Postgraduate Certificate

Applications of Artificial Intelligence and IoT in Telemedicine

tech technological university

Postgraduate Certificate
Applications of Artificial Intelligence and IoT in 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/physiotherapy/postgraduate-certificate/applications-artificial-intelligence-iot-telemedicine**

Index

01
Introduction

It is increasingly common to hear terms such as Artificial Intelligence (AI) or Internet of Things (IoT) in everyday life. The natural trend towards Digitalization is a fact that is increasingly present in Physiotherapy. Large amounts of data are being handled, which implies the need for new tools for their management and correct use. In TECH, the main challenges of E-Health and Telemedicine are evaluated, and goes a step further by creating this program. With it, you will learn the basics of the E-Health platform or the monitoring of patients with reduced mobility. All this under a convenient online modality in which the student will manage their course load according to their own needs.

Improve your approach and injury prevention through AI"

When talking about physiotherapists and the application of AI, it is common in society to think of treatment of athletes or injuries in the elite, and it is not assimilated that currently this technology is available for everyone. Through this program, the aim is to provide the physiotherapist with the resources that will prepare them to get the most out of Telemedicine or IoT, this way providing better patient care, without forgetting that the focus of E-Health is the patient temselves.

This Postgraduate Certificate will also specify the needs of user data protection, in addition to examining the use of GPU acceleration to handle large volumes of data and achieve results in record time, thus facilitating early action. In this way, the graduate will also analyze the most current applications of Artificial Intelligence algorithms for image processing.

In addition, students will be able to solve their doubts quickly and efficiently through the Virtual Campus. Always online, they will be able to combine this degree with their personal or professional activities, being able to access the resources 24 hours a day and download them for offline consultation.

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

- The development of practical cases presented by experts in Applications of Artificial Intelligence and IoT in Telemedicine
- 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 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 in a high-level program with the best professionals, who will prepare you for the society of the present and future"

"With this program you will boost your professional career thanks to AI in only 150 hours"

Get updated on the best physiotherapeutic strategies through Telemedicine.

Learn about prevention and monitoring in real time with the most dynamic educational resources.

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 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. This will be done with the help of an innovative system of interactive videos made by renowned experts.

02
Objectives

The objective of this Postgraduate Certificate in Applications of Artificial Intelligence and IoT to Telemedicine is that students get a boost in their professional career, thanks to the extensive knowledge that TECH offers. This way, the objective is that every Physiotherapy professional that access this program will acquire advanced skills on Nanorobots or Natural Language Processing, which will add a differential and advanced aspect in their career.

Achieve objectives and propose communication protocols in different scenarios in the healthcare environment"

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 e-Health
- 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 e-Health
- 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

♦ Propose communication protocols in different scenarios in the healthcare field

♦ Analyze IoT communication, as well as its application areas in e-Health

♦ Substantiate the complexity of artificial intelligence models in its use in healthcare

♦ Identify the optimization brought by parallelization in GPU-accelerated applications and its use in healthcare

♦ Present all the Cloud technologies available to develop E-Health and IoT products, both in computing and communication

Benefit from all the Cloud technologies available to make your patient care more practical"

03

Course Management

In TECH excellence is an indisputable maxim. Therefore, it has experienced career professionals at a high level, to offer its students an elite education and a solid knowledge in the field of Physiotherapy. For this reason, the present Postgraduate Certificate has qualified professionals who will enable the graduate to manage E-Health platforms, the resources offered or the parallelization of programs, always taking into account also the ethics for AI in the field of Medicine. In this way, TECH will prepare the graduate for the Physiotherapy of the future.

Take your career in Physiotherapy to unexpected heights with the keys provided by experts in AI and IoT"

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, specializing in Biomedical Engineering, University of Malaga and University of Seville
- Master's Degree in Intelligent Avionics, 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 GPUs

04
Structure and Content

This syllabus has been designed to meet the needs of Physiotherapy with respect to Artificial Intelligence and IoT, mainly in Telemedicine. Responding to the requirements of the highest professional level, the teaching team of this Postgraduate Certificate has established a curriculum that brings to the forefront aspects such as remote analysis of results, monitoring of patients with reduced mobility or Artificial Intelligence algorithms for image processing. All this by consulting dynamic interactive diagrams, videos or case studies.

TECH allows you to expand your knowledge in a flexible, online way, always adapted to your needs"

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 Platform
    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.   Applications of 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

This program designed by the best professionals will turn you into a differential physiotherapist thanks to TECH's innovative methodology: Relearning"

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.
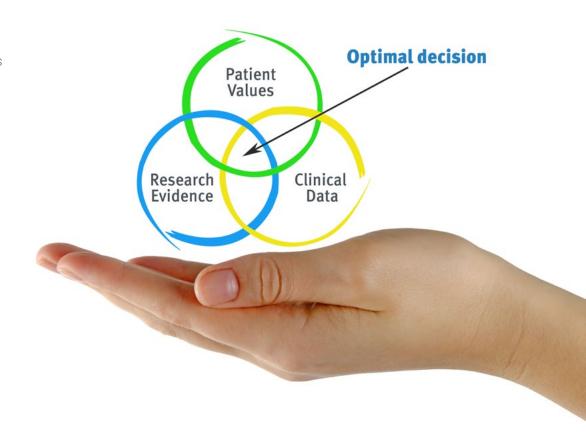
Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Physiotherapists/kinesiologists learn better, faster, 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, trying to recreate the real conditions of professional physiotherapy 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. Physiotherapists/kinesiologists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.

2. The learning process has a clear focus on practical skills that allow the physiotherapist/kinesiologist 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.

This 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, a real revolution with respect to the mere study and analysis of cases.

The physiotherapist/kinesiologist 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 we trained more than 65,000 physiotherapists/kinesiologists with unprecedented success in all clinical specialties, regardless of the workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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.

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 our 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 produced by the specialists who teach the course, specifically for the course, so that the teaching content is really 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.

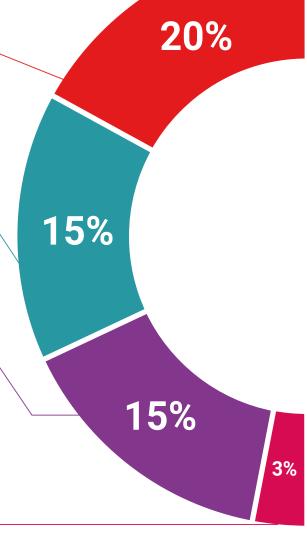### Physiotherapy Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current Physiotherapy techniques and procedures. All of this in direct contact with students and explained in detail so as to aid their assimilation and 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, TECH presents real cases in which the expert will guide students, 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.

Certificate

The Postgraduate Certificate in Applications of Artificial Intelligence and IoT in 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 in Telemedicine** contains the most complete and up-to-date scientific 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 in 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 in 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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