Postgraduate Diploma
Statistical Software

tech global university

Postgraduate Diploma
Statistical Software

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-statistical-software**

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01

Introduction

The advances that have been made in the field of Information Technology and Systems Engineering have made it possible to develop increasingly powerful and efficient statistical software, capable of performing complex analyzes of enormous amounts of information in a very short time and a very high reliability index Because of the above, professionals in this field can rely on a multitude of tools to organize, interpret and present specific data sets in a simple, practical and comfortable way, without the need to invest long and tedious hours in it. For this reason, any student who wants to perfectly master the programming of these applications, as well as the existing ones, can rely on this very complete qualification. It is a 450-hour educational experience in which graduates will be able to delve into the algorithmic bases for planning computer projects related to this field 100% online.

If what you are looking for is a 100% online academic experience that provides you with everything you need to master the programming of Statistical Software, as well as existing applications, this University Expert is perfect for you"

The contribution that Informatics has made to the statistical field is incalculable, based on the development of increasingly specialized software capable of carrying out complex processes related to research and the understanding of the data that supports the actions that a certain subject (whether individual, a company, for a study, etc.) wishes to undertake. In this way, it is possible to work with larger information flows, while considerably reducing the time spent on statistical analysis and improving results.

Based on this and considering the latest advances in programming and algorithms as a reference, TECH and its team of specialists in Computer Engineering and Finance have developed this Postgraduate Diploma in Statistical Software, a 100% online academic experience that promises to become an exclusive and exhaustive guide to develop detailed knowledge of this field. It is a degree that, during 450 hours of diverse content, will enable graduates to delve into the elements of a program and its structuring, in the documentation and in the resourcefulness of financial applications. In addition, you will acquire a top-level mastery of the SPSS and R environment to perform effective and efficient object operations.

In this way, in just 6 months of multidisciplinary education, you will improve your professional skills through a program that includes the latest developments in the sector. You will also have access to high-quality use cases and additional material: in-depth videos, research articles, further reading, news, self-awareness exercises, and much more. Everything will be available on the Virtual Campus from the startof the academic experience, which the graduate can access from any device with an Internet connection. In this way, graduates will specialize independently and through a degree in which they will decide when and where to take it themselves.

This **Postgraduate Diploma in Statistical Software** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of case studies presented by experts in Applied Statistics
- ◆ The graphic, schematic and practical contents of the book provide technical and practical information on those 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 for 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

A degree with which you will acquire an exhaustive mastery of the SPSS and R environments managed by the best experts"

Without schedules or face-to-face classes, you will work exhaustively on perfecting your skills in a program that adapts to you and your availability.

" *You will have the opportunity to carry out program tests, as well as the black and white box, using the most sophisticated and modern tools for its documentation and conformation"*

You will be able to know in detail the characteristics of the static and dynamic data structures, delving into matrixes and looking for patterns.

Includes a team of professionals from the field in its teaching staff who bring the experience of their work to this program, in addition to recognized specialists from prestigious reference societies and 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 different professional practice situations that are presented throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.

02
Objectives

Given the very high professional level that specialists in the field of Statistical computing must have, TECH has developed this program so that those interested in it can acquire the necessary knowledge to master financial software programming. That is why it will put the most exhaustive and innovative tools at your disposal , as well as the best theoretical, practical and additional content to delve into each section of the agenda in a personalized way. All, of course, in a comfortable and accessible 100% online format, compatible with any device with an Internet connection.

If one of your objectives is learning to master the formulation of graphics in SPSS through the most important and complex parametric functions, look no further and bet on this Postgraduate Diploma"

General Objectives

- Acquire a broad and exhaustive knowledge of the news related to the field of programming applied to the statistical sector
- Master the most important and complex aspects related to current statistical software

TECH will put the most innovative and exhaustive information at your disposal, as well as all the material you need to achieve even your most ambitious goals"

Specific Objectives

Module 1. Programming

- Know the software components in computer programming, as well as the fundamental types of data that compose the latter
- Master abstraction and modularity in designing systems for flows of execution in function calls

