Postgraduate Certificate
Graphical Representations of Data in Medical Research and other Advanced Analyses

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Postgraduate Certificate
Graphical Representations of Data in Medical Research and Other Advanced Analysis

» Modality: **online**
» Duration: **6 weeks**
» Certificate: **TECH Global University**
» Credits: **6 ECTS**
» Schedule: **at your own pace**
» Exams: **online**

Website: **www.techtitute.com/us/pharmacy/postgraduate-certificate/graphical-representations-data-medical-research-other-advanced-analysis**

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01
Introduction

Graphical representations make it possible to extrapolate values outside the experimental range. It is one of the tools that specialists use to "translate" their research data. In addition, this system increases the readability of the results so that they can be understood by those who have not carried out the research, whether they are other experts or the rest of the population. It is an alternative for transmitting knowledge and does so through measured and compared graphs, depending on the object of study and how it adapts to it. For this reason, TECH's team of experts in Medical Research has developed a specific program in the graphic representation of pharmacological studies to update the knowledge of Pharmacy graduates and other professionals interested in this area.

" *With this Postgraduate Certificate you will be up to date with the incorporations in the methods of graphic representation that complete one of the phases of knowledge transmission"*

Scientific research will always depend on tools that give meaning to its results and, without their practical application, they would be of no use. For this reason, specialists in this field must broaden their skills and orient their careers towards multidisciplinary action by applying the latest techniques that have shown the greatest success in scientific development. Graphics are one of the systems that help to transmit information and allow its conversion to data readable to the naked eye.

For this reason, TECH has designed a rigorous and specific Postgraduate Certificate in the graphical representation of data in Health Research and other advanced analyses. It is a program that is supported by experienced professionals in Medical Research. The content and structure of this Postgraduate Certificate has been created under the approval of specialists to offer, with academic guarantees, the adequate teaching of its contents. Throughout 6 academic weeks, students will be instructed through simulation of real cases and additional material on dimensionality reduction methods, the comparison between PCA, PPCA and KPCA, massive data analysis and binary models, among other issues.

In addition, this program facilitates the study being 100% online and providing the possibility to follow it at any time and from anywhere. Likewise, students can download the contents and have access to the material without Internet access, once the reference guide has been downloaded to their device. A modality that provides all the facilities for those who opt for an education adapted to their needs and value the compatibility with the digital environment without having to do without other activities in their daily life.

This **Postgraduate Certificate in Graphical Representations of Data in Medical Research and other Advanced Analyses** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Development of case studies presented by experts in Medical Research
- Graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used 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

TECH will allow you to deepen your knowledge of dimensionality reduction methods from wherever you want, without having to travel or set schedules"

"*Do you want to stand out from other researchers because of your knowledge? Upgrade them with TECH and you will be able to master all the types of graphs that we will put at your disposal*"

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

Its multimedia content, developed with the latest educational technology, will provide the professionals 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 professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.

In the Virtual Campus you will have access to 180 hours of additional high quality material and you will be able to contact directly with the teachers to solve your doubts.

TECH will allow you to deepen your knowledge of dimensionality reduction methods from wherever you want, without having to travel or set schedules.

02
Objectives

This program has been designed under the fundamentals of a group of experts who will instruct graduates in Pharmacy, among other Health Sciences, so that they will be more competitive in the workplace and master the keys to the representation of their scientific results. All this, through a contextualized vision and with future perspectives towards the most recent scientific evidences of the sector that guarantee, in only 6 weeks, the professional success of the specialists enrolled in the program.

TECH aims to meet your objectives by updating you in the comparison of PCA, PPCA, KPCA methods"

General Objectives

- Understand the appropriate approach to a question or problem to be solved
- Asses the state of the art of the problem through literature search
- Assess the feasibility of the potential project
- Study the drafting of a project in accordance with the different calls for proposals
- Examine the search for funding
- Master the necessary data analysis tools
- Writing scientific articles (*papers*) according to the target magazines
- Generate posters relevant to the topics addressed
- Know the tools for dissemination to the non-specialized public
- Delve into data protection
- Understand the transfer of knowledge generated to industry or the clinic
- Examine the current use of artificial intelligence and massive data analysis
- Study examples of successful projects

Specific Objectives

- Master the tools of computational statistics
- Learn to generate graphs for the visual interpretation of data obtained in research project
- Obtain in-depth knowledge of dimensionality reduction methods
- Delve into the comparison of methods

Thanks to TECH you will achieve your goals in a simple and guaranteed way through a comprehensive and 100% online qualification. Enroll now and see for yourself"

03
Course Management

TECH has selected an experienced group of teachers, based on their academic and professional experience and the human qualities they can offer to the students. This is a careful choice that has been carried out so that the specialists enrolled in the program not only have theoretical knowledge, but also have at their disposal the advice of experts in the research area and who have a long history in this field. It is, therefore, a unique opportunity for those professionals who wish to have as an example experts who work in the field of pharmacology on a daily basis.

