Postgraduate Certificate

Diagnostic Imaging Techniques and Tools in the Forensic Context

tech global university

tech global university

Postgraduate Certificate

Diagnostic Imaging Techniques and Tools in the Forensic Context

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/medicine/postgraduate-certificate/diagnostic-imaging-techniques-tools-forensic-context

Index

01 Introduction p. 4

02 Objectives p. 8

03 Course Management p. 12

04 Structure and Content p. 16

05 Methodology p. 20

06 Certificate p. 28

01

Introduction

Industry 4.0 has had a great impact on the healthcare and forensic fields, introducing new technologies that have improved the efficiency of their daily practice. An example of this is the X-Ray system, which is used to detect foreign bodies such as bullets or bone fractures. However, the adoption of these cutting-edge tools presents health professionals with a number of challenges.

Among them, the scarcity of time and resources they have to carry out continuous specialization in the face of the appearance of new methods stands out. To contribute to this cause, TECH has developed a pioneering university program that will provide them with a comprehensive knowledge of the most innovative Diagnostic Imaging Tools. And all in a convenient online format!

Thanks to this program, supported by Relearning, you will be at the technological pinnacle in Diagnostic Imaging and will contribute to the resolution of forensic investigations"

Computed Tomography has been a revolution in Medicine, since it is a safe and non-invasive imaging technique for the evaluation of internal conditions. Therefore, this technology is used daily in forensic fields to determine the nature of injuries or to establish the cause of death of individuals. Among its main advantages is its ability to obtain images in multiple planes, which provides specialists with a three-dimensional view of the patient's body. This is highly beneficial for interpreting signs of violence and collecting scientific findings that serve as evidence in legal proceedings.

Within this framework, TECH implements a revolutionary program in Diagnostic Imaging Techniques and Tools in the Forensic Context. Designed by authentic references in this discipline, the syllabus will delve into the operation of the most modern radiological equipment on the market. Among them, Magnetic Resonance Imaging, X-Ray Tube, X-Rays or Ultrasounds stand out. Therefore, physicians will develop advanced skills for the acquisition, processing and analysis of visual materials. In this way, they will identify radiological evidence relevant to forensic investigation, such as traumatic injuries, internal bleeding or other signs of violence.

On the other hand, the methodology of this academic itinerary reinforces its innovative character. TECH offers a 100% online educational environment, adapted to the needs of busy professionals seeking to advance in their professional careers. Therefore, they will be able to individually plan their schedules and evaluation chronograms. Likewise, the specialization employs the innovative Relearning system, based on the repetition of key concepts to fix knowledge and facilitate learning. In this way, the blend of flexibility and a robust pedagogical approach makes it highly achievable.

This **Postgraduate Certificate in Diagnostic Imaging Techniques and Tools in the Forensic Context** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of practical cases presented by experts in Forensic Radiology
- The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- 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

You will get the most effective methods for Radiation Protection through this TECH program, the best digital university in the world according to Forbes"

You will skillfully handle the Ultrasound technique and identify internal injuries in the victims' body, such as hemorrhages or bone fractures"

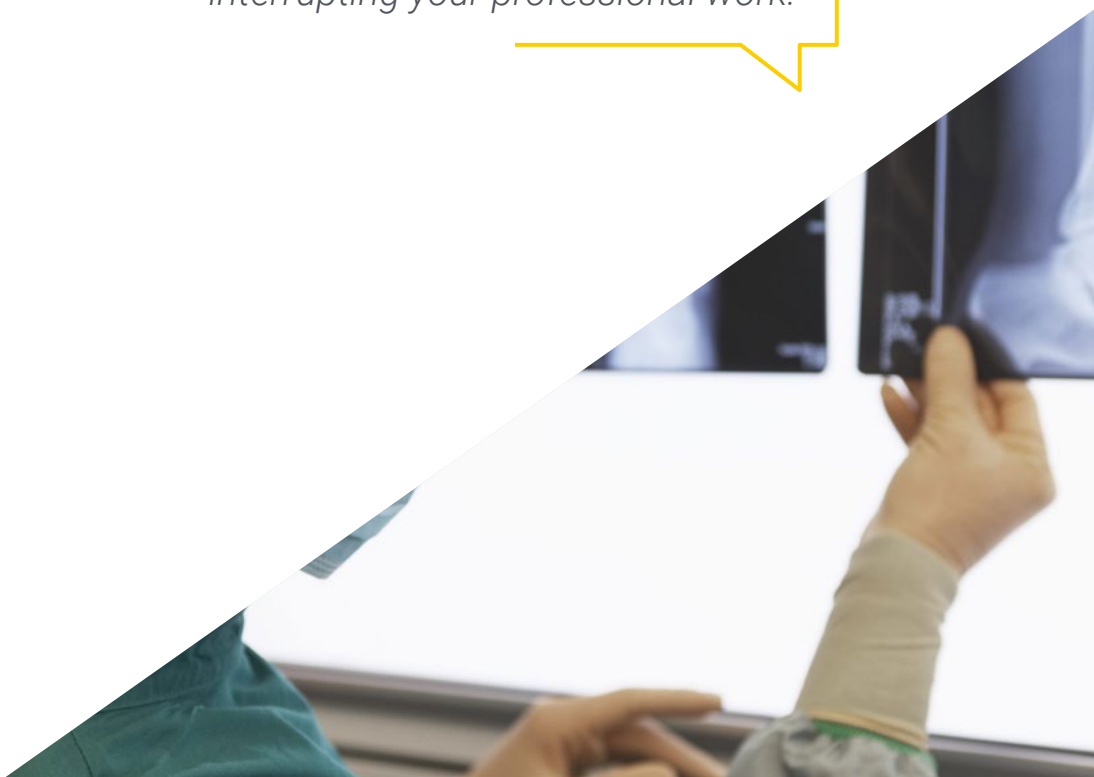
You will enhance your communication skills, being able to make comprehensive and accurate reports to adequately present your radiological findings.

