Postgraduate Certificate

Radiation Protection in Hospital Radioactive Facilities

tech global university

tech global university

Postgraduate Certificate
Radiation Protection in Hospital Radioactive Facilities

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

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/radiation-protection-hospital-radioactive-facilities**

Index

01

Introduction

Given the unstoppable advancement of radiological technology in hospital settings, the need for engineers specialized in radiation protection has become critical. The demand of the labor market requires professionals capable of guaranteeing safety in medical radioactive facilities, an area that is constantly expanding. In this sense, the ability to manage radiological risks has become an indispensable competence, and those who acquire this knowledge will be prepared to excel in a rapidly growing sector. For engineers, this specialization presents itself as a unique opportunity to respond to the current and future challenges of Medical Engineering. In addition, this program has a 100% online format, which makes the learning process more flexible.

You will master the evaluation of specific radiological risks in hospital environments, consolidating your technical understanding, thanks to this exclusive TECH university program"

In the current context of Medical Engineering, Radiological Protection in Hospital Facilities has emerged as an essential and dynamic field. With the exponential growth of radiological technology in the medical field, safety in radioactive environments has become crucial to ensure the integrity of patients and health professionals. Therefore, the need for highly trained professionals, who can address and mitigate radiological risks in these environments, has led to the growing demand for specialized engineers.

In this sense, this Postgraduate Certificate in Radiation Protection in Hospital Radioactive Facilities will offer a direct response to these urgent needs. Throughout this program, graduates will delve into the detection and evaluation of radiological risks specific to hospital facilities, thereby acquiring fundamental skills to design and maintain safe radiological systems.

They will also address key aspects, from understanding the specific quantities and units applied in these cases, to basing essential concepts for the design of safe and efficient facilities. Similarly, students will focus on technical expertise, ranging from risk assessment to the application of concepts in the design of radioactive facilities.

Equally, the syllabus methodology, fully online, will provide engineers with the flexibility to integrate this training into their professional agendas. To this must be added the *Relearning*approach, based on the repetition of key concepts, ensuring a deep assimilation of essential knowledge, to excel in the field of radiological protection in hospital facilities.

This **Postgraduate Certificate in Radiation Protection in Hospital Radioactive Facilities** contains the most complete and up-to-date program on the market. The most important features include:

- Practical case studies are presented by experts in Radiation Protection in Hospital Radioactive Facilities
- The graphic, schematic and practical contents with which it is conceived provide cutting- Therapeutics and practical information on those 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

You will become a leader in creating technological solutions that open the doors to an innovative and promising future in the best digital university in the world, according to Forbes"

You will apply your solid foundations in Physics with technical skills to innovate in the design and optimization of systems, generating significant advances in areas such as Medicine"

Through 180 hours of the best digital teaching, you will master the calibration and verification of radiation protection instrumentation.

Forget about memorizing! With the Relearning system you will integrate the concepts in a natural and progressive way.

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 academic year For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

