

Postgraduate Diploma Nuclear Medicine: Beyond the Clinical Practice





Postgraduate Diploma Nuclear Medicine: Beyond the Clinical Practice

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

Website: www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-nuclear-medicine-beyond-clinical-practice

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

Medicine is in constant movement and evolution, and nuclear medicine is one of the most prolific fields in which to carry out medical research or even to get involved in issues related to the management of work teams. The need for professionals with skills that go beyond Clinical Practice is growing, which is precisely the reason for the creation of this program. In this program, the specialist will find a deep and adequate update in management and organization methods, radiomics and applications and the most advanced techniques in Nuclear Medicine. All this, in a convenient and flexible format, completely online and free of on-site classes and fixed schedules.



“

Get up to date on the necessary steps related to quality programs, patient safety protocols and information systems in Nuclear Medicine”

The management of a Nuclear Medicine Unit is not a trivial task, since not only must one be highly competent in the fundamental principles of the field, but also in the ability to organize and lead a complex and dynamic work team. This implies that the professionals in the area dedicated to this leadership task must improve and update their knowledge even more, especially on issues such as information management or new work channels such as teleworking.

This Postgraduate Diploma lays the foundations of Nuclear Medicine from a practical perspective, taking a step beyond Clinical Practice and reviewing the most rigorous and current information on issues such as economic assessment of processes in Nuclear Medicine, the different quality programs or risk management and patient safety.

It also complements this syllabus with modules dedicated to the latest developments in the field of Radiomics and Nuclear Medicine itself, providing an avant-garde and modern vision of the scientific principles with the greatest impact on the clinical panorama. With all of this, the specialist will be able to effectively keep up-to-date both in their own care management as well as in nuclear practice.

The format of the program is completely online, which greatly facilitates adaptation to all kinds of schedules and professional and personal demands. This is possible thanks to the total availability of the contents that are available in the Virtual Campus 24 hours a day to be accessed and even downloaded from any device with an Internet connection.

This **Postgraduate Diploma in Nuclear Medicine: Beyond the Clinical Practice** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Nuclear Medicine
- ♦ 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
- ♦ 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 work
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



Delve into genomics and modern clinical methodology in Nuclear Medicine, keeping your knowledge up-to-date based on the most recent postulates”

“

You will be able to download all the contents for later review and consultation, giving you the freedom to take on the course load at your own pace”

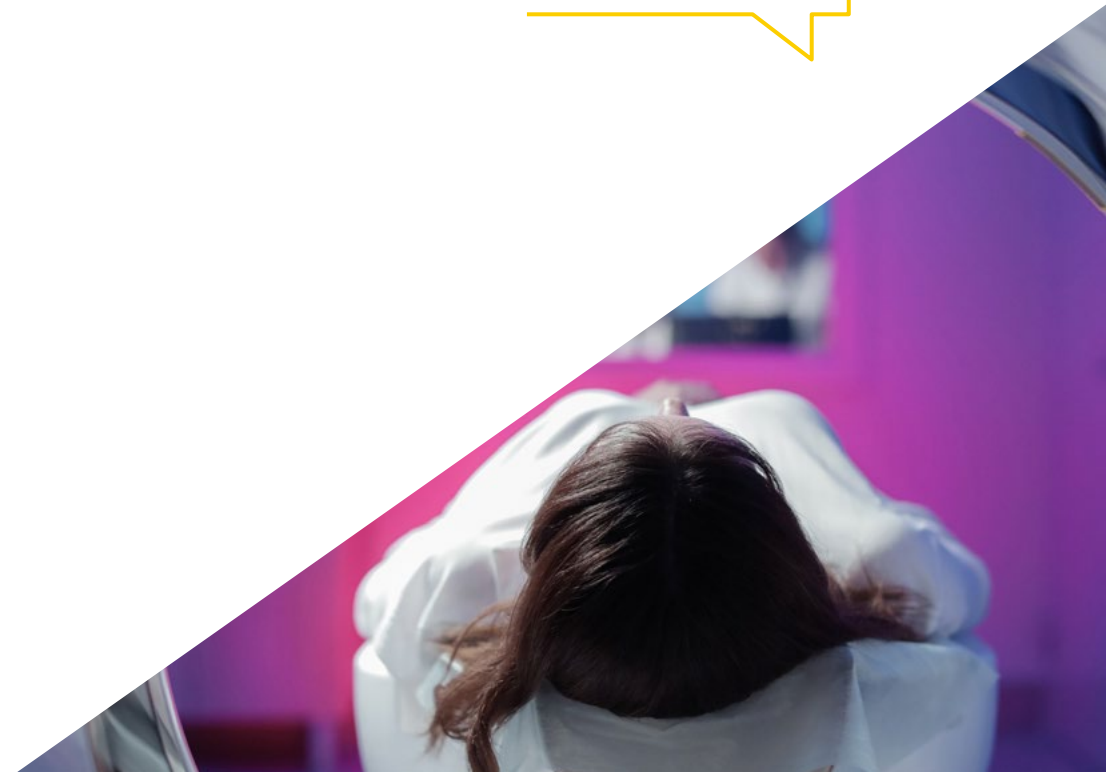
Access the virtual campus whenever, wherever and however you want, both from your computer and even from your smartphone or tablet of choice.