TECH's 100% online methodology will allow you to update your knowledge without interrupting your professional work.

The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing program, as well as renowned specialists from leading societies and prestigious universities.

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 immersive education programmed to learn in real situations.

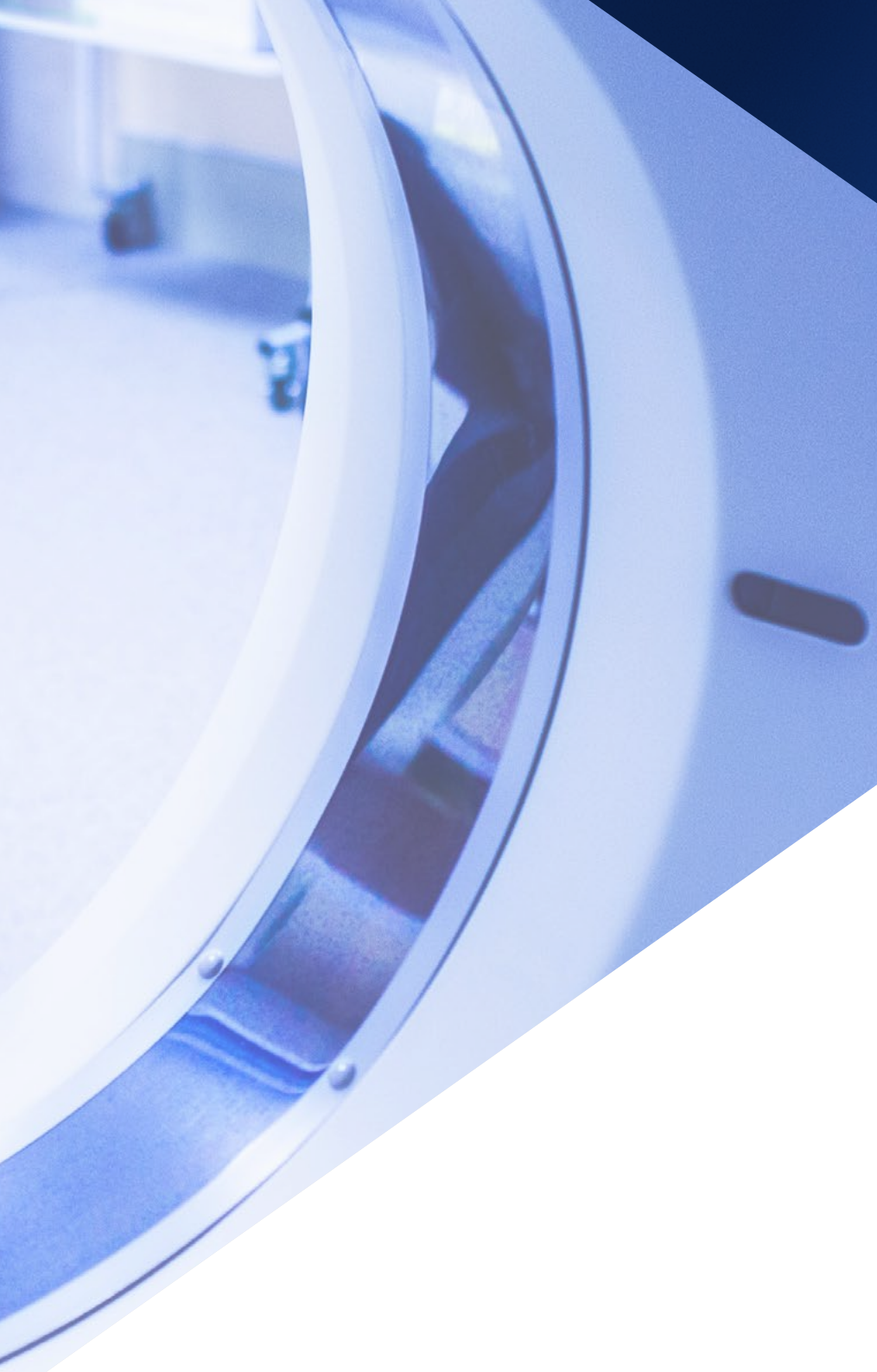
This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.



