Postgraduate Certificate

Basis of Radiotherapy Treatment and Radiobiology

tech global university

tech global university

Postgraduate Certificate
Principles of Radiotherapy and Radiobiology

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

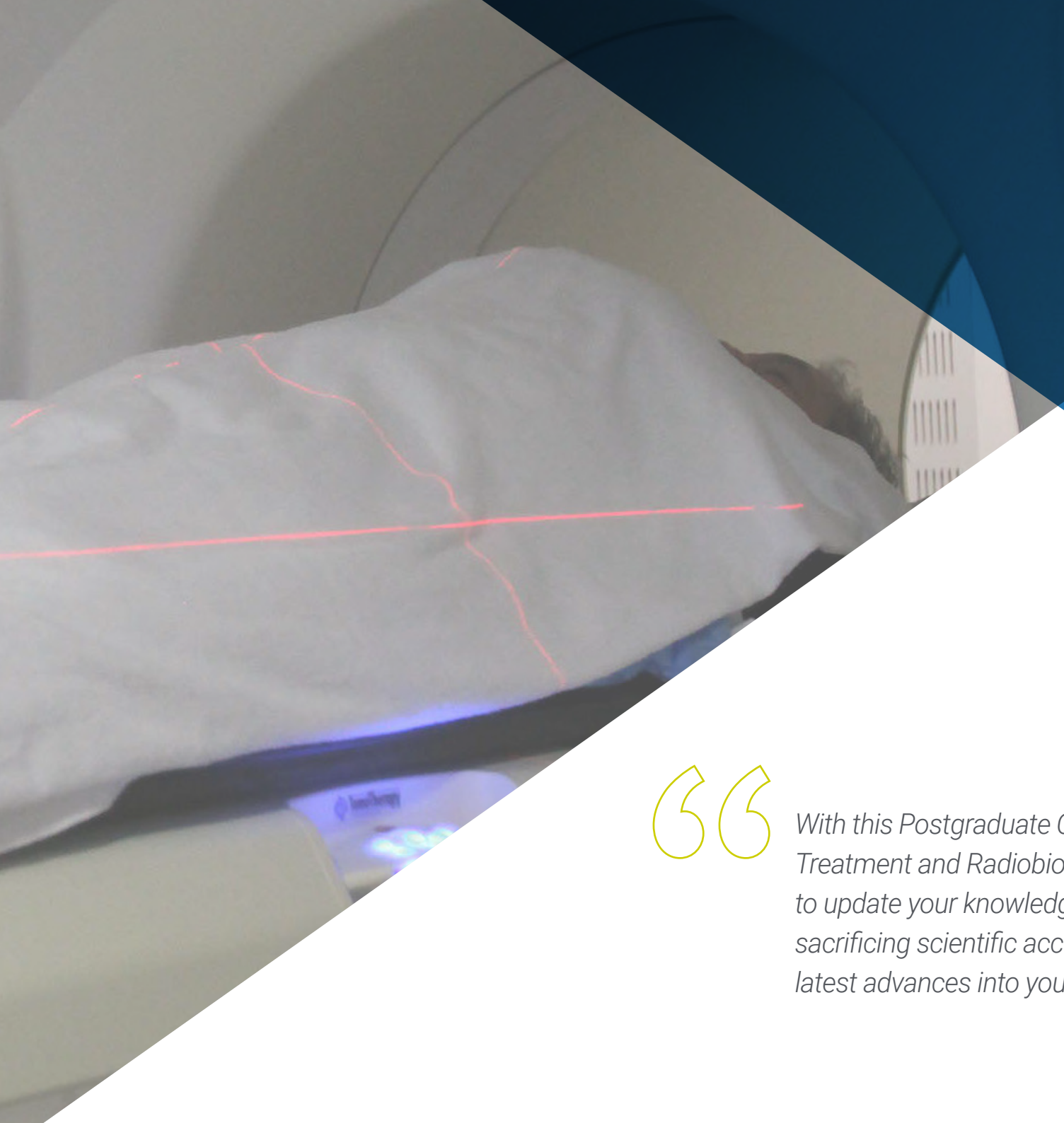
Website: www.techtitute.com/us/medicine/postgraduate-certificate/principles-radiotherapy-radiobiology

Index

01

Introduction

Radiotherapy is one of the most-used treatments for patients which cancer, whether it is the only treatment of combined with others. Advances in this field improve every year; therefore, keeping up to date with the latest developments is essential for healthcare professionals. Programs like this one provide said professionals with an opportunity to keep abreast of new technological developments in cancer treatment.



With this Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology, you have the opportunity to update your knowledge comfortably and without sacrificing scientific accuracy, in order to incorporate the latest advances into your daily medical practice"

Radiotherapy is the main tool in the treatment of cancer. However, there is still a long way to go in improving the survival rate of patient affected by this growing illness.

However, in addition to learning about the technological advances used to treat patients, it is equally as important that healthcare professionals can provide a proper diagnosis from the very beginning. Therefore, it is essential that they have all the information and up-to-date education to provide personalized and effective care to their patients. They should also be aware of new developments in the field of radiotherapy so that they can implement them in their treatments.

As more and more advances in radiotherapy emerge, it is also necessary for the oncologist to be aware of the possible effects of ionizing radiation on patients. For this purpose, they must also keep up to date in the field of radiobiology.

