



Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care for Nursing

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-ultrasound-guided-procedures-other-ultrasound-applications-primary-care-nursing

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# 01 Introduction

Thanks to technological advances, the size and price of ultrasound scanners have been reduced in recent years, allowing them to be used in ultrasound-guided procedures and in primary care. Therefore, it is essential for nursing professionals to be specialized in this highly demanded specialty, as it facilitates prior diagnosis and improves the quality of health care.



# tech 06 | Introduction

Thanks to technological advances, the size and price of ultrasound scanners have been reduced in recent years, allowing them to be used in ultrasound-guided procedures and in primary care. Therefore, it is essential for nursing professionals to be trained in this highly demanded specialty, as it facilitates prior diagnosis and improves the quality of health care.

Over the years, the ultrasound scanner has become an indispensable tool in healthcare. Today, its use is indispensable in diagnostic tests and guided procedures such as FNA, percutaneous biopsy, abscess drainage, pericardiocentesis or paracentesis. Due to its numerous applications and the growing need to incorporate ultrasound in daily healthcare practice, the Postgraduate Diploma in Ultrasound Guided Procedures and Other Ultrasound Applications in Primary Care is born.

Ultrasound is a safe, fast, reliable, innocuous and non-invasive test, well tolerated by patients, relatively low cost, and which has evolved into new, smaller and more accessible devices

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.

With this Postgraduate Diploma, students have the opportunity to take a program that brings together the most advanced and in-depth knowledge in the field, where a group of highly regarded professors with extensive international experience provides you with the most complete and up-to-date training on the latest advances and techniques in the use of ultrasound as an adjunct to physical examinations.

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 training and professional development in different areas.

The Postgraduate Diploma in Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care 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



Its teaching staff, composed of distinguished experts in the field, will guide and advise you throughout the training process"



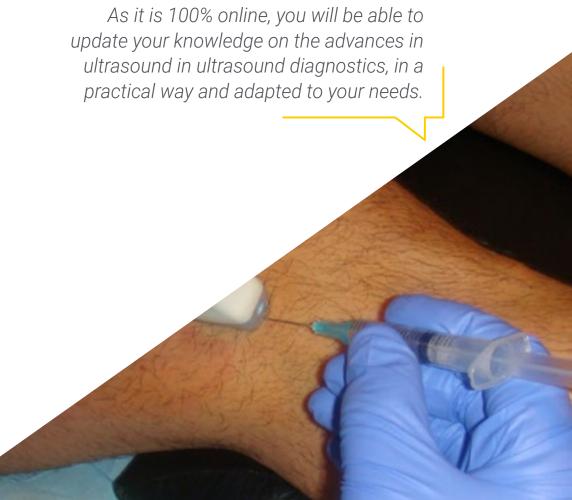
With the Postgraduate Diploma in Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care for Nursing, you will learn to master advanced ultrasound procedures and improve your resolution capacity"

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.

Thanks to the e-learning methodology, on which the design of the contents of this program is based, you will assimilate the knowledge more quickly and for a longer period of time.







