

Postgraduate Certificate Radiophysics in Intraoperative Radiotherapy



Postgraduate Certificate Radiophysics in Intraoperative Radiotherapy

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

Website: www.techtute.com/pk/engineering/postgraduate-certificate/radiophysics-intraoperative-radiotherapy

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01

Introduction

Given the growing demand in the field of Medical Engineering, specialization in Intraoperative Radiotherapy is presented as an essential component for engineers. In response to the constant evolution of medical technologies, this program will address the critical need for professionals qualified in the implementation and operation of intraoperative radiotherapy systems. This technique, increasingly used in medical environments, requires specialized engineers to ensure its safe and efficient application. The program in this area will provide professionals with the skills and knowledge necessary to excel in a constantly changing job market. This innovative TECH program, designed to meet these needs, offers a 100% online mode, with a wide variety of multimedia content.



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You will become a leader in medical technology with this specialized program for engineering professionals, with the TECH quality seal"

In the current panorama of Medical Engineering, Intraoperative Radiotherapy is presented as an essential technique and highly demanded in advanced medical environments. This increasingly used modality requires professionals with specialized knowledge capable of addressing their particular challenges.

In this context, interdisciplinary collaboration emerges as a critical need, as close coordination with health professionals and scientists becomes essential to ensure the effectiveness and safety of procedures, stressing the importance of training trained engineers at the intersection of medical technology and clinical practice.

As for the syllabus, the Postgraduate Certificate in Radiophysics in Intraoperative Radiotherapy will delve into fundamental and advanced aspects. From the identification of specific clinical indications to the detailed analysis of dose calculation methods in intraoperative radiotherapy, comprehensive qualification will be ensured.

The factors influencing patient and medical staff safety during procedures will also be examined in depth, addressing the complex interactions of ionizing radiation with tissues. In addition, special attention will be paid to the technology and equipment used in this technique, ensuring that graduates acquire specialized and updated skills.

The 100% online methodology of this syllabus will be complemented with the innovative technique *Relearning*, based on the repetition of key concepts to ensure knowledge fixation and facilitate continuous learning. This flexible and modern approach will be tailored to the needs of engineers, allowing them to gain specialized skills in an accessible and effective manner.

This **Postgraduate Certificate in Radiophysics in Intraoperative Radiotherapy** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Radiophysics in Intraoperative Radiotherapy
- ♦ 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 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 develop key competencies in safety and practical application of Intraoperative Radiotherapy, through 150 hours of the best digital teaching"

“

You will delve into novel techniques of radiation protection and safety in Intraoperative Radiotherapy in the best digital university in the world, according to Forbes"

The program's teaching staff includes professionals from the industry who contribute their work experience to this 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.

Become a specialist medical engineer in Intraoperative Radiotherapy, without rigid evaluation schedules. That's what this TECH program is like!"

Do you want to experience a quality leap in your career? With TECH you will specialize in the use of the Flash technique, the latest trend in intraoperative radiation therapy.



02 Objectives

The main objective of the Postgraduate Certificate in Radiophysics in Intraoperative Radiotherapy is for graduates to delve into interdisciplinary collaboration in the field of Intraoperative Radiotherapy. Aimed at engineers, this program develops their skills and specialized knowledge, to work effectively in multidisciplinary teams. From understanding clinical needs to the practical application of advanced technologies, the syllabus will aim to empower graduates to contribute significantly to interdisciplinary collaboration, promoting excellence and safety in intraoperative radiotherapy procedures.



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



General Objectives

- ♦ Develop the fundamental principles of intraoperative radiotherapy, highlighting its clinical utility and role in the treatment of cancer
- ♦ In-depth analysis of technology and equipment used in intraoperative radiation therapy, mobile linear accelerators and intraoperative imaging systems
- ♦ Critically evaluate treatment planning methods in intraoperative radiation therapy
- ♦ Inform radiation protection and patient safety practices, presenting relevant regulations and regulations





Specific Objectives

- ♦ Identify the main clinical indications for the application of intraoperative radiation therapy
- ♦ Analyze in detail the methods of dose calculation in intraoperative radiotherapy
- ♦ Examine the factors influencing patient and medical staff safety during intraoperative radiotherapy procedures
- ♦ Grounding the importance of interdisciplinary collaboration in the planning and execution of intraoperative radiotherapy treatments