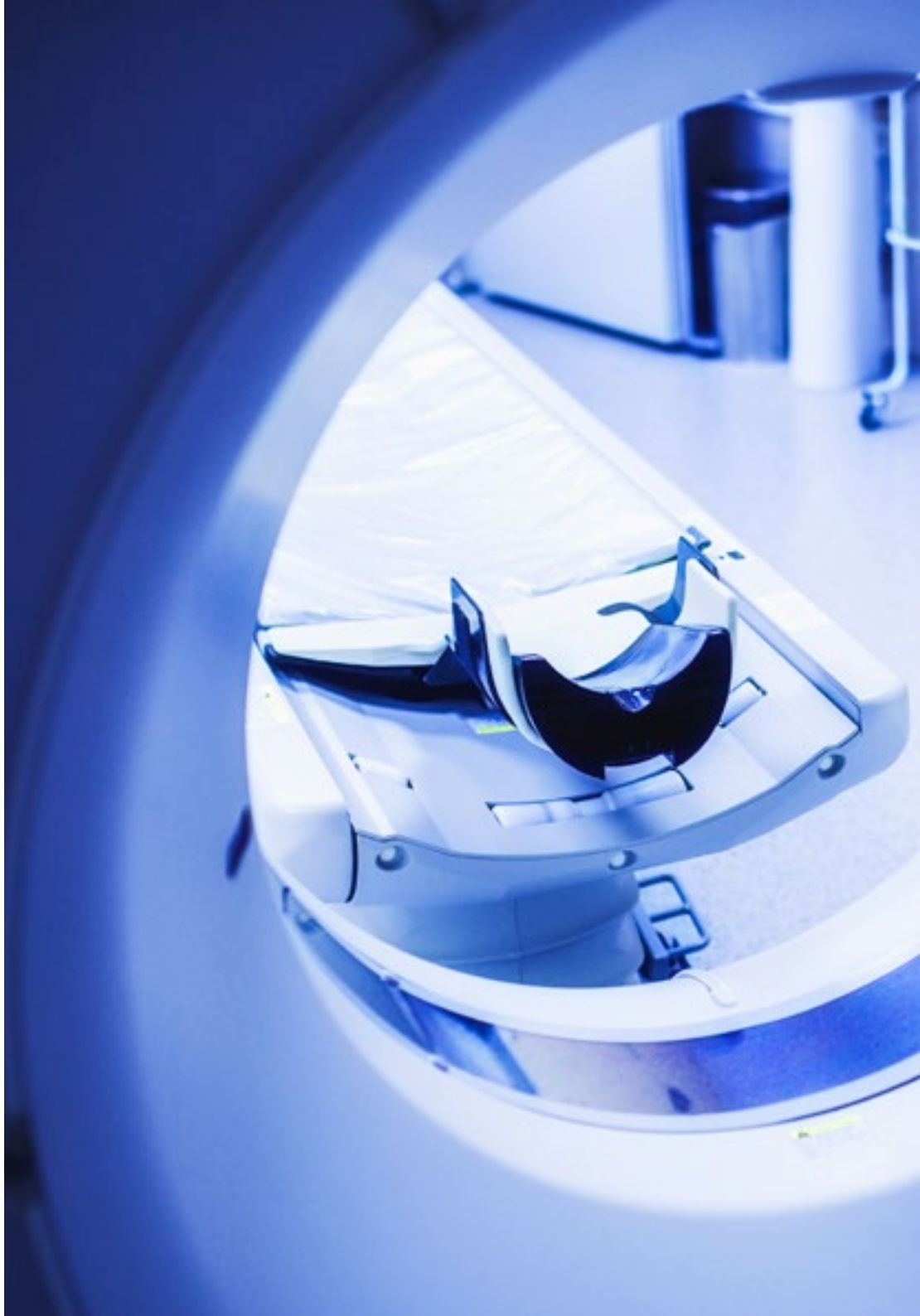
Objectives

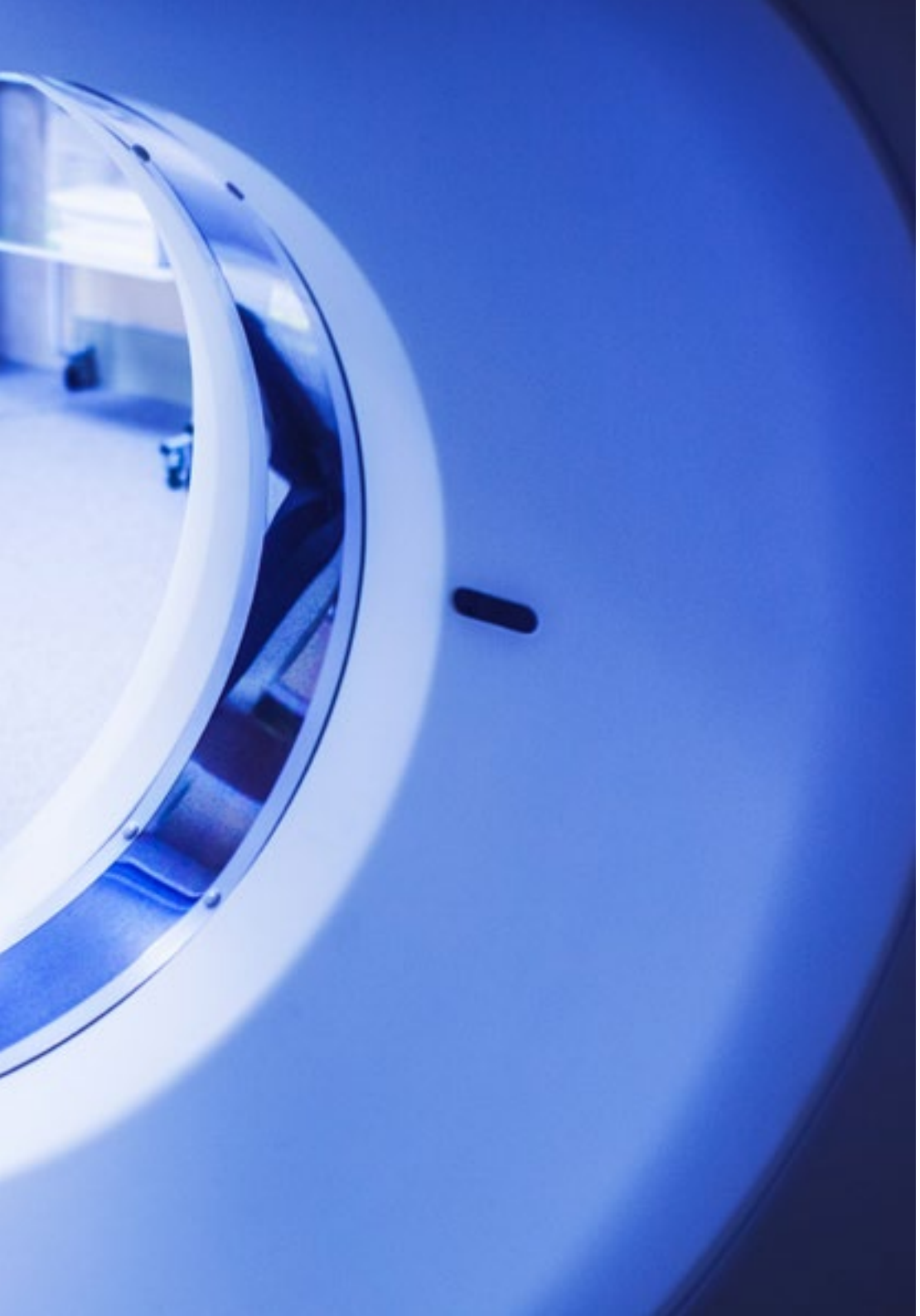
The main objective of this academic itinerary will be for graduates to delve into the design of specific structural shields for medical and hospital radioactive facilities. Over the course of the program, engineers will acquire specialized knowledge that will allow them to understand in depth the requirements and regulations associated with the design of protective structures against ionizing radiation. This practical and specialized approach will ensure that professionals are prepared to address the specific challenges of Radiological Protection in hospital environments, thus contributing to the safety and efficiency of these facilities.

