Professional Master's Degree

Clinical Imaging for Emergency and Critical Care

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Professional Master's Degree

Clinical Imaging for Emergency and Critical Care

- Modality: **Online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedicated: **8 hours a week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/pk/medicine/master/master-clinical-imaging-emergency-critical-care**

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01

Introduction

Imaging techniques are of enormous importance in the field of emergency and critical care. These situations constitute a substantial part of the activity of any diagnostic imaging service, and require efficient clinical management, with correct diagnoses and therapeutic decisions made in a timely manner.

Improve your knowledge of Clinical Imaging for Emergency and Critical Care through this program, where you will find the best teaching material with real clinical cases. Learn here about the latest advances in the specialty to be able to provide quality medical care"

In some medical activities, such as emergency and critical care, the interrelationship between the clinician and the imaging specialist is important.

In most hospitals, radiologists collaborate closely with emergency physicians and critical care staff, being in charge of sequencing, prioritization and administration of imaging techniques, but responding to their clinical needs.

Wherever a patient is and whatever their health problem, the result of this interrelation between specialists is impressive, since not only is the quality of the images obtained improved, but also morbidity and mortality are reduced.

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. For this reason, TECH has included in this university program a prestigious professional specialized in clinical ultrasound who during 10 masterclasses will show the most significant advances in this field.

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 favorably modifying 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 in need.

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-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.

This **Professional Master's Degree in Clinical Imaging for Emergency and Critical Care** contains the most complete and up-to-date scientific program on the market. It's most outstanding 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.
- Diagnostic and therapeutic developments in assessment, diagnosis and intervention in Clinical Imaging for Emergency and Critical Care
- It contains practical exercises where the self-assessment 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 for 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

One of the leading international figures in clinical ultrasound will bring you closer to the latest scientific advances achieved in this field"

This Professional Master's Degree 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 for Emergency and Critical Care, you will obtain a Professional Master's Degree from TECH Technological University"

Increase your decision-making confidence by updating your knowledge through this master's degree.

Make the most of this opportunity to learn about the latest advances in Clinical Imaging for Emergency and Critical Care and improve your patient care.

The teaching staff includes professionals from the field of Clinical Imaging for Emergency and Critical Care who bring their experience to this training program, as well as renowned specialists from leading scientific societies.

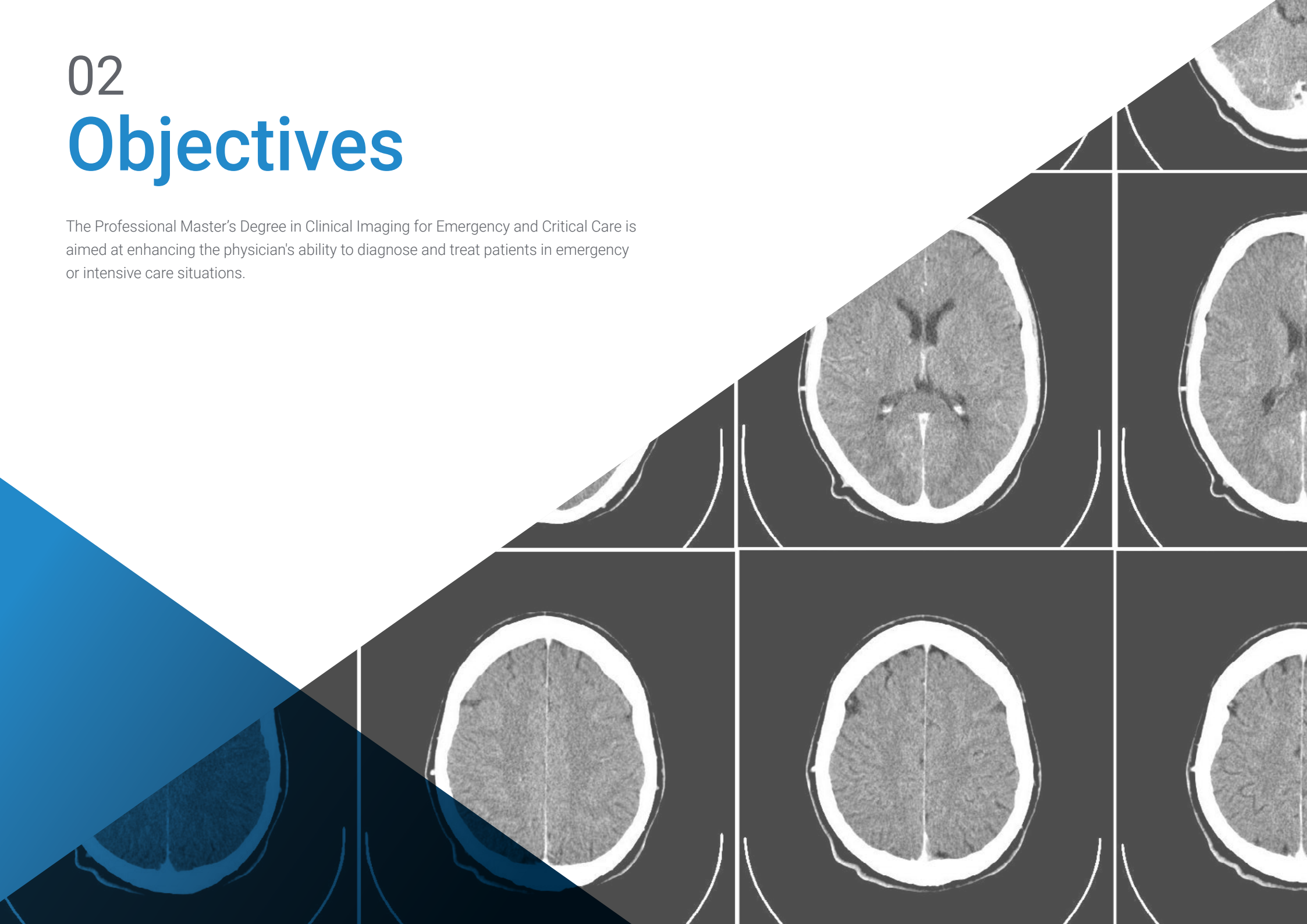
Thanks to its multimedia content developed with the latest educational technology, they will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to prepare in real situations.

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 for Emergency and Critical Care with extensive teaching experience.

02

Objectives

The Professional Master's Degree in Clinical Imaging for Emergency and Critical Care is aimed at enhancing the physician's ability to diagnose and treat patients in emergency or intensive care situations.