Module 2. Statistical Software I

- Become familiar with the work environments in SPSS
- Develop statistical programs in SPSS
- Know the different types of SPSS used
- Support reflections and conclusions drawn from statistical data using SPSS

Module 3. Statistical Software II

- Know the R environment
- Be able to develop a statistical program in R
- Know the different types of functions used by R
- Use R to help in the reflection and conclusion of statistical data

03
Structure and Content

The development of this Postgraduate Diploma in Statistical Software has been created by following the guidelines of the prestigious and effective methodology Relearning, whose application TECH pioneers. This pedagogical technique consists of the reiteration of the most important concepts throughout the entire syllabus, in such a way that the graduate acquires the knowledge in a natural and progressive manner, without the need to invest extra hours in memorizing. In addition, it is supported by the inclusion of hours of high-quality material, with which the student will be able to delve into the different sections of the agenda according to their expectations and interests.

"Thanks to the use of Relearning methodology in the development of these programs, students will not have to invest extra hours in memorizing, but rather, they will attend to a innovative, natural and progressive learning process"

Module 1. Programming

1.1. Introduction to Programming
- 1.1.1. Basic Structure of a Computer
- 1.1.2. Software
- 1.1.3. Programming Languages
- 1.1.4. Life Cycle of a Software Application

1.2. Algorithm Design
- 1.2.1. Problem Solving
- 1.2.2. Descriptive Techniques
- 1.2.3. Algorithm Elements and Structure

1.3. Elements of a Program
- 1.3.1. C++ Origin and Features
- 1.3.2. Development Environment
- 1.3.3. Concept of Program
- 1.3.4. Types of Fundamental Data
- 1.3.5. Operators
- 1.3.6. Expressions
- 1.3.7. Statements
- 1.3.8. Data Input and Output

1.4. Control Sentences
- 1.4.1. Statements
- 1.4.2. Branches
- 1.4.3. Loops

1.5. Abstraction and Modularity: Functions
- 1.5.1. Modular Design
- 1.5.2. Concept of Function and Utility
- 1.5.3. Definition of a Function
- 1.5.4. Execution Flow in a Function Call
- 1.5.5. Function Prototypes
- 1.5.6. Results Return
- 1.5.7. Calling a Function: Parameters
- 1.5.8. Passing Parameters by Reference and by Value
- 1.5.9. Scope Identifier

1.6. Static Data Structures
- 1.6.1. Matrices
- 1.6.2. Matrices. Polyhedra
- 1.6.3. Searching and Sorting
- 1.6.4. Chaining: I/O Functions for Chains
- 1.6.5. Structures. Unions
- 1.6.6. New Types of Data

1.7. Dynamic Data Structures: Pointers
- 1.7.1. Concept. Definition of Pointer
- 1.7.2. Pointer Operators and Operations
- 1.7.3. Arrays of Pointers
- 1.7.4. Pointers and Arrays
- 1.7.5. Chain Pointers
- 1.7.6. Structure Pointers
- 1.7.7. Multiple Indirection
- 1.7.8. Function Pointers
- 1.7.9. Passing Functions, Structures and Arrays as Function Parameters

1.8. Files
- 1.8.1. Basic Concepts
- 1.8.2. File Operations
- 1.8.3. Types of Files
- 1.8.4. File Organization
- 1.8.5. Introduction to C++ Files
- 1.8.6. Managing Files

1.9. Recursion
- 1.9.1. Definition of Recursion
- 1.9.2. Types of Recursion
- 1.9.3. Advantages and Disadvantages
- 1.9.4. Considerations
- 1.9.5. Recursive-Iterative Conversion
- 1.9.6. Recursion Stack

