



# Postgraduate Diploma

Head, Neck and Locomotor System Ultrasound for Nursing

» Modality: online

» Duration: 6 months

» Certificate: TECH Global University

» Credits: 18 ECTS

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-head-neck-locomotor-system-ultrasound-nursin

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Certificate





# tech 06 | Introduction

In recent years, ultrasound of the head, neck and locomotor system has become one of the most widely used disciplines in routine clinical practice. Its use in primary care has led to an increase in diagnostic and resolution capacity, allowing screening and prior diagnosis that filters the referral of complementary explorations, as well as a shortening of time and improvement of health care

Thanks to technological advances, the size of ultrasound scanners has been reduced considerably in recent decades, making them cheaper and more portable, as well as increasing their applications

Now, they have become a popular and valuable tool in guiding diagnostic and therapeutic interventions. They have also helped to increase the potential of Clinical Ultrasound, achieving a notable increase in its applications

Primary care is undoubtedly one of the areas where Clinical Ultrasound is most widely used. Nursing professionals can benefit from Clinical Ultrasound to favorably influence diagnosing and treating different pathologies, improving patient safety, reducing waiting times and possible errors

Undoubtedly, Clinical Ultrasound is a most opportune tool given it can instantly provide the right answers to the questions needed for better patient care

It endorses the latest advances in ultrasound with a robust and didactic teaching program, which positions it as a product of the highest scientific rigor aimed at health professionals at the international level. In addition, the program is based on a multidisciplinary approach to its subjects, which allows for training and professional development in different areas

The Postgraduate Diploma in Head, Neck and Locomotor System Ultrasound for Nursing contains the most complete and up-to-date scientific program on the market. The most important features include:

- Numerous clinical cases presented by ultrasound experts
- The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional
- New diagnostic-therapeutic developments on evaluation, diagnosis, and intervention in problems or disorders that can be addressed with ultrasound
- It contains practical exercises where the self-evaluation process can be carried out to improve learning
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- Special emphasis on evidence-based medicine and research methodologies in ultrasound processes
- Content that is accessible from any fixed or portable device with an Internet connection
- All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments



We put at your disposal the most complete training, from the hand of the main professionals in the field, to achieve the objectives of a quality praxis that every nurse should pursue"



With the Postgraduate Diploma in Head, Neck and Locomotor System Ultrasound, you will master the latest ultrasound techniques and tools"

The teaching staff is made up of prestigious and renowned professionals who have extensive experience in healthcare, teaching, and research in various countries, contributing their professional expertise to this Postgraduate Diploma

The methodological design of this Postgraduate Diploma developed by a multidisciplinary team of experts in e-learning integrates the latest advances in educational technology to create numerous multimedia tools that allow professionals to resolve real situations in their daily practice. These will enable you to advance by both acquiring knowledge and developing new skills in your future professional work

The contents generated for this Postgraduate Diploma, as well as the videos, self-exams, clinical cases, and modular exams, have been thoroughly reviewed, updated, and integrated by the professors and the team of experts that make up the course working group, in order to gradually and educationally facilitate a learning process that allows for the objectives of the teaching program to be achieved

Our trainings have the best teaching methodology and the latest didactic tools, which will allow you to study from home, but without losing the possibilities offered by on-site classes.

Technological advances have led to improved ultrasound scanners, which are becoming more useful in a variety of new situations.







# tech 10 | Objectives



# **General Objectives**

- Acquire the necessary knowledge in the use of ultrasound, in order to manage the routine situations of their practical use in healthcare
- Apply the skills acquired while performing the duties of an ultrasound specialist
- Use the latest clinical developments in the day-to-day work of a Nursing professional



Make the most of the opportunity and take the step to get up to date on the latest developments in Primary Care Clinical Ultrasound for Nursing"





# **Specific Objectives**

### Module 1. Ultrasound Imaging

- Optimize ultrasound imaging through in-depth knowledge of the physical principles of ultrasound, its controls and operation
- Understand basic and advanced ultrasound procedures, both diagnostic and therapeutic
- Practice all ultrasound modes in the safest way for the patient
- Know the indications and limitations of Clinical Ultrasound, and its application in the most common clinical situations
- Predict the results of invasive diagnostic procedures non-invasively by using ultrasound, with the possibility of replacing them

### Module 2. Clinical Ultrasound of the Head and Neck

- Inquire into the correct processes to perform ultrasound on the upper part of the patient
- Know the main reasons and diseases that require a brain ultrasound
- Manage the correct postures to properly carry out ultrasound
- Identify and recognize the possible results of the ultrasound sample
- Delve into the fast-acting treatments to prevent possible brain diseases based on ultrasound samples

