Postgraduate Diploma
Mobile Communications

WiFi zone

tech global university

Postgraduate Diploma
Mobile Communications

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

Website: **www.techtitute.com/us/information-technology/postgraduate-diploma/postgraduate-diploma-mobile-communications**

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01
Introduction

Mobile networks have undergone a great evolution, with ever-increasing improvements in capacity and performance. This program brings students closer to the field of mobile communications, with an up to date and quality program. It is a comprehensive program that seeks to prepare students for success in their profession.

If you are looking for quality education that will help you specialize in one of the fields with the most professional prospects, this is your best option"

Advances in telecommunications are happening all the time, as this is one of the fastest evolving areas. It is therefore necessary to have IT experts who can adapt to these changes and have first-hand knowledge of the new tools and techniques that are emerging in this field.

This Postgraduate Diploma in Mobile Communications addresses the complete range of topics involved in this field. Its study has a clear advantage over other programs that focus on specific blocks, which prevents students from knowing the interrelation with other areas included in the multidisciplinary field of telecommunications. In addition, the teaching team of this educational program has made a careful selection of each of the topics of this program in order to offer students the most complete study opportunity possible and always linked to current events.

This program is aimed at those interested in achieving a higher level of knowledge in Mobile Communications. The main objective of this Postgraduate Diploma is for students to specialize their knowledge in simulated work environments and conditions in a rigorous and realistic manner so that they can later apply it in the real world.

In addition, as it is a 100% online Postgraduate Diploma, the student is not constrained by fixed timetables or the need to move to another physical location, but can access the contents at any time of the day, balancing their professional or personal life with their academic life.

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

- Development of case studies presented by experts in Mobile communication
- The 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 in communication Mobile
- 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

Do not miss the opportunity to study this Postgraduate Diploma in Mobile Communications at TECH. It's the perfect opportunity to advance your career"

This Postgraduate Diploma is the best investment you can make when choosing a refresher program to update your existing knowledge of Mobile Communications"
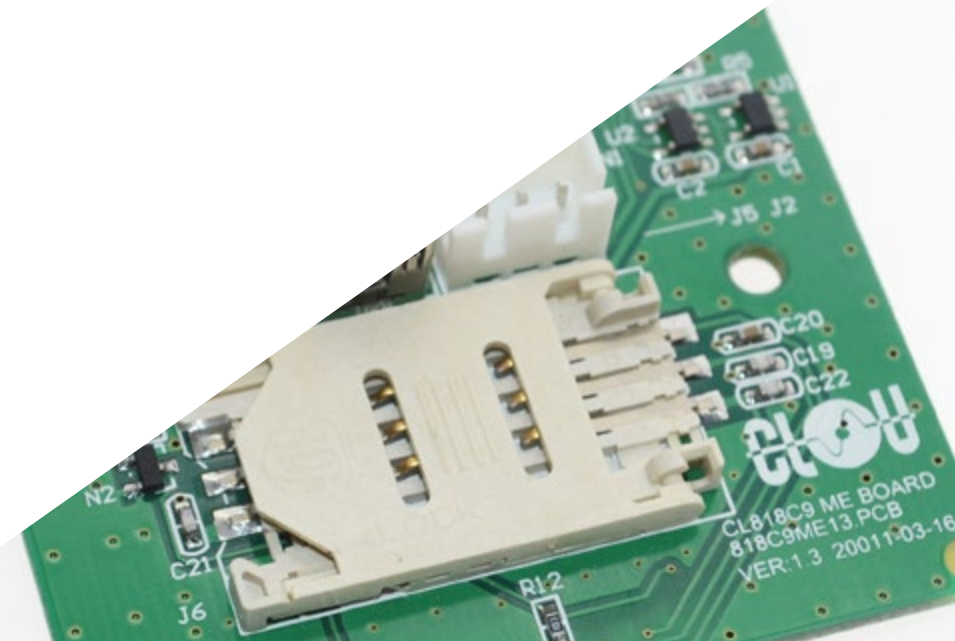
This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

This 100% online Postgraduate Diploma will allow you to combine your studies with your professional work while expanding your knowledge in this field.

The teaching staff includes professionals from the field of design, who bring their experience to this specialization program, as well as renowned specialists from leading societies and prestigious universities.