What are you waiting for to learn from experts with years of experience in your field? Register now to have them as your teachers"

Management

Dr. López-Collazo, Eduardo

- Scientific Deputy Director in the Health Research Institute of La Paz University Hospital
- Head of the Department of Inmune Response and Infectious Diseases at IdiPAZ
- Head of the Department of Inmune Response, Tumors and Immunology at IdiPAZ
- President of the IdiPAZ Research Commission
- Sponsor of the External Scientific Committee of the Murcian Institute of Health Research
- Member of the Scientific Commission of FIDE
- Editor of the international scientific journal Mediators of Inflammation
- Editor of the international scientific journal Frontiers of Immunology
- Coordinator of IdiPAZ Platforms
- Coordinator of Health Research Funds in the areas of Cancer, Infectious Diseases and HIV
- PhD in Nuclear Physics, University of La Habana
- Doctorate in Pharmacy from the Complutense University of Madrid

Professors

Dr. Avendaño Ortiz, José

- Sara Borrell Researcher Foundation for Biomedical Research of the Ramón y Cajal University Hospital (FIBioHRC/IRyCIS)
- Researcher Foundation for Biomedical Research of La Paz University Hospital (FIBHULP/IdiPAZ)
- Researcher HM Hospitals Foundation (FiHM)
- Graduate in Biomedical Sciences from the University of Lleida
- Master's Degree in pharmacological research from the Autonomous University of Madrid
- PhD in Pharmacology and Physiology from the Autonomous University of Madrid

Dr. Pascual Iglesias, Alejandro

- Bioinformatics Platform Coordinator, La Paz Hospital
- Advisor to the COVID-19 Expert Committee of Extremadura
- Researcher in Eduardo López-Collazo's innate immune response research group, Instituto de Investigación Sanitaras University Hospital La Paz
- Researcher in the coronavirus research group of Luis Enjuanes, National Center of Biotechnology CNB-CSIC
- Coordinator of Continuing Education in Bioinformatics, Health Research Institute of the University Hospital La Paz
- Cum Laude Doctor in Molecular Biosciences from the Autonomous University of Madrid
- Degree in Biology Molecular from the University of Salamanca
- Professional Master´s Degree in Cellular and Molecular Physiopathology and Pharmacology from the Universidad of Salamanca

04

Structure and Content

The content of this Postgraduate Certificate has been designed with a professional team, formed by specialists in Medical Research. The module graphical representations of data in health research and other advanced analysis integrates the keys to know the operation of the types of graphs and how to carry out the comparison of methods. In addition, this program is developed in only 6 academic weeks in a comprehensive manner and through didactic contents, which specialists will be able to access offline once they have been downloaded to their device.

With this Postgraduate Certificate you will get the practical keys to research work in the real scenario thanks to its teaching team"

Module 1. Graphical Representations of Data in Health Research and Other Advanced Analysis

1.1.   Types of Graphs
1.2.   Survival Analysis
1.3.   ROC Curves
1.4.   Multivariate Analysis (Types of Multiple Regression)
1.5.   Binary Regression Models
1.6.   Massive Data Analysis
1.7.   Dimensionality Reduction Methods
1.8.   Comparison of Methods: PCA, PPCA and KPCA
1.9.   T-SNE (t-Distributed Stochastic Stochastic Neighbor Embedding)
1.10.   UMAP (Uniform Manifold Approximation and Projection)

Enroll now in this program that has been designed to suit you and your professional and personal needs and study while developing your current job"