02

Objectives

After the completion of this educational experience, physicians will be characterized by having a comprehensive approach to the most commonly used Diagnostic Imaging Techniques and Tools in the forensic environment. Likewise, they will enhance their skills to process radiological snapshots in an adequate manner and will obtain advanced skills to interpret them efficiently. This will allow graduates to identify injuries, anomalies and relevant pathologies to clarify the reasons for the death of individuals. In this way, professionals will actively contribute to the resolution of forensic cases through their different imaging findings.



You will master the most avant-garde Diagnostic Imaging Techniques in the health industry, including MRI or X-Ray Tube"

General Objectives

- Identify and recognize the different types of radiological equipment and understand their uses and importance in the legal and forensic context
- Determine the adaptation of each technique to each situation, based on the affinity of the technique to the specific legal case
- Broaden the knowledge in Forensic Diagnostic Medicine, through the extensive follow-up of the elements that compose an investigation
- Establish the main role of forensic radiology in the final report of the death trajectory and the judicial investigation

Specific Objectives

- Learn the terminology that is used
- Develop the ability to observe, evaluate, experiment, formulate and verify hypotheses and technical reasoning
- Determine the importance of conventional radiology for the identification of corpses
- Establish its application in living individuals

This university program offers you a wide range of multimedia resources such as videos and infographics. You will enjoy a more dynamic and enjoyable learning experience!"

03

Course Management

In order to maintain intact the exceptional quality that distinguishes its university programs, TECH has carried out a thorough selection process to choose the teaching staff for this program. Therefore, it has assembled a group of professionals highly specialized in Forensic Radiology. These experts are characterized by their exhaustive knowledge in this field, which has allowed them to develop their careers in companies of international prestige. Committed to their specialty, these specialists keep abreast of all the advances in this field in order to raise their usual practice to a higher level.

The teaching team of this program keeps abreast of technological trends in the field of Diagnostic Imaging in forensic matters to provide a high quality praxis"