The 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 immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, professionals will be assisted by an innovative interactive video system developed by renowned and experienced experts in mobile communications.

02
Objectives

This Postgraduate Diploma in Mobile Communications is designed to facilitate professional performance in the field to acquire knowledge of the main developments in the sector.

Our goal is to help you to be the best in your profession and for this we count on the quality of our teachers and subjects"
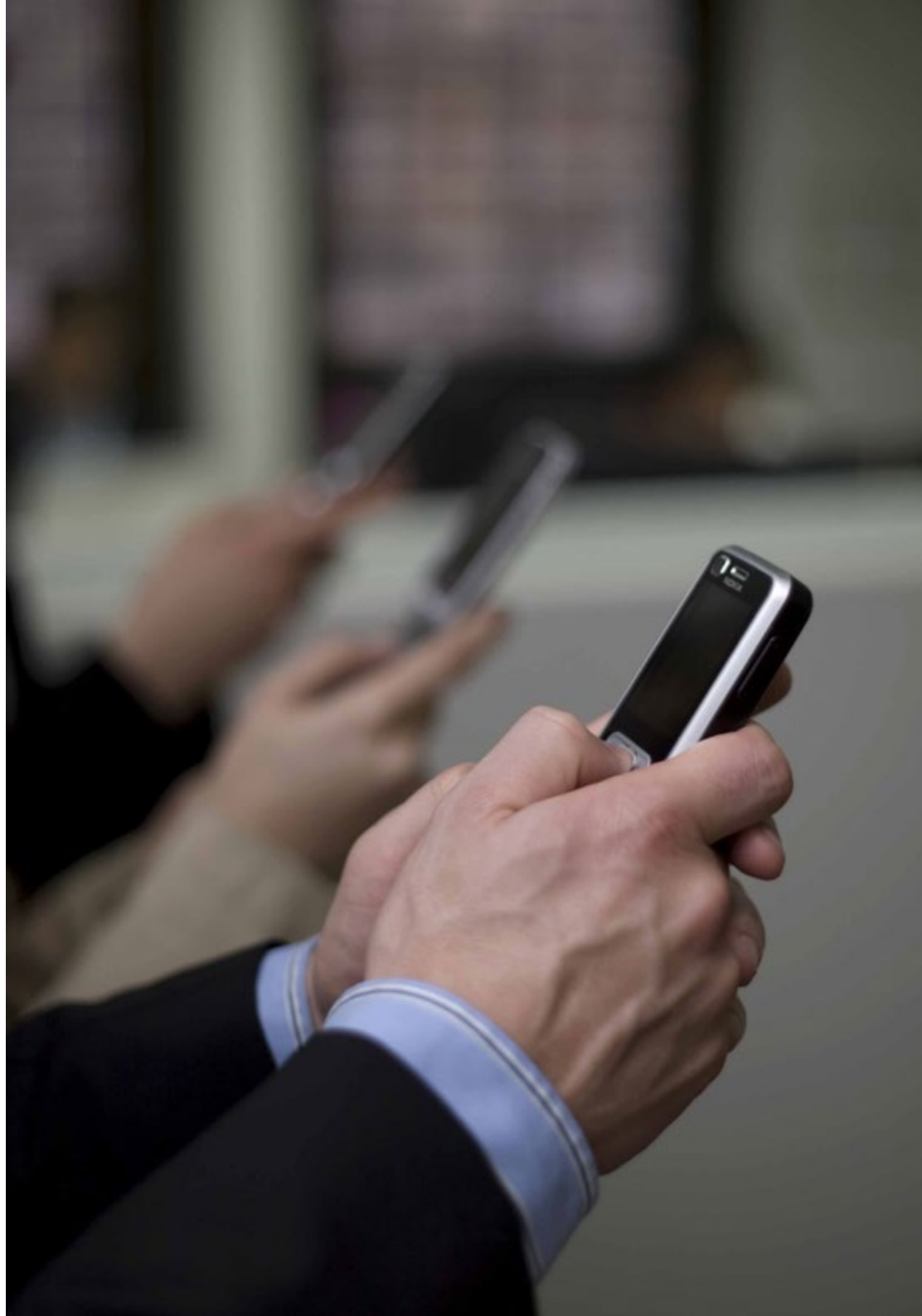
General Objective

- Prepare students to be able to develop their work with total security and quality in the field of telecommunications

