Postgraduate Certificate
Biomedical Databases, the Foundations of Big Data

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Postgraduate Certificate
Biomedical Databases, the Foundations of Big Data

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

Website: **www.techtitute.com/pk/engineering/postgraduate-certificate/biomedical-databases-foundations-big-data**

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01

Introduction

In the race to achieve specialized medicine for each patient, Big Data and the professionals who apply it are involved. The analysis of biomedical data makes it possible to obtain a centralized file, segment information on the population, contrast adverse effects, elaborate statistics on patients and even obtain behavioral patterns when combating diseases. To achieve this, TECH offers a program based on the experience of professionals working in the sector, which will teach them the new updates in Big Data in order to optimize health care and accelerate the processes of data recording in the international data system. The Relearning methodology and the 100% online access to this program will allow the student to adapt the study to their time availability.

A program with which you will control the foundations of Big Data and the control of socio-health data, in order to optimize medical care"

Thanks to biomedicine, clinical technology development has accelerated to the point of providing faster answers in genetic treatments. Restructuring damaged organs in patients is one of the objectives pursued by molecular biology and what the most up-to-date engineers should take into account in the face of industrial advances and their contribution to clinical development.

In order to respond to the demand of the professional market, TECH offers this Postgraduate Certificate in Biomedical Databases, the Foundations of Big Data to graduates in Engineering who wish to expand their technical knowledge and be able to put it into practice. Students who receive the program will have a Relearning methodology that will avoid long hours of study and will enable them to assimilate the concepts in a simple and progressive way.

In addition, TECH hosts a team of professionals who work in this field and who have their own research in Biomedical Engineering. Thanks to their personalized tutorials, the teachers will answer students' questions immediately, at the click of a button. All in order to guarantee an education at the professional level.

This **Postgraduate Certificate in Biomedical Databases, the Foundations of Big Data** contains the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in biomedical databases and biological research
- The graphic, schematic, and practical contents with which they are created, provide 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 work
- Content that is accessible from any fixed or portable device with an Internet connection

Enroll now and learn about the advantages of genetic databases in medical research results and learn easily about this technology”

Thanks to TECH, you will learn about Big Data applications in public health, such as medical records repository and data encryption"

Explore the relationship of self-reported repositories to patient care and the advantages of Elixir open database.

Learn about the benefits of databases for omics projects related to proteomics, transcriptomics and genomics.

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

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

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Objectives

This program aims to give students and graduates of Engineering a boost in their professional careers, thanks to an education in which they will delve into the benefits of Big Data in medicine and how its application is increasingly necessary. This knowledge will be transmitted through 100% online learning, with downloadable audiovisual content in different formats, allowing them to adapt the pace of study to their personal and professional possibilities. In this way, the engineer will acquire specific database knowledge that will also update their practical basis.

Fulfill your goal, be part of a personalized and precision medicine project, thanks to OMIM data mining"

General Objectives

- Develop key concepts of medicine that serve as a vehicle to understand clinical medicine
- Determine the major diseases affecting the human body classified by apparatus or systems, structuring each module into a clear outline of pathophysiology, diagnosis, and treatment
- Determine how to obtain metrics and tools for healthcare management
- Understand the basics of basic and translational scientific methodology
- Examine the ethical and best practice principles governing the different types of research in health sciences
- Identify and generate the means of funding, assessing and disseminating scientific research
- Identify the real clinical applications of the various techniques
- Develop the key concepts of computational science and theory
- Determine the applications of computation and its implication in bioinformatics
- Provide the necessary resources to practically apply all the concepts in the modules
- Develop the fundamental concepts of databases
- Determine the importance of medical databases
- Delve into the most important techniques in research
- Identify the opportunities offered by the IoT in the field of eHealth
- Provide specialized knowledge of the technologies and methodologies used in the design, development and assessment of telemedicine systems
- Determine the different types and applications of telemedicine
- Delve into the most common ethical aspects and regulatory frameworks of telemedicine
- Analyze the use of medical devices
- Develop the key concepts of entrepreneurship and innovation in eHealth
- Determine what a business model is and the types that exist
- Collect e-Health success stories and mistakes to avoid
- Apply the knowledge acquired to an original business idea

Specific Objectives

- Understand the concept of biomedical information databases
- Examine the different types of biomedical information databases
- Study data analysis methods in depth
- Compile models that are useful in predicting outcomes
- Analyze patient data and organize it logically
- Report on large amounts of information
- Determine the main lines of research and testing
- Utilize tools for bioprocess engineering

