



Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/pk/medicine/postgraduate-diploma/postgraduate-diploma-clinical-imaging-central-nervous-system-head-neck-pathology-emergency-critical-care

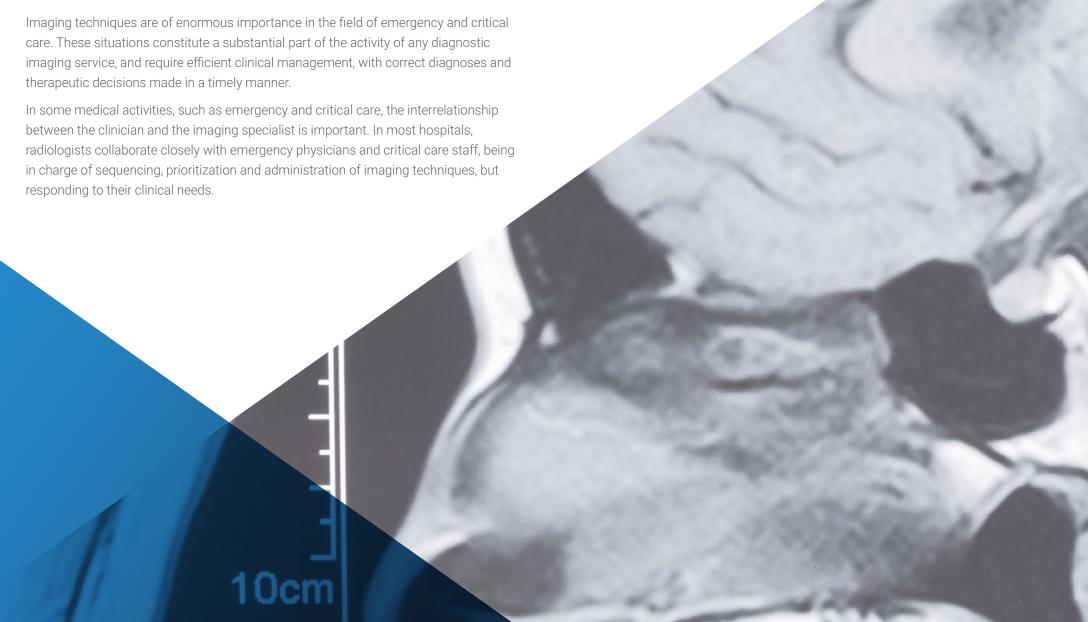
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 $\begin{array}{c|c} 01 & 02 \\ \hline & & \text{Objectives} \\ \hline & & & \\ \hline & & \\ \hline & & & \\ \hline & &$

06 Certificate

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tech 06 | Introduction

Emergency and critical care clinicians and radiologists must know the indications and practical usefulness of imaging techniques, and know how to interpret the information derived from them

This knowledge will have an impact on each of the six fundamental domains of the current concept of quality of care: patient safety, effectiveness, efficiency, equity, opportunity and humanization.

- Patient safety, by reducing diagnostic errors and time-to-treatment intervals, and errors in therapeutic procedures
- Effectiveness and efficiency, by modifying very favorably the "success at first attempt" in diagnoses and interventions, optimizing the cost/benefit ratio in decision-making
- Equity, as they can be applied equitably in a short period of time to all patients that need them
- Timeliness, for its ability to provide "here and now" the right answers to the questions required for better patient care
- Humanization, by facilitating the doctor and patient relationship with continuous care during travel to remote and unfamiliar places for the patient or during the intervention of specialists who are not usually involved in the patient's care

The program is designed to provide online education, equivalent to 18 ECTS credits and 450 hours of study. All theoretical and practical knowledge is presented through high quality multimedia content, analysis of clinical cases prepared by experts, master classes and video techniques that allow the exchange of knowledge and experience. They also enable students to keep up to date, create action protocols and share the most important new developments in the field. With this online program, students can organize their time and pace of learning, adapting it to their schedules, in addition to being able to access the contents from any computer or mobile device.

