

Postgraduate Certificate

Single Photon Emission

Nuclear Medicine





Postgraduate Certificate

Single Photon Emission Nuclear Medicine

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

Website: www.techtute.com/us/medicine/postgraduate-certificate/single-photon-emission-nuclear-medicine

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

Single photon emission tomography makes it possible to observe the functioning of the different internal organs. Thanks to this technique, it is possible to obtain precise images of the interior of the human body, improving the results of other procedures such as X-rays. For this reason, it is a highly valued method in today's medicine and more and more specialists are required who know how to perform it and analyze the results correctly. Thus, this qualification offers its students the necessary skills to master this technique, so that they can apply it in their professional field, achieving, also, to update their knowledge on the subject and access to the best Nuclear Medicine services in the country.





“

Your diagnoses will be more accurate thanks to what you will learn in this Postgraduate Certificate in Single Photon Emission Nuclear Medicine”

Nuclear Medicine can provide numerous solutions for diagnosis and treatment. One of the aspects for which it is most valued is its precision, since it presents more concrete information than other observation methods. In addition, their methods are often minimally invasive, which is a great advantage for patients.

This is the case with single photon emission tomography, which provides accurate data using a minimally invasive technique. This makes it a procedure that today's physicians want to master, since it is useful and Nuclear Medicine services require specialized professionals who know how to use it properly.

For that reason, this Postgraduate Certificate in Single Photon Emission Nuclear Medicine is a great opportunity for all those physicians who wish to advance in this area, either by updating their knowledge or by learning new skills that will give them access to a great Nuclear Medicine service.

To this end, this qualification, which follows a 100% online learning method that adapts to the circumstances of each student, offers content that focuses on the application of this technique to monitor organs and cardiological, osteoarticular or pneumological pathologies, as well as oncological diseases, thromboembolisms or transplants. In this way, students completing the qualification will be able to advance their careers thanks to the wealth of new skills they will gain from it.

This **Postgraduate Certificate in Single Photon Emission Nuclear Medicine** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts in Nuclear Medicine and in the specialty of Single Photon Emission
- ♦ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ Practical exercises where self-assessment can be used 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



Specialization is the key in Nuclear Medicine. Take this Postgraduate Certificate and become a great expert in Single Photon Emission Tomography”

“ *The best Nuclear Medicine services in the country will want to have you when you have completed this excellent program*”

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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 training programmed to train 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.

With this Postgraduate Certificate you will be able to update your knowledge to continue being a great specialist in Nuclear Medicine.

Achieve progress in your Nuclear Medicine service thanks to what you will learn in this qualification.



02 Objectives

This Postgraduate Certificate in Single Photon Emission Nuclear Medicine aims to enable students to acquire new knowledge in this field, updating their previous skills and preparing them for the challenges of the present and future of Nuclear Medicine. Thus, when they finish this qualification, they will be able to apply this procedure with total efficiency, so that they will be able to make accurate diagnoses and treatments, increasing their professional prestige.





“

With this Postgraduate Certificate your professional goals will be within your reach. Don't miss this opportunity and enroll”



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
- Learn about the new therapies of Nuclear Medicine





Specific Objectives

- ◆ Show characteristic imaging patterns for new pathologies
- ◆ Know the causes of diagnostic error
- ◆ Update on advances in conventional Nuclear Medicine in a practical way

“

*Enroll now and watch your
prestige increase thanks to your
new skills in Nuclear Medicine”*

03

Course Management

This Postgraduate Certificate in Single Photon Emission Nuclear Medicine is taught by real experts in the field and they will provide all their knowledge to the students. Thus, they will be able to learn the skills that are currently required in the field of Nuclear Medicine, being able to apply them directly in their professional environments. For that reason, this qualification has a practical approach that facilitates the learning process for students.



“

Learn from the best how to perform single photon emission tomography and diagnose with great precision numerous pathologies”

International Guest Director

Dr. Stefano Fanti's prominent career has been entirely devoted to **Nuclear Medicine**. For almost 3 decades he has been professionally linked to the **PET Unit** at the **Polyclinic S. Orsola**. His exhaustive management as **Medical Director** of that hospital service allowed an exponential growth of the same, both its facilities and equipment. As a result, in recent years the institution has performed more than **12,000 radiodiagnostic examinations**, making it one of the **most active** in Europe.

Based on these results, the expert was selected to **reorganize** the **functions** of all the metropolitan centers with Nuclear Medicine tools in the region of Bologna, Italy. After this intensive professional task, he has held the position of **Referent of the Maggiore Hospital Division**. Also, still in charge of the PET Unit, Dr. Fanti has coordinated several grant applications for this center, receiving important funding from national institutions such as the Italian **Ministry of Universities** and the **Regional Health Agency**, Ministry of Universities.

On the other hand, this specialist has participated in many research projects on the clinical application of **PET** and **PET/CT technologies** in **Oncology**. In particular, he has investigated the approach to Lymphoma and **Prostate Cancer**. In turn, he has integrated the teams of many clinical trials with BCP requirements. In addition, he personally leads experimental analyses in the field of new PET tracers, including C-Choline, F-DOPA and Ga-DOTA-NOC, among others.

