Postgraduate Certificate
Applications of Artificial Intelligence and IoT to Telemedicine

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Postgraduate Certificate

Applications of Artificial Intelligence and IoT to Telemedicine

» 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/applications-artificial-intelligence-lot-telemedicine**

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01
Introduction

Technology applied to medicine makes it possible to convert multicenter studies and unstructured clinical data into accessible information that is used in international scientific publications. Artificial intelligence is moving in the same direction, making the processes of the past more efficient. TECH offers a program that explores the latest generation of precision medicine and aims to educate its users through knowledge and software tools that bring the student closer to a professional training in telemedicine. This program is perfectly adapted to the personal and professional needs of the students, as it is 100% online and offers downloadable materials with which they can study at any time.

> " *A program with which you will understand the role of the Internet and artificial intelligence in patient rehabilitation and intelligence"*

Thanks to intelligence research networks such as "Savana", it is possible to record statistical, demographic and retrospective studies in a collaborative manner. The clinical prognoses that are inserted in digital memories collaborate in the study of the conditions to the point of being able to generate a diagnosis according to the contrast of information from other patients. This promotes the effectiveness of pharmacological treatments or forecast available health resources.

In order to respond to the high demand of the healthcare system for engineers specialized in the area of AI, TECH offers this Postgraduate Certificate in Applications of Artificial Intelligence and IoT to Telemedicine. Engineering graduates who take the program will be taught through a *Relearning* methodology that will avoid long hours of study and will enable them to assimilate the concepts in a simple and gradual way.

To guarantee the right education of the students, TECH relies on a team of professionals with extensive experience in the health engineering sector. Thanks to the personalized tutorials of the teaching staff, students will solve all their doubts quickly and easily. These features, together with TECH's 100% digital format, will help students with a flexible and progressive learning experience at any time and from anywhere.

This **Postgraduate Certificate in Applications of Artificial Intelligence and IoT to Telemedicine** contains the most complete and up-to-date program on the market. The most important features include:

- Development of practical cases presented by experts in Artificial Intelligence and IoT
- 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 for experts, discussion forums on controversial issues and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

Enroll to learn about the advantages of nano-robots in the recovery of cancer cells that cause oncological diseases"

❝

Thanks to TECH, you will learn about the key contributions in the management of the COVID global health crisis"

Understand the advantages of the relationship of IoT (Internet of Things) with emergency detection and victim recognition.

Do you want to apply AI tools in your work as a professional? Value the importance of incorporating them ethically thanks to this Postgraduate Certificate.
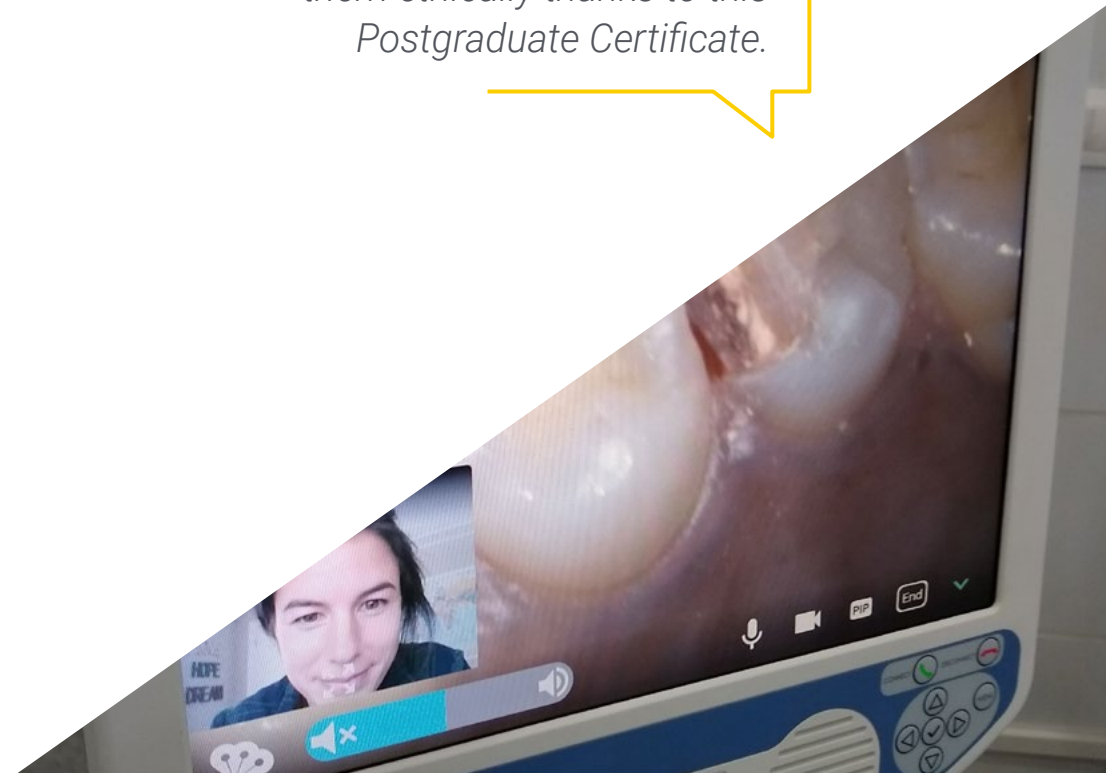
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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.