This Professional Master's Degree is designed to help you update your knowledge in Clinical Imaging for Emergency and Critical Care, with the use of the latest educational technology, to contribute with quality and confidence to decision-making, diagnosis, treatment, and patient support"

General Objective

- The general objective of the Professional Master's Degree in Clinical Imaging for Emergency and Critical Care is to complete the process of making physicians 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.

Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

Specific Objectives

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 which are involved in ultrasound imaging
- Establish an appropriate ultrasound sequence for each examination of a patient
- Explain the different ultrasound modes
- Define the different types of sonographs 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 Respiratory System

- Describe the use of imaging in acute pathology related to airway infections
- Describe the use of imaging in asthma, COPD, bronchiectasis
- Describe the use of imaging in airway trauma
- Describe the use of imaging in the emergency care of patients with foreign body aspiration
- Identify the different uses of imaging in the diagnosis of pulmonary infectious pathology
- Identify the different uses of imaging in the diagnosis of pulmonary hemorrhagic pathology
- Identify the different uses of imaging in the diagnosis of barotrauma and contusion
- Identify the different uses of imaging in the diagnosis of emergency care for inhalation toxics

Module 3. Imaging in Acute Pathology of the Cardiovascular System

- Describe the use of imaging in acute mediastinal pathology
- Describe the use of imaging in acute esophageal pathology
- Describe the use of imaging in acute pathology of the pleura, chest wall and diaphragm
- Describe the use of imaging in the management of major respiratory syndromes
- Describe the use of imaging in the placement and testing of tubes, catheters and drains
- Describe the use of imaging in acute myocardial pathology
- Describe the use of imaging in acute pericardial pathology
- Describe the use of imaging in acute aortic syndrome
- Describe the use of imaging in emergency care in heart failure
- Describe the use of imaging in emergency care in thromboembolic disease
- Describe the use of imaging in shock and cardiac arrest

Module 4. 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 5. 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

Module 6. Imaging in Acute Pathology of the Locomotor System

- Explain the different image-guided procedures in the locomotor system
- Describe the use of imaging in the emergency care of acute soft tissue pathology
- Describe the use of imaging in the emergency care of joint pathology
- Identify the different uses of imaging in the diagnosis of foreign bodies
- Identify the different uses of imaging in the diagnosis of bone fractures
- Identify the various uses of imaging in the diagnosis of muscle and tendon injuries

Module 7. Imaging in Acute Pathology of the Digestive System

- Describe the use of imaging in the emergency care of chronic liver disease
- Describe the use of imaging in the emergency care of abdominal trauma
- Describe the use of imaging in the emergency care of diffuse acute abdomen and abdominal wall problems
- Describe the use of imaging in emergency care in the acute abdomen: upper abdomen
- Describe the use of imaging in emergency care in the acute abdomen: lower abdomen
- Describe the use of imaging in emergency care for tumor complications

Module 8. Imaging in Acute Pathology of the Urinary System

- Identify the different uses of imaging in renal colic
- Identify the different uses of imaging in acute urinary retention
- Identify the different uses of imaging in acute urinary tract infection
- Identify the different uses of imaging in urgent hematuria
- Describe the use of imaging in emergency care for genitourinary trauma

Module 9. Imaging in Acute Pathology of the Reproductive System

- Describe the use of imaging in emergency care of the penis and testicles
- Describe the use of imaging in the emergency care of adnexal pathology
- Describe the use of imaging in emergency care in pelvic inflammatory disease
- Describe the use of imaging in emergency care in uterine pathology
- Describe the use of imaging in emergency care in endometriosis
- Describe the use of imaging in emergency obstetric pathology care
- Describe the use of imaging in emergency care in breast pathology

Module 10. Emergency Clinical Ultrasound

- Explain the use of ultrasounds in cardiac arrest
- Describe the use of ultrasound in cases of shock
- Explain the use of ultrasounds in respiratory failure
- Describe the use of ultrasound in cases of sepsis
- Explain the use of ultrasounds in abdominal pain
- Describe the use of ultrasound in trauma cases
- Explain the use of ultrasounds in strokes