Enroll in this Postgraduate Certificate, which will allow you to learn about the origin of biomedical databases and how the fusion of technology and medicine has opened doors to diagnostics"

03

Course Management

TECH has benefited from the knowledge of experts in Big Data integrated in medicine for its dissemination through this Postgraduate Certificate. The teaching staff has extensive experience in the field of radiophysics, biological engineering and competition, which will make their expertise become part of the students' education. The Postgraduate Certificate is a fast and efficient opportunity to acquire all the knowledge in biomedical databases with the support of a team that will be available 24 hours a day to solve all doubts.

Delve into mass processing of medical data, such as DNA to use Big Data focused on gene-targeted therapies"

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

Ms. Ruíz de la Bastida, Fátima

- Data Scientist at IQVIA
- Area Specialist, Bioinformatics Unit, Jimenez Diaz Foundation Research Institute
- Oncology Researcher at the La Paz University Hospital
- Graduate in Biotechnology from the University of Cadiz
- Master's Degree in Bioinformatics and Computational Biology, Autonomous University of Madrid
- Specialist in Artificial Intelligence and Data Analysis at the University of Chicago


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Structure and Content

The content of this Postgraduate Certificate in Biomedical Databases, the Foundations of Big Data has been developed in detail by professionals working in the field of biological research, microelectronics research and software. Thanks to its contribution and the incorporation of practical tools, the student will be able to take the program with all the means and guarantees to achieve it. In addition, the Relearning methodology applied by TECH, allows the student to assimilate the knowledge in a constant, fast and simple way, so it can be adapted to the personal availability of the student.

Learn about the development of databases in the identification of Adverse Drug Reactions (ADRs) and their role in the pharmacological process"

Module 1. Biomedical Databases

1.1. Biomedical Databases
- 1.1.1. Biomedical Databases
- 1.1.2. Primary and Secondary Databases
- 1.1.3. Major Databases

1.2. DNA Databases
- 1.2.1. Genome Databases
- 1.2.2. Gene Databases
- 1.2.3. Mutations and Polymorphisms Databases

1.3. Protein Databases
- 1.3.1. Primary Sequence Databases
- 1.3.2. Secondary Sequence and Domain Databases
- 1.3.3. Macromolecular Structure Databases

1.4. Omics Projects Databases
- 1.4.1. Genomics Studies Databases
- 1.4.2. Transcriptomics Studies Databases
- 1.4.3. Proteomics Studies Databases

1.5. Genetic Diseases Databases. Personalized and Precision Medicine
- 1.5.1. Genetic Diseases Databases
- 1.5.2. Precision Medicine. The Need to Integrate Genetic Data
- 1.5.3. Extracting Data from OMIM

1.6. Self-Reported Patient Repositories
- 1.6.1. Secondary Data Use
- 1.6.2. Patients' Role in Deposited Data Management
- 1.6.3. Repositories of Self-Reported Questionnaires. Examples:

1.7. Elixir Open Databases
- 1.7.1. Elixir Open Databases
- 1.7.2. Databases Collected on the Elixir Platform
- 1.7.3. Criteria for Choosing between Databases

1.8. Adverse Drug Reactions (ADRs) Databases
  1.8.1. Pharmacological Development Processes
  1.8.2. Adverse Drug Reaction Reporting
  1.8.3. Adverse Reaction Repositories at European and International Levels
1.9. Research Data Management Plans. Data to be Deposited in Public Databases
  1.9.1. Data Management Plans
  1.9.2. Data Custody in Research
  1.9.3. Data Entry in Public Databases
1.10. Clinical Databases. Problems with Secondary Use of Health Data
  1.10.1. Medical Record Repositories
  1.10.2. Data Encryption
  1.10.3. Access to Health Data. Legislation

A program designed for professionals like you, who want to put into practice all their knowledge of biomedical databases to optimize healthcare"

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.

