

Postgraduate Diploma

Ultrasound of the Head, Neck
and Locomotor Apparatus





Postgraduate Diploma

Ultrasound of the Head, Neck and Locomotor Apparatus

Course Modality: **Online**

Duration: **6 months.**

Certificate: **TECH Technological University**

18 ECTS Credits

Teaching Hours: **450 hours.**

Website: www.techtute.com/medicine/postgraduate-diploma/postgraduate-diploma-ultrasound-head-neck-locomotor-apparatus

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 18

05

Methodology

p. 22

06

Certificate

p. 30

01

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.

In this context, the Postgraduate Diploma in Ultrasound of the Head, Neck and Locomotor System arises from the need to update knowledge in each of these subjects, and with the aim that physicians integrate the latest ultrasound techniques in the daily practice of their competencies.





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*You will learn the latest developments
in Ultrasound from distinguished
experts in the field”*

Ultrasound has been associated with many of the advances in medical care over the last 50 years. This is a technique of ultrasound scanning of the body, which allows the detection of any anomaly that requires medical intervention.

Thanks to technological advances, their size and price have been reduced, making it easier to incorporate them into dental practices. Therefore, it is essential that physicians are specialized in this highly demanded specialty, which facilitates prior diagnosis and improves the quality of health care.

Despite the many benefits of its use in medical consultations, there are no university teaching offers at Specialist level, which contain the necessary educational itinerary for the practice of ultrasound and ultrasound-guided procedures in the field of Primary Care.

With this Postgraduate Diploma you will 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 information on the latest advances and techniques on the use of ultrasound as an adjunct to physical examination.

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 at international level, aimed at health professionals. 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 of the Head, Neck and Locomotor Apparatus** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Development of numerous clinical cases presented by experts in ultrasound.
- ♦ 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 practice.
- ♦ 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.
- ♦ Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- ♦ 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.



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

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With this specialization you will obtain a degree endorsed by the first private online institution in Spain, TECH Technological University"

Its teaching staff is made up of prestigious and renowned professionals, with extensive experience in healthcare, teaching, and research in various countries, contributing their extensive professional to this Postgraduate Diploma.

The methodological design of this elaborated developed by a multidisciplinary team of experts in e-learning, integrates the latest advances in educational technology for the creation of numerous multimedia tools that allow the professional to face the solution of 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 working group, in order to facilitate, in a gradual and educational manner, a learning process that allows the objectives of the teaching program to be achieved.

This program has been carefully designed by experts, based on the fundamentals of e-learning methodology.

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



02 Objectives

The main objective of the Postgraduate Diploma is the acquisition of the most updated and innovative scientific knowledge in the field of diagnostic ultrasound, which will allow you to develop the skills that will make your daily clinical practice conform to the standards of the best available scientific evidence, with a critical, innovative, multidisciplinary, and integrative sense.





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At the end of this Postgraduate Diploma, you will be fully qualified to use the ultrasound scanner in your daily work”



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 medical professional.





Specific Objectives

- ♦ Optimize ultrasound imaging through in-depth knowledge of the physical principles of ultrasound and the controls and operation of ultrasound scanners.
- ♦ Master the basic and advanced procedures of Ultrasound, both at diagnostic and therapeutic level.
- ♦ Excel in spatial orientation or "econavigation"
- ♦ Practice all ultrasound modes in the safest way for the patient.
- ♦ Determine the indications and limitations of ultrasound of the head, neck and locomotor system 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.

03

Course Management

The program's teaching staff includes leading specialists in clinical ultrasound and other related areas, who bring their years of work experience to this specialization. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.



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*You will learn the latest Ultrasound Techniques,
from distinguished professionals in the sector”*

Management



Dr. Fumadó Queral, Josep

- Family physician at Els Muntells Primary Care Center (Amposta, Tarragona).
- Graduate in Clinical Ultrasound and Training of Trainers from the University of Montpellier-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 at the 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. Univ. Rovira i Virgili. Catalan Institute of Health.
- Expert in Thoracic Ultrasound. University of Barcelona.
- Expert in Abdominal and Musculoskeletal Clinical Ultrasound for Emergency and Critical Care. CEU Cardenal Herrera University.
- 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 at the CEU Cardenal Herrera University.