### Module 3. Musculoskeletal Clinical Ultrasound

- Recognize and identify the muscles and bones in the human body
- Perform ultrasound procedures to diagnose trauma, fracture or swelling in patients
- Identify the main problems and diseases that affect muscles and generate hypertrophy
- Perform ultrasound examinations as a pre-surgical procedure in fractures and lacerations that require implants or brain screw posture
- Manage the correct postures to properly carry out ultrasound
- Identify and recognize the possible results of the ultrasound sample
- Delve into the fast-acting treatments to prevent possible brain diseases based on ultrasound samples





# tech 14 | Course Management

### Management



### Dr. Fumadó Queral, Josep

- Family physician at Els Muntells Primary Care Center (Amposta, Tarragona).
- Graduate in Clinical Ultrasound and Training of Trainers, University of Montpelier-Nîmes, France
- Lecturer at the Associació Mediterrània of General Medicine
- Teacher at the Spanish School of Ultrasound of the Spanish Society of General and Family Physicians (SEMG)
- Honorary Member of the Canary Society of Ultrasound (SOCANECO) and Professor of its Annual Symposium
- Lecturer on the Master's Degree in Clinical Ultrasound for Emergencies and Critical Care, CEU Cardenal Herrera University



# Dr. Pérez Morales, Luis Miguel

- Family physician at the Primary Care Center of Arucas (Gran Canaria, Canary Islands).
- Diploma in Ultrasound in Primary Care University Rovira i Virgili Catalan Institute of Health
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- Expert in Abdominal and Musculoskeletal Clinical Ultrasound for Emergency and Critical Care, CEU Cardenal Herrera University
- $\cdot$  President and Professor of the Canary Society of Ultrasound (SOCANECO) and Director of its Annual Symposium
- Lecturer on the Master's Degree in Clinical Ultrasound for Emergencies and Critical Care, CEU Cardenal Herrera University

### **Scientific Committee**

### Dr. Álvarez Fernández, Jesús Andrés

- Specialist in Intensive Care Medicine
- Intensive Care Medicine and Major Burns Service, Getafe University Hospital Getafe, Madrid
- Director of the Master's Degree in Clinical Ultrasound in Emergency and Critical Care, CEU Cardenal Herrera University
- Director of the Master's Degree in Clinical Imaging in Emergency and Critical Care, CEU Cardenal Herrera University
- Professor on the Specialist Degree in Thoracic Ultrasound, University of Barcelona

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- Tutor at the Family and Community Medicine Teaching Unit, Burgos
- Teacher at the Spanish School of Ultrasound of the Spanish Society of General and Family Physicians (SEMG)
- Member of the Spanish Society of Ultrasound (SEECO) and the Spanish Association of Prenatal Diagnosis (AEDP)

### Dr. Jiménez Díaz, Fernando

- Specialist in Sports Medicine
- Professor in the Faculty of Sports Sciences, University of Castilla La Mancha Toledo
- Director of the International Chair of Musculoskeletal Ultrasound, Catholic University of Murcia
- Professor on the Master's Degree in Clinical Imaging in Emergency and Critical Care, CEU Cardenal Herrera University

### Dr. Sánchez Sánchez, José Carlos

- Radiodiagnosis Specialist
- Director of the Integrated Diagnostic Imaging Management Area and Intrahospital Coordinator of the Breast Cancer Early Detection Program, Poniente Hospital El Ejido, Almería
- Professor on the Specialist Degree in Clinical Ultrasound for Family Physicians, University of Barcelona

# tech 16 | Course Management

### **Professors**

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### Dr. Barceló Galíndez, Juan Pablo

• Specialist in Occupational Medicine and Medical Sonographer, Mutualia Bilbao

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• Family Physician Tamaraceite Health Center. Las Palmas de Gran Canaria, Canary Islands

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### Dr. Martín del Rosario, Francisco Manuel