In this Postgraduate Certificate we will learn about radiotherapy in oncological patients, with the possible effects that such treatment with radiotherapy can cause. Likewise, doctors will update their knowledge on the different treatments required in each case and will learn about the particularities to be carried out in the case of fetuses, for example.

This Postgraduate Certificate provides oncology professionals with the keys to the use of the main advances in radiotherapy and radiobiology, which will enable them to evolve in their profession and keep up to date with recent research in this field of oncology.

This **Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Clinical cases presented by experts in Radiotherapy and Radiobiology
- 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
- Diagnostic-therapeutic advances on assessment, diagnosis, and intervention for tumors
- It contains practical exercises where the self-assessment process can be carried out to improve learning
- Iconography of clinical and diagnostic imaging tests
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- With special emphasis on evidence-based medicine and research methodologies in radiotherapy
- All of this will be complemented by 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

Study with us and update your knowledge in order to offer more efficient and personalized care to your patients”

Expand your knowledge with this Postgraduate Certificate which contains the most complete and up-to-date scientific program on the market"

Update your knowledge through the Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology.

Get a comprehensive qualification in the field of radiotherapy and radiobiology thanks to a teaching program with innovative methodologies and the latest educational technology.

The teaching staff includes professionals from the field of Radiotherapy Treatment and Radiobiology, who bring their experience to this program, as well as renowned specialists from leading scientific societies.

Thanks to its multimedia content developed with the latest educational technology, it will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to prepare in real situations.

The design of this program is based on Problem-Based Learning, through which the physician must try to solve the different professional practice situations that arise throughout the academic course. For this purpose, the physician will be assisted by an innovative interactive video system developed by renowned experts in the field of Radiation Oncology with extensive teaching experience.

02

Objectives

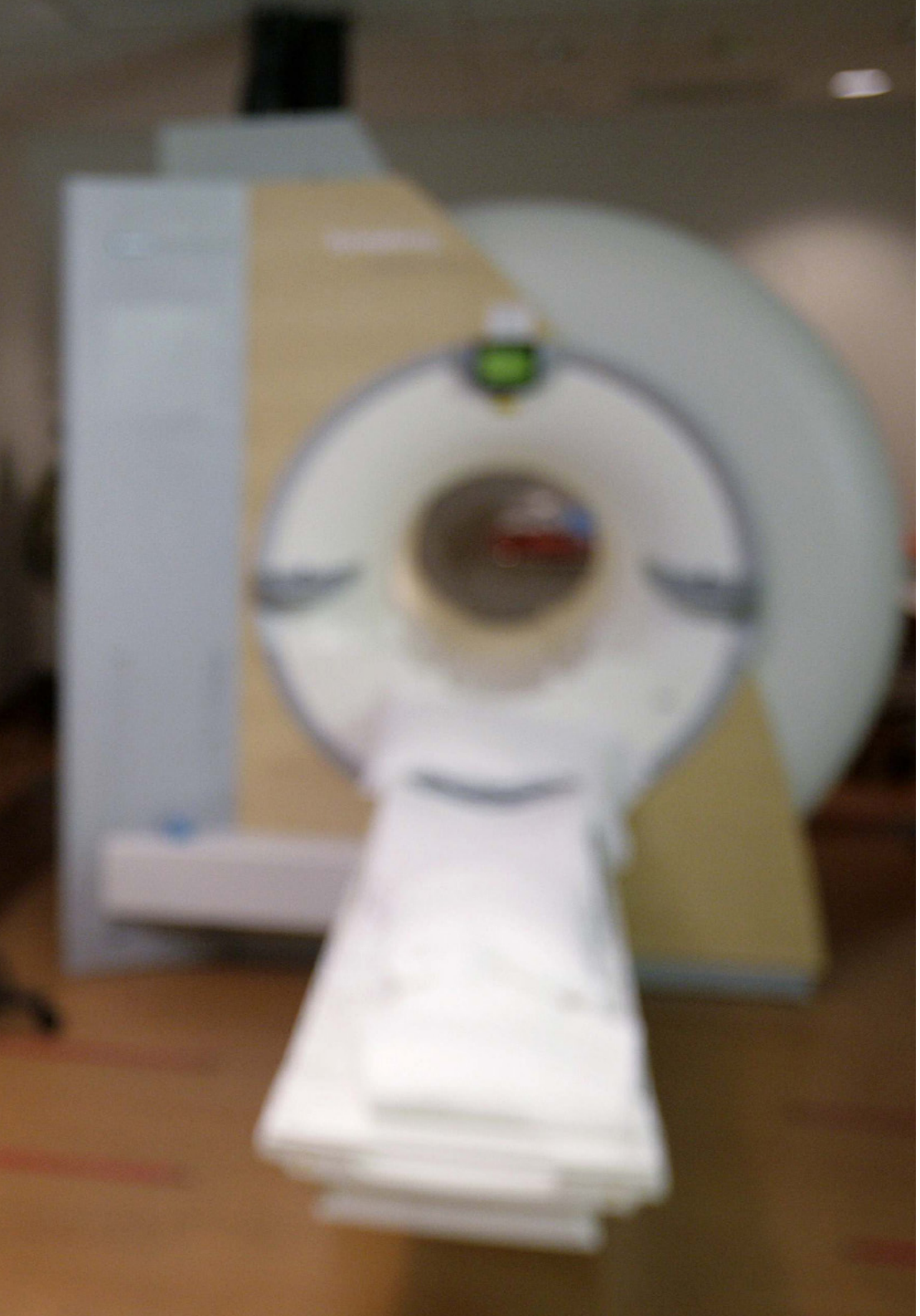
This Postgraduate Certificate aims to facilitate the performance of physicians in the field of radiotherapy treatment and radiobiology.

