

# Postgraduate Diploma

## Musculoskeletal Ultrasound In Knee and Leg Physiotherapy





## Postgraduate Diploma Musculoskeletal Ultrasound In Knee and Leg Physiotherapy

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/physiotherapy/postgraduate-diploma/postgraduate-diploma-musculoskeletal-ultrasound-knee-leg-physiotherapy](http://www.techtute.com/us/physiotherapy/postgraduate-diploma/postgraduate-diploma-musculoskeletal-ultrasound-knee-leg-physiotherapy)

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# 01

# Introduction

As a result of technological advances, the methods used to measure the extent of knee and leg injuries have become more sophisticated in order to make a rigorous diagnosis. In this line, musculoskeletal ultrasound allows real-time observation of the patient's joint situation in order to subsequently optimize the therapy for rehabilitation. Given the benefits offered, physiotherapists must handle this imaging technique with solvency to ensure the well-being of their patients. Because of this, TECH has created this program with which, online, the student will master the exploration of structures of the anterior aspect of the knee or the back of the leg to be at the forefront of their field.





“

*Master, through this program, the latest methods of exploration of the structures of the different faces of the knee to optimize the diagnosis and treatment of different types of knee injuries”*

Imaging techniques have evolved significantly in recent years, in order to favor the detection of pathologies produced in the knee and leg in a short interval of time to undertake their therapeutic treatment with immediacy. Consequently, the use of musculoskeletal ultrasound is an excellent option in the field of physiotherapy to shorten the patient's recovery time and guarantee their optimum state of health once the injury has been overcome. The advantages of its use have led to physiotherapists specialized in the management of this cutting-edge diagnostic and therapeutic method are increasingly required by clinics, hospitals and other health institutions.

For this reason, TECH has created this Postgraduate Diploma, which will provide its students with the most advanced knowledge in the exploration of knee and leg structures through musculoskeletal ultrasound, with the aim of promoting the expansion of their skills in this field and place you as a first level professional. Throughout this academic period, you will master the mechanisms of detection of the most common tendon pathologies of the knee or increase your ability to explore the sciatic nerve in this joint. In addition, you will handle the dynamic tests that allow you to establish the extent and status of a leg injury.

Because this program is taught in a 100% online mode, students will have the ability to combine their excellent learning with their own personal lives thanks to the accessibility of teaching resources 24 hours a day. These materials, in turn, are available in formats such as the interactive summary or the evaluative test to drive effective teaching.

This **Postgraduate Diploma in Musculoskeletal Ultrasound In Knee and Leg Physiotherapy** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical case studies presented by physicians specialized in Physical Rehabilitation Medicine and physiotherapists
- ♦ 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 assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*Incorporate the latest advances in Musculoskeletal Ultrasound in Knee and Leg Physiotherapy in your work methodology to enhance your professional development”*

“

*In this Postgraduate Diploma you will find the best teaching material in musculoskeletal ultrasound and, given its 100% online condition, you will be able to consult it from anywhere with a mobile device with an Internet connection”*

*In only 425 hours, you will acquire a series of skills that will allow you to access the best job opportunities in the world of Physiotherapy.*

*Increase your confidence in making physiotherapeutic decisions by updating your knowledge in musculoskeletal ultrasound for knee and leg through this Postgraduate Diploma.*

The program includes, in its teaching staff, professionals from the sector who bring to this program the experience of their work, in addition to recognized specialists from prestigious reference societies and 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, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02 Objectives

This Postgraduate Diploma has been designed with the aim of promoting the updating and expansion of knowledge and skills in the management of musculoskeletal ultrasound for knee and leg for physical therapists. In this program, the student will delve into the joint exploration by this method to optimize their therapeutic work. The acquisition of these skills is guaranteed thanks to the general and specific objectives proposed by TECH.





A close-up photograph of a person's hand and ear, showing skin texture and hair. The hand is positioned near the ear, with fingers slightly curled. The background is a gradient of white and blue.