The Postgraduate Diploma in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care contains the most complete and up-to-date program scientific on the market. Its most notable features are:

- More than 75 clinical cases presented by experts in clinical imaging. 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
- Latest information on the diagnostic and treatment in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care
- Practical exercises where the self-evaluation process can be carried out to improve learning
- Clinical iconography and diagnostic image tests
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- Special emphasis on evidence-based medicine and clinical imaging research methodologies in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care
- All of this will be complemented by 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



This program will provide students with a sense of confidence in medical practice, which will help them grow personally and professionally"



This Postgraduate Diploma may be the best investment you can make when selecting a refresher program, for two reasons: in addition to updating your knowledge in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care, you will obtain a Postgraduate Diploma from TECH Technological University"

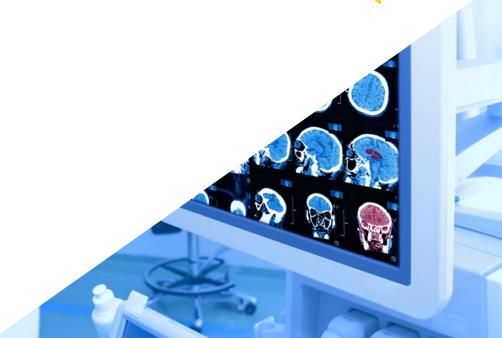
The teaching staff includes professionals from the field of Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care who contribute their own experience to this program, as well as renowned specialists from leading scientific societies.

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 an immersive academic experience programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise throughout the program. For this purpose, the physician will be assisted by an innovative interactive video system created by renowned and experienced experts in the field of Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care with extensive teaching experience.

Increase your decision-making confidence by updating your knowledge with this University Expert course.

Make the most of this opportunity to learn about the latest advances in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care and improve your patient care.







tech 10 | Objectives



General Objective

• The general objective of the program in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care is to complete the process of making clinical physicians and radiologists experts in the use of imaging techniques, allowing them to deal with emergency situations and critical patients, regardless of the environment in which they find themselves



Latest information on the diagnostic and treatment in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care"





Module 1. Fundamental Diagnostic Imaging Techniques

- Describe the fundamental diagnostic imaging techniques
- Explain the parameters to consider in conventional radiology
- Explain the characteristics of image quality and artifacts in conventional radiology
- Define the parameters that guarantee patient safety
- Define the parameters that guarantee safety of professionals
- Define the physical principles involved in ultrasound imaging
- Establish an appropriate ultrasound sequence for each examination
- Explain the ultrasound modes
- Define the different types of ultrasound and their applications
- Describe the different ultrasound planes
- Explain the principles of echonavigation
- Define the physical principles involved in computerized tomography
- Define the physical principles involved in magnetic resonance
- Identify artifacts in magnetic resonance imaging
- Define the physical principles involved in digital angiography
- Define the material required for digital angiography
- Define the physical principles involved in nuclear medicine
- Describe the principles of radiation protection and radiopharmaceuticals

Module 2. Imaging in Acute Pathology of the Central Nervous System

- Identify the different uses of imaging in the diagnosis of emergency care for traumatic injuries of the central nervous system
- Identify the different uses of imaging in the diagnosis of emergency care for vascular lesions of the central nervous system
- Identify the various uses of imaging in the emergency care diagnosis of nontraumatic subarachnoid hemorrhage
- Describe the use of imaging in emergency care for central nervous system infections
- Describe the use of imaging in emergency care for decreased level of consciousness
- Describe the use of imaging in involuntary movements in emergencies
- Identify the different uses of imaging in the diagnosis of facial trauma in emergencies
- Identify the different uses of imaging in the diagnosis of emergency ocular trauma

Module 3. Imaging in Acute Pathology of the Head and Neck

- Describe the use of imaging in emergency care in neck trauma
- Describe the use of imaging in the emergency care of occupational neck injuries
- Describe the use of imaging in the emergency care of neck arterial pathology
- Describe the use of imaging in the emergency care of venous neck pathology





International Guest Director

Dr. Hamid Shokoohi is one of the leading international figures in the scientific study of emergency and critical care ultrasound. His extensive career has led him to practice as an attending physician in the Emergency Department of the Massachusetts General Hospital and to be in charge of the direction of the Emergency Ultrasound study areas and the Ultrasound Ultrasound division of this same first level health space.

With more than 150 publications in high impact journals, Shokoohi has become one of the most prestigious specialists in **clinical ultrasound**. His presence at national and international congresses raises the level of competence of the rest of the attending professionals and attracts numerous experts in his field.