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"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.
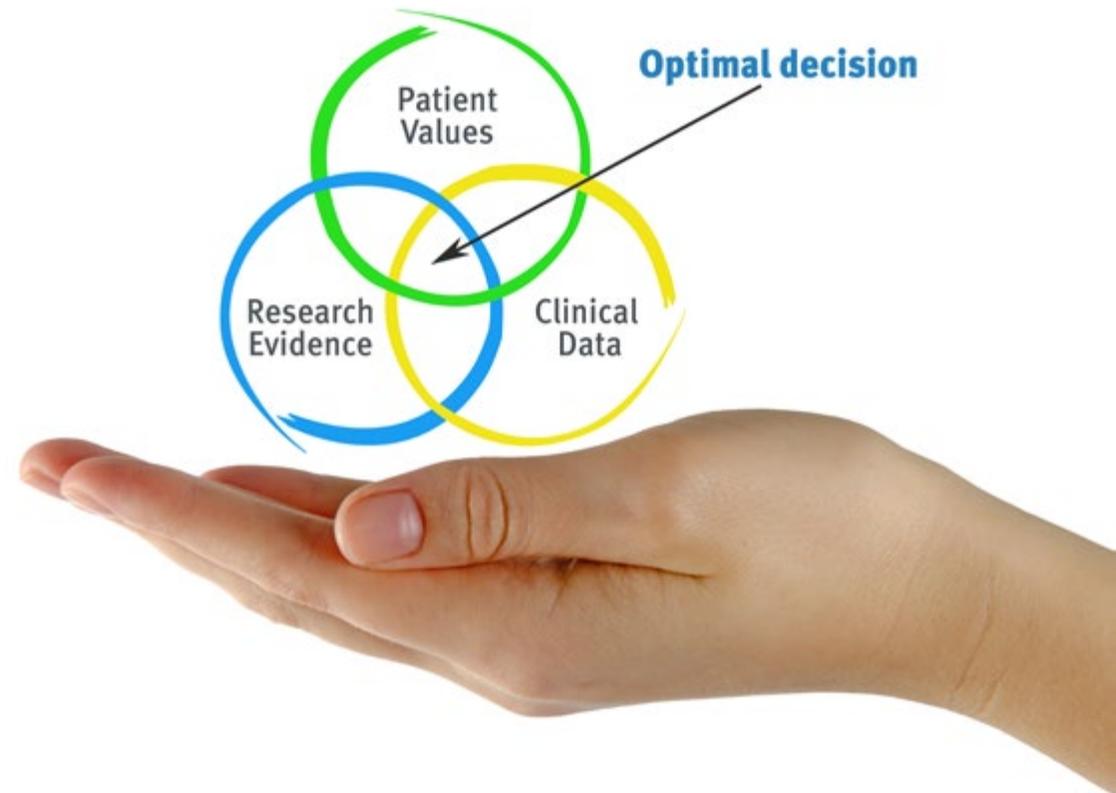
According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, attempting to recreate the actual conditions in a pharmacist's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

1. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.

2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.

Pharmacists will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.

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)

At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 115,000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic 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.

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.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

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

Study Material

All teaching material is created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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.

Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.

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 unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".

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.

20%

15%

15%

3%

20%

17%

7%

3%
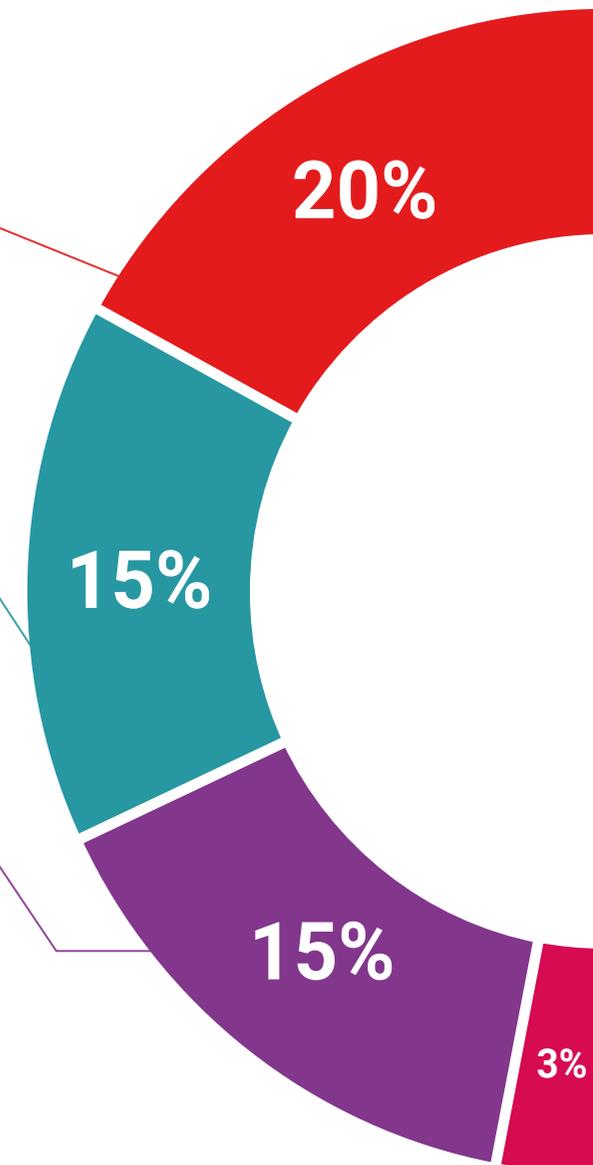
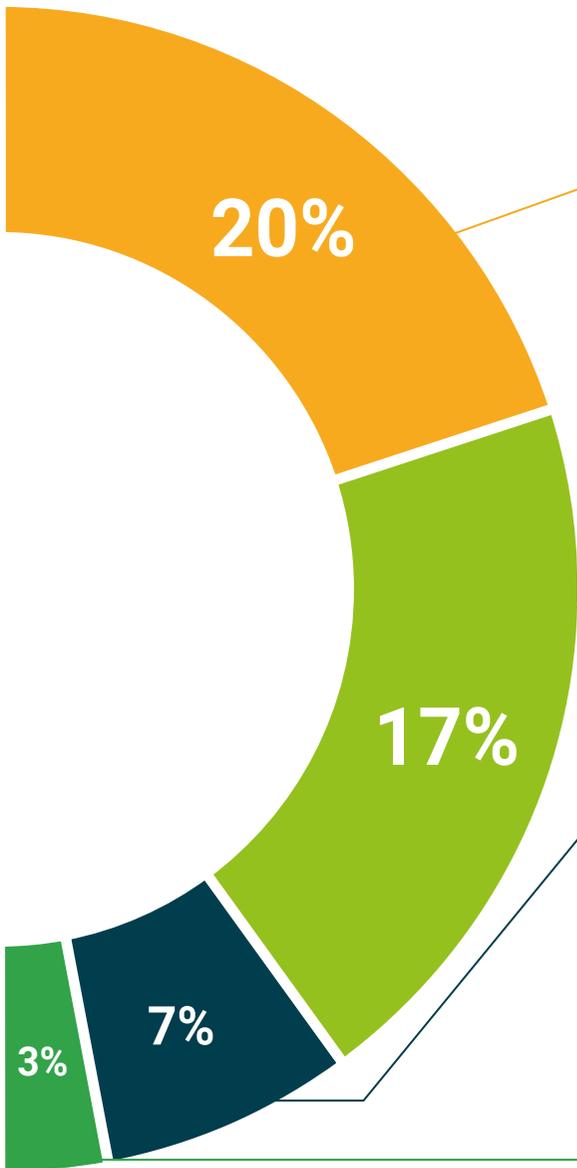## Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