Get up-to-date in radioprotection, image generation and radiopharmacy of major relevance in Nuclear Medicine.

It includes in its teaching staff a team of professionals from the sector who bring to this program the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

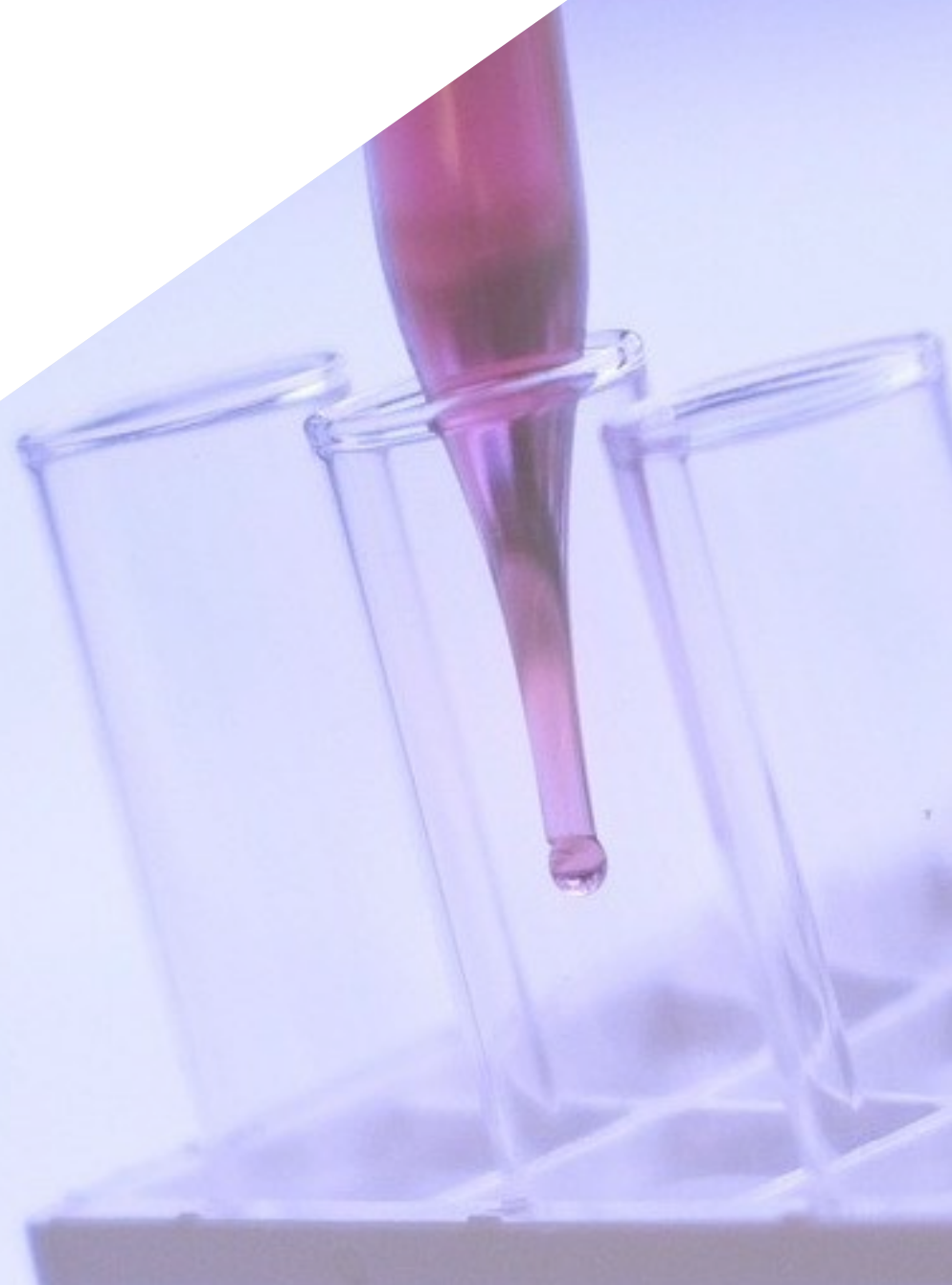
The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