1.10. Testing and Documentation
- 1.10.1. Program Testing
- 1.10.2. White Box Testing
- 1.10.3. Black Box Testing
- 1.10.4. Testing Tools
- 1.10.5. Program Documentation
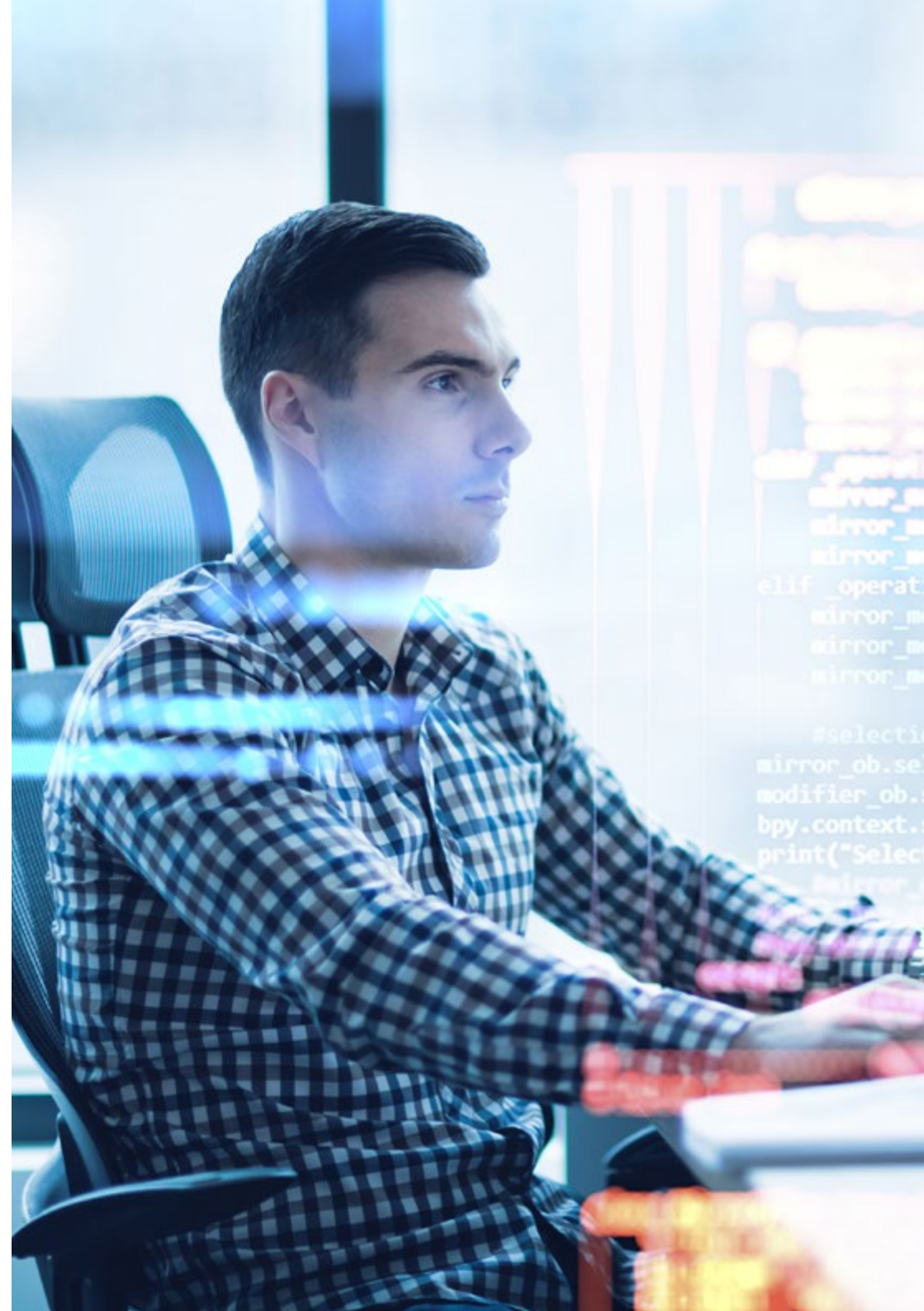
Module 2. Statistical Software I