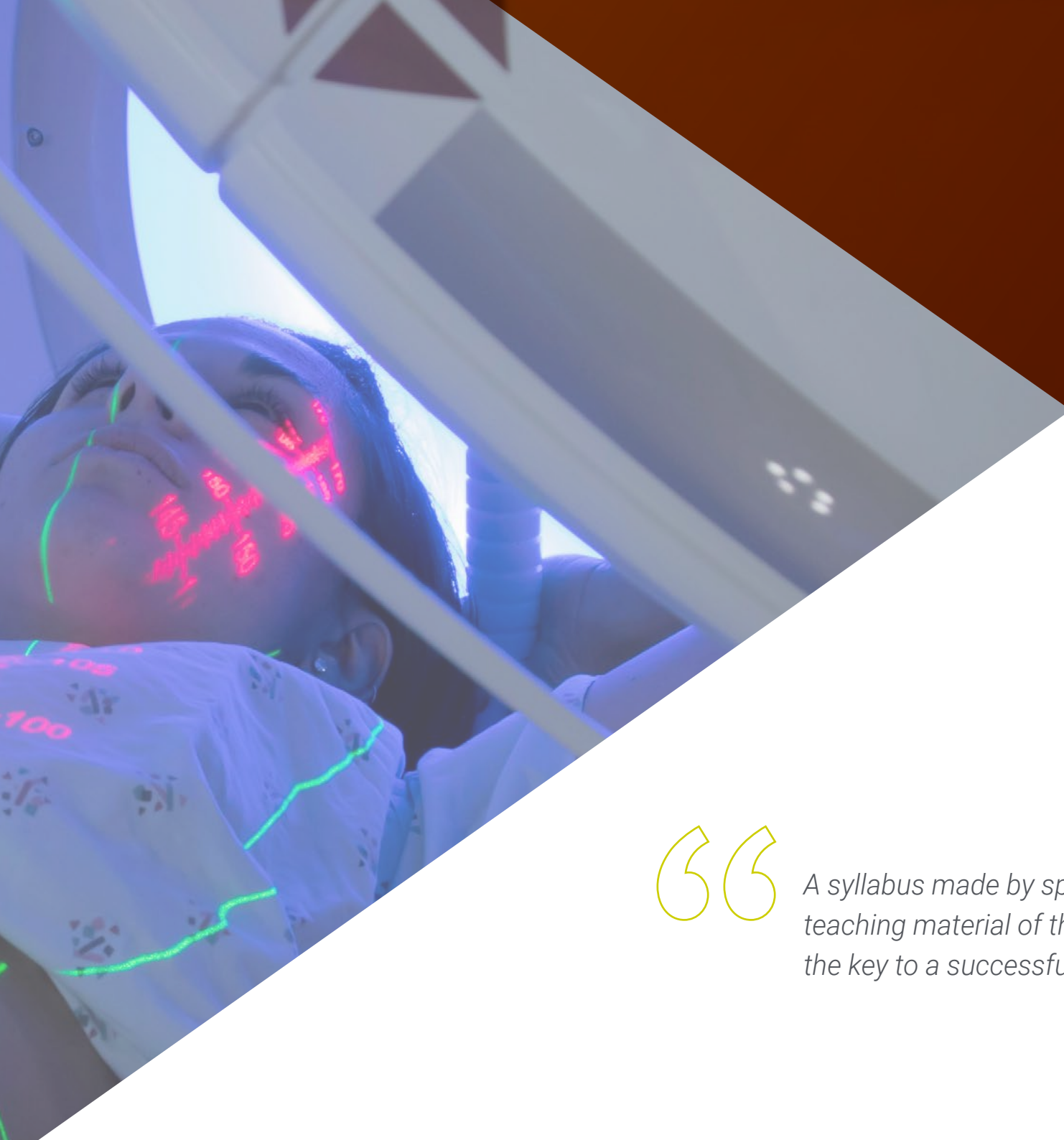
Through this exclusive TECH program, you will access a syllabus designed by a renowned teaching staff, guaranteeing you a successful learning"

03

Course Management

The teaching staff of this syllabus is made up of recognized specialists, carefully selected by TECH. These outstanding professionals have an extensive and outstanding professional background in the field of intraoperative radiotherapy, ensuring a high quality program. With a unique combination of practical experience and theoretical knowledge, this faculty will provide graduates with a comprehensive and up-to-date vision of the most advanced technologies and practices in this field. The engineers who immerse themselves in this program will receive an expert-led education, based on excellence and innovation in Medical Engineering.