Also, Dr. Fanti is a collaborator of the **International Atomic Energy Organization (IAEA)**, participating in initiatives such as the consensus for the introduction of **radiopharmaceuticals for clinical use** and other advisory missions. He is also the author of more than 600 articles published in international journals and is a reviewer for The Lancet Oncology, The American Journal of Cancer, BMC Cancer, among others.



Dr. Fanti, Stefano

- ♦ Director of the Specialized School of Nuclear Medicine of the University of Bologna, Italy
- ♦ Director of the Division of Nuclear Medicine and of the PET Unit of Polyclinic S. Orsola
- ♦ Referent of the Division of Nuclear Medicine, Maggiore Hospital
- ♦ Associate Editor of Clinical and Translational Imaging, the European Journal of Nuclear Medicine and the Spanish Journal of Nuclear Medicine
- ♦ Reviewer for The Lancet Oncology, The American Journal of Cancer, BMC Cancer, European Urology, The European Journal of Hematology, Clinical Cancer Research, and other international journals
- ♦ Advisor to the International Atomic Energy Organization (IAEA)
- ♦ Member of: European Association of Nuclear Medicine

“

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

Management



Dr. Mitjavila, Mercedes

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



Professors

Dr. Paniagua Correa, Cándida

- Medical Specialist in Nuclear Medicine with practice at Getafe Hospital
- Professional practice as a Nuclear Medicine Specialist in the Nuclear Medicine Department of the Quirón Madrid University Hospital
- Collaborating professor in the training of residents in the specialty of Nuclear Medicine at the Getafe Hospital
- Degree in Medicine and Surgery from the Complutense University
- Specialist in Nuclear Medicine. MIR at the University Hospital of Getafe
- PhD in Dermatology Complutense University of Madrid
- Radioactive Facilities Supervisor License issued by the Nuclear Safety Council
- Member of Spanish Society of Nuclear Medicine

04

Structure and Content

This Postgraduate Certificate in Single Photon Emission Nuclear Medicine consists of a specialized module on the subject, and students will learn how to apply this procedure to monitor and detect pathologies such as pulmonary thromboembolism, different ventricular dysfunctions or bone metastases. In this way, students will be prepared to observe and treat a wide variety of diseases and conditions.





“

Detect and treat all types of pathologies thanks to what you will learn in this Postgraduate Certificate”

Module 1. Single Photon Emission Nuclear Medicine: "Pearls and Pitfalls"

- 1.1. Pneumology
 - 1.1.1. Perfusion/Ventilation
 - 1.1.2. Pulmonary Thromboembolism
 - 1.1.3. Pulmonary Hypertension
 - 1.1.4. Lung Transplant
 - 1.1.5. Pleuroperitoneal Fistula: Cirrhotic Patient, Peritoneal Dialysis
- 1.2. Cardiology
 - 1.2.1. Perfusion: Ischemic Heart Disease, Cellular Viability, Contribution
 - 1.2.2. GATED, Myocarditis
 - 1.2.3. *Shunt*: Left-Right, Right-Left
 - 1.2.4. Ventricular Function: Ischemic Cardiopathy, Cardiotoxicity
 - 1.2.5. Cardiac Innervation: Cardiac Pathology, Neurological Pathology
- 1.3. Vascular and Lymphatic System
 - 1.3.1. Peripheral Endothelial Function
 - 1.3.2. Lower Limb Perfusion
 - 1.3.3. Lymphogrammagraphy
- 1.4. Osteoarticular
 - 1.4.1. Primary Benign and Malignant Tumor Pathology: Planar Imaging
 - 1.4.2. Hybrid Image Contribution
 - 1.4.3. Bone Metastasis: Contributions of SPECT and SPECT/CT, Usefulness in Diagnosis and Monitoring
 - 1.4.4. Benign Pathology: Metabolic Disease, Sports Pathology
- 1.5. Nephrourology
 - 1.5.1. Assessment of Renal Malformations
 - 1.5.2. Obstructive Pathology: Hydronephrosis in Pediatric Age: Diagnosis and Monitoring, Adult Hydronephrosis, Urinary Diversion Study
 - 1.5.3. Pyelonephritis: Initial Diagnosis, Evolution
 - 1.5.4. Renal Transplantation: Rejection, Tubular Necrosis, Nephrotoxicity, Urinary Leakage
 - 1.5.5. Vasculorenal Hypertension: Diagnosis, Monitoring
 - 1.5.6. Glomerular Filtration and Effective Renal Plasma Flow
 - 1.5.7. Cystogrammagraphy: Direct and Indirect in the Diagnosis and Monitoring of





