Postgraduate Certificate
Computing in Bioinformatics: Medical Process Digitalization and Automation

tech technological university

Postgraduate Certificate

Computing in Bioinformatics: Medical Process Digitalization and Automation

- » Modality: **online**
- » Duration: **6 weeks**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**
- » Target Group: **University Graduates, Graduates and Undergraduates who have previously completed any of the degrees in the fields of Social and Legal Sciences, Administrative and Business Sciences.**

Website: **www.techtitute.com/pk/school-of-business/postgraduate-certificate/computing-bioinformatics-medical-process-digitalization-automation**

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01

Welcome

The development of Bioinformatics has been in line with the evolution of technology, and can be exported to a variety of fields, among which Medicine stands out. Therefore, today it is possible to apply its techniques for research, development and application of computational tools in the management of biological data. This has made it possible to facilitate multiple tasks through automation, as well as to save time and costs in their implementation. It is also an area in expansion with great expectations for the future, which is why organizations are increasingly demanding professionals with expertise in this field. For this reason, TECH has developed this complete and multidisciplinary program with which the graduate will be able to know in detail the ins and outs of the Digitalization and Automation of Medical Processes, through a 100% online program. It is, therefore, a unique academic opportunity to make the leap and position themselves at the top of the business sector.

Postgraduate Certificate in Computing in Bioinformatics: Medical Process Digitalization and Automation TECH Technological University

If you enroll in this Postgraduate Certificate, you will take a decisive and important step towards your professional future. It will be the beginning of a path full of professional success in the Telemedicine sector"

02
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

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.

Learn with the best

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

Teachers representing 20 different nationalities.

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

TECH 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.

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 education of the highest academic level"

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

Given the high demand that currently exists for professionals who master the business area of Digitalization and Automation of Medical Processes, TECH has developed this Postgraduate Certificate with the objective that the graduate can specialize in this area. Thanks to the acquisition of a unique and exhaustive knowledge, you will be able to work on the improvement of your professional skills and aptitudes during the 150 hours in which the program is developed, becoming a confident leader and prepared to assume the management of any company.

Achieving your professional goals through the program of a great academic program is possible with TECH and this Postgraduate Certificate"

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

This **Postgraduate Certificate in Computing in Bioinformatics: Medical Process Digitalization and Automation** will enable the student to:

01   Determine the importance of medical databases

02   Delve into the most important techniques in research

03   Analyze the use of medical devices

04   Collect eHealth success stories and mistakes to avoid

05   Understand the concept of computing

06 Break down a computer system into its various parts

08 Master the most commonly used tools in the field

09 Determine future trends in computing

07 Distinguish between the concepts of computational biology and computation in bioinformatics

10 Analyze biomedical datasets using Big Data techniques

05
Structure and Content

For the development of all its programs, TECH employs, on the one hand, the most updated and austere information in the sector, and uses in its development the prestigious and effective *Relearning* methodology. Based on this, it is possible to offer complete, highly capacitating and beneficial programs for the professional growth of the graduate. In addition, its convenient 100% online format allows students to share the course of this academic experience with any other personal or professional activity.

> *Do you want to learn everything related to statistics for computing? Choose this Postgraduate Certificate and you will be able to delve into this activity in an austere and 100% online way"*

Syllabus

For the development of the curriculum of this Diploma in Bioinformatics Computing: Digitalization and Automation of Medical Processes, TECH has taken into consideration the criteria of the teaching team, which has worked to shape a dynamic and comprehensive agenda based on the latest developments in the area of Telemedicine.

It is a 150-hour course with the best theoretical, practical and additional content, which also includes a multitude of case studies. In this way, during the 6 weeks in which it is developed, the graduate will be able, besides getting up to date, to work on the improvement of their professional skills.

It is, therefore, a unique opportunity to become the manager that today's companies demand, through an austere and dynamic specialization thanks to which you will master all aspects related to database management for computer science, networks and search engines, information visualization, data mining or collaboration in online projects.