2.1. Introduction to the SPSS Environment
    2.1.1. How SPSS Works
    2.1.2. Creating, Listing and Removing Objects in Memory
2.2. Consoles in SPSS
    2.2.1. Console Environments in SPSS
    2.2.2. Main Controls
2.3. Script Mode in SPSS
    2.3.1. Script Environments in SPSS
    2.3.2. Main Commands
2.4. Objects in SPSS
    2.4.1. Objects
    2.4.2. Reading Data From a File
    2.4.3. Saving Data
    2.4.4. Generating Data
2.5. Execution Flow Control Structures
    2.5.1. Conditional Structures
    2.5.2. Repetitive/Iterative Structures
    2.5.3. Vectors and Arrays
2.6. Operations with Objects
    2.6.1. Creation of Objects
    2.6.2. Converting Objects
    2.6.3. Operators
    2.6.4. How to Access the Values of an Object: the Indexing System?
    2.6.5. Accessing an Object's Values with Names
    2.6.6. The Data Editor
    2.6.7. Simple Arithmetic Functions
    2.6.8. Calculations With Arrays
2.7. SPSS Functions
    2.7.1. Loops and Vectorization
    2.7.2. Creating Your Own Functions

2.8. Graphics in SPSS
    2.8.1. Handling Graphics
        2.8.1.1. Opening Multiple Graphics Devices
        2.8.1.2. Graph Layouts
    2.8.2. Graphical Functions
    2.8.3. Graph Parameters
2.9. SPSS Packages
    2.9.1. SPSS Libraries
    2.9.2. SPSS Packages
2.10. SPSS Statistics
    2.10.1. A Simple Example of Analysis of Variance
    2.10.2. Formulas
    2.10.3. Generic Functions

Module 3. Statistical Software II

3.1. Introduction to the R Environment
    3.1.1. How R Works?
    3.1.2. Creating, Listing and Removing Objects in Memory
3.2. Console in R
    3.2.1. Console Environment in R
    3.2.2. Main Controls
3.3. Script Mode in R
    3.3.1. Console Environment in R
    3.3.2. Main Commands
3.4. Objects in R
    3.4.1. Objects
    3.4.2. Reading Data From a File
    3.4.3. Saving Data
    3.4.4. Generating Data

"Get on the bandwagon of progress and implement the most innovative computer strategies and techniques for the development of cutting-edge statistical software of the highest quality to your professional practice"

04
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.

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. 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.

30%

10%

8%

20%

25%

4%

3%

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.

05
Certificate

The Postgraduate Diploma in Statistical Software guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Statistical Software** 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.
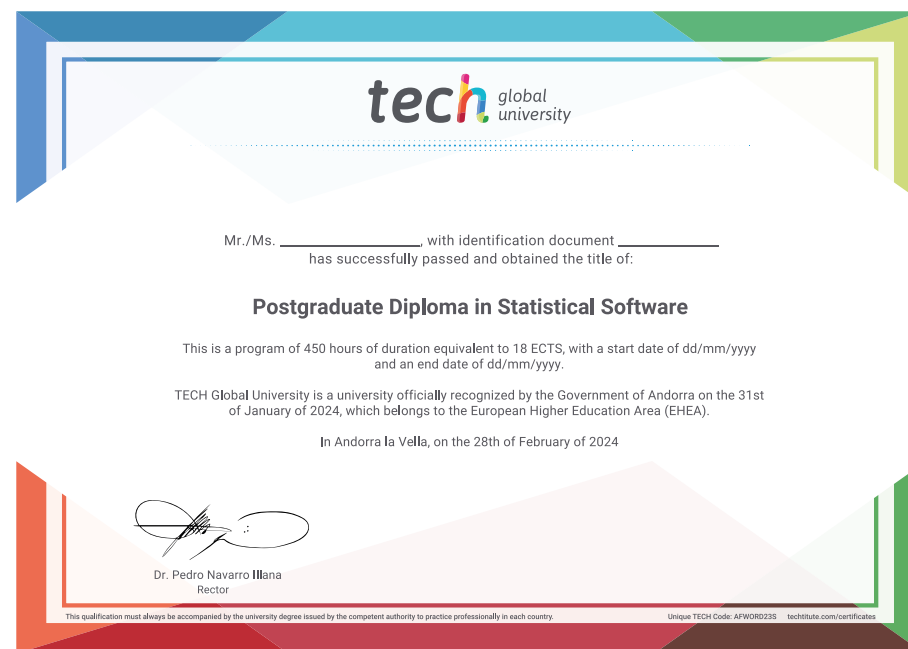
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Statistical Software**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**

tech global university

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

Postgraduate Diploma in Statistical Software

This is a program of 450 hours of duration equivalent to 18 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

*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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