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

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 case method is the most widely used learning system in the best faculties in the world. 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 program, the studies 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

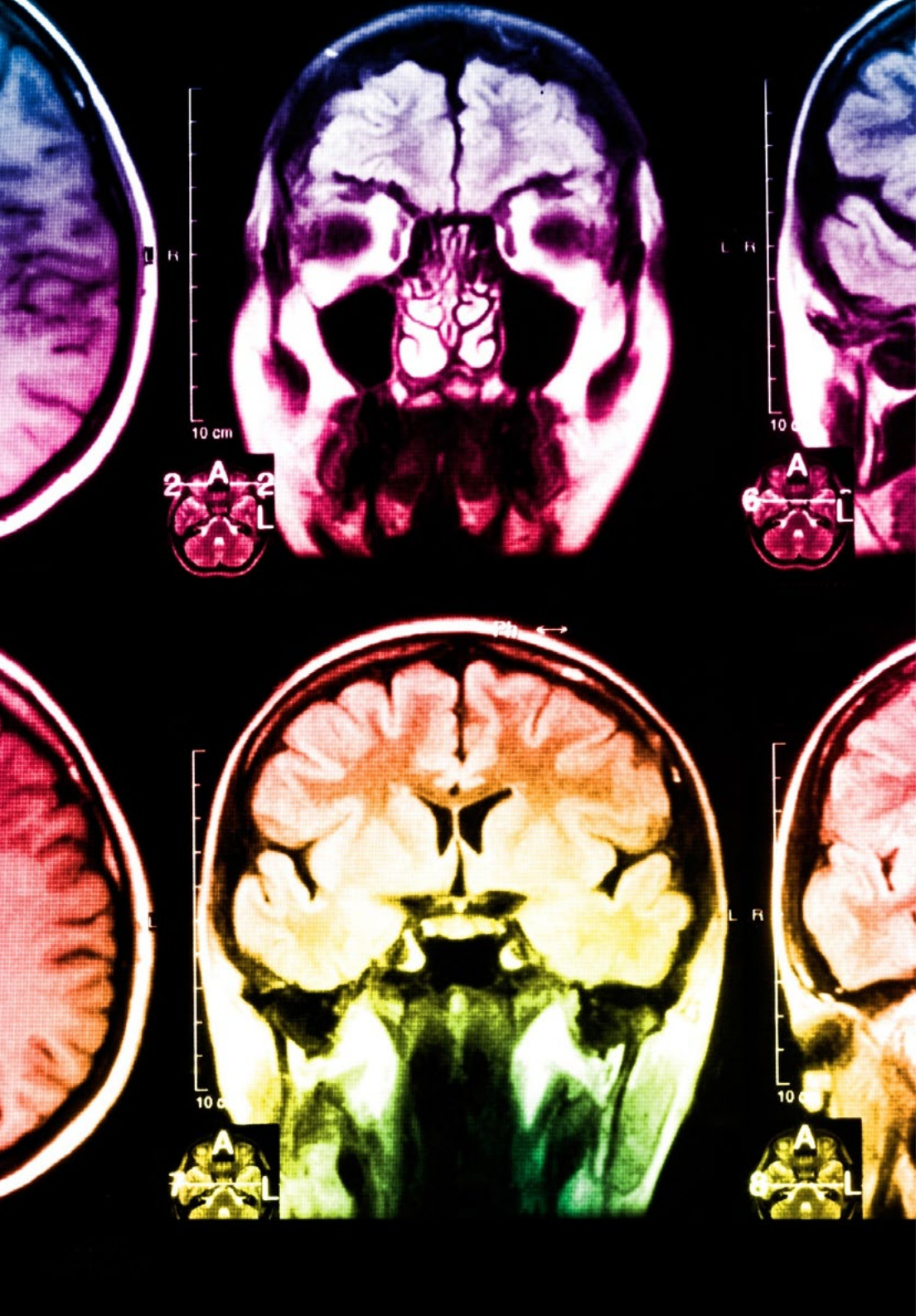
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