Management

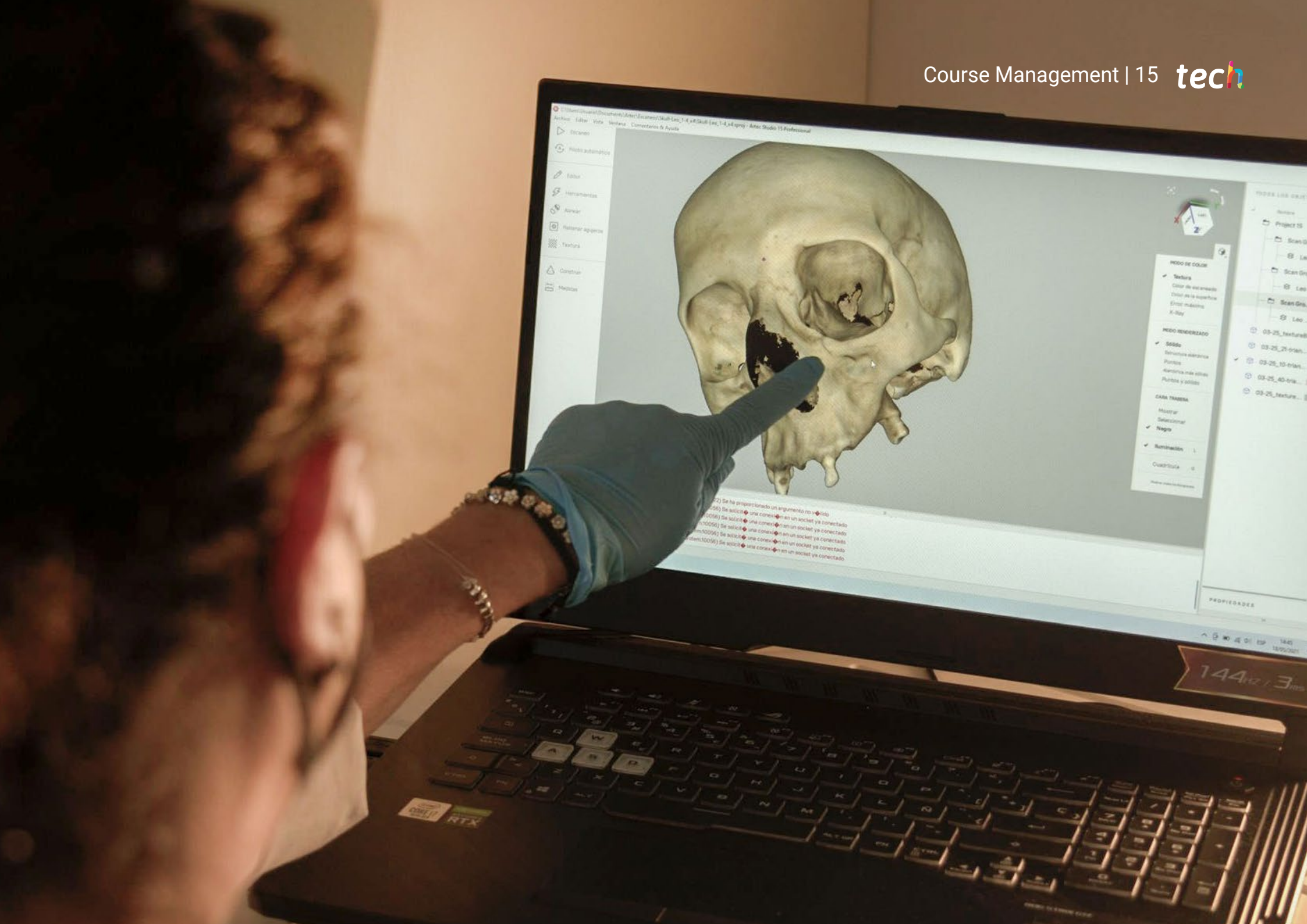
Dr. Ortega Ruiz, Ricardo

- PhD in Biomedical Engineering from the Polytechnic University of Madrid, specializing in Diagnostic Imaging
- Director of the Laboratory of Archaeology and Forensic Anthropology of the Institute of Professional Training in Forensic Sciences.
- Investigator of Crimes against Humanity and War Crimes in Europe and the Americas
- Judicial Expert in Human Identification
- International Observer in Drug Trafficking Crimes in Iberoamerica
- Collaborator in police investigations for the search of missing persons in foot or canine tracking with Civil Protection
- Instructor of adaptation courses in Basic Scale to Executive Scale aimed at the Scientific Police
- Master's Degree in Forensic Sciences applied to the Search for Missing Persons and Human Identification by Cranfield University
- Master's Degree in Archeology and Heritage with the Specialty of Forensic Archeology for the Search of Missing Persons in Armed Conflict

Professors

Ms. Leyes Merino, Valeria Alejandra

- Conventional Radiology Technician in High Imaging at Hospital Teodoro J. Schestakow
- Radiology Technician at Hospital Teodoro J. Schestakow
- Conventional Radiology Technician in High Imaging
- Expert in Densitometry at the Nuclear Medicine Foundation (FUESMEN)
- Radiology Technician at the Red Cross



04

Structure and Content

From an eminently practical perspective, this program will provide physicians with a holistic knowledge of the physical and technological foundations of the most sophisticated Diagnostic Imaging Tools. The syllabus will provide graduates with the keys to get the most out of cutting-edge instruments such as Computed Tomography, Magnetic Resonance Imaging or Ultrasound, among others. In addition, physicians will enhance their skills in the interpretation of radiological snapshots and will be able to both identify injuries and determine the causes of death. They will also be able to evaluate fractures that show evidence of mistreatment and contribute through these findings in forensic investigations.

An excellent quality syllabus at the forefront of academic teaching, which will provide you with the latest knowledge in Radiological Physics applied to the forensic field"

Module 1. Diagnostic Imaging Techniques and Tools in the Forensic Context

1.1. Radiological Physics and its Application in the Forensic Context
- 1.1.1. Physics Applied to Forensic Radiology
- 1.1.2. Radiological Characterization in the Forensic Context
- 1.1.3. Structure of Matter

1.2. Operation of Equipment in the Forensic Context
- 1.2.1. X-ray Imaging System
- 1.2.2. X-ray Tube
- 1.2.3. Diagnostic Ultrasound