Module 1	Computing in Bioinformatics

Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Certificate in Computer in Bioinformatics: Medical Process Digitalization and Automation in a totally online way. During the 6 weeks of the specialization, the student will be able to access all the contents of this program at any time, which will allow the students to self-manage their study time.

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

Module 1. Computing in Bioinformatics

1.1. Central Tenet in Bioinformatics and Computing. Current State
1.1.1. The Ideal Application in Bioinformatics
1.1.2. Parallel Developments in Molecular Biology and Computing
1.1.3. Dogma in Biology and Information Theory
1.1.4. Information Flows

1.2. Databases for Bioinformatics Computing
1.2.1. Database
1.2.2. Data management
1.2.3. Data Life Cycle in Bioinformatics
  1.2.3.1. Use
  1.2.3.2. Modifications
  1.2.3.3. Archive
  1.2.3.4. Reuse
  1.2.3.5. Discarded
1.2.4. Database Technology in Bioinformatics
  1.2.4.1. Architecture
  1.2.4.2. Database Management
1.2.5. Interfaces for Bioinformatics Databases

1.3. Networks for Bioinformatics Computing
1.3.1. Communication Models. LAN, WAN, MAN and PAN Networks
1.3.2. Protocols and Data Transmission
1.3.3. Network Topologies
1.3.4. *Datacenter* Hardware for Computing
1.3.5. Security, Management and Implementation

1.4. Search Engines in Bioinformatics
1.4.1. Search Engines in Bioinformatics
1.4.2. Search Engine Processes and Technologies in Bioinformatics
1.4.3. Computational Models: Search and Approximation Algorithms

1.5. Data Display in Bioinformatics
1.5.1. Displaying Biological Sequences
1.5.2. Displaying Biological Structures
  1.5.2.1. Visualization Tools
  1.5.2.2. Rendering Tools
1.5.3. User Interface in Bioinformatics Applications
1.5.4. Information Architectures for Displays in Bioinformatics

1.6. Statistics for Computing
1.6.1. Statistical Concepts for Computing in Bioinformatics
1.6.2. Use Case: MARN Microarrays
1.6.3. Imperfect Data. Statistical Errors: Randomness, Approximation, Noise and Assumptions
1.6.4. Error Quantification: Precision and Sensitivity
1.6.5. Clustering and Classification

1.7. Data Mining
1.7.1. Mining and Data Computing Methods
1.7.2. Infrastructure for Data Mining and Computing
1.7.3. Pattern Discovery and Recognition
1.7.4. Machine Learning and New Tools

1.8. Genetic Pattern Matching
1.8.1. Genetic Pattern Matching
1.8.2. Computational Methods for Sequence Alignments
1.8.3. Pattern Matching Tools

1.9. Modelling and Simulation
1.9.1. Use in the Pharmaceutical Field: Drug Discovery
1.9.2. Protein Structure and Systems Biology
1.9.3. Available Tools and Future

1.10. Collaboration and Online Computing Projects
1.10.1. Grid Computing
1.10.2. Standards and Rules Uniformity, Consistency and Interoperability
1.10.3. Collaborative Computing Projects

"*A unique and highly empowering opportunity to learn in detail and in a multidisciplinary way, the methods of data mining and computation*"

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 Computing in Bioinformatics: Medical Process Digitalization and Automation is aimed at University Graduates who have previously completed any of the following degrees in the field of Social and Legal Sciences, Administration and Economics.

This program uses a multidisciplinary approach as the students have a diverse set of academic profiles and represent multiple nationalities.