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A syllabus made by specialists and a teaching material of the highest level will be the key to a successful professional career"

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)



04

Structure and Content

This university program will immerse engineers in a rigorous syllabus, focused on safety in intraoperative radiotherapy procedures. The graduates will explore in depth the critical factors that impact the safety of both patients and medical personnel. From the analysis of the technologies and equipment used, to the understanding of safety protocols, This syllabus will ensure that professionals acquire in-depth knowledge of the essential elements for the successful and safe application of intraoperative radiotherapy in advanced medical environments.



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6 weeks of stimulating learning that will take you to a higher level in the knowledge of the different technologies in Intraoperative Radiotherapy"

Module 1. Advanced Radiotherapy Method. Intraoperative Radiotherapy

- 1.1. Intraoperative Radiotherapy
 - 1.1.1. Intraoperative Radiotherapy
 - 1.1.2. Current Approach to Intraoperative Radiotherapy
 - 1.1.3. Intraoperative Radiotherapy versus Conventional Radiotherapy
- 1.2. Technology in Intraoperative Radiotherapy
 - 1.2.1. Mobile Linear Accelerators in Intraoperative Radiotherapy
 - 1.2.2. Intraoperative Imaging Systems
 - 1.2.3. Quality Control and Maintenance of Equipment
- 1.3. Treatment Planning in Intraoperative Radiation Therapy
 - 1.3.1. Dose Calculation Methods
 - 1.3.2. Volumetry and Delineation of Organs at Risk
 - 1.3.3. Dose Optimization and Fractionation
- 1.4. Clinical Indications and Patient Selection for Intraoperative Radiation Therapy
 - 1.4.1. Types of Cancers Treated with Intraoperative Radiotherapy
 - 1.4.2. Assessment of Patient Suitability
 - 1.4.3. Clinical Studies and Discussion
- 1.5. Surgical Procedures in Intraoperative Radiotherapy
 - 1.5.1. Surgical Preparation and Logistics
 - 1.5.2. Radiation Administration Techniques During Surgery
 - 1.5.3. Postoperative Follow-Up and Patient Care
- 1.6. Calculation and Administration of Radiation Dose for Intraoperative Radiotherapy
 - 1.6.1. Dose Calculation Formulas and Algorithms
 - 1.6.2. Correction Factors and Dose Adjustment
 - 1.6.3. Real-Time Monitoring during Surgery
- 1.7. Radiation Protection and Safety in Intraoperative Radiotherapy
 - 1.7.1. International Radiation Protection Standards and Regulations
 - 1.7.2. Safety Measures for the Medical Staff and the Patient
 - 1.7.3. Risk Mitigation Strategies





- 1.8. Interdisciplinary Collaboration in Intraoperative Radiation Therapy
 - 1.8.1. Role of the Multidisciplinary Team in Intraoperative Radiotherapy
 - 1.8.2. Communication between Radiotherapists, Surgeons and Oncologists
 - 1.8.3. Practical Examples of Interdisciplinary Collaboration
- 1.9. Flash Technique. Latest Trend in Intraoperative Radiation Therapy
 - 1.9.1. Research and Development in Intraoperative Radiation Therapy
 - 1.9.2. New Technologies and Emerging Therapies in Intraoperative Radiotherapy
 - 1.9.3. Implications for Future Clinical Practice
- 1.10. Ethics and Social Aspects in Intraoperative Radiation Therapy
 - 1.10.1. Ethical Considerations in Clinical Decision-Making
 - 1.10.2. Access to Intraoperative Radiation Therapy and Equity of Care
 - 1.10.3. Communication with Patients and Families in Complex Situations

“*Relearning will allow you to learn with less effort and greater performance, getting more involved in your professional specialization*”

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.





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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.

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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.