“

*Advance in your profession thanks to the completion of this Postgraduate Diploma, which will allow you to combine your professional work and your private life with your academic learning”*



## General Objectives

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- ◆ Learn to locate the different anatomical structures of the region
- ◆ Identify pathologies for a correct treatment of ultrasound-guided rehabilitation medicine
- ◆ Define the limits of ultrasound
- ◆ Learn about the use of ultrasound in the framework of physiotherapist skills

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*TECH offers you A unique, key, and decisive experience to boost your professional development in the field of physiotherapy”*





## Specific Objectives

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### Module 1. Basic Ultrasound

- ♦ Learn what ultrasound and an ultrasound scanner consists of, its history and its application in physiotherapy
- ♦ Identify the ultrasound patterns of the different structure of the locomotor system
- ♦ Study the different artifacts that exist in ultrasound and learn how to use them in a beneficial way
- ♦ Explain the use of ultrasound by the rehabilitation physician and its legal considerations
- ♦ Describe the piezoelectric effect and the physical basis of ultrasound
- ♦ Explain the different components of the equipment
- ♦ Explain the production of the ultrasound image
- ♦ Describe the terminology used in ultrasound
- ♦ Define the types of images obtained by ultrasound and the different tissue patterns

### Module 2. Ultrasound of the Lower Limb: knee

- ♦ Recognize the tendon and ligament structures of the knee and their most common injuries
- ♦ Describe the normal examination of the structures of the anterior aspect of the knee
- ♦ Describe the normal examination of the structures of the lateral aspect of the knee
- ♦ Describe the normal examination of the structures of the posterior aspect of the knee
- ♦ Describe the normal examination of the structures of the medial aspect of the knee
- ♦ Identify the most common lesions, to ensure correct ultrasound-guided treatment and/or monitoring of their evolution
- ♦ Learn how to perform ultrasound-guided dynamic assessment tests for the knee
- ♦ Describe the least common pathologies that can affect the knee

### Module 3. Ultrasound of the Lower Limb: Leg

- ♦ Learn the echo anatomy of the different structures of the leg in all its compartments
- ♦ Identify the muscles of the leg and the most common muscular lesions in this part of the body
- ♦ Describe the normal examination of the structures of the anterior aspect of the leg
- ♦ Describe the normal examination of the structures of the lateral aspect of the leg
- ♦ Describe the normal examination of the structures of the posterior aspect of the leg
- ♦ Learn how to perform ultrasound-guided dynamic assessment tests for the leg
- ♦ Describe the least common pathologies that can affect the leg

03

# Course Management

With the maxim of offering qualifications endowed with a high academic level, this program has a teaching staff made up of medical specialists of reference in Physical Medicine and Rehabilitation and physiotherapists and physiotherapists who pour into this program the experience of their work. These professionals are charge of developing all of the teaching materials to which the students will have access during the duration of this Postgraduate Diploma. Therefore, the knowledge that you will acquire will be of complete applicability in your day to day work.





“

*Access an academic program taught by the best specialists in Physical Medicine and Rehabilitation and in Physiotherapy, who will provide you with the most efficient competences to progress in your sector”*

## Management



### Dr. Castillo Martin, Juan Ignacio

- Head of Physical Medicine and Rehabilitation Service. Hospital 12 de Octubre. Madrid
- Doctor Specialist in Physical and Rehabilitation Medicine, Hospital Complex Ruber Juan Bravo
- Rehabilitation Physician at the Traffic Accidents Unit of the Ruber Juan Bravo Hospital Complex
- Rehabilitation Physician. Recoletas Cuenca Hospital
- Coordinator of continuing education of the Spanish Society of Cardiology in Exercise Testing with Oxygen Consumption
- Associate Professor, Complutense University of Madrid. Faculty of Medicine
- Teaching coordinator in continuing education courses at the Madrid Regional Ministry of Health: "Tertiary prevention in chronic cardiopathic patients. Cardiac Rehabilitation"
- Degree in Medicine and Surgery. University of Salamanca
- Master's Degree in Cardiac Rehabilitation. SEC-UNED
- Master in Disability Assessment Autonomous University Madrid
- Master Child Disability. Complutense University of Madrid
- Doctorate Course: Neurosciences University of Salamanca
- Member of the Spanish Society of Cardiology



## Professors

### Dr. Santiago Nuño, Fernando

- ◆ Physiotherapist, osteopath, podiatrist and co-director of Clínica Nupofis
- ◆ Physiotherapist and podiatrist at the Armstrong International Clinic
- ◆ Orthopedist at Ortoaccesible
- ◆ Professor of Musculoskeletal Ultrasound and Ultrasound-guided Infiltration at the Complutense University of Madrid and the European University of Madrid
- ◆ Doctor in Podiatry from the University of La Coruña
- ◆ Physiotherapist specializing in Traumatology, Neurology and Sports Injury Rehabilitation in Armstrong International Clinic
- ◆ Master's Degree in Advanced Clinical Podiatry from the CEU-Cardenal Herrera University
- ◆ Master's Degree in Clinical Management, Medical Direction and Assistance at the CEU-Cardenal Herrera Oria University
- ◆ Master's Degree in Musculoskeletal Ultrasound by the CEU-Cardenal Herrera Oria University
- ◆ Master of Specialist in Manual Therapy by the Complutense University of Madrid
- ◆ Master in On-line Research in Podiatry by the Universidad Rey Juan Carlos Madrid
- ◆ Master of Specialist and Supervisor of Orthopedic Products by the Complutense University of Madrid