- Vesicoureteral Reflux
- 1.6. Gastroenterology
 - 1.6.1. Salivary Glands: Autoimmune Pathology, Post-radiation Damage, Salivary Gland Tumors
 - 1.6.2. Digestive Transit: Esophageal Transit, Gastroesophageal Reflux, Pulmonary Aspiration, Gastric Emptying
 - 1.6.3. Gastrointestinal Bleeding: Study with Labeled Red Blood Cells, Study with Radiocolloids
 - 1.6.4. Hepatobiliary Pathology: Alibiotic Cholecystitis, Hepatic Functional Reserve Assessment, Hepatic Transplantation (Rejection, Biliary Leakage), Biliary Tract Atresia
 - 1.6.5. Bile Acid Malabsorption
 - 1.6.6. Inflammatory Bowel Disease: Diagnosis, Monitoring and Complications
 - 1.6.7. Hepatic Space-Occupying Lesion: Hepatic Hemangioma, Focal Nodular Hyperplasia vs. Adenoma
 - 1.6.8. Cell Labeling: Method and Indications
 - 1.6.9. Red Blood Cells: In Vivo, In Vitro, In Vitro
 - 1.6.10. Leukocytes
- 1.7. Splenic Pathology
 - 1.7.1. Hepatic Space-Occupying Lesions: Hemangioma, Hamartoma
 - 1.7.2. Splenosis: Study with Denatured Labeled Red Cells
 - 1.7.3. Cell Hijacking
- 1.8. Endocrinology
 - 1.8.1. Thyroid: Hyperfunctioning Thyroid (Autoimmune, Thyroiditis), Thyroid Nodule, Differentiated Thyroid Carcinoma
 - 1.8.2. Parathyroid: Hyperfunctioning Gland Location
 - 1.8.3. Adrenal Glands: Adrenal Cortex Pathology (Hypercortisolism, Hyperaldosteronism), Adrenal Medulla Pathology (Hyperplasia, Pheochromocytoma), Adrenal Incidentaloma
- 1.9. Neurology SPECT vs. PET:
 - 1.9.1. Cognitive Impairment: Characteristic Patterns and Differential Diagnosis
 - 1.9.2. Movement Disorders: Parkinson's Disease, Parkinson Plus and Differential Diagnosis
 - 1.9.3. Epilepsy: Preoperative Assessment, Acquisition Protocols
- 1.10. Oncology: Tumor Viability, Radionecrosis vs. Progression
 - 1.10.1. Brain Death
 - 1.10.2. Cerebrospinal Fluid (CSF)-Cysternogammography Kinetics: Hydrocephalus, CSF Leakage

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 Harvard 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 multimedia content presentation training Exclusive system 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 your goals.



Classes

There is scientific evidence on the usefulness of learning by observing experts: The system termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.



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 Single Photon Emission Nuclear Medicine guarantees, in addition to the most rigorous and up-to-date training, access to a certificate issued by TECH Global University.



“

Successfully complete this training and receive your university certificate without travel or laborious paperwork”

This program will allow you to obtain your **Postgraduate Certificate in Single Photon Emission Nuclear Medicine** 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.

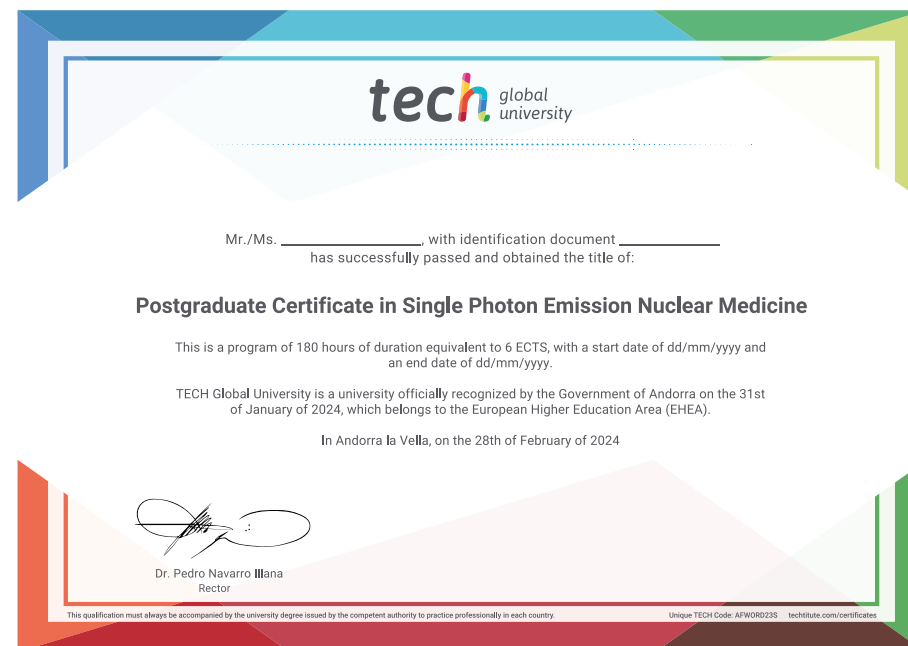
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Single Photon Emission Nuclear Medicine**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



*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.

future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development language
virtual classroom



Postgraduate Certificate
Single Photon Emission
Nuclear Medicine

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

Postgraduate Certificate

Single Photon Emission

Nuclear Medicine