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



02 Objectives

The main objective of this Postgraduate Diploma is to delve into the most relevant aspects of the management and direction of a Nuclear Medicine unit. Therefore, it delves into issues that go beyond Clinical Practice, without forgetting the eminently realistic approach that is carried out throughout the program, providing the specialist with a multitude of examples and analysis of real management cases.



“

You will meet your most ambitious professional goals thanks to a detailed syllabus, which will take you through today's relevant diagnostic biomarkers and new therapies in Nuclear Medicine”



General Objectives

- Update the specialist in Nuclear Medicine
- Perform and interpret functional tests in an integrated and sequential manner
- Achieve diagnostic guidance for patients
- Assist in deciding the best therapeutic strategy, including radiometabolic therapy, for each patient
- Apply clinical and biochemical criteria for the diagnosis of infections and inflammations
- Understand the particularities of Nuclear Medicine applied to pediatric patients
- Learn about the new therapies of Nuclear Medicine

“

Incorporate the most effective management methodology into your daily practice, establishing strategic plans that address the needs and resources of your own team”





Specific Objectives

Module 1. Management

- ♦ Delve into the exhaustive management of the Nuclear Medicine unit with efficiency and quality oriented to the patient
- ♦ Establish a strategic plan considering the institution's environment, needs and resources
- ♦ Delve into the different organizational forms and the implementation of a program
- ♦ of quality oriented to continuous improvement focused on the patient

Module 2. Radiomics

- ♦ Obtain diagnostic, response predictive and prognostic biomarkers offering patients personalized precision therapy

Module 3. Nuclear Medicine

- ♦ Delve into the knowledge of the basics of Nuclear Medicine in its fundamental elements, such as radioactivity and the type of disintegrations, image detection and generation, radiopharmaceuticals and radioprotection

03

Course Management

Given the focus on the management and direction of Nuclear Medicine units that this Postgraduate Diploma has, the teaching staff has extensive experience in clinical leadership. In this way, the teachers are heads of service and directors of various multidisciplinary teams, developing their work in first level clinical environments and contributing this experience throughout the syllabus developed.





“

You will be supported by a first class teaching staff, with a wide experience in the direction and management of Nuclear Medicine Units”

Management



Dr. Mitjavila, Mercedes

- ◆ Head of Service of Nuclear Medicine of the University Hospital Puerta de Hierro Majadahonda, Madrid
- ◆ Project Manager of the Nuclear Medicine Unit in the Diagnostic Imaging Department of the Alcorcón Foundation University Hospital
- ◆ Interim Physician of the Nuclear Medicine Service of the Ramón y Cajal Hospital
- ◆ Interim Physician in the Nuclear Medicine Unit at Getafe University Hospital
- ◆ PhD in Medicine and General Surgery from the University of Alcalá de Henares
- ◆ Degree in Medicine and General Surgery from the University of Alcalá de Henares

Professors

Dr. Martí Climent, Josep M.

- ◆ Director of the Radiophysics and Radiological Protection Service of the University Clinic of Navarra
- ◆ Head of the Radiation Protection Service of the Nuclear Safety Council
- ◆ Deputy Director of the Nuclear Medicine Service of the University Clinic of Navarra
- ◆ Specialist in Hospital Radiophysics recognized by the Ministry of Education and Science
- ◆ Doctor of Science, Autonomous University of Barcelona
- ◆ Degree in Science from the Autonomous University of Barcelona
- ◆ University Specialist in Protection in Facilities from the Complutense University of Madrid