"Specialize in the world's leading private Spanish-speaking online university"

Specific Objectives

Module 1. Fundamentals of Mobile and Cell Network Communications
- Know the basics of Mobile Communication
- Describe the main services that mobile communications provide
- Know the architecture and organization of new communication networks with mobile access
- Expose the different generations of mobile telephony
- Understand the different aspects that are presented in digital mobile communication systems
- Assimilate security protocols and techniques for the proper functioning of mobile communications
- Analyze the evolutionary aspects of mobile technologies and their integration into current networks

Module 2. Mobile Communications Networks
- Analyze the fundamental concepts of mobile communications networks
- Know the principles of mobile communications
- Master architecture and protocols of mobile communications networks
- Understand the basic technologies used in GSM, UMTS and LTE networks
- Understand the signaling systems and the different network protocols of GSM, UMTS and LTE networks
- Understand the functional entities of GSM, UMTS and LTE and their interconnection with other networks

Module 3. Radio Networks and Services
- Know the access, link control and radio resource control mechanisms of an LTE system
- Understand the fundamental concepts of radio spectrum
- Know the specific services for radio networks
- Know the IP multicast techniques that are best suited to the connectivity provided by radio networks Understand the impact of radio networks on end-to-end quality of service and know the existing mechanisms to mitigate them
- Master WLAN, WPAN, WMAN wireless networks
- Analyze the different architectures of satellite networks and know the different services supported by a satellite network

03
Structure and Content

The structure of the contents has been designed by the best professionals in the from
the engineering sector, with extensive experience and recognized
prestige in the profession

We have the most complete and up-to-date educational program on the market. We strive for excellence and for you to achieve it too"

Module 1. Fundamentals of Mobile and Cell Network Communications

1.1.   Introduction to Mobile Communication
    1.1.1.   General Considerations
    1.1.2.   Composition and Classification
    1.1.3.   Frequency Bands
    1.1.4.   Channel and Modulation Classes
    1.1.5.   Radio Coverage, Quality and Capacity
    1.1.6.   Evolution of Mobile Communications Systems

1.2.   Fundamentals of the Radio Interface, Radiating Elements and Basic Parameters
    1.2.1.   Physical Layer
    1.2.2.   Radio Interface Fundamentals
    1.2.3.   Noise in Mobile Systems
    1.2.4.   Multiple Access Techniques
    1.2.5.   Modulations Used in Mobile Communications
    1.2.6.   Wave Propagation Modes
        1.2.6.1. Surface Wave
        1.2.6.2. Ionosphere Wave
        1.2.6.3. Spatial Wave
        1.2.6.4. Ionospheric and Tropospheric Effects

1.3.   Wave Propagation through Mobile Channels
    1.3.1.   Basic Characteristics of Propagation through Mobile Channels
    1.3.2.   Evolution of Basic Propagation Loss Prediction Models
    1.3.3.   Methods Based on Ray Theory
    1.3.4.   Empirical Methods of Propagation Prediction
    1.3.5.   Propagation Models for Microcells
    1.3.6.   Multipath Channels
    1.3.7.   Characteristics of Multipath Channels

1.4.   SS7 Signaling System
    1.4.1.   Signaling Systems
    1.4.2.   SS7. SS7. Characteristics and Architecture
    1.4.3.   Message Transfer Part (MTP)
    1.4.4.   Signaling Control Part (SCCP)
    1.4.5.   User Parts (TUP, ISUP)
    1.4.6.   Application Parts (MAP, TCAP, INAP, etc.)

1.5.   PMR and PAMR Systems. TETRA Systems
    1.5.1.   Basic Concepts of a PMR Network
    1.5.2.   Structure of a PMR Network
    1.5.3.   Backbone Systems. PAMR
    1.5.4.   TETRA Systems

1.6.   Classic Cellular Systems (FDMA/TDM)
    1.6.1.   Fundamentals of Cellular Systems
    1.6.2.   Classic Cellular Concept
    1.6.3.   Cellular Planning
    1.6.4.   Geometry of Cellular Networks
    1.6.5.   Cellular Division
    1.6.6.   Dimensioning of a Cellular System
    1.6.7.   Calculation of Interference in Cellular Systems
    1.6.8.   Coverage and Interference in Real Cellular Systems
    1.6.9.   Frequency Assignment in Cellular Systems
    1.6.10.   Architecture of Cellular Networks