03

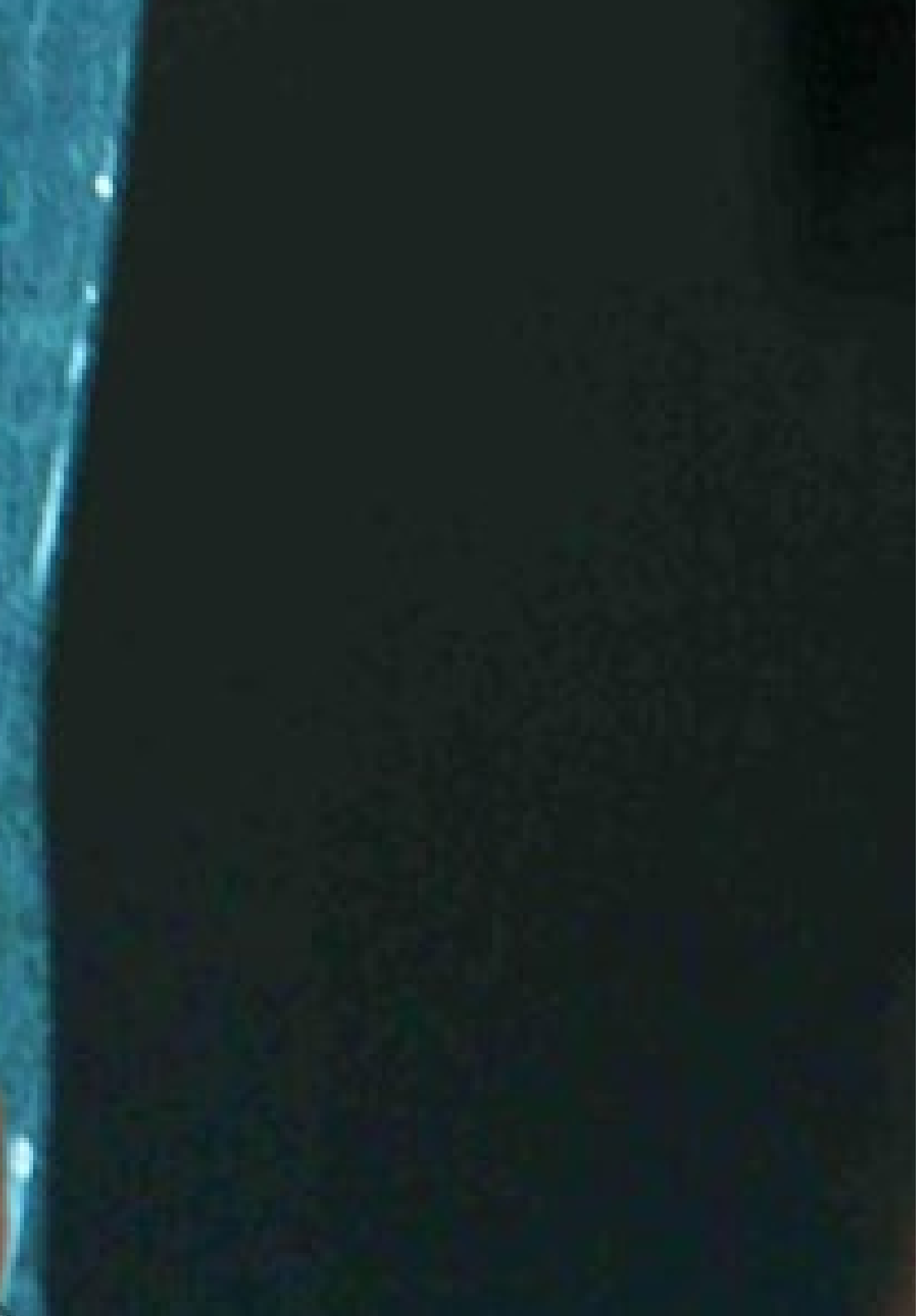
Skills

After passing the assessments on the Professional Master's Degree in Clinical Imaging for Emergency and Critical Care, the physician will have acquired the necessary professional skills for quality, up-to-date practice based on the most recent scientific evidence.

With this program, you will be able to master the new diagnostic and treatment procedures in Clinical Imaging for Emergency and Critical Care"

General Skills

- Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- Apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
- Integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- Acquire the learning skills that will enable them to continue studying in a manner that will be largely self-directed or autonomous



Specific Skills

- Know its physical principles and instrumental fundamentals
- Master its indications and limitations
- Know its applicability in the most frequent clinical situations
- Facilitate the performance in the safest way for the patient
- Excel in the interpretation of the results
- Use these to predict, in a non-invasive way, the results of invasive diagnostic procedures, with maybe being able to replace them
- Use these to guide invasive therapeutic procedures and minimize their risks
- Know how to extend the knowledge acquired in relation to emergency care and critical care to the healthcare or academic environment

Take the step to get up to date on the latest developments in Clinical Imaging for Emergency and Critical Care"

04

Course Management

One of the elements that distinguishes this university program is its excellent teaching staff made up of top-level professionals in Clinical Imaging. Undoubtedly, the participation of experts of international stature will allow students to carry out a process of updating their skills and abilities in this field in an unparalleled way. Additionally, thanks to the proximity of the teaching staff, students will be able to resolve any doubts they may have about the content of this program.

A unique opportunity to catch up with the best international experts in the field of Clinical Ultrasound"

International Guest Director

Dr. Hamid Shokoohi is one of the international figures in the scientific study in the field of Emergency and Critical Care ultrasound. His extensive career has led him to work as an attending physician in the Emergency Department of the Massachusetts General Hospital and to be in charge of the direction of the study areas of Emergency Ultrasound and the division of Ultrasound 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. Additionally, 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.

Dr. Shokoohi, Hamid

- Attending Emergency Physician 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 the Massachusetts General Hospital
- Director of International Clinical Ultrasound at Massachusetts General Hospital
- Associate Director of the Division of Ultrasound at Massachusetts General Hospital
- Advisor to the Executive Board of the Society of Clinical Ultrasound Fellowships (SCUF)
- Chair of SAEM's 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

- Chief Physician at the Juaneda Miramar Hospital
- Specialist in Intensive Care Medicine and Burnn Patient Management at the Getafe University Hospital
- Associate Researcher of the Neurochemistry and Neuroimaging Area at the University of La Laguna

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. Turbau Valls, Miquel

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

Dr. Igeño Cano, José Carlos

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

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.

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).

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

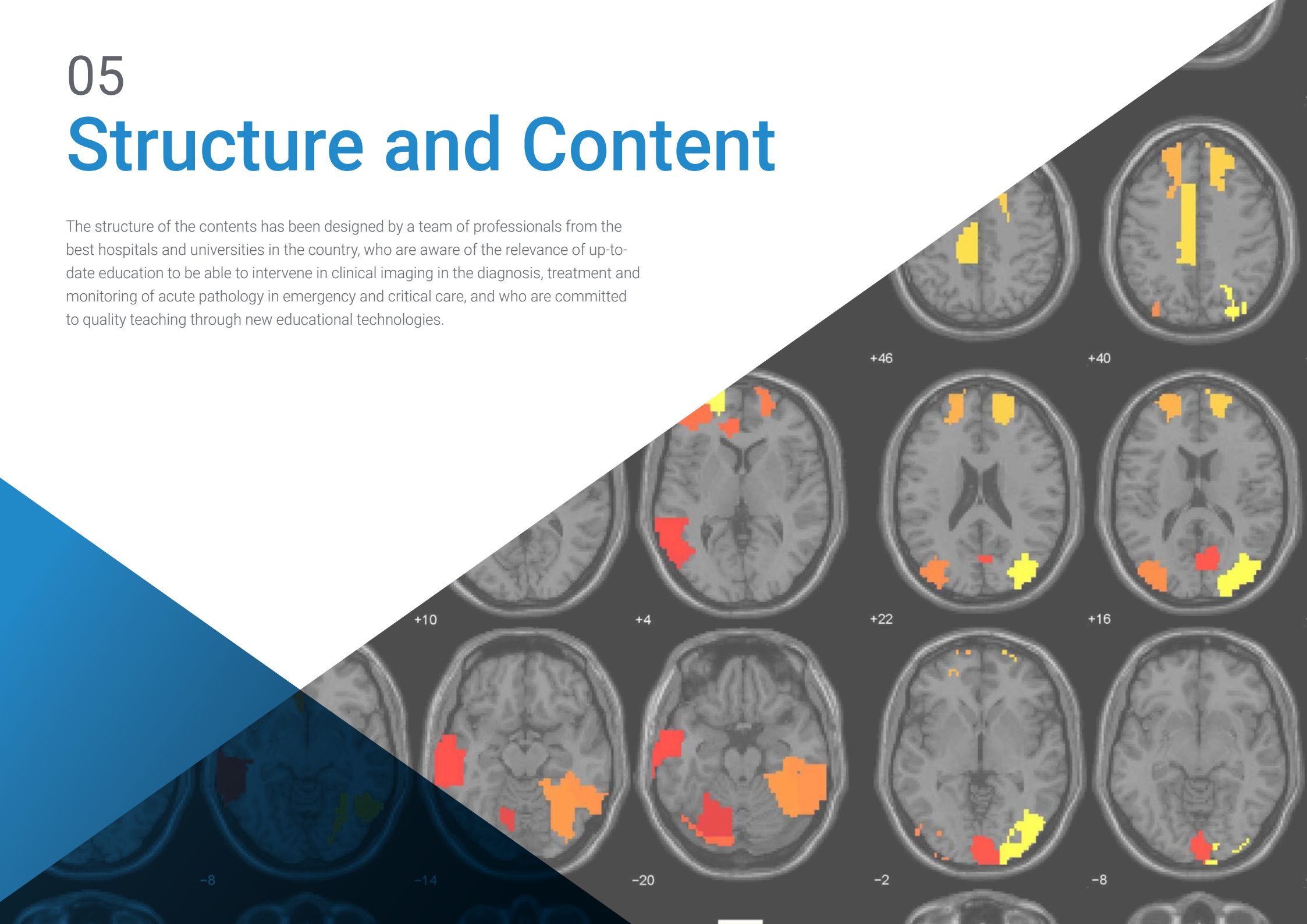
Dr. Jiménez Ruiz, Ahgiel
- Medical Surgeon
- Specialist in Medical and Surgical Emergencies and Critical Medicine Fellow in Renal Transplants
- Emergency Department. 25 IMSS Regional General Hospital. Mexico City, Mexico

Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

05

Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities in the country, who are aware of the relevance of up-to-date education to be able to intervene in clinical imaging in the diagnosis, treatment and monitoring of acute pathology in emergency and critical care, and who are committed to quality teaching through new educational technologies.



This Professional Master's Degree in Clinical Imaging for Emergency and Critical Care contains the most complete and up-to-date scientific program on the market"

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 Security
- 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 Respiratory System

2.1. Upper Airway Pathology
- 2.1.1. Upper Airway Infection
- 2.1.2. Asthma, COPD, Bronchiectasis
- 2.1.3. Airway Trauma: Laceration and Rupture
- 2.1.4. Aspiration of Foreign Bodies

2.2. Pulmonary Pathology
- 2.2.1. Infections
- 2.2.2. Atelectasis and Bilateral White Hemithorax
- 2.2.3. Embolism
- 2.2.4. Alveolar Hemorrhage
- 2.2.5. Barotrauma and Contusion
- 2.2.6. Toxics and Drugs

2.3. Mediastinal Pathology
- 2.3.1. Pneumomediastinum
- 2.3.2. Mediastinal Hematoma
- 2.3.3. Infection: Mediastinitis and Abscess
- 2.3.4. Esophageal Pathology: Impaction, Perforation and Fistulas

2.4. Pathology of the Pleura, Chest Wall and Diaphragm
- 2.4.1. Pleural Effusion, Hemothorax, Empyema and Chylothorax
- 2.4.2. Pneumothorax
- 2.4.3. Fractures of the Thoracic Cage
- 2.4.4. Hernias, Diaphragmatic Paralysis and Diaphragmatic Rupture

2.5. Major Syndromes
- 2.5.1. Dyspnea and Respiratory Distress
- 2.5.2. Chest Pain
- 2.5.3. Hemoptysis.
- 2.5.4. Persistent Cough
- 2.5.5. Stridor

2.6. Tubes and Catheters
- 2.6.1. Central Vascular Catheters
- 2.6.2. Swan-Ganz Catheter
- 2.6.3. Endotracheal Tubes
- 2.6.4. Pleural Drain
- 2.6.5. Nasogastric Tubes
- 2.6.6. Other Devices

Module 3. Imaging in Acute Pathology of the Cardiovascular System

3.1. Myocardiac Pathology
- 3.1.1. Acute Coronary Syndrome
- 3.1.2. Myocardial Laceration and Contusion
- 3.1.3. Myocarditis

3.2. Pericardial Pathology
- 3.2.1. Acute Pericarditis
- 3.2.2. Pericardial Effusion
- 3.2.3. Cardiac Tamponade

3.3. Acute Aortic Syndrome
- 3.3.1. Aortic Trauma
- 3.3.2. Aortic dissection
- 3.3.3. Aortic Aneurysm

3.4. Heart Failure
- 3.4.1. Congestive Heart Failure
- 3.4.2. Pulmonary Edema

3.5. Venous Thromboembolic Disease
- 3.5.1. Deep Vein Thrombosis
- 3.5.2. Pulmonary Embolism

3.6. Shock and Cardiac Arrest
- 3.6.1. Types of Shock
- 3.6.2. Pulseless Electrical Activity
- 3.6.3. Cardiorespiratory Arrest

Module 4. Imaging in Acute Pathology of the Central Nervous System

4.1. Central Nervous Trauma Lesions
- 4.1.1. Epidural Hematoma
- 4.1.2. Subdural Hematoma
- 4.1.3. Post-Traumatic Subarachnoid Hemorrhage
- 4.1.4. Post-Traumatic Parenchymal Hemorrhage
- 4.1.5. Diffuse Axonal Injury

4.2. Central Nervous System Vascular Lesions
- 4.2.1. Ischemic Strokes
- 4.2.2. Hemorrhagic Strokes
- 4.2.3. Venous Sinus Thrombosis

4.3. Non-Traumatic Subarachnoid Hemorrhage
- 4.3.1. Aneurysms
- 4.3.2. Arteriovenous Malformations
- 4.3.3. Perimesencephalic Hemorrhages
- 4.3.4. Other Causes of Subarachnoid Hemorrhage