Don't miss the opportunity and get up to date on advances in radiotherapy treatment in order to incorporate them into your daily medical practice"

General Objective

- Create a global and updated vision of radiotherapy treatment and radiobiology, allowing the student to acquire useful knowledge and, at the same time, to generate interest in expanding the information and discovering its application in daily practice

This program will provide you with a sense of confidence in your medical practice, which will help you grow personally and professionally"



Specific Objectives

- Analyze how the advances of the last decades in both diagnosis and treatment of cancer have managed to increase survival
- Create a global and updated vision of the exposed topics that will allow the student to acquire useful knowledge and at the same time, generate interest in expanding the information and discovering its application in their daily practice
- Learn the basis of radiotherapy as well as the different available techniques and the effectiveness of each one
- Know the radiotherapeutic advances that allow a differential diagnosis to be made, making it possible to precisely define the field of resection, and providing information on prognosis and post-treatment follow-up

03

Course Management

The program's teaching staff includes leading specialists in radiotherapy and radiobiology and other related areas, who bring their years of work experience to this program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner.

This Postgraduate Certificate offers you the opportunity to specialize with renowned specialists from prestigious universities, who will help you update your knowledge in this field"

International Guest Director

Awarded by the Royal College of Radiologists of the United Kingdom for his BCRM presentation, Christopher Nutting is a prestigious **Oncologist** specialized in the areas of **Radiotherapy** and **Chemotherapy**. He has an extensive professional background of more than 30 years, where he has been part of reference health institutions such as the Royal Marsden Hospital or the Institute of Cancer Research in London.

In his firm commitment to optimize the quality of life of his patients, he contributed to the installation of **Magnetic Resonance Imaging** machines for the first time in Great Britain, incorporating a scanner and Linear Accelerator to locate tumors with greater precision. In addition, his clinical research has contributed to the development of several advances in the oncological field. His most outstanding contribution is **Intensity-Modulated Radiation Therapy**, a technique that improves the efficacy of cancer treatments by directing radiation to a specific target so as not to damage nearby healthy tissue.

In turn, he has performed more than 350 clinical studies and scientific publications that have facilitated the understanding of malignant tumors. For example, its **"PARSPOT"** trial provided relevant clinical data on the efficacy of Linear Accelerator Intensity Modulated Radiation Therapy in terms of local carcinoma control and patient survival. Thanks to these results, the UK Department of Health established practices to optimize both the accuracy and effectiveness of Radiotherapy in the treatment of **Head and Neck Cancer**.

He is a regular speaker at **Scientific Congresses**, where he shares his solid knowledge in subjects such as Radiotherapy Technology or innovative therapies for the approach of people with Dysphagia. In this way, he helps medical professionals to stay at the forefront of advances in these fields in order to provide excellent services.

Dr. Nutting, Christopher

- Medical Director and Oncology Consultant at The Royal Marsden Hospital in London, United Kingdom
- Chairman of the Oncology Section at the Royal Society of Medicine, London, United Kingdom
- Clinical Head of Head and Neck Cancer at the Department of Health and Social Care, United Kingdom
- Consultant Oncologist at The Harley Street Clinic in London, United Kingdom
- Chairman of the National Cancer Research Institute in London, United Kingdom
- President of the Association of British Oncology in London, United Kingdom
- Senior Research Fellow at the National Institute for Health and Care Research, United Kingdom
- PhD in Medicine and Cellular Pathology from the University of London
- UK College of Physicians
- UK College of Radiologist

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

Management

Dr. Morera López, Rosa María

- Head of the Radiation Oncology Service at La Paz University Hospital
- Doctor of Medicine from the Complutense University of Madrid
- Specialist in Radiation Oncology
- Master's Degree in Health Services Management and Administration
- Implementation of the HDR Breast Brachytherapy technique in the Radiation Oncology Department of the G.U.H Ciudad Real in 2013
- Implantation of the HDR Prostate Brachytherapy technique in the Radiation Oncology Department of the G.U.H Ciudad Real in 2013
- Implementation of the Tomotherapy Unit in the Radiation Oncology Department of the G.U.H Ciudad Real in 2014
- Honorary Collaborating Professor in the subject of Radiology and Physical Therapeutics taught in the 3rd year of the Degree of Medicine at the Faculty of Medicine of the UCLM in Ciudad Real
- Associate Professor in the Onco-Hematology course taught in the 4th year of the Medicine Degree at the Faculty of Medicine of the UCLM in Ciudad Real
- Participation as Principal Investigator and collaborator in a large number of research projects
- Editor of several dozen articles in high-impact scientific journals

Dr. Rodríguez Rodríguez, Isabel

- Specialist in Radiation Oncology La Paz University Hospital. Madrid
- Degree in Medicine. Specialist in Radiotherapy
- Clinical Research Coordinator. Biomedic Foundation of the Ramón y Cajal Hospital until 2007
- Member of the American Brachytherapy Society
- Member of the European School of Oncology
- Member of the European Society for Therapeutic Radiology and Oncology
- Founding member of the Latin American Society of Breast Imaging
- Participation as a collaborating researcher in many research projects
- Editor of several dozen articles in high-impact scientific journals