Scientific Committee

Dr. Álvarez Fernández, Jesús Andrés

- ♦ Specialist in Intensive Care Medicine.
- ♦ Intensive Care Medicine and Major Burns Unit. Getafe University Hospital. Getafe, Madrid.
- ♦ Head of the Master's Degree in Clinical Ultrasound in Emergency and Critical Care, CEU Cardenal Herrera University.
- ♦ Head of the Master's Degree in Clinical Imaging in Emergency and Critical Care, CEU Cardenal Herrera University.
- ♦ Teacher in the Specialist Degree in Thoracic Ultrasound at the University of Barcelona.

Dr. Herrera Carcedo, Carmelo

- ♦ Family Physician and Head of the Ultrasound Unit at the Briviesca Health Center (Burgos).
- ♦ Tutor at the Family and Community Medicine Teaching Unit in 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 at the University of Castilla La Mancha. Toledo.
- ♦ Director of the International Chair of Musculoskeletal Ultrasound of the Catholic University of Murcia.
- ♦ Teacher 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.
- ♦ Teacher on the Specialist Degree in Clinical Ultrasound for Family Physicians at the University of Barcelona.

Professors

Dr. Arancibia Zemelman, Germán

- ♦ Radiology Department Specialis at Clínica Meds. Santiago de Chile (Chile).

Dr. Argüeso García, Mónica

- ♦ Intensive Care Medicine Department. Gran Canaria Maternity Complex. Las Palmas de Gran Canaria (Canary Islands).

Dr. Barceló Galíndez, Juan Pablo

- ♦ Specialist in Occupational Medicine and medical sonographer at Mutualia. Bilbao.

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- ♦ Family Physician. Tamaraceite Health Center. Las Palmas de Gran Canaria (Canary Islands).

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- ♦ Family Physician. Tramuntana Health Center (Mallorca, Balearic Islands).

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- ♦ Specialist in Orthopedic Surgery and Traumatology. Poniente Hospital. El Ejido, Almería.

Sr. Feroso, Antonio Fabián

- ♦ Global Clinical Insights Leader Point of Care. General Electric Healthcare. Madrid.

Sr. Gálvez Gómez, Francisco Javier

- ♦ Ultrasound Portfolio Solutions Manager España. SIEMENS Healthcare. Madrid.

Dr. García García, Nicasio

- ♦ Family Physician (Schamann Health Center).

Dr. Herrero Hernández, Raquel

- ♦ Specialist in the Intensive Care and Major Burns Unit Getafe University Hospital. Madrid.

Dr. Igeño Cano, José Carlos

- ♦ Head of the Emergency and Intensive Care Unit. San Juan de Dios Hospital. Córdoba.

Dr. León Ledesma, Raquel

- ♦ Specialist in General and Digestive System Surgery and Obstetrics and Gynecology. Getafe University Hospital. Madrid.

Dr. López Cuenca, Sonia

- ♦ Family Physician and Assistant in the Intensive Care and Major Burns Unit at Getafe Hospital (Madrid).

Dr. López Rodríguez, Lucía

- ♦ Specialist in the Intensive Care and Major Burns Unit Getafe University Hospital. Madrid.



Dr. Martín del Rosario, Francisco Manuel

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

D. Moreno Valdés, Javier

- ♦ Business Manager Ultrasound. Cannon (Toshiba) Medical Systems. Madrid.

Dr. Núñez Reiz, Antonio

- ♦ Intensive Care Medicine Department Specialist. San Carlos University Hospital. Madrid.

Dr. Ortigosa Solorzano, Esperanza

- ♦ Specialist in Anesthesiology, Resuscitation, and Pain Management. Getafe University Hospital. Madrid.

Dr. Segura Blázquez, José María

- ♦ Family Physician. Canalejas Health Center. Las Palmas de Gran Canaria (Canary Islands).

Professor. Dr. Santos Sánchez, José Ángel

- ♦ Specialist in the Radiology Department. Salamanca University Hospital. Salamanca.

Dr. Wagüemert Pérez, Aurelio

- ♦ Specialist in Pulmonology. San Juan de Dios Hospital. Santa Cruz de Tenerife (Canary Islands).