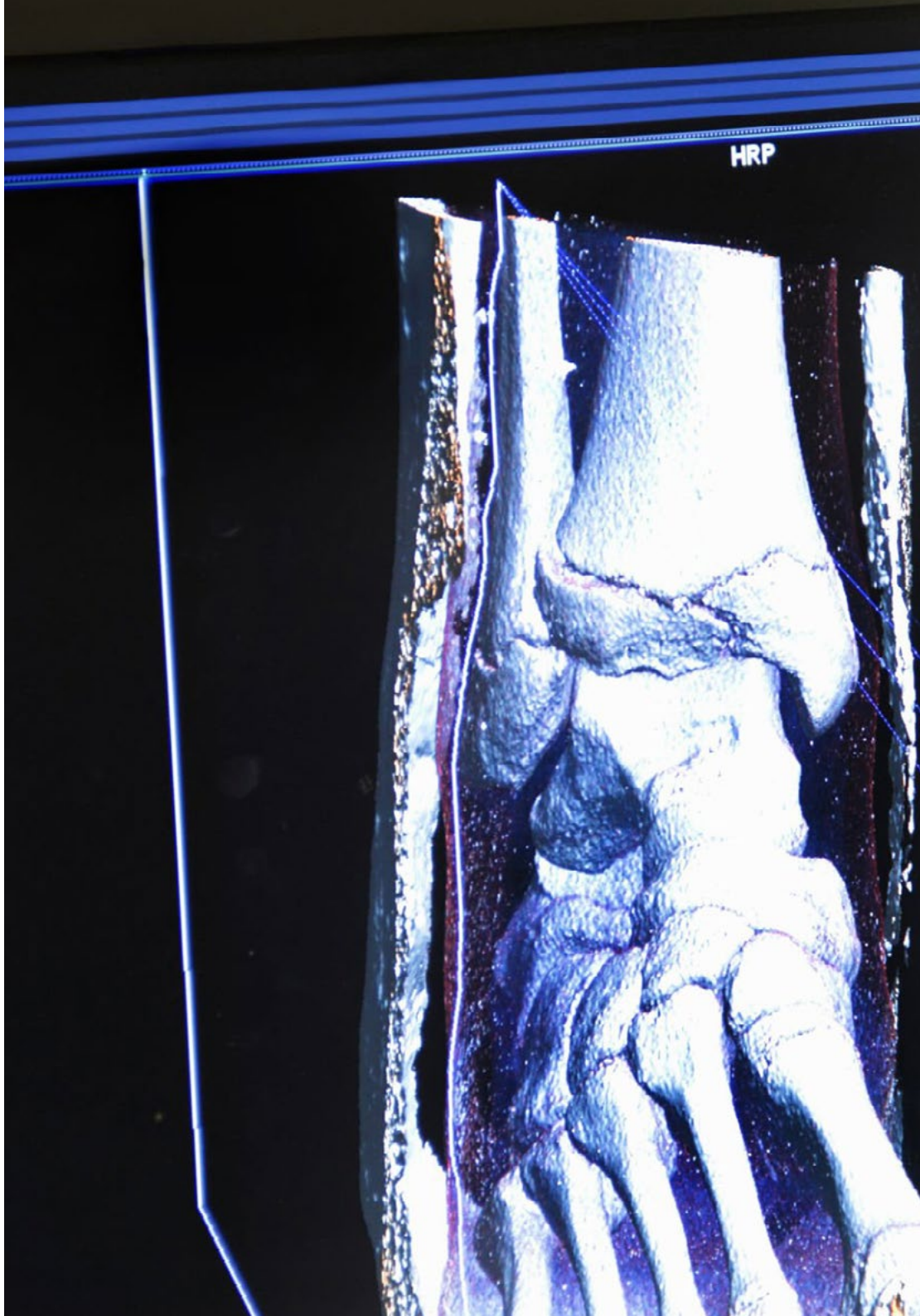
1.3. Forensic Use of Radiology
- 1.3.1. Computed Tomography (CT)
- 1.3.2. Conventional X-rays (RX)
- 1.3.3. Ultrasound (UI)
- 1.3.4. Magnetic Resonance

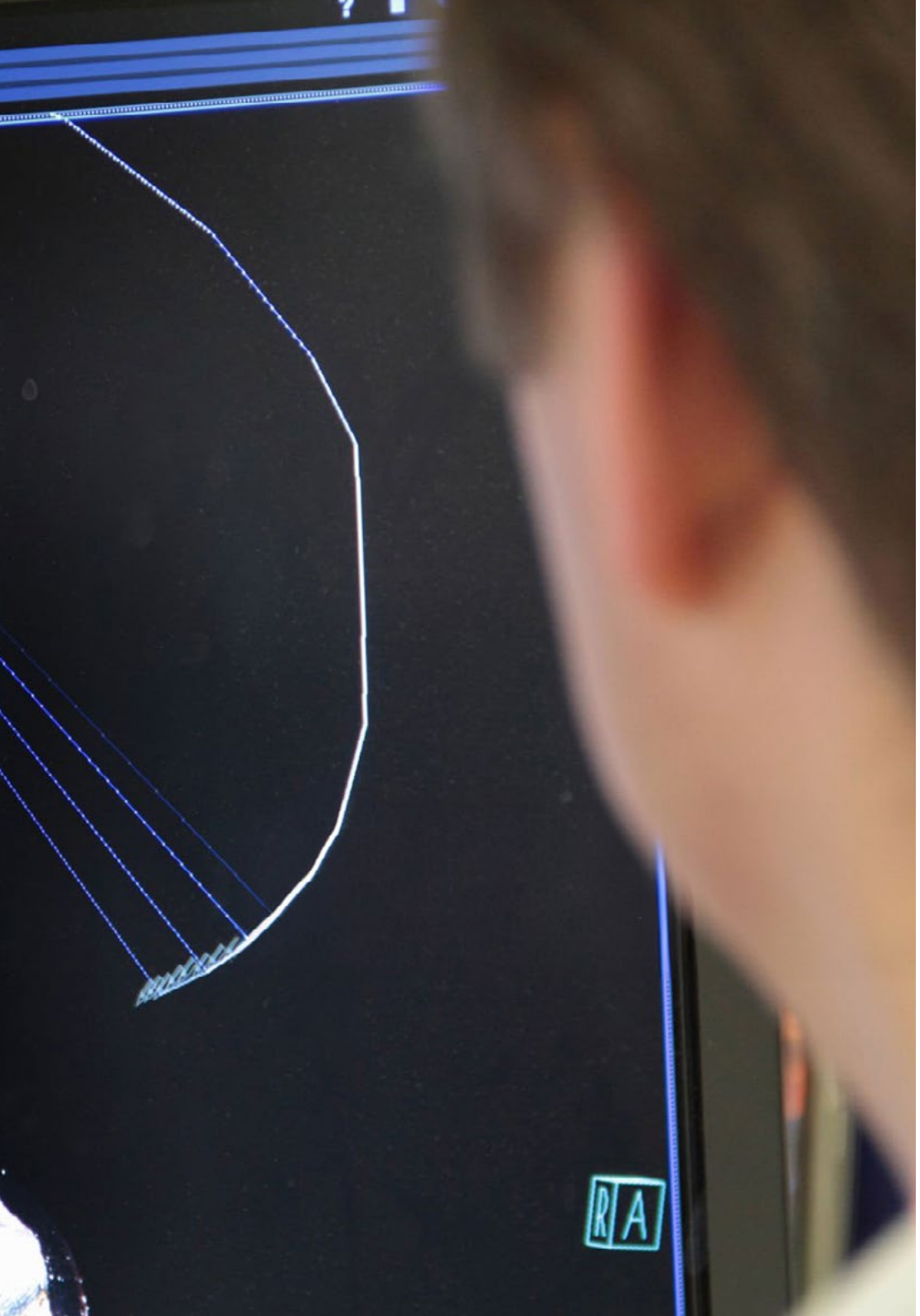
1.4. Forensic Radiobiology
- 1.4.1. Human Biology
- 1.4.2. Radiobiology
- 1.4.3. Molecular and Cellular Radiobiology

