11.2. Maximum Theorem
1.11.3. Minimum Theorem
1.11.4. Rolle's Theorem
1.11.5. Mean Value Theorem
1.11.6. L'Hôpital's Rule
1.11.7. Valuation of Economic Quantities
1.11.8. Differentiable Functions

1.12. Function Optimization for Several Variables

1.12.1. Function Optimization
1.12.2. Optimization with Equality Constraint
1.12.3. Critical Points
1.12.4. Relative Extremes
1.12.5. Convex and Concave Functions
1.12.6. Properties of Convex and Concave Functions
1.12.7. Inflection Points
1.12.8. Growth and Decay

1.13. Antiderivatives

1.13.1. Antiderivatives
1.13.2. Basic Concepts
1.13.3. Calculation Methods
1.13.4. Immediate Integrals
1.13.5. Properties of Immediate Integrals
1.13.6. Integration Methods
1.13.7. Rational Integrals

1.14. Definite Integrals

1.14.1. Barrow's Fundamental Theorem
1.14.2. Definition of the Theorem
1.14.3. Calculation Basis
1.14.4. Applications of the Theorem
1.14.5. Curve Cutoff in Definite Integrals
1.14.6. Concept of Curve Cutoff
1.14.7. Calculation Basis and Operations Study
1.14.8. Applications of Curve Cutoff Calculation
1.14.9. Mean Value Theorem
1.14.10. Concept and Closed Interval Theorem
1.14.11. Calculation Basis and Operations Study
1.14.12. Applications of the Theorem

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

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.*

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

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.

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 Business Mathematics is a program aimed at Business and Marketing professionals who want to update their knowledge in the area of mathematical operations management applied to business, and advance their professional career towards a promising future in the field. The compendium of knowledge they will acquire after completing this comprehensive program will enable them to practice in the field with guarantees of success and to position themselves as experts in digital entrepreneurship.
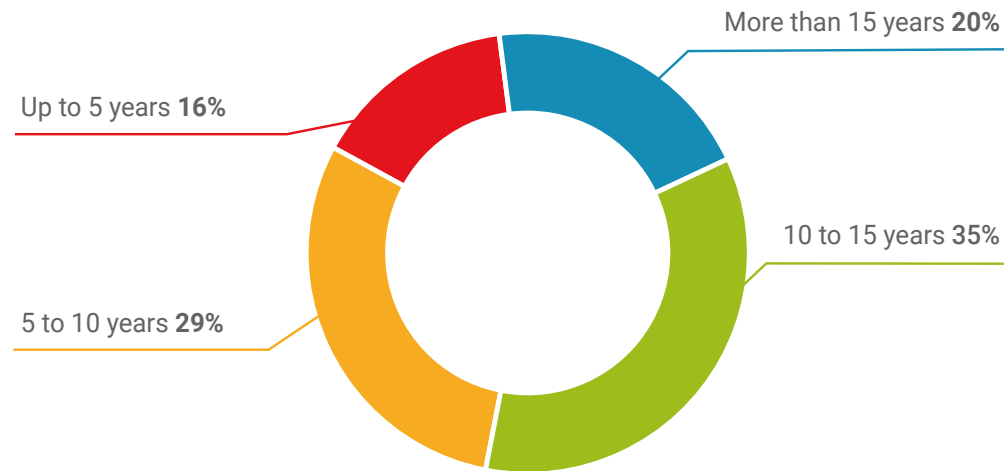
"

If you want to achieve an interesting career boost while continuing to work, then this is the program for you"

Average Age

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

Years of Experience

More than 15 years **20%**

Up to 5 years **16%**

10 to 15 years **35%**

5 to 10 years **29%**

Training

Business **32%**	
Economics **15%**	
Marketing **25%**	
Social Sciences **6%**	
Other **22%**	

Academic Profile

Trade **23%**	
Communication **28%**	
Consulting **25%**	
Engineering **10%**	
Other **14%**	
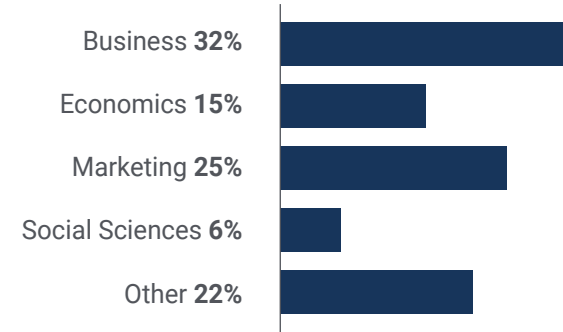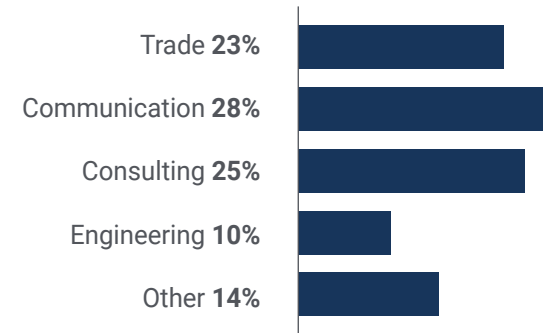
Geographical Distribution