You will achieve your objectives thanks to TECH's didactic tools, among which the explanatory videos and interactive summaries stand out"

General Objectives

- Analyze the existing risks derived from the use of ionizing radiation in hospital radioactive facilities.
- Develop the international regulations applicable to hospital radiation protection.
- Specify the main safety actions with the use of ionizing radiation in the main clinical services
- Generate the appropriate knowledge for the design and management of structural shields against radiation in hospitals





Specific Objectives

- Determine the radiological risks present in hospital radioactive facilities, as well as the specific magnitudes and units applied in these cases.
- Identify the main international laws governing radiation protection, both at the worker level and at the patient safety level
- Develop the main actions carried out every day at the level of radiation protection in hospital services users of ionizing radiation
- Establish the applicable concepts in the design of a radioactive installation, knowing the main specific parameters for the calculation of structural shields

The implementation of Radiological Protection is a vital aspect in the safety of hospital complexes. Get ready to overcome the challenges you face and make way for new opportunities"

03

Course Management

The teaching staff of this syllabus brings together the most outstanding specialists in Radiation Protection in Hospital Radioactive Facilities. TECH has carefully selected professionals with an extensive and recognized background in this field, ensuring that graduates receive a program guided by experts with practical experience in managing radiological risks specific to hospital environments. In fact, these professionals will not only bring solid theoretical knowledge, but will also share valuable insights derived from their practical experience, providing engineers with a comprehensive understanding of the radiation protection measures needed in hospital radioactive facilities.

Get an update on the calibration and verification of radiation protection instrumentation from the best experts in the field. Launch your career with TECH!"

Management

Dr. De Luis Pérez, Francisco Javier

- Specialist in Hospital Radiophysics
- Head of the Radiophysics and Radiological Protection Service at Quirónsalud Hospitals in Alicante, Torrevieja and Murcia.
- Research Group in Personalized Multidisciplinary Oncology, Catholic University San Antonio of Murcia.
- Ph.D. in Applied Physics and Renewable Energies, University of Almeria.
- Degree in Physical Sciences, specializing in Theoretical Physics, University of Granada.
- Member of: Spanish Society of Medical Physics (SEFM), Royal Spanish Society of Physics (RSEF), Illustrious Official College of Physicists and Consulting and Contact Committee, Proton Therapy Center (Quirónsalud).