The Postgraduate Certificate may also be taken by professionals who, being university graduates in any area, have two years of work experience in the field of bioinformatics in Telemedicine.
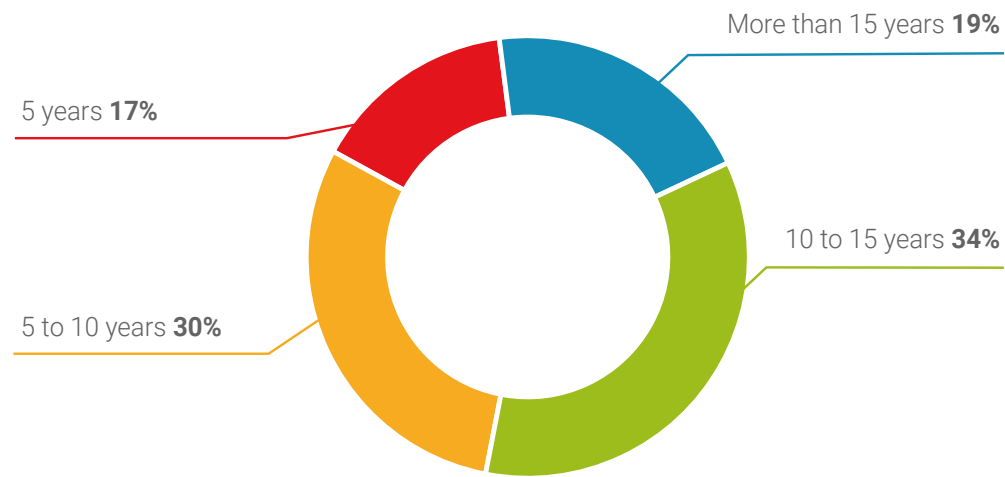
A qualification adapted to your needs and those of companies, thanks to which, in only 150 hours, you will boost your capacity for action through updated knowledge"

Average Age

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

Years of Experience

More than 15 years **19%**

5 years **17%**

10 to 15 years **34%**

5 to 10 years **30%**

Training

Business Economics **29%**

Engineering **40%**

Social Sciences **19%**

Other **12%**

Educational Profile

Industry **39%**

Services **22%**

Entrepreneurs **29%**

Other **10%**
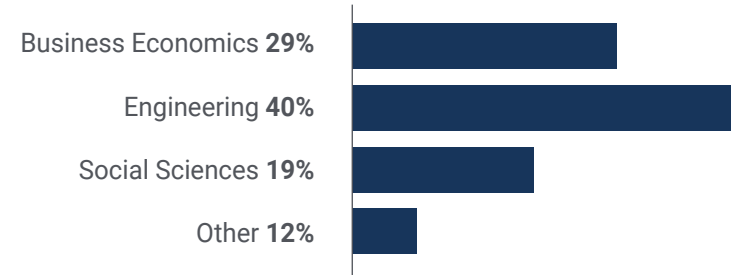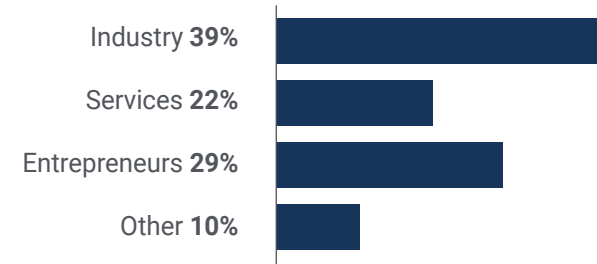
Geographical Distribution

USA **13%**

Spain **43%**

Mexico **27%**

Colombia **17%**
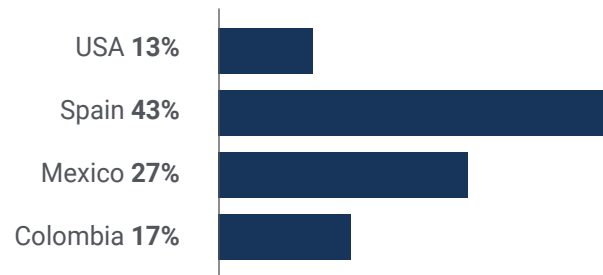
Teresa María González

CEO of a Telemedicine firm

So far, this Postgraduate Certificate has become the best academic experience I have had so far, not only in terms of the quality of the syllabus and the material included, but also in relation to the attention of the teaching team. I have been working in this sector for more than 30 years and, undoubtedly, I never thought that I could face with so much success a 100% online program"

08

Course Management

The teaching staff of this Postgraduate Certificate in Computing in Bioinformatics: Medical Process Digitalization and Automation is made up of professionals from different branches of the management of entities, with extensive experience in the sector and in teaching. Likewise, the faculty is committed to the students and to their professional improvement, and will be available to resolve any issues that may arise during the program.