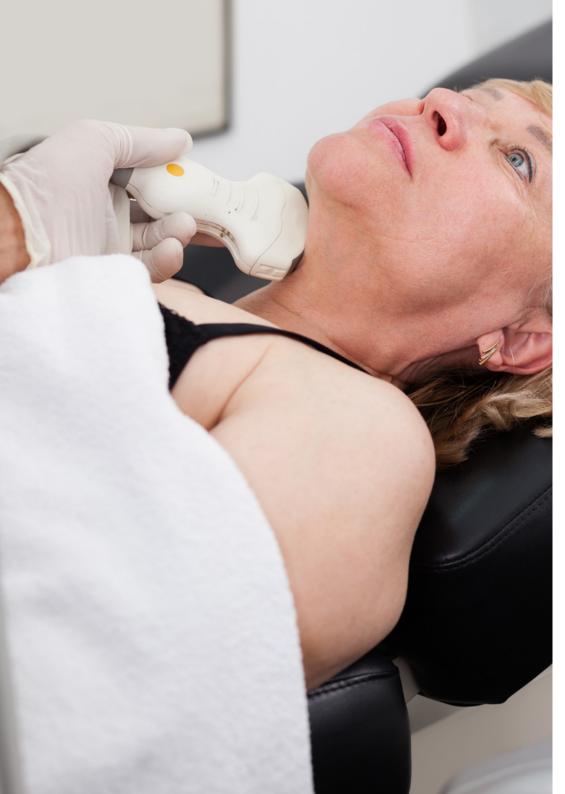
• Rehabilitation Specialist. Insular University Hospital Complex, Maternity and Infant. Las Palmas de Gran Canaria

### D. Moreno Valdés, Javier

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### Dr. Núñez Reiz, Antonio

Specialist in Intensive Medicine, San Carlos Clinical University Hospital Getafe, Madrid



# Course Management | 17 tech

### Dr. Santos Sánchez, José Ángel

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### Dr. Segura Blázquez, José María

• Family Physician Canalejas Health Center Las Palmas de Gran Canaria, Canary Islands

### Dr. Wagüemert Pérez, Aurelio

 Specialist in Pulmonology, San Juan de Dios Hospital Santa Cruz de Tenerife, Canary Islands

### Dr. García García, Nicasio

• Family Physician, Schamann Health Center



You will be supported by a teaching staff made up of distinguished specialists in the field, who will guide you throughout the learning process"





# tech 20 | Structure and Content

### Module 1. Ultrasound Imaging

- 1.1. Physical Principles
  - 1.1.1. Sounds and Ultrasound
  - 1.1.2. The Nature of Sound
  - 1.1.3. Interaction of Sound with Matter
  - 1.1.4. The Concept of Ultrasound
  - 1.1.5. Ultrasound Safety
- 1.2. Ultrasound Sequence
  - 1.2.1. Ultrasound Emission
  - 1.2.2. Tissue Interaction
  - 1.2.3. Echo Formation
  - 1.2.4. Ultrasound Reception
  - 1.2.5. Ultrasound Image Generation
- 1.3. Ultrasound Modes
  - 1.3.1. Modes A and M
  - 1.3.2. B Mode
  - 1.3.3. Doppler Modes (Color, Angio and Spectral)
  - 1.3.4. Combined Modes
- 1.4. Ultrasound Scanners
  - 1.4.1. Common Components
  - 1.4.2. Classification
  - 1.4.3. Transducers
- 1.5. Ultrasound Maps and Echonavigation
  - 1.5.1. Spatial Layout
  - 1.5.2. Ultrasound Maps
  - 1.5.3. Transducer Movements
  - 1.5.4. Practical Advice
- 1.6. Trends in Ultrasound
  - 1.6.1. 3D/4D Ultrasound
  - 1.6.2. Sonoelastography
  - 1.6.3. Echopotentiation
  - 1.6.4. Other Modes and Techniques

### Module 2. Clinical Ultrasound of the Head and Neck

- 2.1. Anatomy Recap
  - 2.1.1. Cranium and Face
  - 2.1.2. Tubular Structures
  - 2.1.3. Glandular Structures
  - 2.1.4. Vascular Structures
- 2.2. Ocular Ultrasound
  - 2.2.1. Ultrasound Anatomy of the Eye
  - 2.2.2. Ocular Ultrasound Technique
  - 2.2.3. Indications and Contraindications of Ocular Ultrasonography
  - 2.2.4. Ultrasound Report
- 2.3. Ultrasound of Salivary Glands
  - 2.3.1. Regional Sonoanatomy
  - 2.3.2. Technical Aspects
  - 2.3.3. Most Common Tumor and Non-Tumor Pathologies
- 2.4. Thyroid Ultrasound
  - 2.4.1. Ultrasound Technique
  - 2.4.2. Indications
  - 2.4.3. Normal and Pathological Thyroid
  - 2.4.4. Diffuse Goiter
- 2.5. Ultrasound Examination of Adenopathies
  - 2.5.1. Reactive Lymph Nodes
  - 2.5.2. Non-Specific Inflammatory Diseases
  - 2.5.3. Specific Lymphadenitis (Tuberculosis)
  - 2.5.4. Primary Lymph Node Diseases (Sarcoidosis, Hodgkin's Lymphoma, Non-Hodgkin's Lymphoma)
  - 2.5.5. Lymph Node Metastases
- 2.6. Ultrasound of the Supra-Aortic Trunks
  - 2.6.1. Sonoanatomy
  - 2.6.2. Scanning Protocol
  - 2.6.3. Extracranial Carotid Pathology
  - 2.6.4. Vertebral Pathology and Subclavian Artery Steal Syndrome