Professors

Dr. Rodríguez, Carlos Andrés

- Specialist in Hospital Radiophysics
- Physician in Hospital Radiophysics at the University Clinical Hospital of Valladolid, responsible for the Nuclear Medicine section.
- Principal Tutor of residents of the Department of Radiophysics and Radiological Protection of the University Clinical Hospital of Valladolid.
- Degree in Hospital Radiophysics
- Degree in Physics at the University of Salamanca

04

Structure and Content

In this Postgraduate Certificate, engineers will immerse themselves in the complex panorama of Hospital Radioactive Facilities, focusing on the evaluation and management of radiological risks. Throughout the syllabus, the various hazards present in this specific environment will be thoroughly addressed, as well as the specific quantities and units applied in radiation protection. This detailed and specialized approach will ensure that professionals acquire practical and theoretical knowledge, essential to implement effective safety measures in hospital radioactive facilities, contributing to excellence in management and radiation protection in the hospital environment.

You will update your knowledge of Radiation Protection through innovative multimedia content"

Module 1. Radiation Protection in Hospital Radioactive Facilities

1.1. Hospital Radiation Protection
- 1.1.1. Hospital Radiation Protection
- 1.1.2. Radiation Protection Magnitudes and Specialized Radiation Protection Units
- 1.1.3. Risks Specific to the Hospital Area

1.2. International Regulations on Radiation Protection
- 1.2.1. International Legal Framework and Authorizations
- 1.2.2. International Regulations on Health Protection against Ionizing Radiations
- 1.2.3. International Regulations on Radiological Protection of the Patient
- 1.2.4. International Regulations on the Specialty of Hospital Radiophysics
- 1.2.5. Other International Regulations

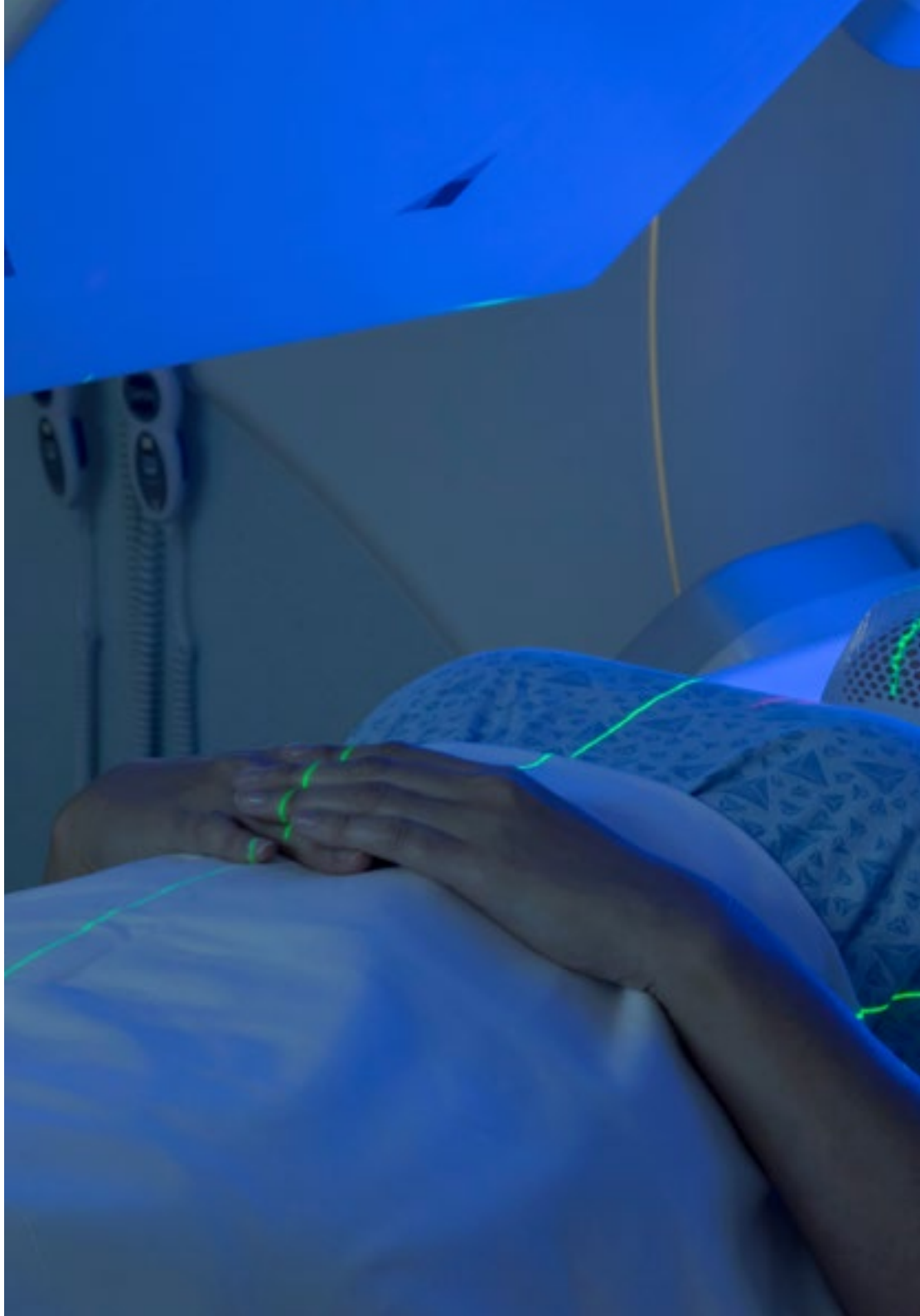
1.3. Radiation Protection in Hospital Radioactive Facilities
- 1.3.1. Nuclear Medicine
- 1.3.2. Radiodiagnostics
- 1.3.3. Radiotherapy Oncology