# 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. Ultrasound-Guided Procedures

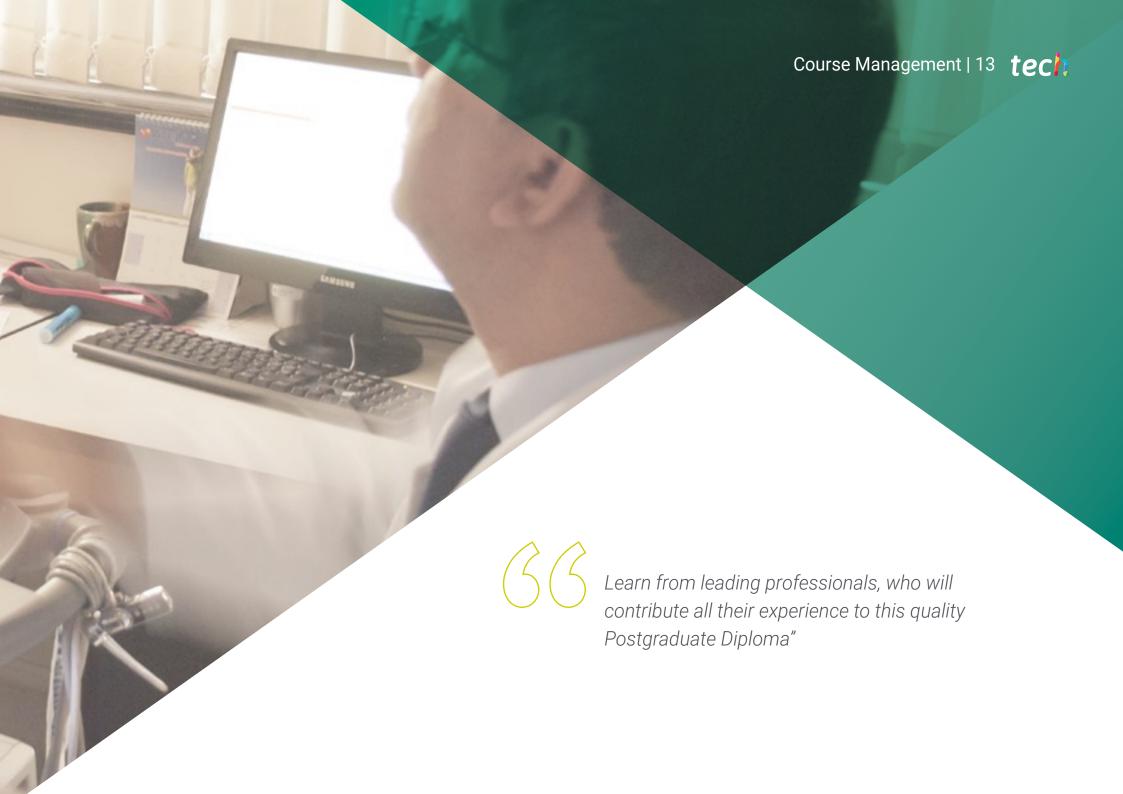
- Identify new echogenic materials and echogenic devices in regional anesthesia
- Delve into ultrasound-guided blocks in test taking
- Analyze new procedures used to identify diseases in patients

#### Module 3. Other Uses of Clinical Ultrasound

- · Become familiar with new advances in ultrasound
- Improve clinical ultrasound diagnostics
- Perform ultrasound on pregnant women to diagnose infants







#### 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
- Expert in Thoracic Ultrasound University of Barcelona
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#### **Scientific Committee**

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- 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

#### Dr. Herrera Carcedo, Carmelo

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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)

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- 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
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- Professor on the Specialist Degree in Clinical Ultrasound for Family Physicians, University of Barcelona

# tech 16 | Course Management

#### **Professors**

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 Ultrasound Portfolio Solutions Manager España, SIEMENS Healthcare Getafe, Madrid

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# Course Management | 17 tech

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#### Dr. Núñez Reiz, Antonio

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

#### Dr. Santos Sánchez, José Ángel

• Specialist in the Radiology Department, Salamanca University Hospital Salamanca

#### 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





# 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)
  - 134 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. Ultrasound-Guided Procedures