04

Structure and Content

The structure of the contents has been designed by a team of professionals from leading hospitals, who have taken into account the need to update the content that will be taught, as well as the use of quality teaching through new educational technologies.



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This program will help you to prevent, detect, and intervene in diseases that can be diagnosed using ultrasound”

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. Mode B
 - 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. Echopotential
 - 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 Extremities
 - 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. Ultrasound Anatomy
 - 3.5.6. Of the Leg and Ankle
- 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

05

Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you can 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 potential 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 in professional medical 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. Students 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 student 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.



Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



The physician 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning 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 (we 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.



In this program you will have access to the best educational material, prepared with you in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Latest 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 this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

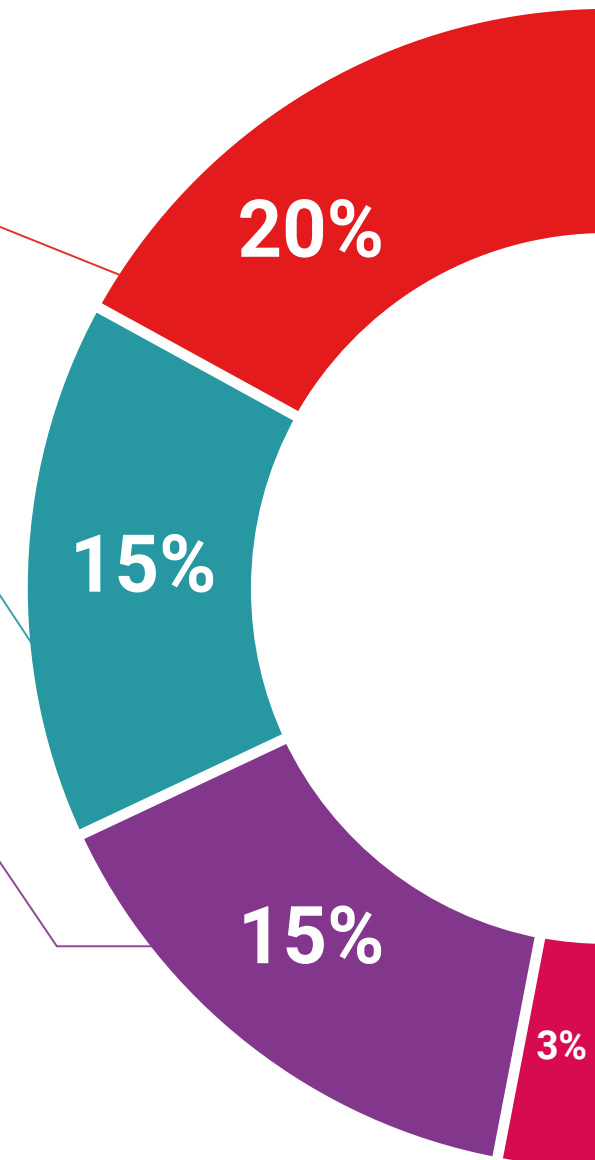
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story"



Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.



Classes

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

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



Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



06 Certificate

The Postgraduate Diploma in Ultrasound of the Head, Neck and Locomotor Apparatus guarantees, in addition to the most rigorous and updated training, access to a Postgraduate Diploma degree issued by TECH Technological University.



“

Successfully complete this specialisation and receive your university degree without travel or laborious paperwork"

This **Postgraduate Diploma in Ultrasound of the Head, Neck and Locomotor Apparatus** contains the most complete and up-to-date scientific program on the market.

After the student has passed the evaluations, they will receive by mail with acknowledgment of receipt their corresponding **Postgraduate Diploma** issued by **TECH Technological University**.

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

Title: Postgraduate Diploma in Ultrasound of the Head, Neck and Locomotor Apparatus

ECTS: **18**

Official Number of Hours: **450 hours**.



*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.

future

health

confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

tech technological
university

personalized service innovation

knowledge present

online training

development languages

virtual classroom

Postgraduate Diploma

Ultrasound of the Head,
Neck and Locomotor
Apparatus

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

18 ECTS Credits

Teaching Hours: 450 hours

Postgraduate Diploma

Ultrasound of the Head, Neck and Locomotor Apparatus