1.5. Dosimetric Quantities in Forensic Contexts
- 1.5.1. Radiation Protection
- 1.5.2. Ionization
- 1.5.3. Arousal
- 1.5.4. Fluorescence

1.6. Digital Imaging in Forensics
- 1.6.1. The Digital Image
- 1.6.2. Visualization and Understanding of Images in the Forensic Field
- 1.6.3. Artifacts

1.7. Forensic Computed Tomography





1.7.1. Operation
1.7.2. Scope
1.7.3. Terminology
1.8. Conventional Forensic Radiobiology Equipment
1.8.1. Operation
1.8.2. Scope
1.8.3. Terminology
1.9. Ultrasound in Forensic Medicine
1.9.1. Operation
1.9.2. Scope
1.9.3. Terminology
1.10. Magnetic Resonance in Expert Investigation
1.10.1. Operation
1.10.2. Scope
1.10.3. Terminology

If you have set yourself the goal of updating your knowledge and want to equip your medical practice with the most innovative Imaging Techniques, this is the program for you. Enroll now!"

05

Methodology

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

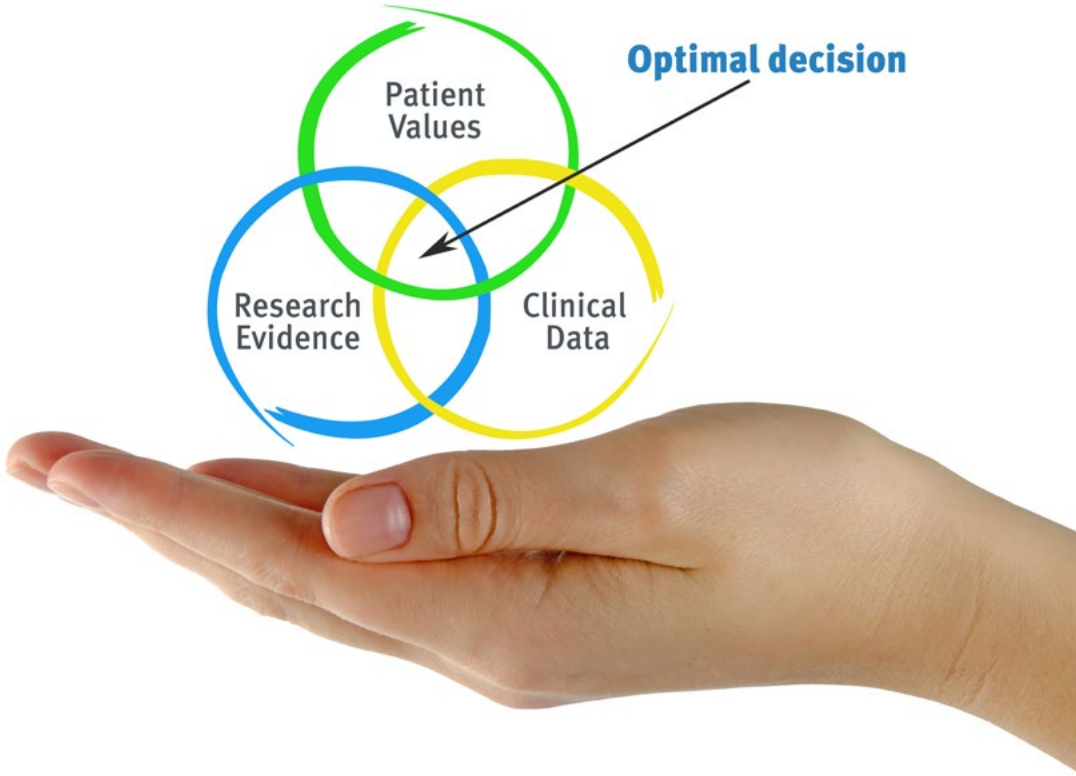
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