Dr. Belinchón Olmeda, Belén

- Specialist in Radiation Oncology La Paz University Hospital. Madrid
- Specialist in Radiation Oncology Ruber International Hospital Madrid
- Doctorate in Medicine from the Autonomous University Madrid
- Participation as a collaborating researcher in many research projects
- Editor of several dozen articles in high-impact scientific journals
- Teaching collaborator for residents of Radiation Oncology La Paz University Hospital. Madrid
- Member of the Multidisciplinary Unit of Cardio-Onco-Hematology (U.H La Paz)
- Member of the Sarcoma Group of the Spanish Society of Radiation Oncology (SEOR)
- Member of the Spanish Group of Breast Radiation Oncology (GEORM)

Professors

Dr. Romero Fernández, Jesús
- Head of Radiation Oncology Service Puerto de Hierro University Hospital Majadahonda

Dr. Samper Ots, Pilar María
- Head of Radiation Oncology Service Rey Juan Carlos Hospital, Móstoles

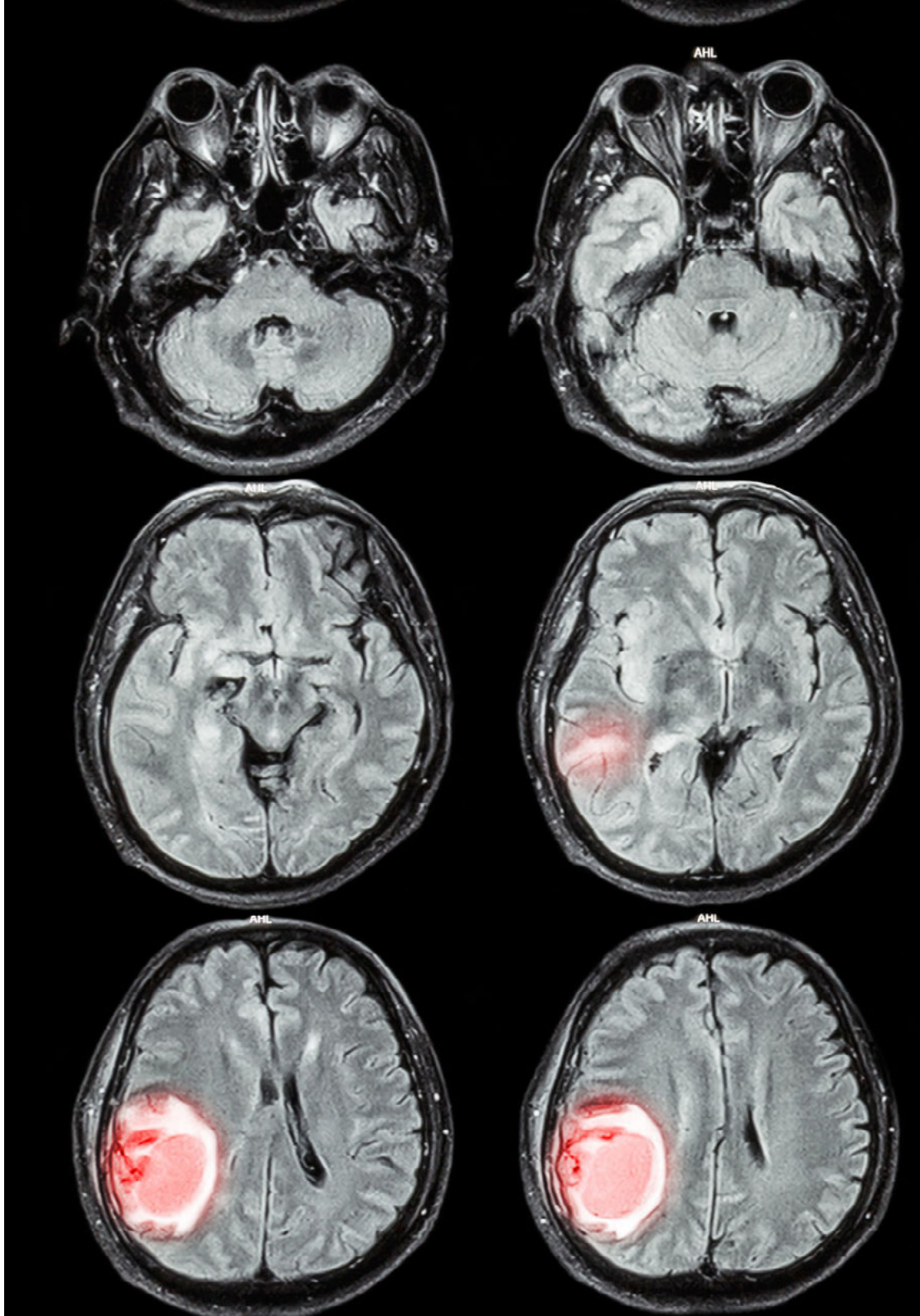
Dr. Vallejo Ocaña, Carmen
- Head of the Radiation Oncology at Ramón y Cajal University Hospital Madrid
- Degree in Medicine and Surgery