4.4. Central Nervous System Infections
- 4.4.1. Meningitis
- 4.4.2. Encephalitis
- 4.4.3. Cerebral Absess

4.5. Alterations in the Level of Consciousness
- 4.5.1. Non-Traumatic Coma
- 4.5.2. Confused States
- 4.5.3. Delirium

4.6. Involuntary Movements
- 4.6.1. Judicial Crises
- 4.6.2. Myoclonus
- 4.6.3. Parkinson's Disease

Module 5. Imaging in Acute Pathology of the Head and Neck

5.1. Facial Trauma
- 5.1.1. Anatomy of the Facial Region
- 5.1.2. Structure of the Facial Region
- 5.1.3. Types of Facial Trauma
- 5.1.4. Facial Fractures
- 5.1.5. Vascular Lesions of the Face

5.2. Ocular Trauma
- 5.2.1. Ocular Anatomy
- 5.2.2. Retinal Detachment
- 5.2.3. Penetrating Injuries to the Eyeball
- 5.2.4. Other Ocular Lesions

5.3. Neck Trauma
- 5.3.1. Anatomy of the Neck
- 5.3.2. Muscular Lesion of the Neck
- 5.3.3. Vascular Lesion of the Neck
- 5.3.4. Upper Airway Lesion
- 5.3.5. Cervical Spine Lesion

5.4. Occupational Neck Injuries
- 5.4.1. Thyroid Tumor Pathology
- 5.4.2. Pathology of the Thymus
- 5.4.3. Lymphatic Pathology in the Neck
- 5.4.4. Infections of Soft Tissues
- 5.4.5. Abscesses in the Neck

5.5. Arterial Pathology of the Neck
- 5.5.1. Arterial Anatomy of the Neck
- 5.5.2. Arterial Trauma
- 5.5.3. Aneurism in the Neck
- 5.5.4. Arterial Occlusion in the Neck

5.6. Venous Pathology of the Neck
- 5.6.1. Venous Anatomy of the Neck
- 5.6.2. Venous Trauma
- 5.6.3. Venous Occlusion in the Neck
- 5.6.4. Vascular Approach

Module 6. Imaging in Acute Pathology of the Locomotor System

6.1. Acute Pathology of Soft Tissues
- 6.1.1. Anatomy and References in the Skin and Soft Tissue
- 6.1.2. Skin and Soft Tissue Infections
- 6.1.3. Hematomas.
- 6.1.4. Traumatic Vascular Lesions

6.2. Articular Pathology
- 6.2.1. Anatomy and References in Joint Structure
- 6.2.2. Bursitis
- 6.2.3. Arthritis
- 6.2.4. Hemarthrosis

6.3. Foreign Bodies.
- 6.3.1. Identification of Foreign Bodies According to their Nature
- 6.3.2. Identification of Foreign Bodies According to their Permanence Time in Tissues

6.4. Bone Fractures
- 6.4.1. Anatomy and References in Long Bones
- 6.4.2. Anatomy and References in Irregular Bones
- 6.4.3. Differentiation Between Fractures and Osteolysis

6.5. Muscular and Tendon Lesions
- 6.5.1. Muscular Anatomy
- 6.5.2. Tendon Anatomy
- 6.5.3. Intramuscular Hematomas
- 6.5.4. Muscular Hernias
- 6.5.5. Tendon Ruptures

6.6. Image-Guided Procedures in the Locomotor System
- 6.6.1. Arthrocentesis
- 6.6.2. Hematoma Drainage
- 6.6.3. Abscess Drainage
- 6.6.4. Peripheral Nerves Block

Module 7. Imaging in Acute Pathology of the Digestive System

7.1. Chronic Liver Diseases
- 7.1.1. Edemoascitic Decompensation
- 7.1.2. Hepatopulmonary Syndrome
- 7.1.3. Gastrointestinal Bleeding
- 7.1.4. Abdominal Pain
- 7.1.5. Portal Thrombosis
- 7.1.6. Peritonitis

7.2. Abdominal Trauma.
- 7.2.1. Liver Lesion
- 7.2.2. Spleen Lesion
- 7.2.3. Pancreatic Lesion
- 7.2.4. Intestinal Lesion
- 7.2.5. Diaphragmatic Rupture
- 7.2.6. Abdominal Wall Lesion

7.3. Acute Diffuse Abdomen and Abdominal Wall
- 7.3.1. Intestinal Ischema
- 7.3.2. Intestinal Obstruction
- 7.3.3. Volvulus
- 7.3.4. Hollow Viscera Perforation
- 7.3.5. Pneumoperitoneum
- 7.3.6. Abdominal Fistula
- 7.3.7. Wall Hernias
- 7.3.8. Soft Tissue Infections

7.4. Acute Abdomen: Upper Abdomen
- 7.4.1. Peptic Syndrome
- 7.4.2. Cholecystitis
- 7.4.3. Biliary Colic
- 7.4.4. Cholangitis
- 7.4.5. Pancreatitis
- 7.4.6. Hepatitis
- 7.4.7. Hepatic and Subphrenic Abscesses
- 7.4.8. Splenic Infarction and Abscess

7.5. Acute Abdomen: Lower Abdomen
- 7.5.1. Appendicitis
- 7.5.2. Mesenteric Adenitis
- 7.5.3. Intraperitoneal and Retroperitoneal Abscesses
- 7.5.4. Chronic Inflammatory Intestinal Diseases
- 7.5.5. Ileitis and Colitis
- 7.5.6. Diverticulitis

7.6. Tumor Complications
- 7.6.1. Metastasis
- 7.6.2. Bleeding
- 7.6.3. Post-surgery Complications
- 7.6.4. Post-Irradiation Complications

Module 8. Imaging in Acute Pathology of the Urinary System

8.1. Renal Colic
- 8.1.1. Pathophysiology of Obstructive Uropathy
- 8.1.2. Ectasia of the Urinary Tract
- 8.1.3. Hydronephrosis
- 8.1.4. Urinary Lithiasis
- 8.1.5. Other Causes of Obstructive Uropathy
- 8.1.6. Ureteral Catheterization
- 8.1.7. Nephrostomy.