- 2.1. Ultrasound-Guided FNA
  - 2.1.1. Indications/Contraindications. Material
  - 2.1.2. Informed Consent
  - 2.1.3. Procedure
  - 2.1.4. Results
  - 2.1.5. Complications
  - 2.1.6. Quality Control
- 2.2. Ultrasound-Guided Percutaneous Biopsy
  - 2.2.1. Informed Consent
  - 2.2.2. Biopsy Materials (Types of Biopsy Needles)
  - 2.2.3. Procedure
  - 2.2.4. Complications
  - 2.2.5. Care
  - 2.2.6. Quality Control
- 2.3. Drainage of Abscesses and Fluid Collections
  - 2.3.1. Indications and Contraindications
  - 2.3.2. Informed Consent
  - 2.3.3. Requirements and Materials
  - 2.3.4. Technique and Approach: Direct Puncture (Trocar Technique) vs. Step to Step (Seldinger)
  - 2.3.5. Catheter Management and Patient Care
  - 2.3.6. Side Effects and Complications
  - 2.3.7. Quality Control
- 2.4. Ultrasound-Guided Thoracentesis, Pericardiocentesis, and Paracentesis
  - 2.4.1. Indications and Advantages over the Anatomical Reference Technique
  - 2.4.2. Basic Aspects: Ultrasound Specifications and Ultrasound Anatomy
  - 2.4.3. Ultrasound Specifications and Pericardial Drainage Technique
  - 2.4.4. Ultrasound Specifications and Thoracic Drainage Technique
  - 2.4.5. Ultrasound Specifications and Abdominal Drainage Technique
  - 2.4.6. Common Problems, Complications, and Practical Advice

## Structure and Content | 21 tech

- 2.5. Ultrasound-Guided Vascular Cannulation
  - 2.5.1. Indications and Advantages over the Anatomical Reference Technique
  - 2.5.2. Current Evidence on Ultrasound-Guided Vascular Cannulation
  - 2.5.3. Basic Aspects: Ultrasound Specifications and Ultrasound Anatomy
  - 2.5.4. Ultrasound-Guided Central Venous Cannulation Technique
  - 2.5.5. Single Peripheral Catheter and Peripherally Inserted Central Catheter (PICC) Cannulation Technique
  - 2.5.6. Arterial Cannulation Technique
- 2.6. Ultrasound-Guided Infiltration and Chronic Pain Treatment
  - 2.6.1. Infiltrations and Pain
  - 2.6.2. Large Joints: Intra-Articular and Myotendinous
  - 2.6.3. Small Joints: Intra-Articular and Myotendinous
  - 2.6.4. Spinal Column

#### Module 3. Other Uses of Clinical Ultrasound

- 3.1. Radial Breast Ultrasound
  - 3.1.1. Anatomy Recap
  - 3.1.2. Technical Requirements
  - 3.1.3. Ultrasound Slices
  - 3.1.4. Ultrasound Characteristics. Breast Pathology
  - 3.1.5. Breast Elastography
- 3.2. Dermatological Ultrasound
  - 3.2.1. Echoanatomy of the Skin and Appendages
  - 3.2.2. Ultrasound of Skin Tumors
  - 3.2.3. Ultrasound of Inflammatory Skin Diseases
  - 3.2.4. Ultrasound in Dermoesthetics and its Complications
- 3.3. Ultrasound in Diabetes
  - 3.3.1. Aortic/Carotid Atheromatosis in Diabetics
  - 3.3.2. Parenchymal Echogenicity in Diabetic Patients
  - 3.3.3. Biliary Lithiasis in Diabetic Patients
  - 3.3.4. Neurogenic Bladder in Diabetic Patients
  - 3.3.5. Cardiomyopathy in Diabetic Patients

- 3.4. Ultrasound Report
  - 3.4.1. Ultrasound Note
  - 3.4.2. Ultrasound Derivation
  - 3.4.3. Ultrasound Report in PC
- 3.5. Ultrasound Safety in Times of Covid-19