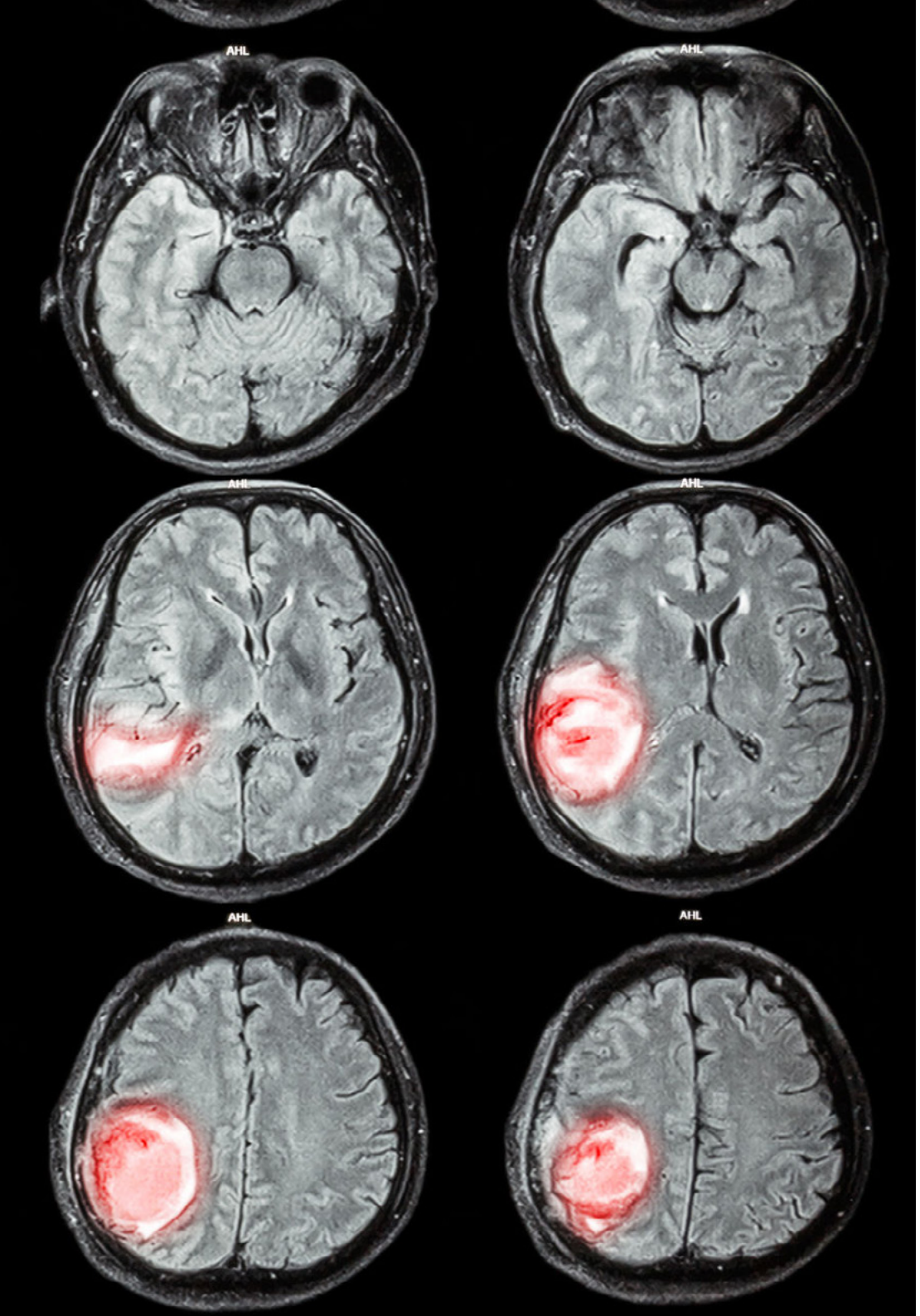
Dr. Gómez Camaño, Antonio
- Head of Radiation Oncology Service Clinical University Hospital of Santiago de Compostela

Dr. Rodríguez Pérez, Aurora
- Degree in Medicine and Surgery
- Head of Radiation Oncology Service Ruber International Hospital Madrid, Spain

Dr. Rubio Rodríguez, Carmen
- Head of Radiation Oncology Service University Hospital H.M. Sanchinarro, Madrid

Dr. Celada Álvarez, Francisco Javier
- Specialist - Resident tutor
- Radiation Oncology Service, Hospital Universitario y Politécnico La Fe Valencia, Spain





Dr. Conde Moreno, Antonio José

- Head of Radiation Oncology Section La Fe Polytechnic University Hospital, Valencia

Dr. Palacios Eito, Amalia

- Head of Radiation Oncology Service Reina Sofia University Hospital, Córdoba

Dr. Lozano Martín, Eva María

- Head of the Radiation Oncology Service at from Ciudad Real General University Hospital

TECH's objective? Helping you to achieve your professional growth"