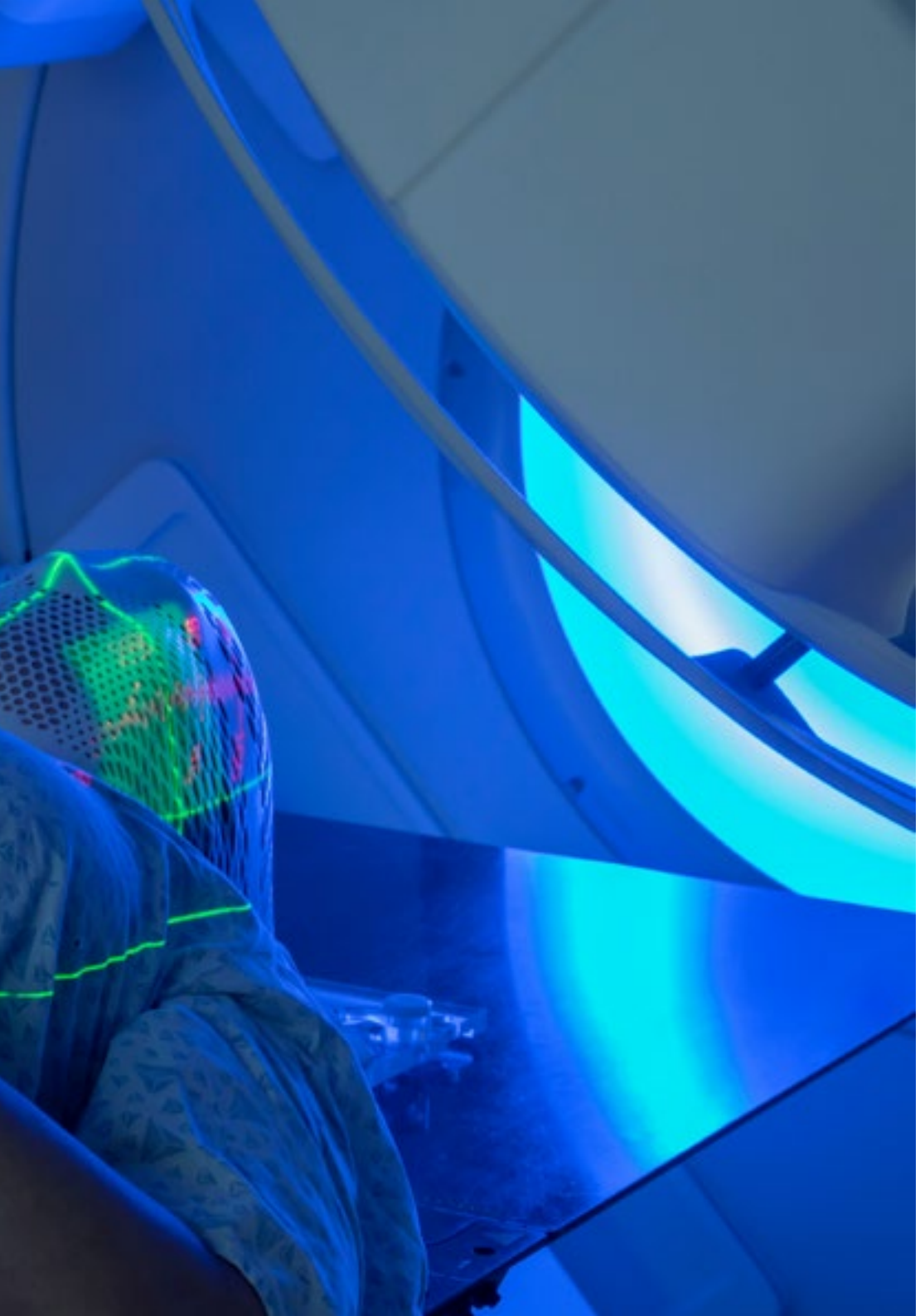
1.4. Dosimetric Control of Exposed Professionals
- 1.4.1. Dosimetric Control
- 1.4.2. Dose Limits
- 1.4.3. Personal Dosimetry Management