Mr. Herrero González, Antonio

- ◆ Data Analytics Manager in the Big Data and Advanced Analytics Area
- ◆ Director of Information Systems (IT) at General Hospital of Villalba
- ◆ Director of Information Systems (IT) in Rey Juan Carlos University Hospital
- ◆ Technical Engineering in Computer Systems from the University of Salamanca
- ◆ Master in Management of Information and Communication Systems and Technologies for Health by the Health Institute Carlos III
- ◆ Master's Degree in Big Data Analysis. MB European University of Madrid



Dr. Rayo Madrid, Juan Ignacio

- ◆ Head of the Nuclear Medicine Service of the University Hospital Complex of Badajoz
- ◆ Area Specialist in Nuclear Medicine and Head of the Nuclear Medicine Service of the University Hospital Complex of Badajoz
- ◆ Area Specialist in Nuclear Medicine at the Clinical Hospital of Salamanca
- ◆ PhD in Medicine and Surgery from the University of Salamanca. Outstanding Award
- ◆ Degree in Medicine and Surgery from the University of Extremadura
- ◆ Master's Degree in Quality Management in Health and Social Health Services from the Complutense University of Madrid
- ◆ European Expert in Quality Management in the Healthcare Sector

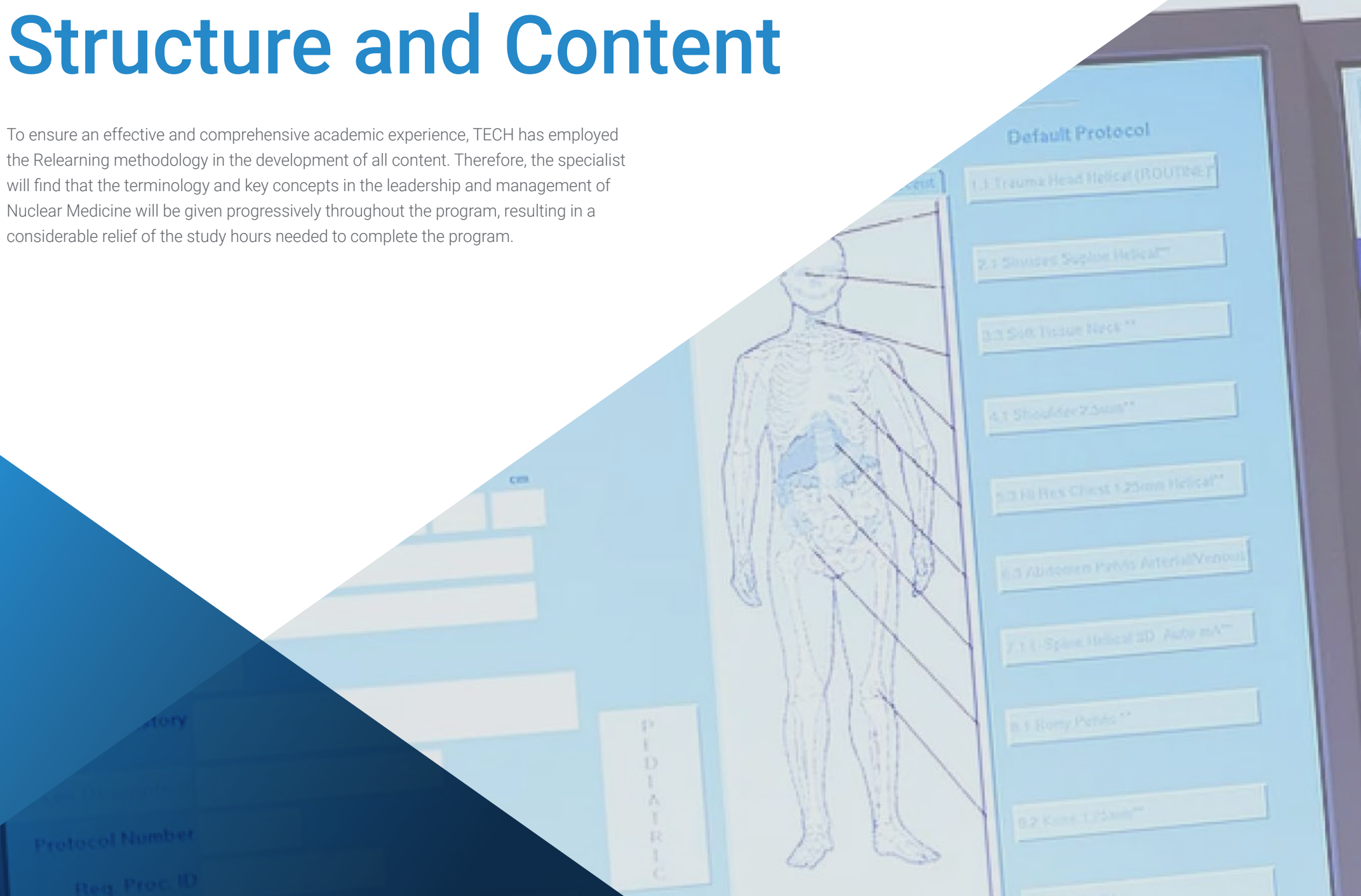
“

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

04

Structure and Content

To ensure an effective and comprehensive academic experience, TECH has employed the Relearning methodology in the development of all content. Therefore, the specialist will find that the terminology and key concepts in the leadership and management of Nuclear Medicine will be given progressively throughout the program, resulting in a considerable relief of the study hours needed to complete the program.





“

You will have an impact reference guide that will be useful to you even after you have completed the entire program”

Module 1. Management

- 1.1. Strategic Planning
 - 1.1.1. Benefits
 - 1.1.2. Vision, Mission and Values of the Health Institution and the Nuclear Medicine Unit
 - 1.1.3. Models: SWOT Analysis
- 1.2. Organization and Management