02
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 incorporating artificial intelligence into medical systems.This knowledge will be acquired through 100% online learning, with downloadable audiovisual content in different formats. In this way, the student will be the one to decide the pace of study, adapting it to their personal and work schedules.
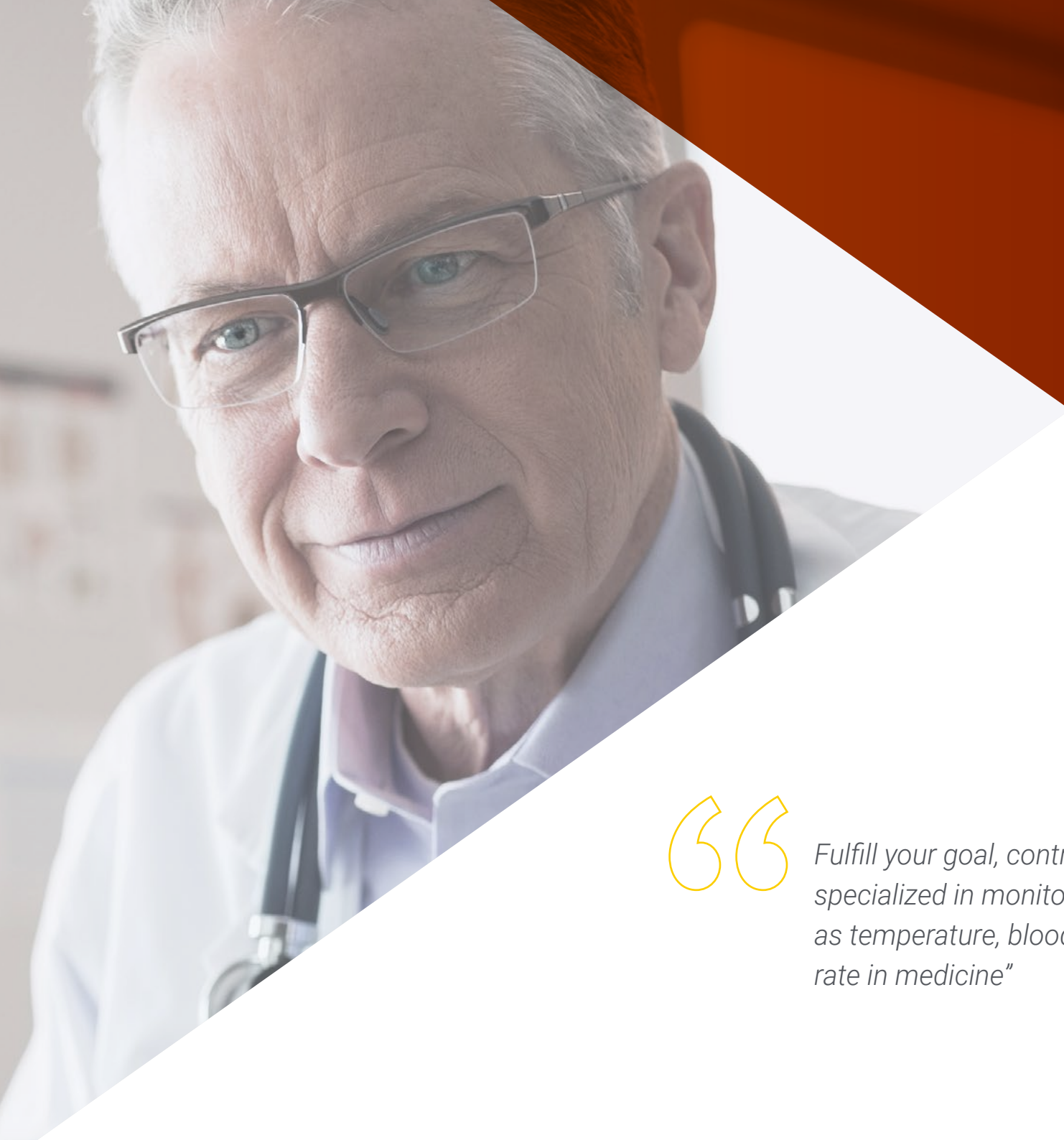
> " *Fulfill your goal, contribute as an engineer specialized in monitoring vital signs such as temperature, blood pressure or heart rate in medicine"*

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

Enroll in this Postgraduate Certificate, which will allow you to master image processing by working with algorithms and diagnostic possibilities"

Specific Objectives

- Propose communication protocols in different scenarios in the healthcare field
- Analyze communication in the IoT as well as its use in eHealth areas
- Substantiate the complexity of Artificial Intelligence models in healthcare applications
- Identify the optimization brought by parallelization in GPU-accelerated applications and its use in healthcare
- Present all the Cloud technologies available to implement e-Health and the IoT products, both in computing and communication

03

Course Management

TECH has called on experts in clinical artificial intelligence to share their knowledge through this Postgraduate Certificate. The teaching staff has extensive experience in biomedical engineering, radiophysics, software and hardware, which supports their tutoring in this subject. This makes the Postgraduate Certificate a fast and effective opportunity to acquire all the knowledge in AI and IoT with the support of a team that will be available 24 hours a day to solve all the doubts and to do the follow-up of the students.