1.5. Calibration and Verification of Radiation Protection Instrumentation
- 1.5.1. Calibration and Verification of Radiation Protection Instrumentation
- 1.5.2. Verification of Environmental Radiation Detectors
- 1.5.3. Verification of Surface Contamination Detectors

1.6. Control of the Airtightness of Encapsulated Radioactive Sources
- 1.6.1. Control of the Airtightness of Encapsulated Radioactive Sources
- 1.6.2. Methodology
- 1.6.3. International Limits and Certificates

1.7. Design of Structural Shielding in Medical Radioactive Facilities
- 1.7.1. Design of Structural Shielding in Medical Radioactive Facilities
- 1.7.2. Important Parameters
- 1.7.3. Thickness Calculation





1.8. Structural Shielding Design in Nuclear Medicine
- 1.8.1. Structural Shielding Design in Nuclear Medicine
- 1.8.2. Nuclear Medicine Installations
- 1.8.3. Workload Calculation

1.9. Design of Structural Shielding in Radiotherapy
- 1.9.1. Design of Structural Shielding in Radiotherapy
- 1.9.2. Radiotherapy Facilities
- 1.9.3. Workload Calculation

1.10. Structural Shielding Design in Radiodiagnostics
- 1.10.1. Structural Shielding Design in Radiodiagnostics
- 1.10.2. Radiodiagnostic Installations
- 1.10.3. Workload Calculation

In this Postgraduate Certificate you will be trained through real cases and solving complex situations in simulated learning environments"

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"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

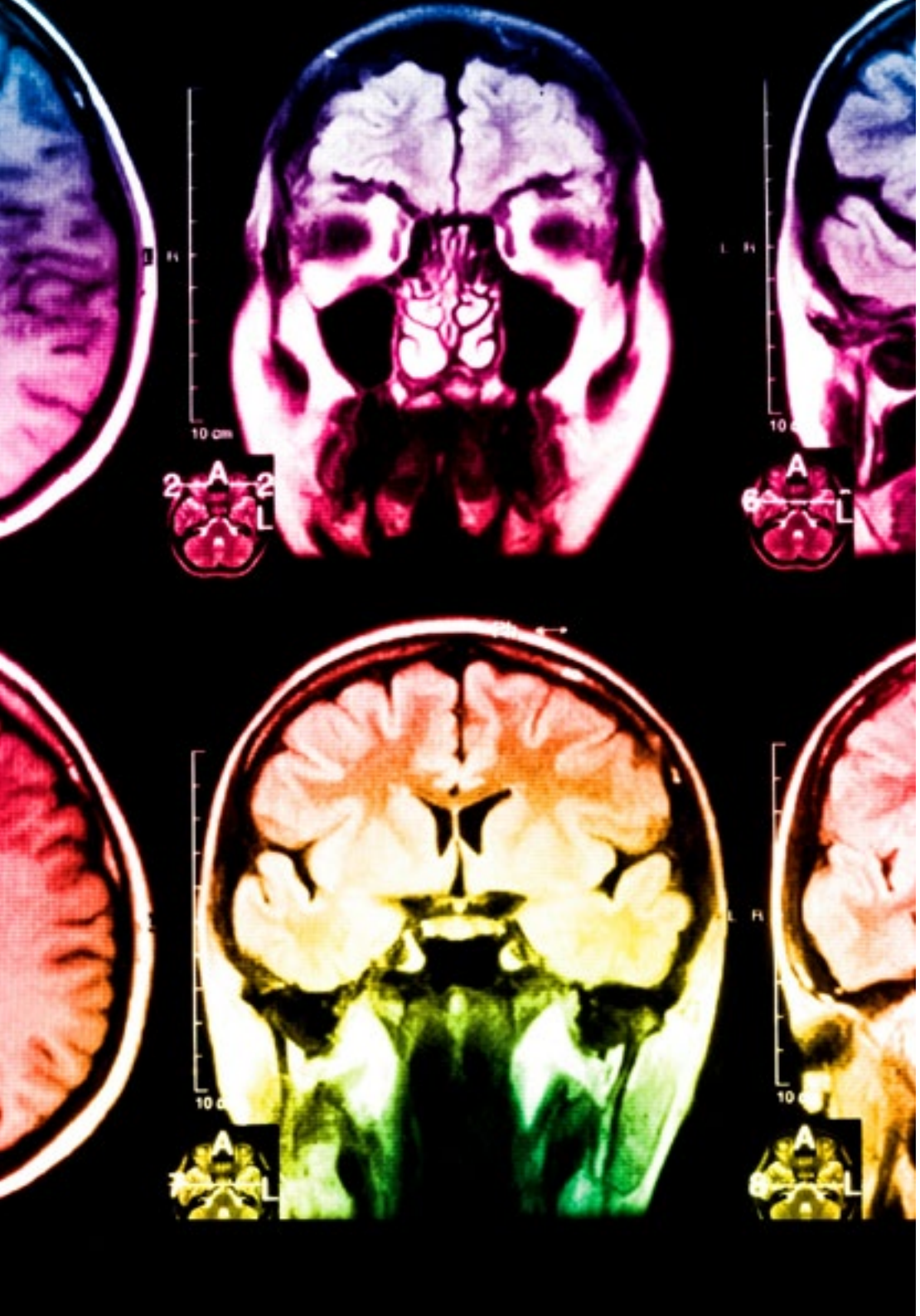
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