#### **Dr. Casado Hernández, Israel**

- ♦ Podiatrist and Podiatric Researcher
- ♦ Director of Vitalpie
- ♦ Podiatrist in grassroots soccer clubs such as Getafe CF or AD Alcorcón
- ♦ Associate lecturer in university studies
- ♦ Author of more than 20 scientific articles and 7 book chapters
- ♦ Doctor in Epidemiology and Clinical Research in Health Sciences Rey Juan Carlos University
- ♦ Degree in Podiatric Medicine from the Complutense University of Madrid
- ♦ Master in Podiatric Research, Universidad Rey Juan Carlos, Madrid

#### **Dr. García Expósito, Sebastián**

- ♦ Expert in radiodiagnostic applications and techniques
- ♦ Radiodiagnostic technician at Centro de la Mujer de Sanitas
- ♦ Radiodiagnostic technician at Hospital de la Zarzuela
- ♦ Degree in Bioimaging Production from the National University of Lomas de Zamora

#### **Dr. Moreno, Cristina Elvira**

- ♦ Physiotherapist expert in Musculoskeletal Ultrasonography
- ♦ Physiotherapist at the Nupofis Clinic
- ♦ Physiotherapist at Clínica Fisios Islas 21
- ♦ Physiotherapist at Clínica Más Fisio
- ♦ Physiotherapist at Parkinson Association Madrid
- ♦ Graduate in Physiotherapy from the Complutense University of Madrid
- ♦ Master in Musculoskeletal Ultrasound in Physiotherapy by CEU San Pablo University

#### **Dr. Nieri, Martín**

- ♦ Diagnostic Imaging Technician expert in Musculoskeletal Ultrasonography
- ♦ Diagnostic Imaging Technician at the University Hospital Son Espases
- ♦ CEO of Ultrasound & Teleradiology Assistance Service SL
- ♦ Director of the Department of Quality Control in Ultrasound in Service at Asistencia Ultrasonido & Teleradiología SL
- ♦ Freelance Diagnostic Imaging Technician
- ♦ Lecturer in Ultrasound training courses
- ♦ Participation in several Ultrasound projects

#### **Dr. Pérez Calonge, Juan José**

- ♦ Podiatrist expert in Integral Foot Surgery
- ♦ Podiatrist at Clínica Podológica Gayarre
- ♦ Author of the article Technique of direct examination of onychomycosis by microscopy with potassium hydroxide
- ♦ Doctor in Health Sciences from the Public University of Navarra
- ♦ Official Master's Degree in Health Expertise from the Complutense University of Madrid
- ♦ Official Master's Degree in Advanced Podiatry, CEU
- ♦ Expert in Surgery by the Complutense University of Madrid
- ♦ Course of Foot Infiltration by the Complutense University of Madrid



**Dr. Sánchez Marcos, Julia**

- ♦ Physiotherapist, osteopath and Pilates teacher at Clínica Nupofis
- ♦ Physiotherapist and osteopath at the Isabel Amoedo Physiotherapy Clinic
- ♦ Physiotherapist at the Hospital Vithas Nuestra Señora de Fátima
- ♦ Physiotherapist at ASPODES-FEAPS
- ♦ Physiotherapist at the Fisiosalud Clinic
- ♦ Master in Electrotherapy at CEU Cardenal Herrera University
- ♦ Expert in Ultrasound Sonoanatomy of the Locomotor Apparatus by the European University
- ♦ Course of Neurodynamics by Zerapi Fisioterapia Avanzada
- ♦ Course of Percutaneous Therapeutic Electrolysis "EPTÉ"
- ♦ Course of Neurodynamic Myofascial and Articular Fibrolysis "Hooks" by Instema
- ♦ Diathermy Course by Helios Electromedicina