As a result of his excellent research work, he has been recognized by organizations such as the AEUS, which has awarded him the Titan in Research Award or the Teaching Excellence Award for his academic and research contribution. In addition, he directs the MGH Emergency Ultrasound Fellowship Program, which was also awarded the Stellar Clinical Ultrasound Fellowship Program Award.

The clinical use of ultrasound in the care of patients with shock and respiratory distress, the safety and efficacy of ultrasound-guided procedures are some of the fields in which he has set his study. At the same time, his interest in innovation has led him to seek innovative applications for ultrasound or the use of AI in these devices.

Likewise, in his professional career, high-level education has been part of his daily life. In this regard, Hamid Shokoohi is an Associate Professor of Emergency Medicine at Harvard University and GWU. This superb professional encourages the creation of specific training for physicians to improve their diagnostic skills and abilities.



Dr. Shokoohi, Hamid

- Médico adjunto de Urgencias del Massachusetts General Hospital
- Attending physician in the Emergency Department at Massachusetts General Hospital
- Attending Physician Wound Care and Hyperbaric Medicine Center at GWU
- Attending Physician in Emergency Medicine at GWU
- Director of the Harvard Emergency Fellowship (Ultrasound Fellowship at MGB)
- Director of Emergency Ultrasound Research at Massachusetts General Hospital
- Director of International Clinical Ultrasound at Massachusetts General Hospital
- Associate Director, Division of Ultrasound Ultrasound at Massachusetts General Hospital
- Councilor of the Executive Board of the Society of Clinical Ultrasound Fellowships (SCUF)
- Chair of the SAEM Academic Professional Development Task Force.
- Member of: SCUF Education Committee Society of Clinical Ultrasound Fellowships, American College of Emergency Physicians, American Institute of Ultrasound in Medicine, American Registry of Diagnostic Medical Sonography.



Thanks to TECH, you will be able to learn with the best professionals in the world"

Management



Dr. Álvarez Fernández, Jesús Andrés

- Attending Physician of Intensive Care Medicine and Major Burns Unit. Getafe University Hospita
- Degree in Medicine and Surgery
- Specialist in Intensive Care Medicine
- Doctor of Medicine (PhD)
- Attending Physician of Intensive Care Medicine and Major Burns Unit. Getafe University Hospital. Getafe, Madrid
- Creator and Director of the Fundamentals of Ultrasonography Course Program FUS Courses
- Founding Member of the Ecoclub of SOMIAMA
- Collaborating Professor of SOCANECO

Professors

Dr. Benito Vales, Salvador

- Head of Emeritus Service. Emergency Department. Santa Cruz and San Pablo Hospital Barcelona
- Specialist in Internal Medicine and Intensive Medicine
- Professor of Medicine Autonomous University of Barcelona UAB

Dr. Martínez Crespo, Javier

- Radiodiagnosis Specialist at the Radiodiagnostic Department, Getafe University Hospital
- Radiodiagnostic Service
- Getafe University Hospital. Getafe, Madrid
- Associate Professor at the European University of Madrid

Dr. Costa Subias, Joaquín

- Radiodiagnosis Specialist
- Degree in Medicine (MD)
- Head of the Radiodiagnostics Department Getafe University Hospital. Madrid
- Associate Professor at the European University of Madrid

Dr. Angulo Cuesta, Javier

- Specialist in Urology
- Degree in Medicine (MD) and PhD in Medicine
- Urology Department. Getafe University Hospital. Madrid
- Professor at the European University of Madrid



Course Management | 17 tech

Dr. Turbau Valls, Miquel

- Specialist in Internal Medicine
- Degree in Medicine (MD)
- Emergency Department. Santa Creu and Sant Pau University Hospital Barcelona

Dr. Moliné Pareja, Antoni

- Degree in Medicine (MD)
- Specialist in Internal Medicine
- Emergency Department. Santa Creu and Sant Pau University Hospital Barcelona

Dr. León Ledesma, Raquel

- Degree in Medicine (MD)
- Specialist in Obstetrics and Gynecology and in General and Digestive Surgery
- General and Digestive System Surgery Department. Getafe University Hospital. Madrid

Dr. Jiménez Ruiz, Ahgiel

- Medical Surgeon
- Specialist in Medical and Surgical Emergencies and Critical Medicine Fellow in Renal Transplants
- Emergency Department. 25 IMSS Regional General Hospital. Mexico City, Mexico