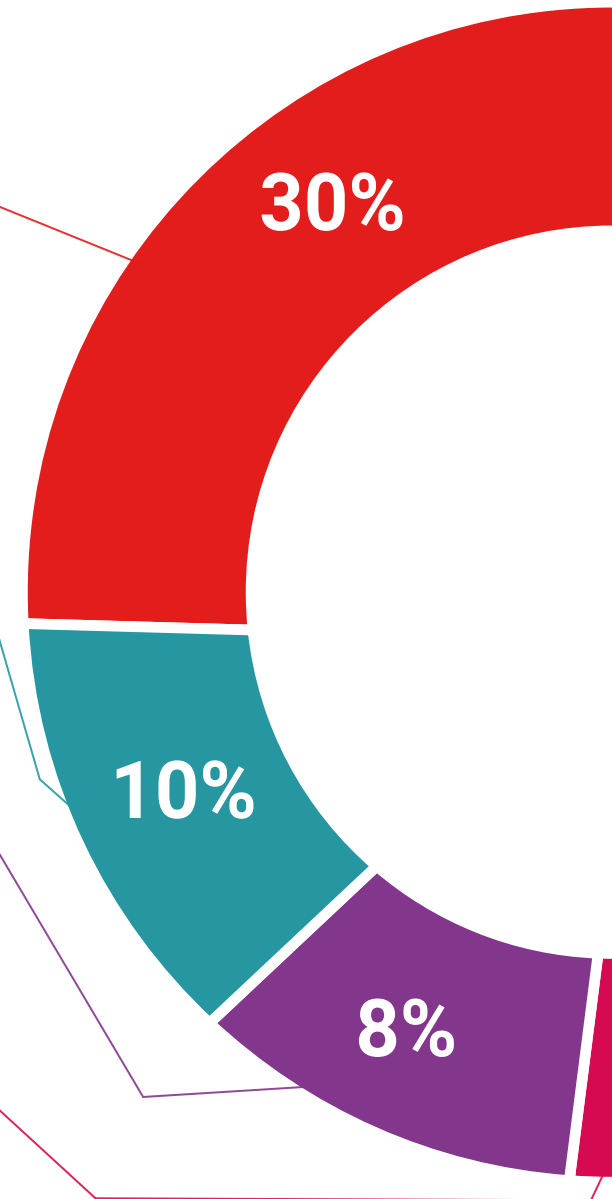
Practising Skills and Abilities

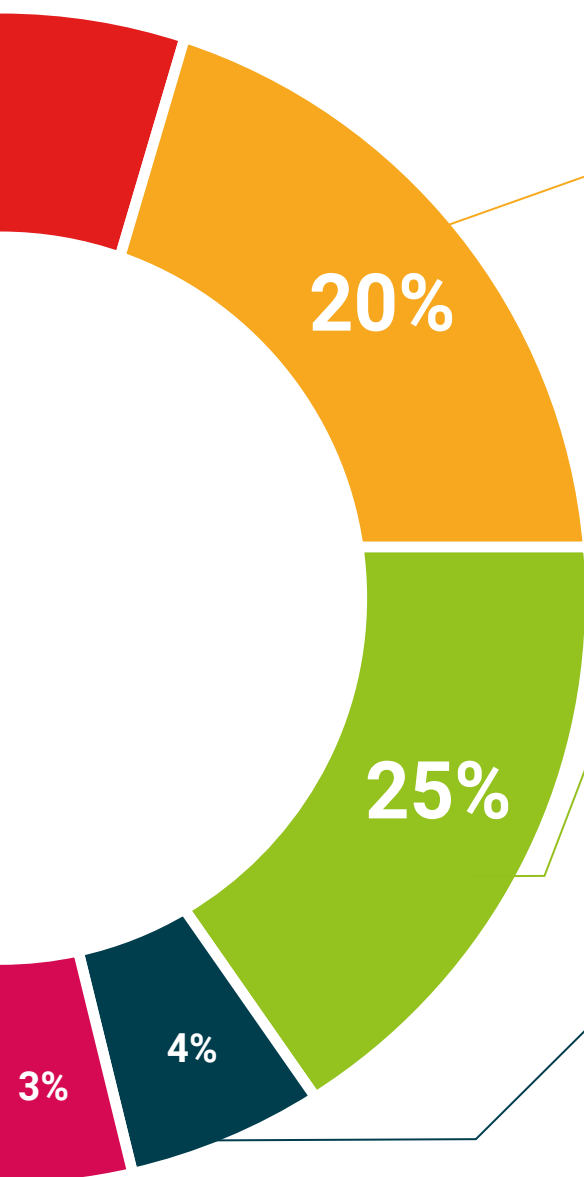
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 Radiophysics in Intraoperative Radiotherapy guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Radiophysics in Intraoperative Radiotherapy** contains the most complete and up-to-date educational program in the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Certificate in Radiophysics in Intraoperative Radiotherapy**

Official N° of hours: **150 h.**



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



Postgraduate Certificate
Radiophysics in
Intraoperative Radiotherapy

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

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