**Mr. Santiago Nuño, José Ángel**

- ♦ Physiotherapist, osteopath, dietician, nutritionist and co-director of the Nupofis Clinic
- ♦ Dietician and nutritionist in different physiological situations at Medicadiet
- ♦ Diploma in Physiotherapy from San Pablo CEU University
- ♦ Diploma in Human Nutrition and Dietetics from San Pablo CEU University
- ♦ Postgraduate Specialist in Food Exchange System for the preparation of diets and menu planning from the University of Navarra
- ♦ Physiotherapist specializing in Traumatology, Neurology and Sports Injury Rehabilitation in Armstrong International Clinic
- ♦ Specialist Master's Degree in Sports Physiotherapy from the Complutense University of Madrid
- ♦ Expert in Traditional Chinese Medicine and Acupuncture for Physiotherapists at the University of Castilla La Mancha

**Dr. Teijeiro, Javier**

- ♦ Director and physiotherapist of Atlas Clínica de Fisioterapia
- ♦ Physiotherapist and technical director of the Physiotherapy Service of the San Pablo and San Lázaro de Mondoñedo Welfare Center
- ♦ Regional Delegate of the Spanish Society of Ultrasound and Physical Therapy
- ♦ Physiotherapist of the Dinán Viveiro Clinic
- ♦ Doctorate in Health, Disability, Dependence and Welfare
- ♦ Master in Natural Medicine and its applications in Primary Care by the University of Santiago de Compostela
- ♦ Master's Degree in Pharmacology for Physiotherapists from the University of Valencia
- ♦ Official Master's Degree in Intervention in Disability and Dependency by the University of A Coruña
- ♦ Master in Diagnostic Imaging by the University of Valencia
- ♦ University Expert in Musculoskeletal Ultrasound by Francisco de Vitoria University

# 04

## Structure and Content

The syllabus of this Postgraduate Certificate consists of 3 modules through which the student will expand and update their skills in the management of musculoskeletal ultrasound oriented to the knee and leg. All the teaching Material you will have at your disposal throughout this program are available in a wide range of textual and multimedia formats. Thanks to this and to the 100% online methodology offered by the program, you will enjoy an enjoyable learning experience completely adapted to your learning needs.



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*The 100% online methodology of this program will enable you to achieve optimized learning without having to travel to study centers”*

## Module 1. Basic Ultrasound

- 1.1. Basic Ultrasound I
  - 1.1.1. General Aspects of Musculoskeletal
  - 1.1.2. Physical Bases of Ultrasound. Piezoelectric Effect
- 1.2. Basic Ultrasound II
  - 1.2.1. Knowledge of the Equipment
  - 1.2.2. Equipment Management: Parameters
  - 1.2.3. Technological Improvements
- 1.3. Basic Ultrasound III
  - 1.3.1. Artifacts in Ultrasound
  - 1.3.2. Foreign Bodies
  - 1.3.3. Types of Images and Different Tissue Patterns in Ultrasound
  - 1.3.4. Dynamic Maneuvers
  - 1.3.5. Advantages and Disadvantages of Ultrasound

## Module 2. Ultrasound of the Lower Limb: knee

- 2.1. Normal Sonoanatomy of the Knee
  - 2.1.1. Examination of the Anterior Aspect Structures
  - 2.1.2. Examination of the Medial Aspect Structures
  - 2.1.3. Examination of the Lateral Aspect Structures
  - 2.1.4. Examination of the Posterior Aspect Structures
    - 2.1.4.1. Sciatic Nerve Examination
- 2.2. Knee Ligament Pathology
  - 2.2.1. Most Common Tendon Pathology
  - 2.2.2. Other Knee Joint Pathology
- 2.3. Dynamic Tests on the Knee



### Module 3. Ultrasound of the Lower Limb: Leg

- 3.1. Normal Sonoanatomy of the Leg
  - 3.1.1. Examination of the Anterior Aspect Structures
  - 3.1.2. Examination of the Lateral Aspect Structures
  - 3.1.3. Examination of the Posterior Aspect Structures
- 3.2. Leg Pathology
  - 3.2.1. Most Common Pathologies of the Leg
- 3.3. Dynamic Tests on the Leg

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*Enjoy the latest didactic content  
in Musculoskeletal Ultrasound  
in Knee and Leg Physiotherapy  
by enrolling in this program”*

# 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.





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*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.



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*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.*

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.





#### 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.



# 06 Certificate

The Postgraduate Diploma in Musculoskeletal Ultrasound In Knee and Leg Physiotherapy guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Diploma in Musculoskeletal Ultrasound In Knee and Leg Physiotherapy** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Musculoskeletal Ultrasound In Knee and Leg Physiotherapy**

Official N° of Hours: **425 h.**



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



future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



**Postgraduate Diploma**  
Musculoskeletal Ultrasound  
In Knee and Leg  
Physiotherapy

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Postgraduate Diploma

## Musculoskeletal Ultrasound In Knee and Leg Physiotherapy