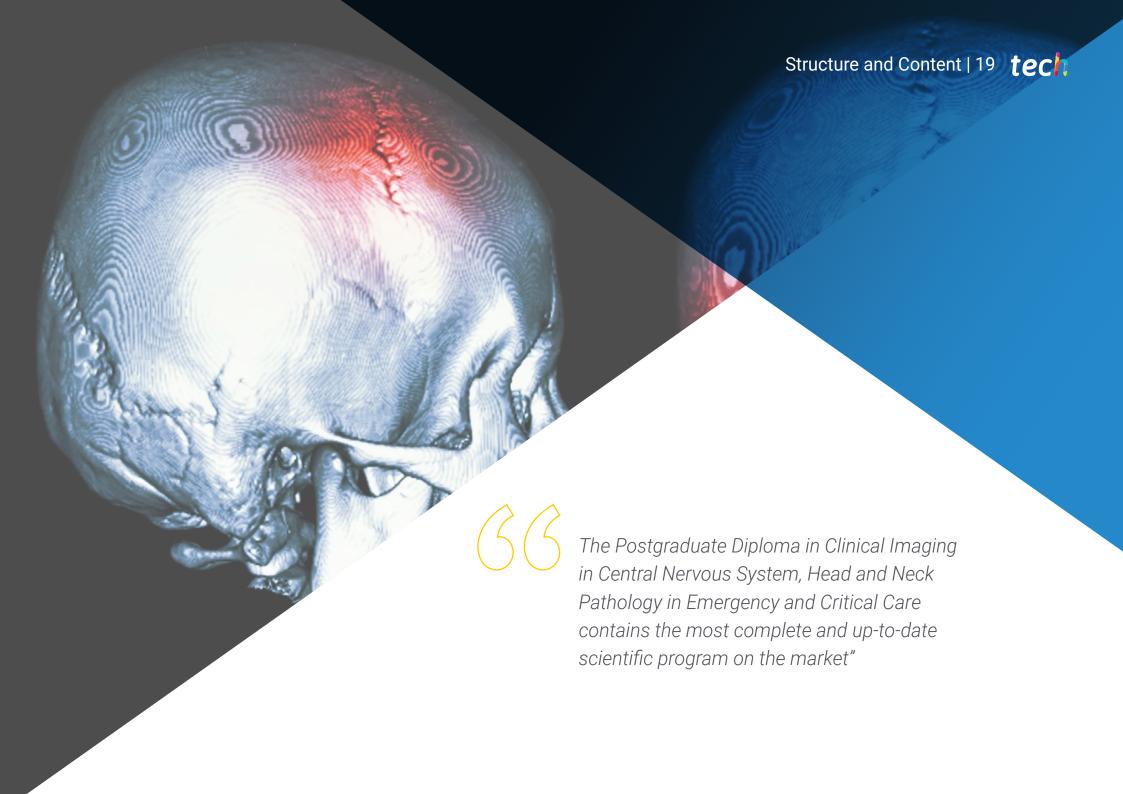
Dr. Igeño Cano, José Carlos

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

Mr. Soria Jerez, Juan Alfonso

- Degree in Radiology
- Specialist Technician in Radiodiagnosis
- Radiodiagnostic Service Getafe University Hospital. Madrid
- Secretary General of the Spanish Association of Radiology, Radiotherapy and Nuclear Medicine Technicians (AETR)





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Module 1. Fundamental Diagnostic Imaging Techniques

- 1.1. Conventional Radiology (CR)
 - 1.1.1. Physical Radiology
 - 1.1.2. X-ray Beam
 - 1.1.3. Analog Radiology
 - 1.1.4. Digital Radiology
 - 1.1.5. Image Quality and Artifacts
 - 1.1.6. Conventional Radiology Equipment
 - 1.1.7. Patient Safety
 - 1.1.8. Radiobiology and Radiological Protection
- 1.2. Ultrasound
 - 1.2.1. Physical Principles
 - 1.2.2. Image Formation in B Mode
 - 1.2.3. Transducers and Imaging
 - 1.2.4. Ultrasound Equipment
 - 1.2.5. Parameters Dependent on the Operator and Artifacts
 - 1.2.6. Quality and Safety for Patients in Ultrasound
- 1.3. Computed Tomography (CT)
 - 1.3.1. Physical Principles
 - 1.3.2. CT Equipment
 - 1.3.3. Image Acquisition
 - 1.3.4. Image Construction
 - 1.3.5. Quality
 - 1.3.6. Post-Process
 - 1.3.7. CT Patients Safety
 - 1.3.8. Radiological Protection in High Doses
- 1.4. Magnetic Resonance Imaging (MRI)
 - 1.4.1. Physical Principles
 - 1.4.2. Tissue Contrast
 - 1.4.3. MRI Equipment
 - 1.4.4. Obtaining an Image and its Formation
 - 1.4.5. Sequences
 - 1.4.6. Artefacts
 - 1.4.7. MRI Patients Safety