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.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

06

Certificate

The Postgraduate Certificate in Graphical Representations of Data in Medical Research and other Advanced Analyses guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Postgraduate Certificate in Graphical Representations of Data in Medical Research and other Advanced Analyses** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (*official bulletin*). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.
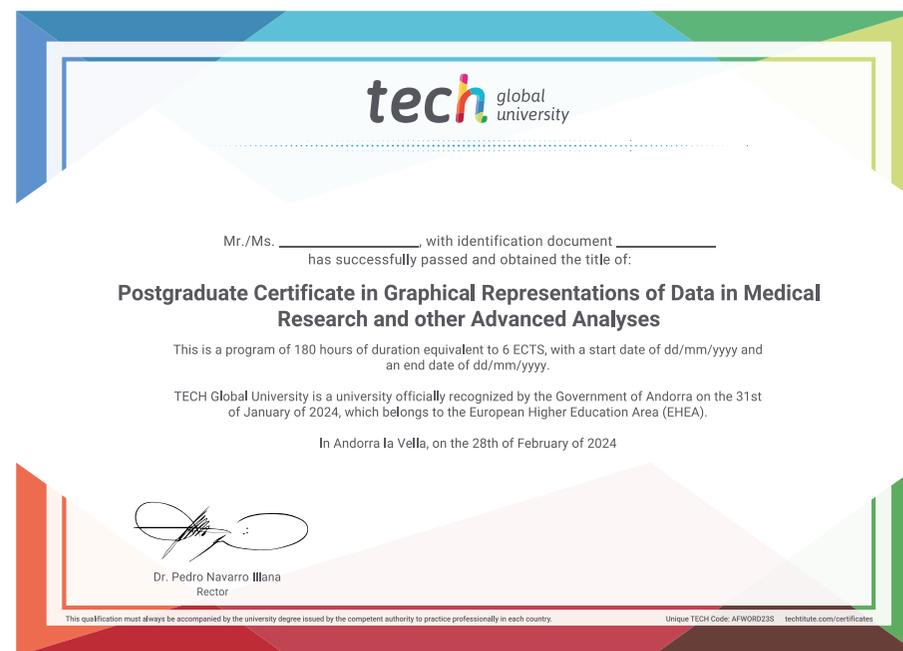
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Graphical Representations of Data in Medical Research and other Advanced Analyses**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

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Mr./Ms. _____, with identification document _____ has successfully passed and obtained the title of:

Postgraduate Certificate in Graphical Representations of Data in Medical Research and other Advanced Analyses

This is a program of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

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

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

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