8.2. Uriniary Retention.
- 8.2.1. Bladder Balloon
- 8.2.2. Benign Prostatic Hypertrophy
- 8.2.3. Secondary Bladder Changes
- 8.2.4. Urethral Stenosis
- 8.2.5. Other Causes of Urinary Retention
- 8.2.6. Complications of the Bladder Probe

8.3. Urinary Infection
- 8.3.1. Acute Cystitis
- 8.3.2. Acute Pyelonephritis
- 8.3.3. Acute Prostatitis
- 8.3.4. Chronic Prostatitis
- 8.3.5. Orchiepididymitis
- 8.3.6. Renal Abscess
- 8.3.7. Prostate Abscess
- 8.3.8. Fournier's Gangrene

8.4. Hematuria.
- 8.4.1. Hematuria due to Bladder Tumor
- 8.4.2. Hematuria due to Renal Mass
- 8.4.3. Hematuria due to Other Causes
- 8.4.4. Clot Wash
- 8.4.5. Three-way Catheterization and Continuous Serum Washer
- 8.4.6. Spontaneous Retroperitoneal Bleeding

8.5. Genitourinary Trauma
- 8.5.1. Renal Trauma
- 8.5.2. Renal Pedicle Avulsion
- 8.5.3. Urethral Trauma
- 8.5.4. Extraperitoneal Bladder Rupture
- 8.5.5. Intraperitoneal Bladder Rupture
- 8.5.6. Anterior Urethral Trauma
- 8.5.7. Posterior Urethral Trauma
- 8.5.8. Testicular Trauma

8.6. Penis and Testicle Emergencies
- 8.6.1. Phimosis and Paraphimosis
- 8.6.2. Testicular Torsion
- 8.6.3. Hydatide Torsion
- 8.6.4. Orchiepididymitis
- 8.6.5. Priapism
- 8.6.6. Penile Rupture
- 8.6.7. Hydrocele and Hematocele

Module 9. Imaging in Acute Pathology of the Reproductive System

9.1. Adnexal Pathology
- 9.1.1. Benign Ovarian Pathology
- 9.1.2. Primary and Metastatic Malignant Ovarian Formations
- 9.1.3. Tubal Pathology
- 9.1.4. Radiologic Monitoring and Complications of Tubal Occlusion Devices
- 9.1.5. Ovarian Hyperstimulation Syndrome

9.2. Pelvic Inflammatory Disease
- 9.2.1. Etiopathogenesis and Clinical Assessment
- 9.2.2. Imaging Diagnosis of PID
- 9.2.3. Differential Diagnosis of PID
- 9.2.4. The Role of Radiotherapy in the Treatment of PID

9.3. Uterine Pathology
- 9.3.1. Uterine Malformations
- 9.3.2. Myomatous Uterus
- 9.3.3. Myoma Embolization. Indications and Complications
- 9.3.4. Post-Surgical Complications of Myomectomy, Hysterectomy and IUD Insertion

9.4. Endometriosis
- 9.4.1. Cystic Endometriosis
- 9.4.2. Deep Endometriosis
- 9.4.3. Intestinal Endometriosis
- 9.4.4. Extrapelvic Endometriosis
- 9.4.5. Adenomyosis

9.5. Emergency Obstetric Pathology
- 9.5.1. Abdominal Pain of Obstetric Origin in Pregnant Women
- 9.5.2. Premature Detachment of the Placenta Normoinserta
- 9.5.3. Placenta Praevia and Placental Accreta
- 9.5.4. Abortion
- 9.5.5. Ectopic Pregnancy

9.6. Breast Pathology

9.6.1. Inflammatory/ Infectious Disorders.
9.6.2. Trauma Lesions
9.6.3. Neoplasms
9.6.4. Post-surgery Complications
9.6.5. Emergency Benign Pathology

Module 10. Emergency Clinical Ultrasound

10.1. Cardiac Arrest
10.1.1. Cerebral Hemodynamics
10.1.2. Brain Damage in Cardiac Arrest
10.1.3. Usefulness of Ultrasound in Resuscitation
10.1.4. Usefulness of Ultrasound After Recovery of Spontaneous Circulation
10.2. Shock
10.2.1. Ventricular Filling Pressure
10.2.2. Cardiac Output
10.2.3. Prediction of the Hemodynamic Response to Intravascular Volume Administration
10.2.4. Ultrasound Assessment of Pulmonary Edema
10.2.5. Ultrasound Search for Sources of Sepsis
10.3. Respiratory Failure
10.3.1. Acute Respiratory Failure: Diagnosis
10.3.2. Abrupt Hypoxemia in Patients on Mechanical Ventilation
10.3.3. Monitoring of Recruitment Maneuvers
10.3.4. Assessment of Extravascular Lung Water
10.4. Acute Renal Failure.
10.4.1. Hydronephrosis
10.4.2. Lithiasis
10.4.3. Acute Tubular Necrosis
10.4.4. Doppler Ultrasound in Acute Renal Failure
10.4.5. Bladder Ultrasound in Acute Renal Failure
10.5. Trauma
10.5.1. FAST and e-FAST
10.5.2. Ultrasound Assessment in Special Situations
10.5.3. Hemodynamic Assessment Focused on Trauma
10.6. Stroke
10.6.1. Justification
10.6.2. Initial Assessment
10.6.3. Ultrasound Appraisal
10.6.4. Ultrasound-Guided Management

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

06

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

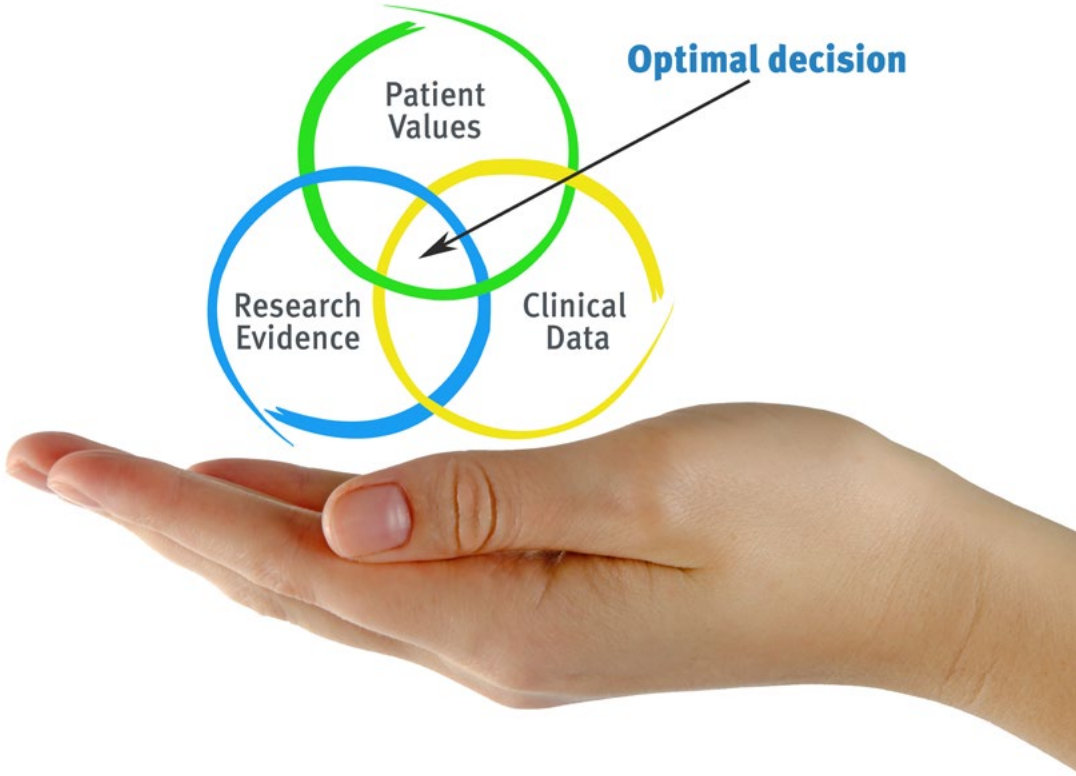
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. 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:

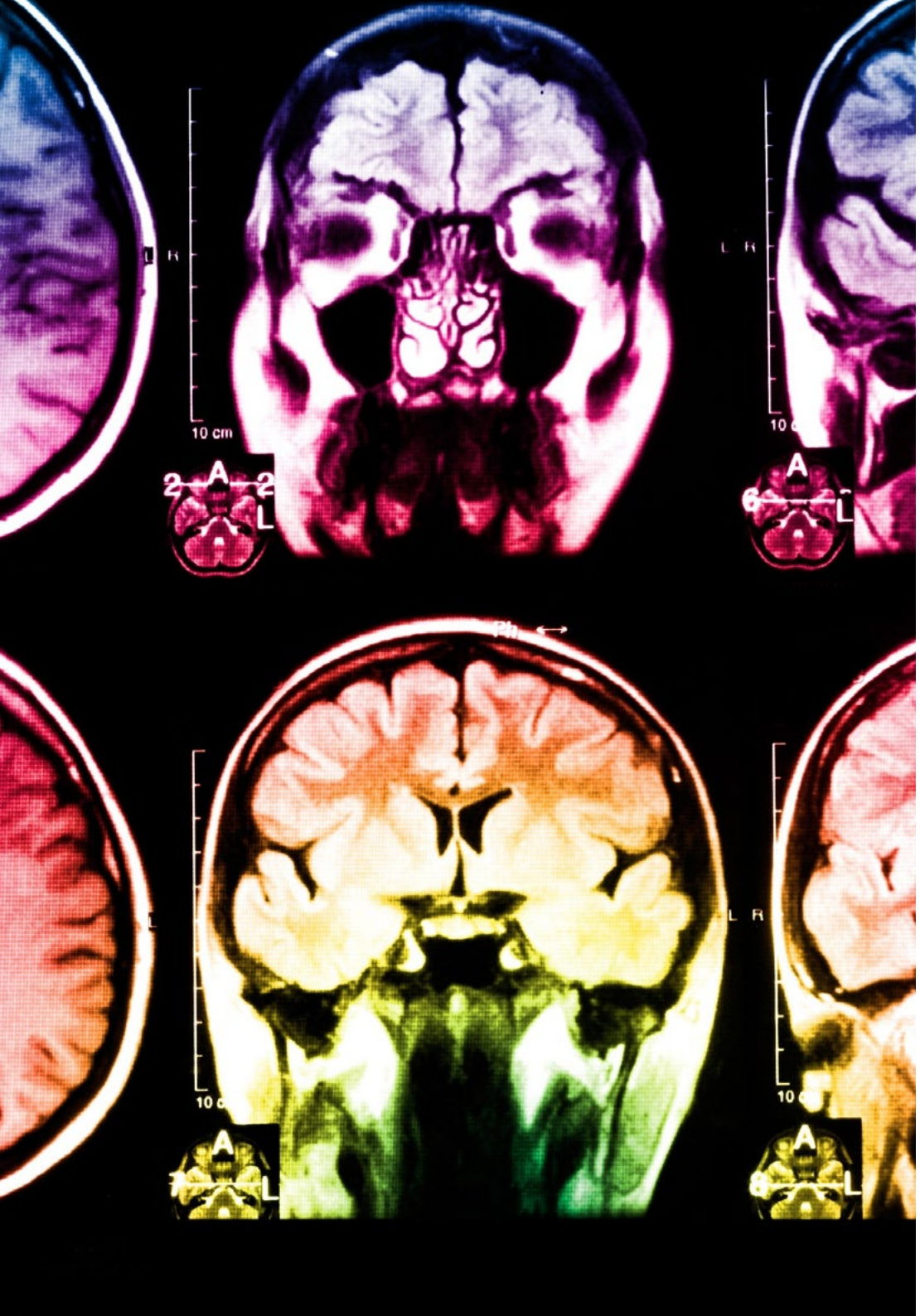
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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



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.