USA **11%**

Spain **42%**

Mexico **19%**

Colombia **6%**

Argentina **10%**

Chile **3%**

Peru **2%**

Other **7%**
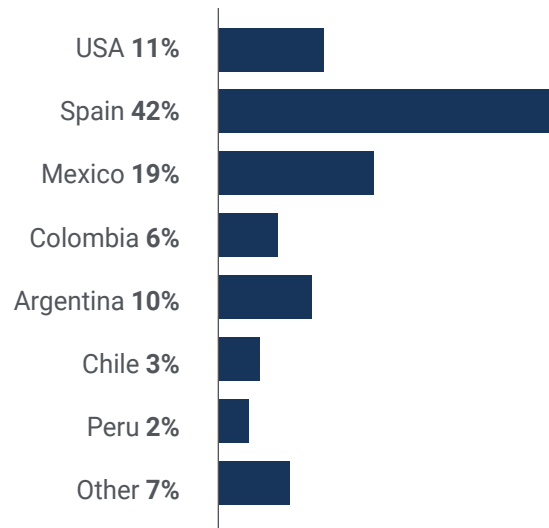
Juan Luis Santos

Marketing Manager

"This program allowed me to start working in a recently created digital start-up company, quite successfully too. Beyond that, it gave me a lot of confidence in my work when it comes to defining strategies and making decisions. Without a doubt, the experience at TECH has been totally rewarding, which is why I would study at this university again"

08
Impact on Your Career

TECH is aware that taking a program of these characteristics is a great economic, professional and of course, personal investment.

The ultimate goal of this great effort should be to achieve professional growth. For this reason, TECH puts all its efforts and tools at the disposal of students so they can acquire the skills and abilities required to achieve this change.

" *At TECH we are fully committed to helping you achieve the professional change you want"*

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

With this specialization you will be able to drastically advance your career, although there is no doubt that in order to do so, you will have to make an investment in different areas, such as economic, professional and personal.

However, the goal is to improve in your professional life and to do so, it is necessary to fight.

Achieve the change you are looking for in your career by specializing at TECH.

Thanks to this programme you will receive a large number of job offers with which you will be able to start your professional growth.

When the change occurs

During the program	During the first year	After 2 years
14%	**55%**	**31%**

Type of change

Internal Promotion **40%**

Change of Company **35%**

Entrepreneurship **25%**
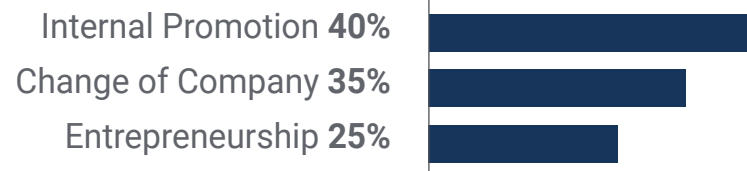
Salary increase

This program represents a salary increase of more than **25.22%** for our students

Salary before	A salary increase of	Salary after
$34,000	**25.22%**	**$42,575**

Benefits for Your Company

The Postgraduate Certificate in Business Mathematics contributes toward raising an organization's talent to its maximum potential by preparing high-level leaders. Therefore, participating in this academic program will not only improve you on a personal level, but above all, on a professional level, enhancing your knowledge and improving your managerial skills. Additionally, joining TECH's educational community is a unique opportunity to access a powerful network of contacts in which to find future professional partners, clients, or suppliers.

In today's digital age, you will bring to the company new concepts, strategies and perspectives that can bring about essential changes in the organization"

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

01

Intellectual Capital and Talent Growth

Bring new concepts, strategies and perspectives to the company that can bring about relevant changes in the organization.

02

Retaining high-potential executives to avoid talent drain

This program strengthens the link between the company and the executive 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 Organisation will come into contact with the main markets in the world economy.

05

Project Development

Students will be able to work on a real project or develop new projects.

06

Increased competitiveness

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

10
Certificate

The Postgraduate Certificate in Business Mathematics guarantees students, in addition to the most rigorous and up-to-date education, 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 Business Mathematics** 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 Business Mathematics**

Official N° of Hours: **150 h.**

tech technological university

Awards the following
CERTIFICATE
to

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

POSTGRADUATE CERTIFICATE
in

Business Mathematics

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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- » Exams: **online**

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