04

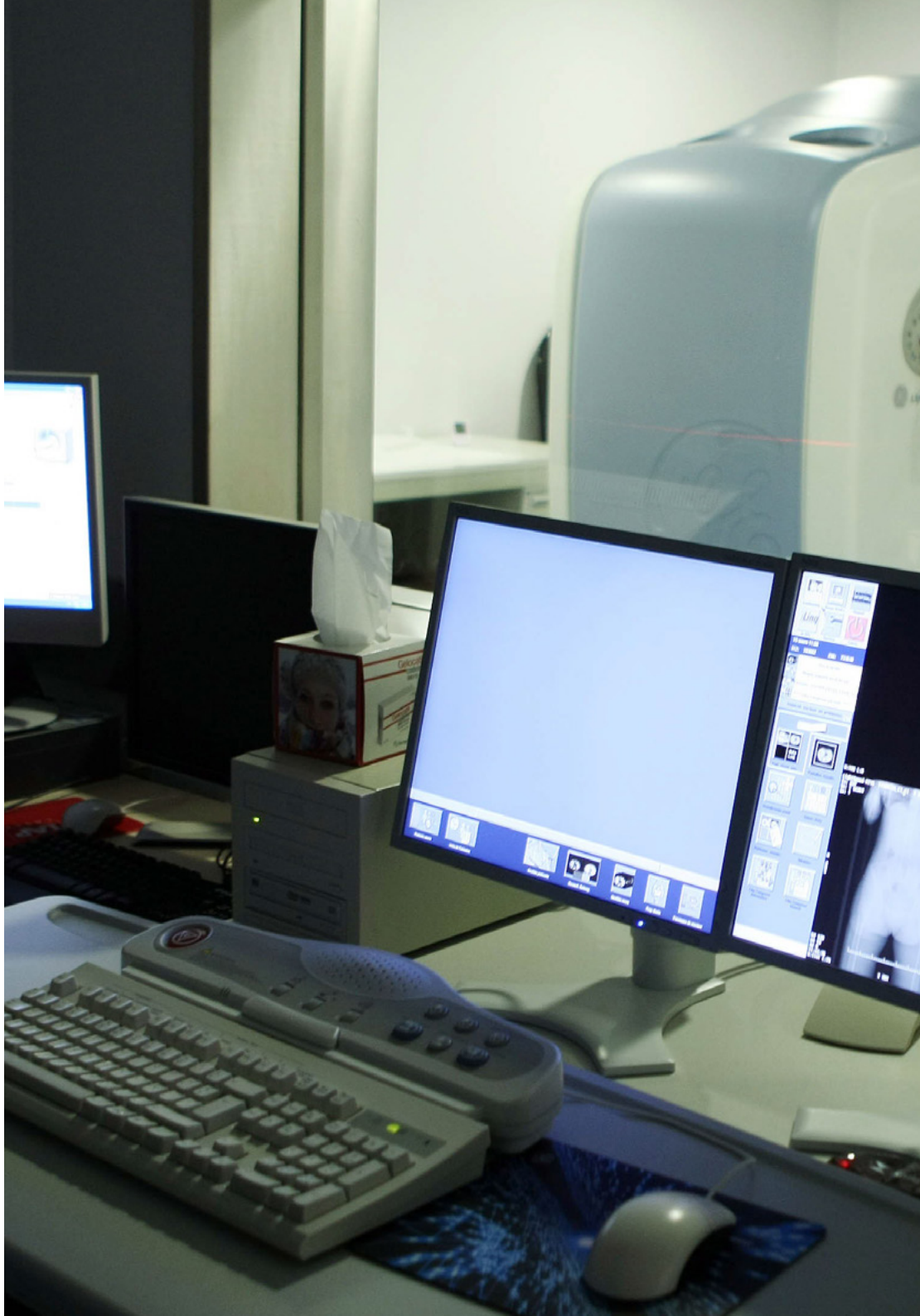
Structure and Content

The structure of the content has been designed by the best professionals in radiation oncology who work in centers of national reference. These experts are aware of the need for medical education to advance radiotherapy and radiobiology, so they offer quality instruction adapted to new technologies in education for healthcare professionals enabling students to provide medical care tailored to patient needs.

The best professionals in oncology show you the main advances in radiotherapy and radiobiology throughout this Postgraduate Certificate"

Module 1. Basis of Radiotherapy Treatment Radiobiology

1.1. Biological Effects of Ionizing Radiations
  1.1.1. DNA Damage
  1.1.2. Non-clonal Effects
1.2. Dose Fractionation
  1.2.1. Linear-Quadratic Model
  1.2.2. Time Factor in Radiotherapy
  1.2.3. Altered Subdivisions
1.3. Oxygen Effect and Tumor Hypoxia
1.4. Radiobiology of Brachytherapy
1.5. Effects of Irradiation on Healthy Tissues
1.6. Combination of Irradiation with Drugs
1.7. Predictive Assays of Response to Radiotherapy
1.8. Radiobiology of Re-Irradiation
1.9. Effects of Irradiation on the Embryo and Fetus
1.10. Radiation-Induced Carcinogenesis



Keeping up-to-date is key to providing better care to our patients"