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. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

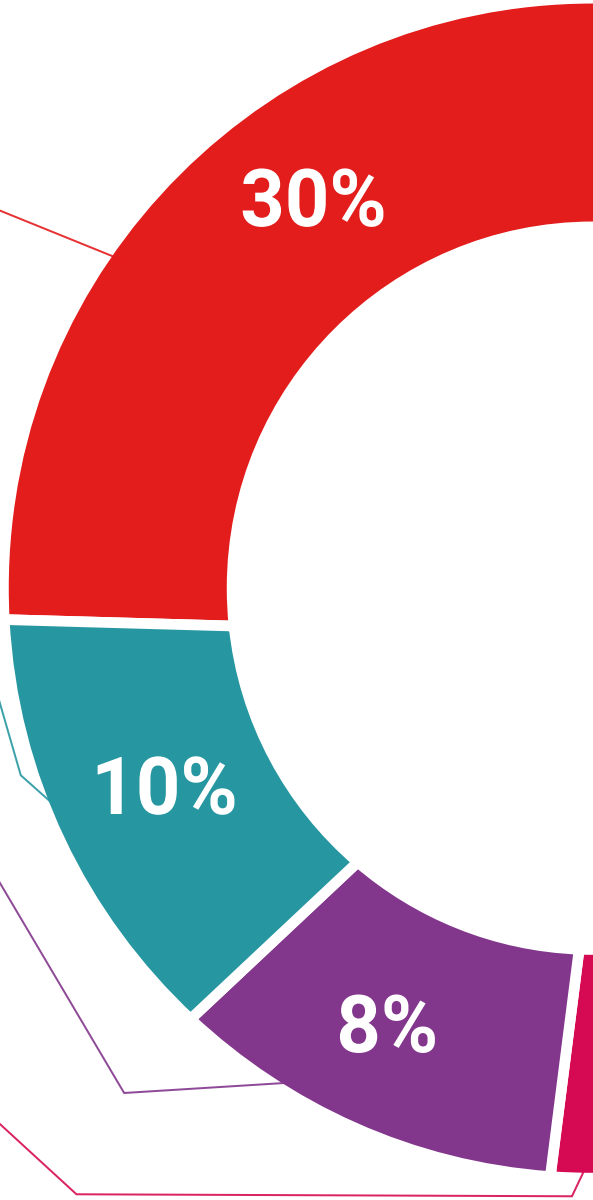
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