### Module 3. Musculoskeletal Clinical Ultrasound

- 3.1. Anatomy Recap
  - 3.1.1. Anatomy of the Shoulder
  - 3.1.2. Anatomy of the Elbow
  - 3.1.3. Anatomy of the Wrist and Hand
  - 3.1.4. Anatomy of the Hip and Thigh
  - 3.1.5. Anatomy of the Knee
  - 3.1.6. Anatomy of the Ankle, Foot, and Leg
- 3.2. Technical Requirements
  - 3.2.1. Introduction
  - 3.2.2. Musculoskeletal Ultrasound Equipment
  - 3.2.3. Ultrasound Imaging Methods
  - 3.2.4. Validation, Reliability, and Standardization
  - 3.2.5. Ultrasound-Guided Procedures
- 3.3. Examination Technique
  - 3.3.1. Basic Concepts in Ultrasound
  - 3.3.2. Rules for Correct Examination
  - 3.3.3. Examination Technique in Ultrasound Study of the Shoulder
  - 3.3.4. Examination Technique in Ultrasound Study of the Elbow
  - 3.3.5. Examination Technique in Ultrasound Study of the Wrist and Hand
  - 3.3.6. Examination Technique in Ultrasound Study of the Hip
  - 3.3.7. Examination Technique in Ultrasound Study of the Thigh
  - 3.3.8. Examination Technique in Ultrasound Study of the Knee
  - 3.3.9. Examination Technique in Ultrasound Study of the Leg and Ankle
- 3.4. Sonoanatomy of the Musculoskeletal System: I. Upper Extremities
  - 3.4.1. Introduction
  - 3.4.2. Shoulder Ultrasound Anatomy
  - 3.4.3. Elbow Ultrasound Anatomy
  - 3.4.4. Wrist and Hand Ultrasound Anatomy

- 3.5. Sonoanatomy of the Musculoskeletal System: II. Lower Limbs
  - 3.5.1. Introduction
  - 3.5.2. Hip Ultrasound Anatomy
  - 3.5.3. Thigh Ultrasound Anatomy
  - 3.5.4. Knee Ultrasound Anatomy
  - 3.5.5. Ankle and Leg Ultrasound Anatomy
- 3.6. Ultrasound in the Most Frequent Acute Injuries of the Musculoskeletal System
  - 3.6.1. Introduction
  - 3.6.2. Muscle Injuries
  - 3.6.3. Tendon Injuries
  - 3.6.4. Ligament Injuries
  - 3.6.5. Subcutaneous Tissue Injuries
  - 3.6.6. Bone Injuries and Joint Injuries
  - 3.6.7. Peripheral Nerve Injuries