One of TECH's ways of guaranteeing effective learning is through the use of real case studies, proposed by the teachers and taken from their own experience"

Management

Ms. Sirera Pérez, Ángela

- Biomedical Engineer expert in Nuclear Medicine and exoskeleton design
- Designer of specific parts for 3D printing at Technadi
- Technician in the Nuclear Medicine area of the University Clinic of Navarra
- Degree in Biomedical Engineering from the University of Navarra
- MBA and Leadership in Healthcare and Medical Technology Companies

Professors

Mr. Piró Cristobal, Miguel
- E-Health Support Manager at ERN Transplantchild
- Electromedical Technician. Electromedical Business Group GEE
- Data and Analysis Specialist - Data and Analysis Team. BABEL
- Biomedical Engineer at MEDIC LAB. UAM
- Director of External Affairs CEEIBIS
- Degree in Biomedical Engineering, Carlos III University of Madrid
- Master's Degree in Clinical Engineering Carlos III University of Madrid
- Master's Degree in Financial Technologies: Fintech Carlos III University of Madrid
- Training in Data Analysis in Biomedical Research. La Paz University Hospital

Impact on Your Career

The course of this program offered by TECH will provide the graduate with a series of comprehensive and unique knowledge, adapted to the latest developments in Bioinformatics, Digitalization and Automation of Medical Processes. In addition, you will be able to work on perfecting your leadership skills, shaping you as a manager prepared to take on any business project with confidence and guaranteed success.

"
Choosing this Postgraduate Certificate can only have a positive impact on your professional career: one more step towards success"

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

This Postgraduate Certificate in Computing in Bioinformatics: Medical Process Digitalization and Automation from TECH is an intensive program that prepares you to face challenges and business decisions in the field of Engineering and Telemedicine. The main objective is to promote your personal and professional growth. Helping you achieve success.

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

A program that will give you the keys to take on more complex tasks related to modeling and simulation in Bioinformatics and Digitization projects.

You will elevate the talent of the organization you are part of by acquiring a unique and unparalleled set of skills.

Time of Change

During the program	During the first year	After 2 years
18%	**60%**	**22%**

Type of change

Internal Promotion **38%**	
Change of Company **35%**	
Entrepreneurship **27%**	
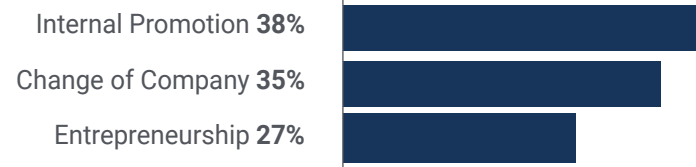
Salary increase

This program represents a salary increase of more than **28%** for our students.

Salary before	A salary increase of	Salary after
$55,500	**28%**	**$71,000**

10
Benefits for Your Company

This Postgraduate Certificate qualifies its graduates as qualified managers, a figure that can undoubtedly help the company they are part of to grow. Students who access this program will benefit from a series of deep and unique knowledge, based on the latest developments in the Telemedicine sector. In addition, these professionals will be able to take on more complex tasks, as well as face crisis or risk situations with guaranteed success.

"

This Postgraduate Certificate can be the best option to place your company at the level of the best in its sector. Are you going to let this opportunity pass you by?"

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.

03

Building agents of change

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

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.

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

This Postgraduate Certificate in Computing in Bioinformatics: Medical Process Digitalization and Automation 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 Computing in Bioinformatics: Medical Process Digitalization and Automation** includes 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 Computing in Bioinformatics: Medical Process Digitalization and Automation**

Official Nº 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
Computing in Bioinformatics: Medical Process
Digitalization and Automation

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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