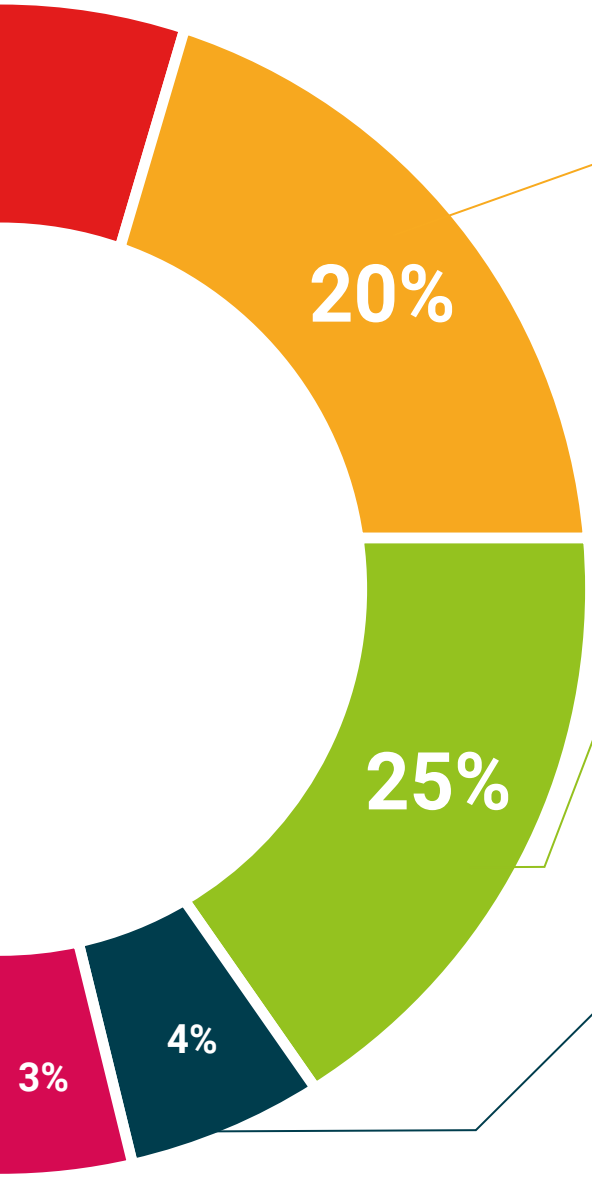
Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

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.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

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".

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.

06

Certificate

The Postgraduate Certificate in Radiation Protection in Hospital Radioactive Facilities guarantees students, in addition to the most rigorous 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 program will allow you to obtain your **Postgraduate Certificate in Radiation Protection in Hospital Radioactive Facilities** 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.

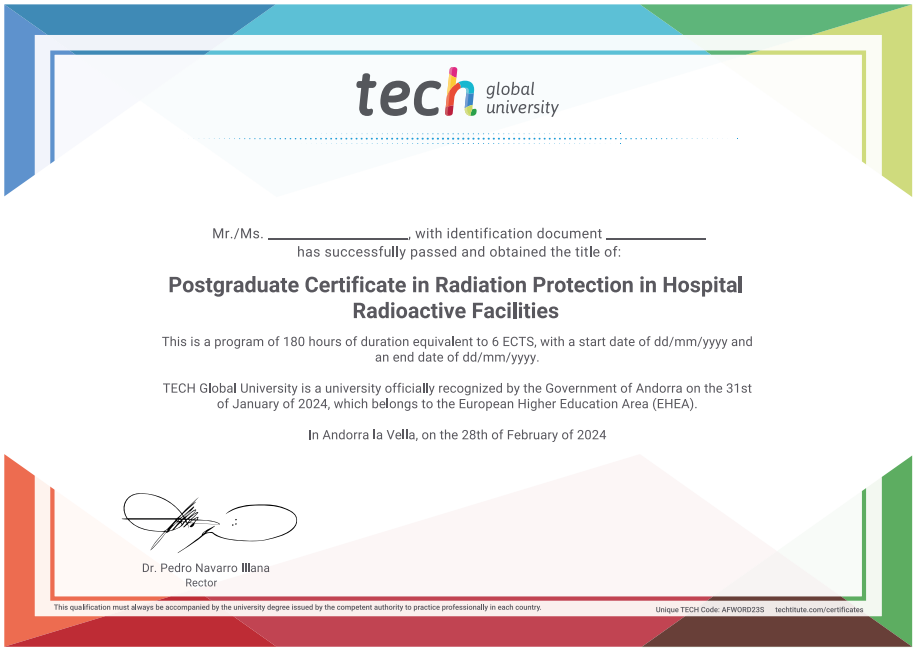
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Radiation Protection in Hospital Radioactive Facilities**

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 Radiation Protection in Hospital Radioactive Facilities

This is a program 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
Rector

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

Radiation Protection in Hospital Radioactive Facilities

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

Postgraduate Certificate

Radiation Protection in Hospital Radioactive Facilities

tech global university