- 1.5. Digital Angiography
 - 1.5.1. Physical Principles
 - 1.5.2. Digital Angiography Equipment
 - 1.5.3. Materials and Contrast Media
 - 1.5.4. Acquisition and Construction of the Image
 - 1.5.5. Digital Subtraction, Masks and Road Map
 - 1.5.6. Radiological Protection in High Doses
- 1.6. Nuclear medicine
 - 1.6.1. Physical Principles
 - 1.6.2. Gamma Cameras
 - 1.6.3. PET and SPET Equipment
 - 1.6.4. Hybrid Equipment
 - 1.6.5. Image Quality and Acquisition
 - 1.6.6. Radiological Protections and Radiopharmacology

Module 2. Imaging in Acute Pathology of the Central Nervous System

- 2.1. Central Nervous Trauma Lesions
 - 2.1.1. Epidural Hematoma
 - 2.1.2. Subdural Hematoma
 - 2.1.3. Post-Traumatic Subarachnoid Hemorrhage
 - 2.1.4. Post-Traumatic Parenchymal Hemorrhage
 - 2.1.5. Diffuse Axonal Injury
- 2.2. Central Nervous System Vascular Lesions
 - 2.2.1. Ischemic Strokes
 - 2.2.2. Hemorrhagic Strokes
 - 2.2.3. Venous Sinus Thrombosis
- 2.3. Non-Traumatic Subarachnoid Hemorrhage
 - 2.3.1. Aneurysms
 - 2.3.2. Arteriovenous Malformations
 - 2.3.3. Perimesencephalic Hemorrhages
 - 2.3.4. Other Causes of Subarachnoid Hemorrhage

- 2.4. Central Nervous System Infections
 - 2.4.1. Meningitis
 - 2.4.2. Encephalitis
 - 2.4.3. Cerebral Absess
- 2.5. Alterations in the Level of Consciousness
 - 2.5.1. Non-Traumatic Coma
 - 2.5.2. Confused States
 - 2.5.3. Delirium
- 2.6. Involuntary Movements
 - 2.6.1. Judicial Crises
 - 2.6.2. Myoclonus
 - 2.6.3. Parkinson's Disease