> " *Still not familiar with the possibilities of telemedicine? Find out about the advantages of remote patient monitoring, a fundamental method in cases of infectious diseases"*

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. Muñoz Gutiérrez, Rebeca

- Data Scientist at INDITEX
- Firmware Engineer for Clue Technologies
- Graduate in Health Engineering with mention in Biomedical Engineering from the
- University of Malaga and the University of Seville
- Master's Degree in Intelligent Avionics from Clue Technologies, in collaboration with the University of Málaga
- NVIDIA: Fundamentals of Accelerated Computing with CUDA C/C++
- NVIDIA: Accelerating CUDA C++ Applications with Multiple GPU
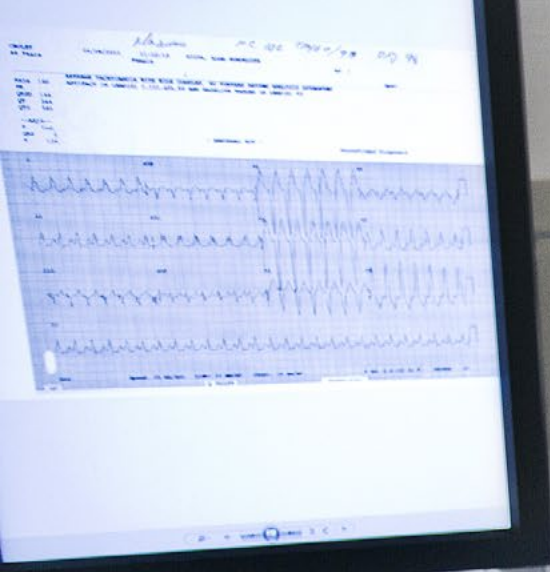
Structure and Content

The content of this Postgraduate Certificate in Applications of Artificial Intelligence and IoT to Telemedicine has been developed together with professionals working in the field of artificial intelligence and Big Data processing. Thanks to its contribution and the incorporation of theoretical and practical tools, the student will be able to take the program with all the means and guarantees to acquire all the knowledge. Also, the *Relearning* methodology applied by TECH, allows the student to assimilate the knowledge in a constant, fast and simple way, so that the teaching motivates them to get away from the bad habits of conventional study.

Explore the development of computer applications in the field of oncology to recognize similar tumor cases in a multitude of patients"

Module 1. Applications of Artificial Intelligence and the Internet of Things (IoT) in Telemedicine

1.1.   eHealth Platforms: Personalizing Healthcare Services
    1.1.1.   e-Health Platforms:
    1.1.2.   Resources for e-Health Platforms
    1.1.3.   Digital Europe Program. Digital Europe-4-Health and Horizon Europe
1.2.   Artificial Intelligence in Healthcare I: New Solutions in Computer Applications
    1.2.1.   Remote Analysis of Results
    1.2.2.   Chatbox
    1.2.3.   Prevention and Real-Time Monitoring
    1.2.4.   Preventive and Personalized Medicine in Oncology
1.3.   Artificial Intelligence in Healthcare II:
    1.3.1.   Monitoring Patients with Reduced Mobility
    1.3.2.   Cardiac Monitoring, Diabetes, Asthma
    1.3.3.   Health and Wellness Apps
        1.3.3.1. Heart Rate Monitors
        1.3.3.2. Blood Pressure Bracelets
    1.3.4. Ethical Use of AI in the Medical Field. Data Protection
1.4.   Artificial Intelligence Algorithms for Image Processing
    1.4.1.   Artificial Intelligence Algorithms for Image Handling
    1.4.2.   Image Diagnosis and Monitoring in Telemedicine
        1.4.2.1. Melanoma Diagnosis
    1.4.3.   Limitations and Challenges in Image Processing in Telemedicine
1.5.   Application Acceleration using Graphics Processing Units (GPU) in Medicine
    1.5.1.   Program Parallelization
    1.5.2.   GPU Operations
    1.5.3.   Application Acceleration using GPU in Medicine
1.6.   Natural Language Processing (NLP) in Telemedicine
    1.6.1.   Text Processing in the Medical Field. Methodology
    1.6.2.   Natural Language Processing in Therapy and Medical Records
    1.6.3.   Limitations and Challenges in Natural Language Processing in Telemedicine

A program designed for professionals like you, who believe in the personalization of healthcare services through the tools of the e-Health paradigm"

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.

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.

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

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.

30%

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.

10%

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.

8%

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%

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.

06
Certificate

The ostgraduate Certificate in Applications of Artificial Intelligence and IoT to Telemedicine 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 Applications of Artificial Intelligence and IoT to Telemedicine** 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 Applications of Artificial Intelligence and IoT to Telemedicine**

Official Nº 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
Applications of Artificial Intelligence and IoT to Telemedicine

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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