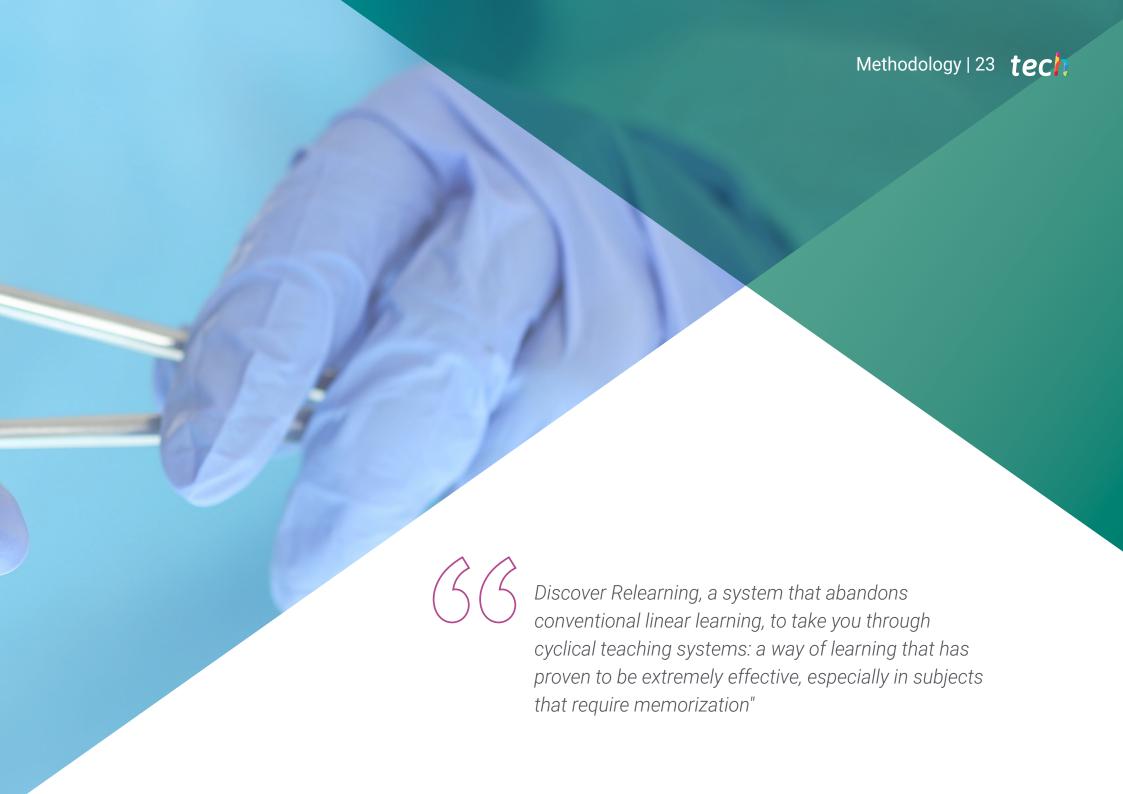


An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed"



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.

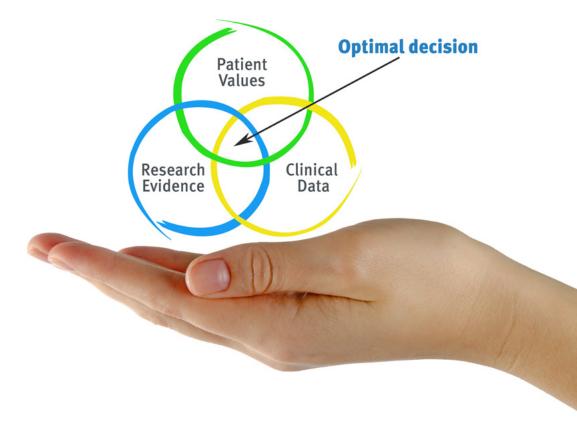


# tech 24 | Methodology

### At TECH Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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:

- Nurses 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 nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
- 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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.

The nurse 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.



# Methodology | 27 tech

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 have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical 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 specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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 TECH's 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.



### **Nursing Techniques and Procedures on Video**

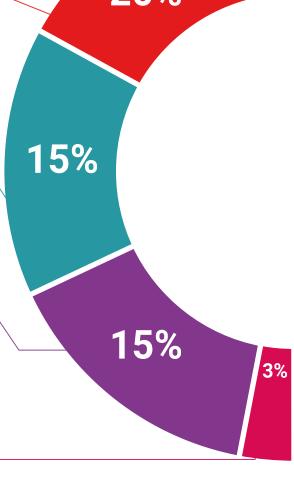
We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch them as many times as you 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 exclusive educational system for presenting multimedia content 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.



# Effective learning ought to be contextual. Therefore, TECH presents real cases in which

### **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.





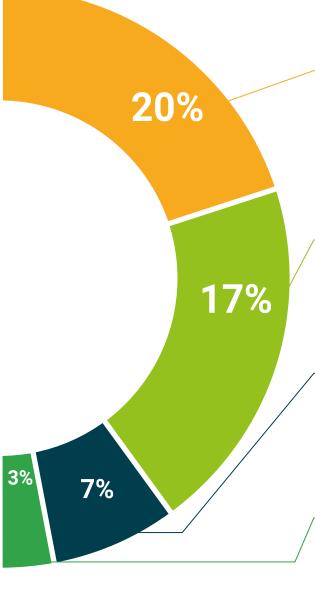
There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

### **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.







# tech 32 | Certificate

This private qualification will allow you to obtain a **Postgraduate Diploma in Head, Neck and Locomotor System Ultrasound for Nursing** 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** private qualification 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 Head, Neck and Locomotor System Ultrasound for Nursing

Modality: online

Duration: 6 months

Accreditation: 18 ECTS



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

### Postgraduate Diploma in Head, Neck and Locomotor System Ultrasound

### for Nursing

This is a private qualification of 540 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



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

# tech global university

# Postgraduate Diploma

Head, Neck and Locomotor System Ultrasound for Nursing

- » Modality: online
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- » Schedule: at your own pace
- » Exams: online