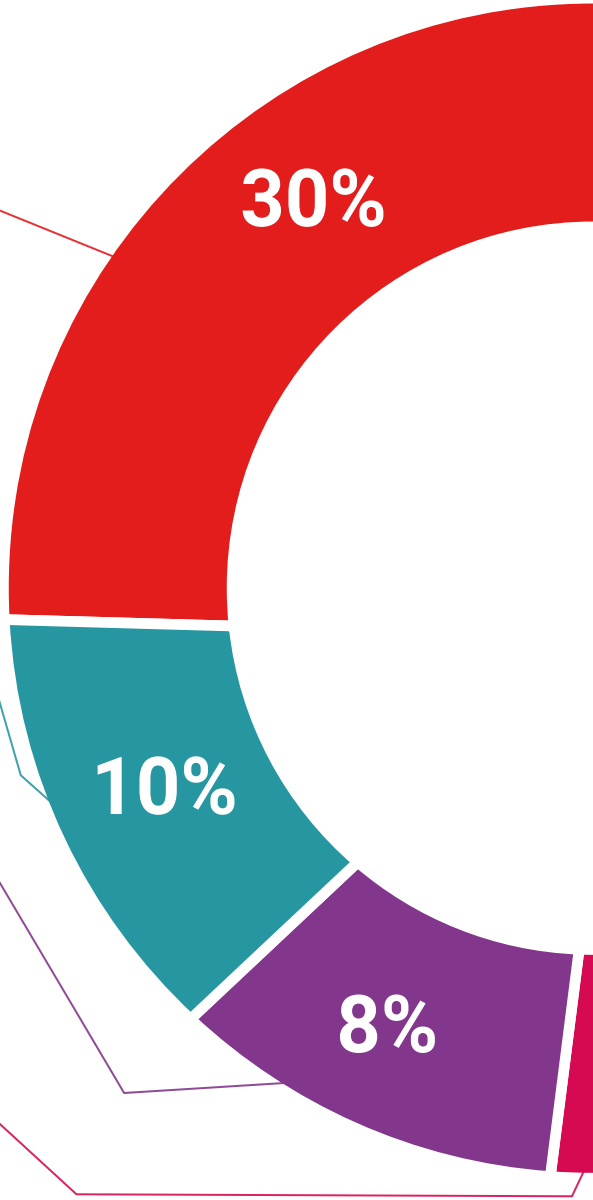
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

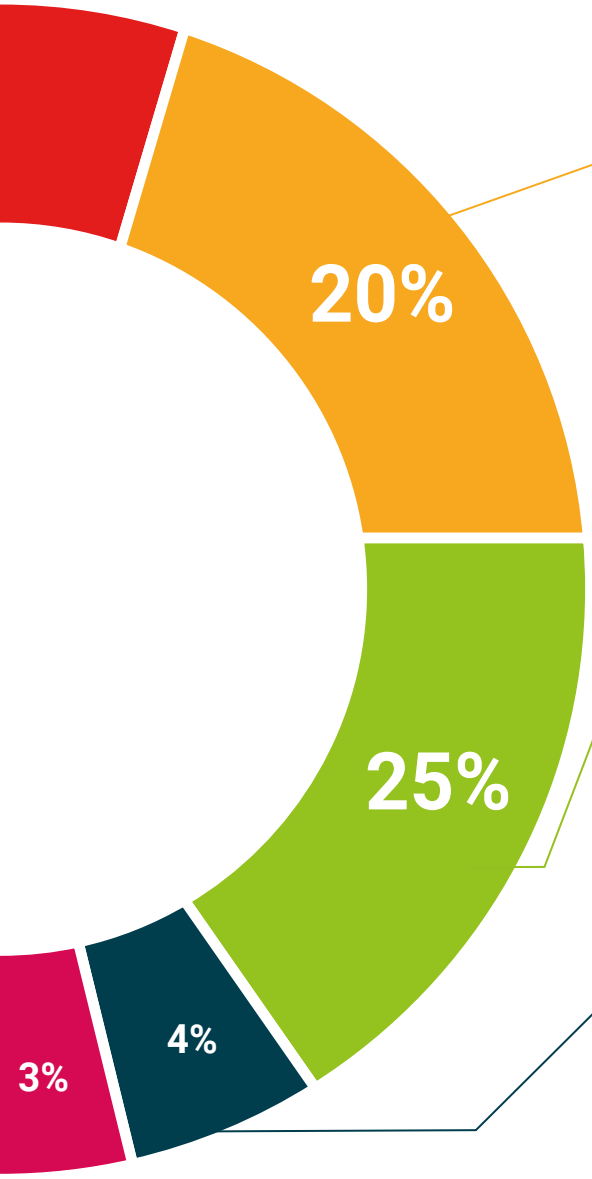
Practising Skills and Abilities

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 Certificate in Biomedical Databases, the Foundations of Big Data 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 Biomedical Databases, the Foundations of Big Data** 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 Biomedical Databases, the Foundations of Big Data**

Official N° 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

Biomedical Databases, the Foundations of Big Data

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

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. 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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