Module 3. Imaging in Acute Pathology of the Head and Neck

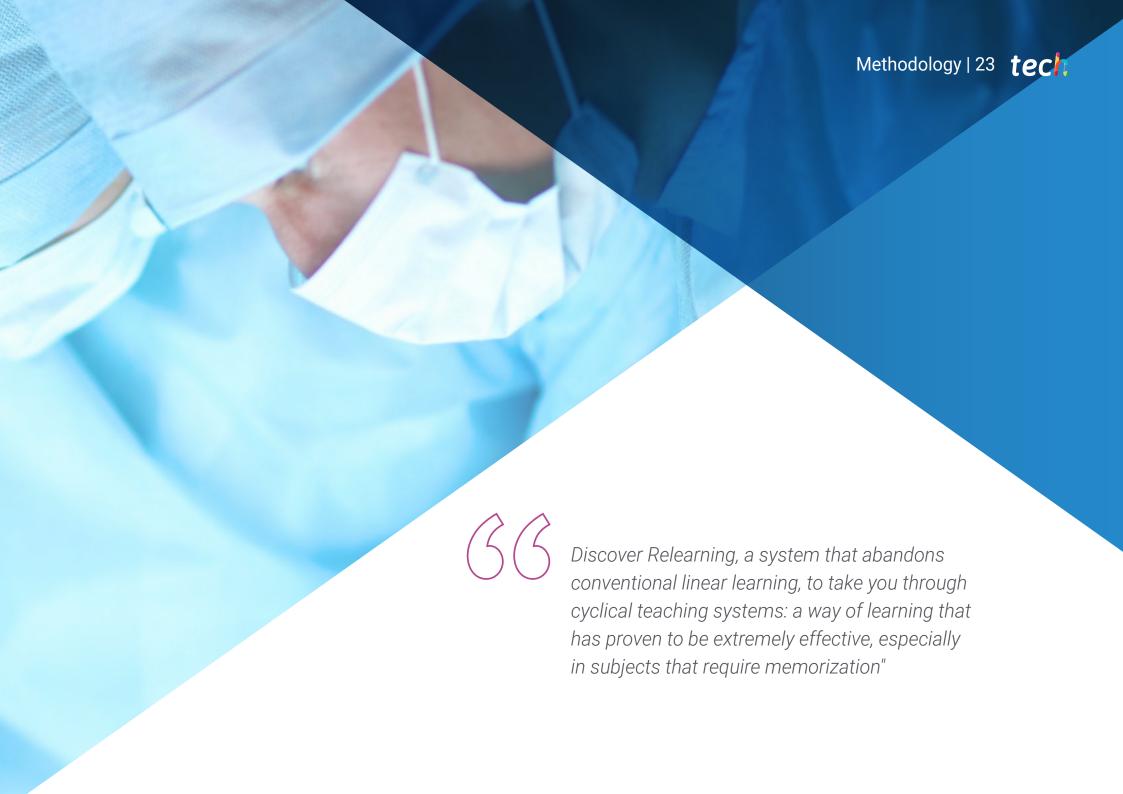
- 3.1. Facial Trauma
 - 3.1.1. Anatomy of the Facial Region
 - 3.1.2. Structure of the Facial Region
 - 3.1.3. Types of Facial Trauma
 - 3.1.4. Facial Fractures
 - 3.1.5. Vascular Lesions of the Face
- 3.2. Ocular Trauma
 - 3.2.1. Ocular Anatomy
 - 3.2.2. Retinal Detachment
 - 3.2.3. Penetrating Injuries to the Eyeball
 - 3.2.4. Other Ocular Lesions
- 3.3. Neck Trauma
 - 3.3.1. Anatomy of the Neck
 - 3.3.2. Muscular Lesion of the Neck
 - 3.3.3. Vascular Lesion of the Neck
 - 3.3.4. Upper Airway Lesion
 - 3.3.5. Cervical Spine Lesion

- 8.4. Occupational Neck Injuries
 - 3.4.1. Thyroid Tumor Pathology
 - 3.4.2. Pathology of the Thymus
 - 3.4.3. Lymphatic Pathology in the Neck
 - 3.4.4. Infections of Soft Tissues
 - 3.4.5. Abscesses in the Neck
- 3.5. Arterial Pathology of the Neck
 - 3.5.1. Arterial Anatomy of the Neck
 - 3.5.2. Arterial Trauma
 - 3.5.3. Aneurism in the Neck
 - 3.5.4. Arterial Occlusion in the Neck
- 3.6. Venous Pathology of the Neck
 - 3.6.1. Venous Anatomy of the Neck
 - 3.6.2. Venous Trauma
 - 3.6.3. Venous Occlusion in the Neck
 - 3.6.4. Vascular Approach



A unique, key, and decisive educational experience to boost your professional development"





tech 24 | Methodology

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. Specialists 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 in the physician's professional practice.



Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

- 1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
- 2. Learning is solidly translated into 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.





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.

Professionals will learn through real cases and by resolving 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, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. 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 highly 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.



Surgical Techniques and Procedures on Video

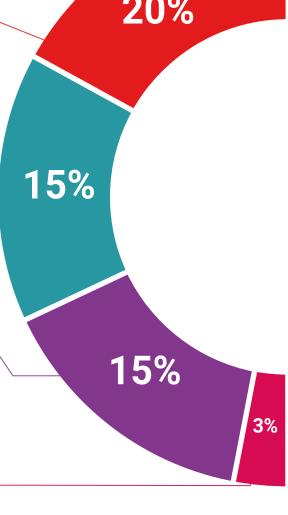
TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many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



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.



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.





17%





tech 32 | Certificate

The Postgraduate Diploma in Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care 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 Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care

Official No of Hours: 450 h.



Ms. ______, with identification number ____ For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

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^{*}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

technological
university

Postgraduate Diploma

Clinical Imaging in Central Nervous System, Head and Neck Pathology in Emergency and Critical Care

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