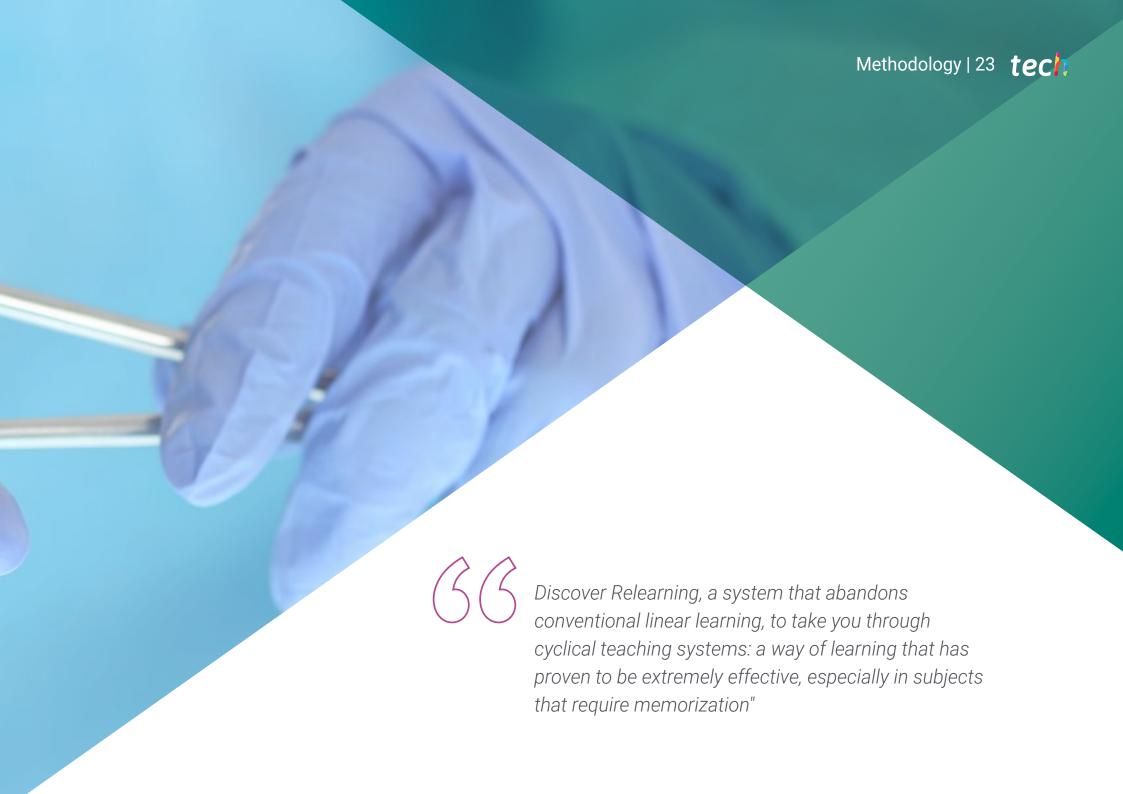


An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed"



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**

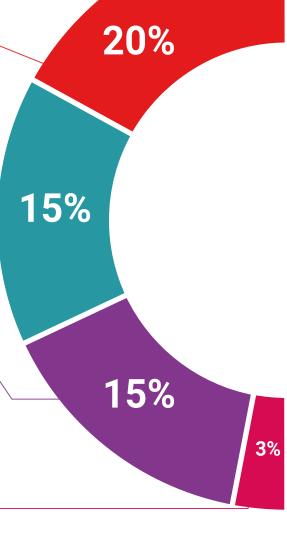
We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch them as many times as you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



**Testing & Retesting** 

the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



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.



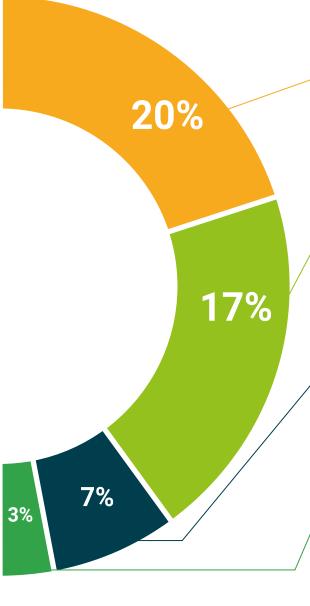
There is scientific evidence suggesting that observing third-party experts can be useful.

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 Postgraduate Diploma in Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care for Nursing 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 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 Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care for Nursing

Official No of hours: 450 h.



<sup>\*</sup>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.

# health guarantee Lechnological university

# Postgraduate Diploma

Ultrasound-Guided Procedures and Other Ultrasound Applications in Primary Care for Nursing

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