05

Methodology

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

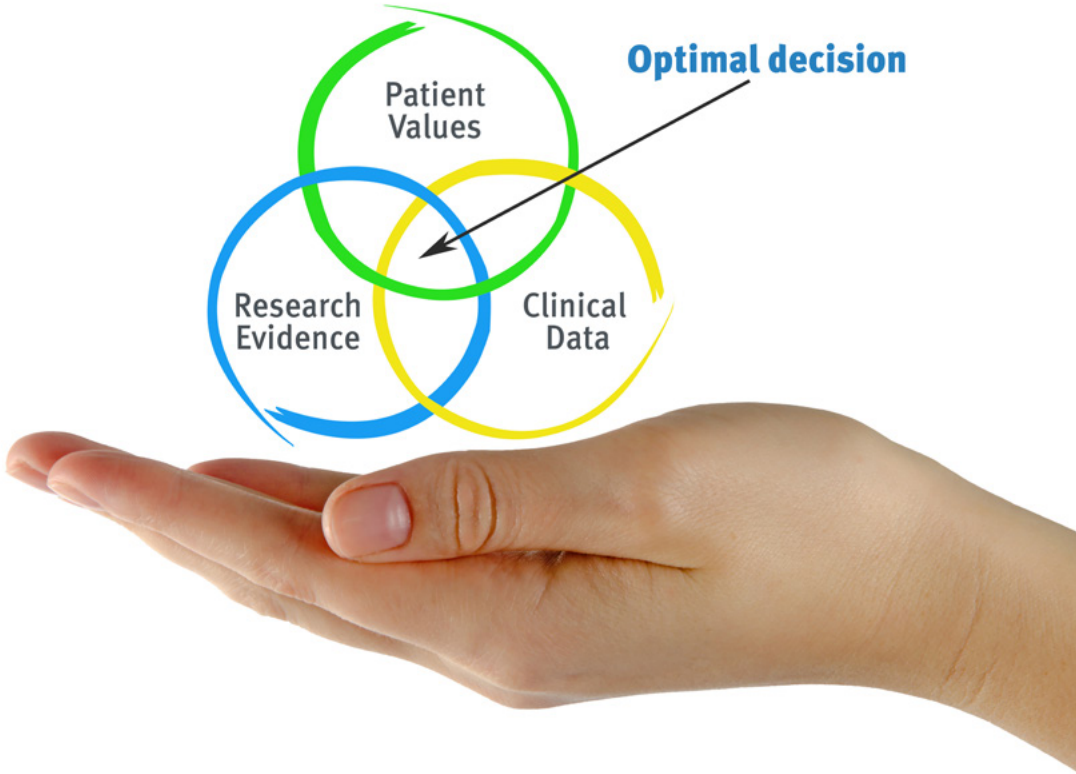
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

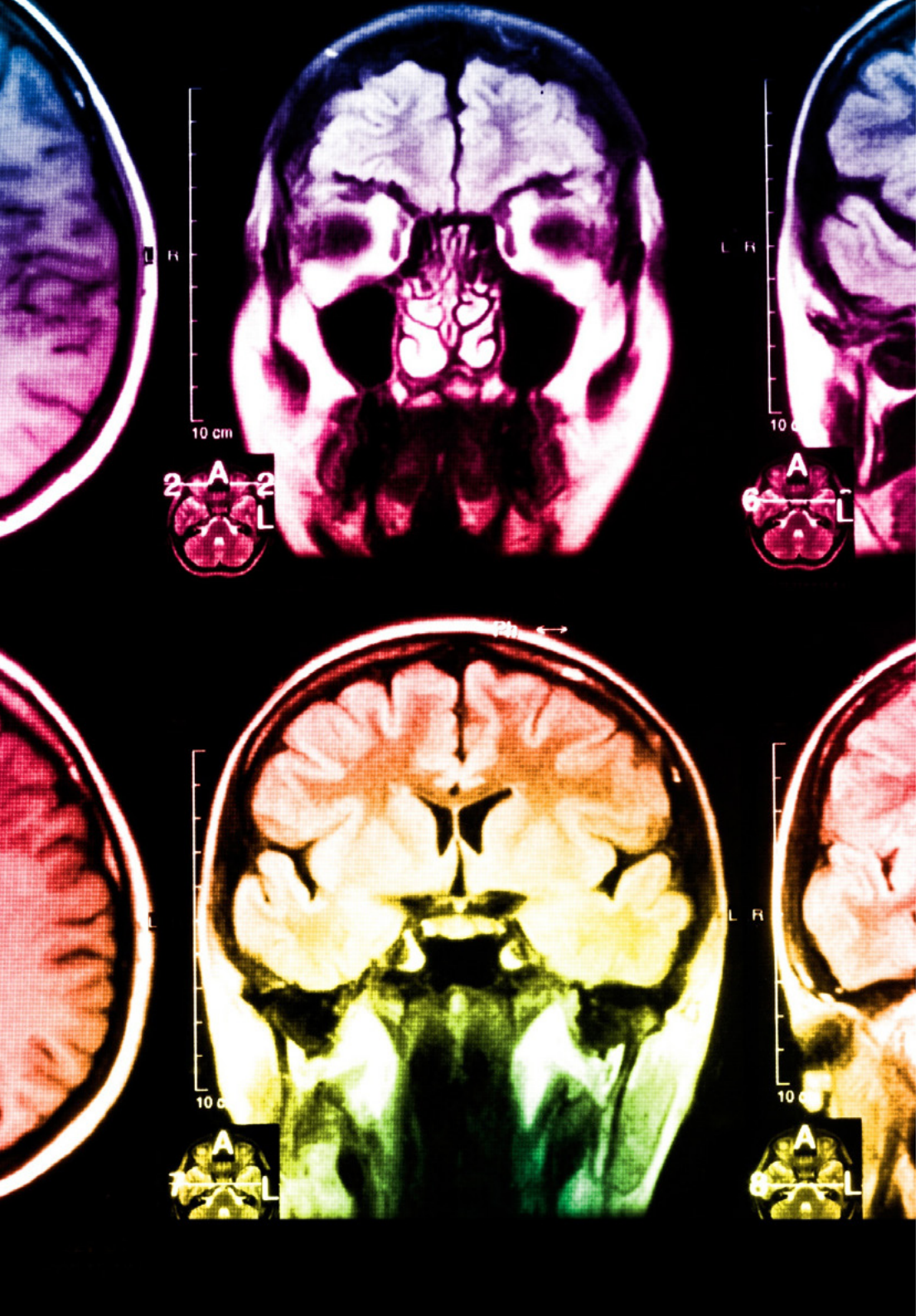
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