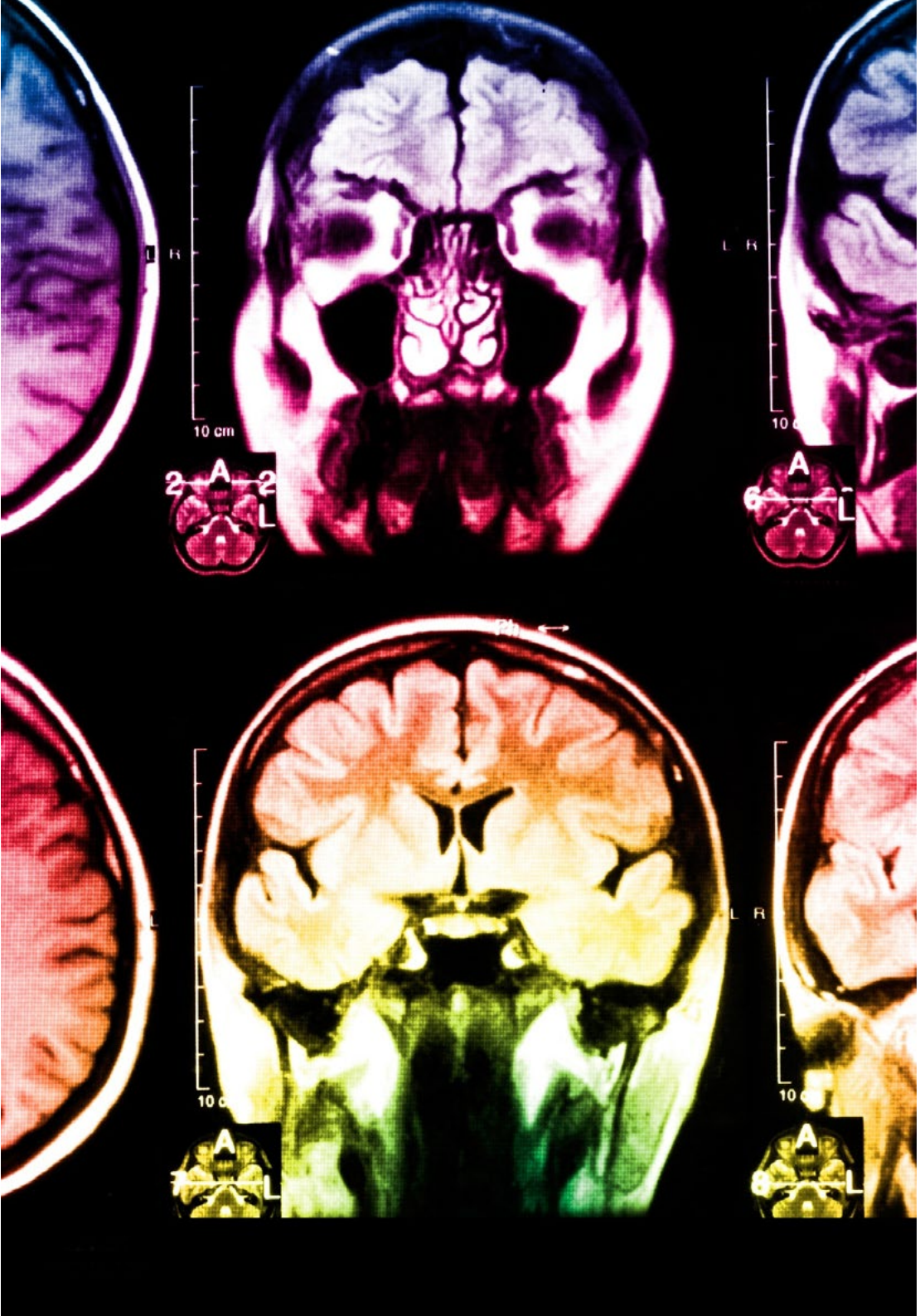
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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