 - 1.2.1. Organizational and Functional Structure
 - 1.2.2. Technical Equipment
 - 1.2.3. Human resources.
- 1.3. Information Systems
 - 1.3.1. Indicators and Indexes
- 1.4. Knowledge Management
- 1.5. Quality Program
 - 1.5.1. ISO Standards
 - 1.5.2. Clinical Audits
 - 1.5.3. Objectives of Clinical Audits
 - 1.5.4. The Audit Cycle
 - 1.5.5. Evidence-Based Medicine
 - 1.5.6. Elements of Quality: Structure, Process and Results
- 1.6. Economic Assessment of Nuclear Medicine Processes
- 1.7. Adequacy of Imaging Tests
 - 1.7.1. What Should Be Done?
 - 1.7.2. What Not to Do?
- 1.8. Risk Management
 - 1.8.1. Levels of Responsibility
 - 1.8.2. Patient Security.
- 1.9. Nuclear Medicine Teleworking
 - 1.9.1. Technical Requirements
 - 1.9.2. Legislation: Employment Relationship, Data Protection Act

Module 2. Radiomics

- 2.1. Artificial Intelligence, Machine Learning, Deep Learning
- 2.2. Radiomics Today
- 2.3. Imaging Biomarkers
- 2.4. Multidimensionality in Imaging
- 2.5. Applications: Diagnosis, Prognosis and Prediction of Response
- 2.6. Evidence Levels
- 2.7. Combination with Other "omics": Radiogenomics

Module 3. Nuclear Medicine

- 3.1. Physical Bases of Ionizing Radiations
 - 3.1.1. Ionizing Radiation and Radioactive Isotopes
 - 3.1.2. Types of Radiation
- 3.2. Biological Effects of Ionizing Radiations
 - 3.2.1. Classification of Effects according to: Time of Occurrence
 - 3.2.2. Biological and Dose Dependent Effect
 - 3.2.3. Interaction of Ionizing Radiation with Matter
 - 3.2.4. Ionizing Radiation-Cell Interaction: Characteristics, Effects
 - 3.2.5. Direct and Non-Direct
 - 3.2.6. Radiosensitivity
 - 3.2.7. Adaptive Response
- 3.3. Radiopharmaceuticals
 - 3.3.1. The Radiopharmaceutical
 - 3.3.2. Conventional Diagnostic Radiopharmaceuticals
 - 3.3.3. Radionuclide Generators
 - 3.3.4. Localization Mechanisms
 - 3.3.5. Positron Emission Tomography Radiopharmaceuticals
 - 3.3.6. Synthesis Scheme
 - 3.3.7. Metabolic Pathway Substrates
 - 3.3.8. Radiopharmaceuticals with Therapeutic Effect
 - 3.3.8.1. Characteristics that Must be Met
 - 3.3.8.2. Design and Approval