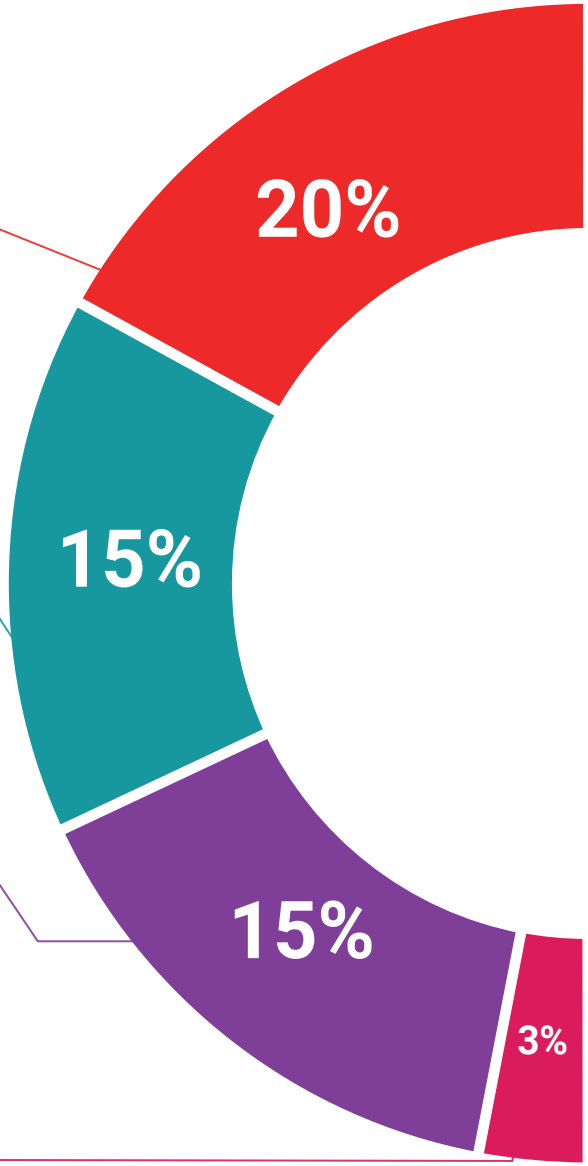
Interactive Summaries

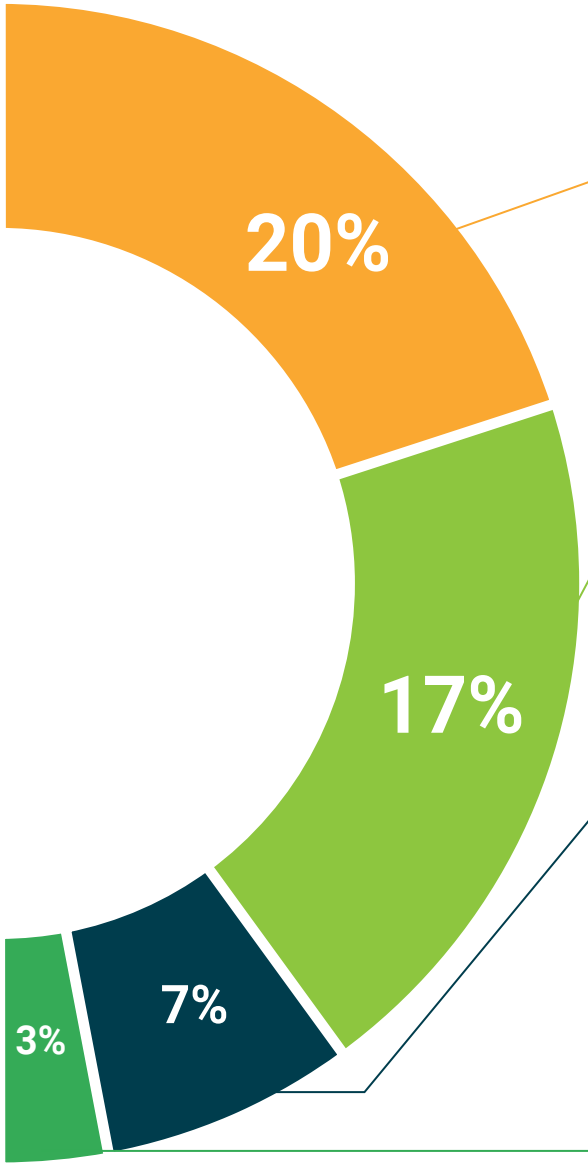
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

07

Certificate

The Professional Master's Degree in Clinical Imaging for Emergency and Critical Care guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree issued by TECH Technological University.

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

This **Professional Master's Degree in Clinical Imaging for 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 **Professional Master's Degree** diploma issued by **TECH Technological University** via tracked delivery.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Professional Master's Degree in Clinical imaging for Emergency and Critical Care**

Official No. of Hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Clinical imaging for Emergency and Critical Care

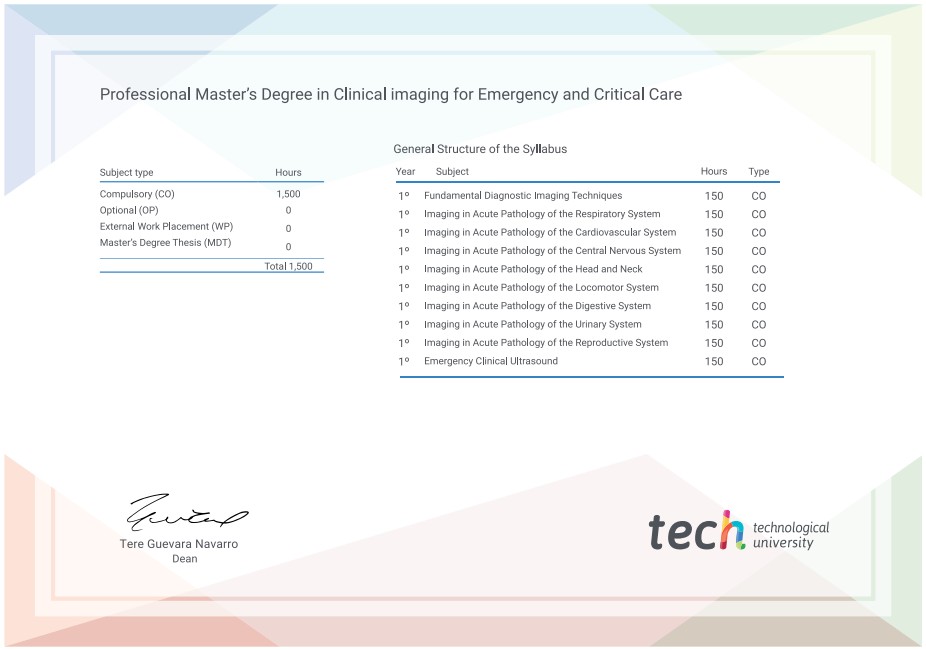
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Clinical imaging for Emergency and Critical Care

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Fundamental Diagnostic Imaging Techniques	150	CO
1º	Imaging in Acute Pathology of the Respiratory System	150	CO
1º	Imaging in Acute Pathology of the Cardiovascular System	150	CO
1º	Imaging in Acute Pathology of the Central Nervous System	150	CO
1º	Imaging in Acute Pathology of the Head and Neck	150	CO
1º	Imaging in Acute Pathology of the Locomotor System	150	CO
1º	Imaging in Acute Pathology of the Digestive System	150	CO
1º	Imaging in Acute Pathology of the Urinary System	150	CO
1º	Imaging in Acute Pathology of the Reproductive System	150	CO
1º	Emergency Clinical Ultrasound	150	CO

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Dean

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

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Professional Master's Degree

Clinical Imaging for Emergency and Critical Care

- Modality: **Online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedicated: **8 hours a week**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Clinical Imaging for Emergency and Critical Care

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