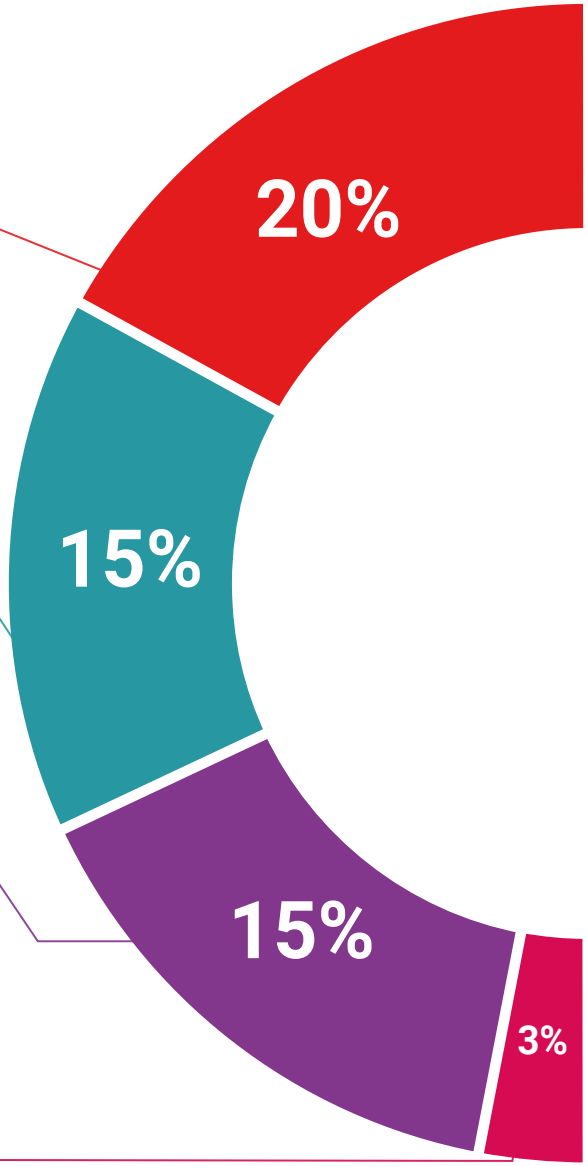
Interactive Summaries

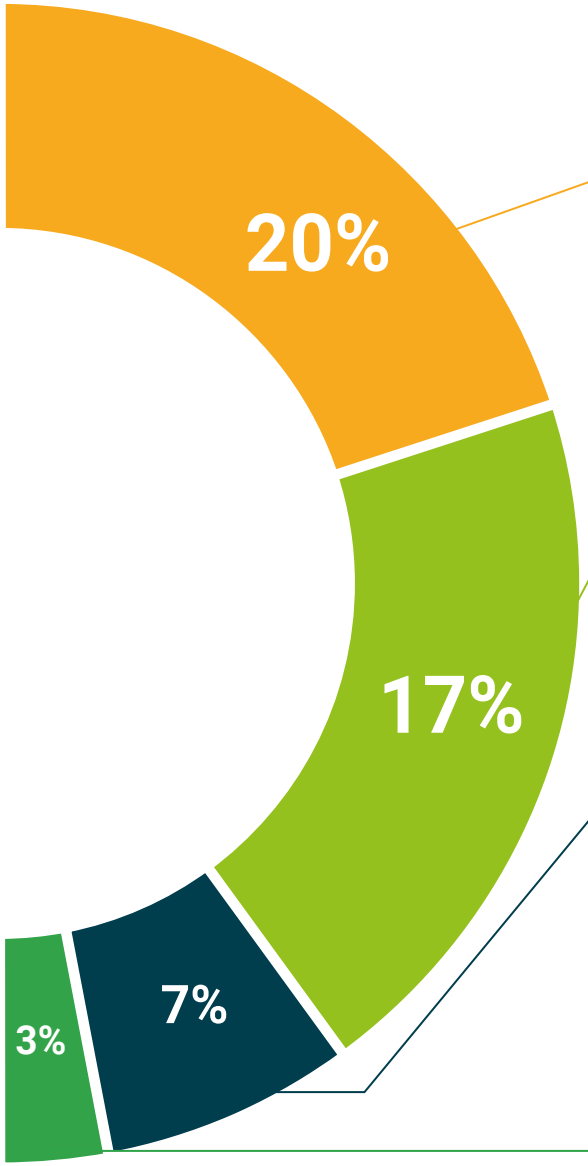
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

06

Certificate

The Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology 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 private qualification will allow you to obtain a **Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: **Postgraduate Certificate in Basis of Radiotherapy Treatment and Radiobiology**

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 Basis of Radiotherapy Treatment and Radiobiology

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

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

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

Dr. Pedro Navarro Illana
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

tech global university

Postgraduate Certificate

Principles of Radiotherapy and Radiobiology

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

Postgraduate Certificate

Basis of Radiotherapy Treatment and Radiobiology

tech global university