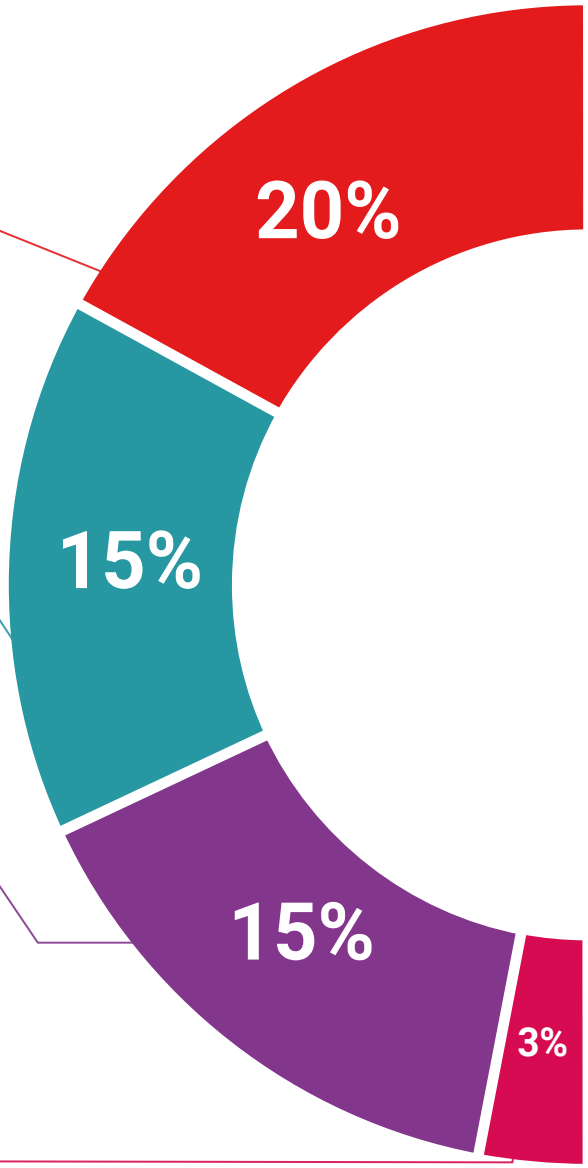
Interactive Summaries

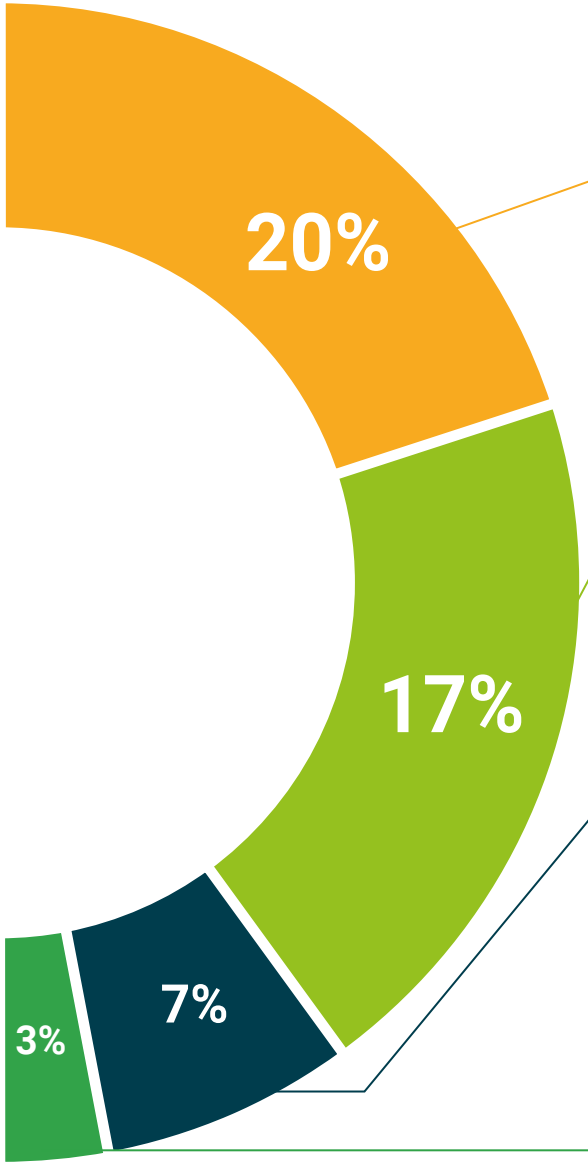
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.

06

Certificate

The Postgraduate Certificate in Diagnostic Imaging Techniques and Tools in the Forensic Context guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Postgraduate Certificate in Diagnostic Imaging Techniques and Tools in the Forensic Context** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Diagnostic Imaging Techniques and Tools in the Forensic Context**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Diagnostic Imaging Techniques and Tools in the Forensic Context

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
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

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

tech global university

Postgraduate Certificate

Diagnostic Imaging Techniques and Tools in the Forensic Context

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Postgraduate Certificate

Diagnostic Imaging Techniques and Tools in the Forensic Context

tech global university