1.7.   GSM System; Global System for Mobile Communication
    1.7.1.   GSM Introduction. Origin and Evolution
    1.7.2.   GSM Telecommunication Services
    1.7.3.   Architecture of GSM Networks
    1.7.4.   GSM Radio Interface: Channels, TDMA Structure and Bursts
    1.7.5.   Modulation, Codification and Intertwined
    1.7.6.   Transmission Properties
    1.7.7.   Protocols

1.8.   GPRS Service: General Packet Radio Service
    1.8.1.   GPRS Introduction. Origin and Evolution
    1.8.2.   General Features of the GPRS
    1.8.3.   Architecture of GPRS Networks
    1.8.4.   GPRS Radio Interface: Channels, TDMA Structure and Bursts
    1.8.5.   Transmission Properties
    1.8.6.   Protocols

Module 2. Mobile Communication Networks

2.3.   Mobile Communication Principles
    2.3.1.   Radiation and Antenna Types
    2.3.2.   Frequency Reuse
    2.3.3.   Signal Propagation
    2.3.4.   Itinerancy and Transfer
    2.3.5.   Multiple Access Techniques
    2.3.6.   Analog and Digital Systems
    2.3.7.   Portability
2.4.   GSM Network Review: Technical Characteristics, Architecture and Interfaces
    2.4.1.   GSM Systems
    2.4.2.   GSM Technical Characteristics
    2.4.3.   GSM Network Architecture
    2.4.4.   GSM Channel Structure
    2.4.5.   GSM Interfaces
2.5.   GSM and GPRS Protocol Review
    2.5.1.   Introduction
    2.5.2.   GSM Protocols
    2.5.3.   GSM Evolution
    2.5.4.   GPRS
2.6.   UMTS System. Technical Characteristics, Architecture and HSPA
    2.6.1.   Introduction
    2.6.2.   UMTS Systems
    2.6.3.   UMTS Technical Characteristics
    2.6.4.   UMTS Network Architecture
    2.6.5.   HSPA
2.7.   UMTS System. Protocols, Interfaces and VoIP
    2.7.1.   Introduction
    2.7.2.   UMTS Channel Structure
    2.7.3.   UMTS Protocols
    2.7.4.   UMTS Interfaces
    2.7.5.   VoIP and IMS

2.8.   VoIP: Traffic Models for IP Telephony
    2.8.1.   VoIP Introduction
    2.8.2.   Protocols
    2.8.3.   VoIP Elements
    2.8.4.   Real-Time VoIP Transport
    2.8.5.   Packaged Voice Traffic Models
2.9.   LTE System. Technical Characteristics and Architecture. CS *Fallback*
    2.9.1.   LTE Systems
    2.9.2.   LTE Technical Characteristics
    2.9.3.   LTE Network Architecture
    2.9.4.   LTE Channel Structure
    2.9.5.   LTE Calls: VoLGA, CS FB and VoLTE
2.10.   LTE Systems: Interfaces, Protocols and Services
    2.10.1.   Introduction
    2.10.2.   LTE Interfaces
    2.10.3.   LTE Protocols
    2.10.4.   LTE Services

Module 3. Radio Networks and Services

3.1.   Basic Techniques in Radio Networks
    3.1.1.   Introduction to Radio Networks
    3.1.2.   Fundamentals
    3.1.3.   Multiple Access Techniques (MAT): Random Access (RA). MF-TDMA, CDMA, OFDMA
    3.1.4.   Optimization of the Radio Link: Fundamentals of Link Control Techniques (LCT) HARQ. MIMO
3.2.   Radioelectric Spectrum
    3.2.1.   Definition
    3.2.2.   Nomenclature of Frequency Bands According to ITU-R
    3.2.3.   Other Nomenclature for Frequency Bands
    3.2.4.   Division of the Radio Spectrum
    3.2.5.   Types of Electromagnetic Radiation

This program will allow you to advance in your career comfortably"

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 has been the most widely used learning system among the world's leading Information Technology 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 that you are presented with in the case method, an action-oriented learning method. Throughout the course, students 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 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.

Certificate

This Postgraduate Diploma in Mobile Communications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH 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 Mobile Communications** 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 Mobile Communications**

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 Mobile Communications

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

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 additvional cost.

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