- 3.4. Radiopharmacy
 - 3.4.1. Regulatory Framework.
 - 3.4.2. Operation
 - 3.4.3. Quality Control
- 3.5. Image Acquisition and Processing
 - 3.5.1. Planar Image
 - 3.5.1.1. Components
 - 3.5.1.2. Performance: Resolution, Sensitivity
 - 3.5.1.3. Acquisition Modes: Static, Dynamic, Synchronized
 - 3.5.1.4. Reconstruction
 - 3.5.2. Single Photon Tomography (SPECT)
 - 3.5.2.1. Acquisition
 - 3.5.2.1 Reconstruction
 - 3.5.3. Positron Emission Tomography (PET)
 - 3.5.3.1. Components
 - 3.5.3.2. Acquisition of Data
 - 3.5.3.3. Operating Parameters
- 3.6. Quantification Techniques: Basis
 - 3.6.1. In Cardiology
 - 3.6.2. In Neurology
 - 3.6.3. Metabolic Parameters
- 3.7. The Image of TC
 - 3.7.1. Image Generation
 - 3.7.2. Acquisition and Reconstruction Parameters
 - 3.7.3. Protocols and Contrast Media
 - 3.7.4. Head and Neck
 - 3.7.5. Thorax: Cardiology, Lung
 - 3.7.6. Abdomen: General, Liver, Renal
- 3.8. The Image of RM
 - 3.8.1. Resonance Phenomenon
 - 3.8.2. Tissue Contrast: Sequence Knowledge
 - 3.8.3. Dissemination
 - 3.8.4. Paramagnetic Contrasts
- 3.9. The Multimodality Image
 - 3.9.1. SPECT/TC
 - 3.9.2. PET/TC
 - 3.9.3. PET/RM
- 3.10. Radioprotection
 - 3.10.1. The Radioprotection
 - 3.10.2. Special Situations: Pediatrics, Pregnancy and Lactation
 - 3.10.3. Regulatory Framework: Implementation
 - 3.10.4. Dosimetry



Delve deeper into the topics you are most interested in through the additional readings included in each module”

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 Diploma in Nuclear Medicine: Beyond the Clinical Practice guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



“

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

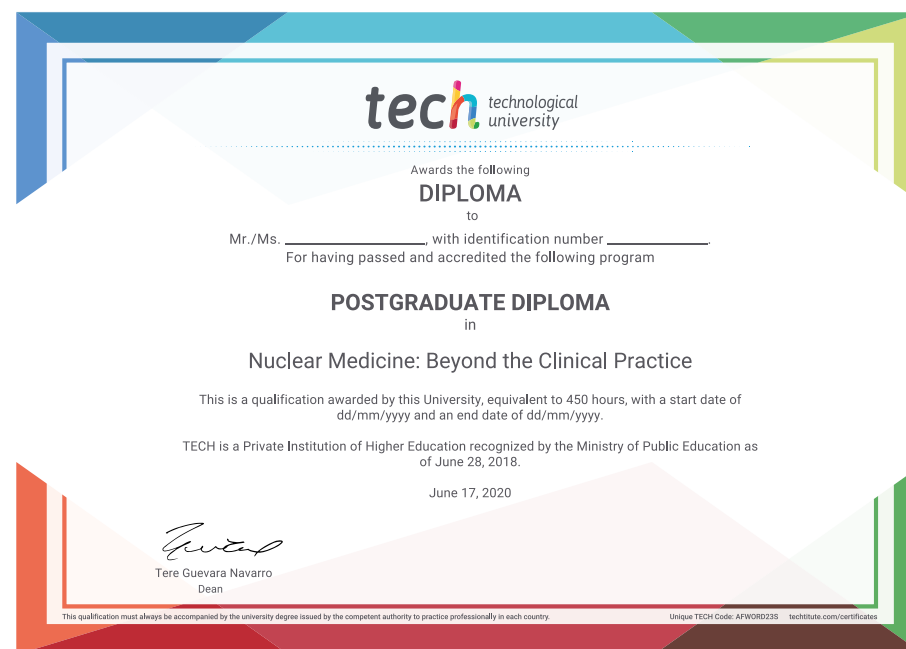
This **Postgraduate Diploma in Nuclear Medicine: Beyond the Clinical Practice** contains the most complete and up-to-date scientific program on the market.

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 Nuclear Medicine: Beyond the Clinical Practice**

Official N° of Hours: **450 h.**



*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.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

tech technological
university

personalized service innovation

knowledge present

online training

development language

virtual classroom

Postgraduate Diploma
Nuclear Medicine:
Beyond the Clinical Practice

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

Postgraduate Diploma Nuclear Medicine: Beyond the Clinical Practice