

Postgraduate Certificate

Basis of Radiotherapy Treatment and Radiobiology





Postgraduate Certificate Basis of Radiotherapy Treatment and Radiobiology

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

3 ECTS Credits

Teaching Hours: 75 hours.

Website: www.techtute.com/medicine/postgraduate-certificate/postgraduate-certificate-basis-radiotherapy-treatment-radiobiology

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01

Introduction

Radiotherapy is one of the most-used treatments for patients with cancer, whether it is the only treatment or combined with others. Advances in this field improve every year and, therefore, keeping up to date with the latest developments is essential for healthcare professionals, who can find, in training programs such as this one, an opportunity to keep abreast of new technological developments in the cure of cancer.





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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.

But as well as having the necessary technological advances to treat patients, is equally as important that healthcare professionals have the ability to make a proper diagnosis from the very beginning. Therefore, it is essential that they have all the information and updated training 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 delve into the knowledge of radiotherapy in oncology 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.

In short, this Postgraduate Certificate provides oncology professionals with the keys for the use of the main advances in radiotherapy and radiobiology, which will help them to evolve in their profession and to 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 of the program include:

- ♦ Clinical cases presented by experts in Radiotherapy and Radiobiology.
- ♦ 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.
- ♦ Diagnostic-therapeutic developments on assessment, diagnosis, and intervention in tumors.
- ♦ Practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Clinical and Diagnostic imaging and testing iconography.
- ♦ 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.



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

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

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

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 an immersive training program to train in real situations.

Problem-Based Learning underpins this program design, and the doctor must use it to try and solve the different professional practice situations that arise throughout the 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.

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

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



02

Objectives

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



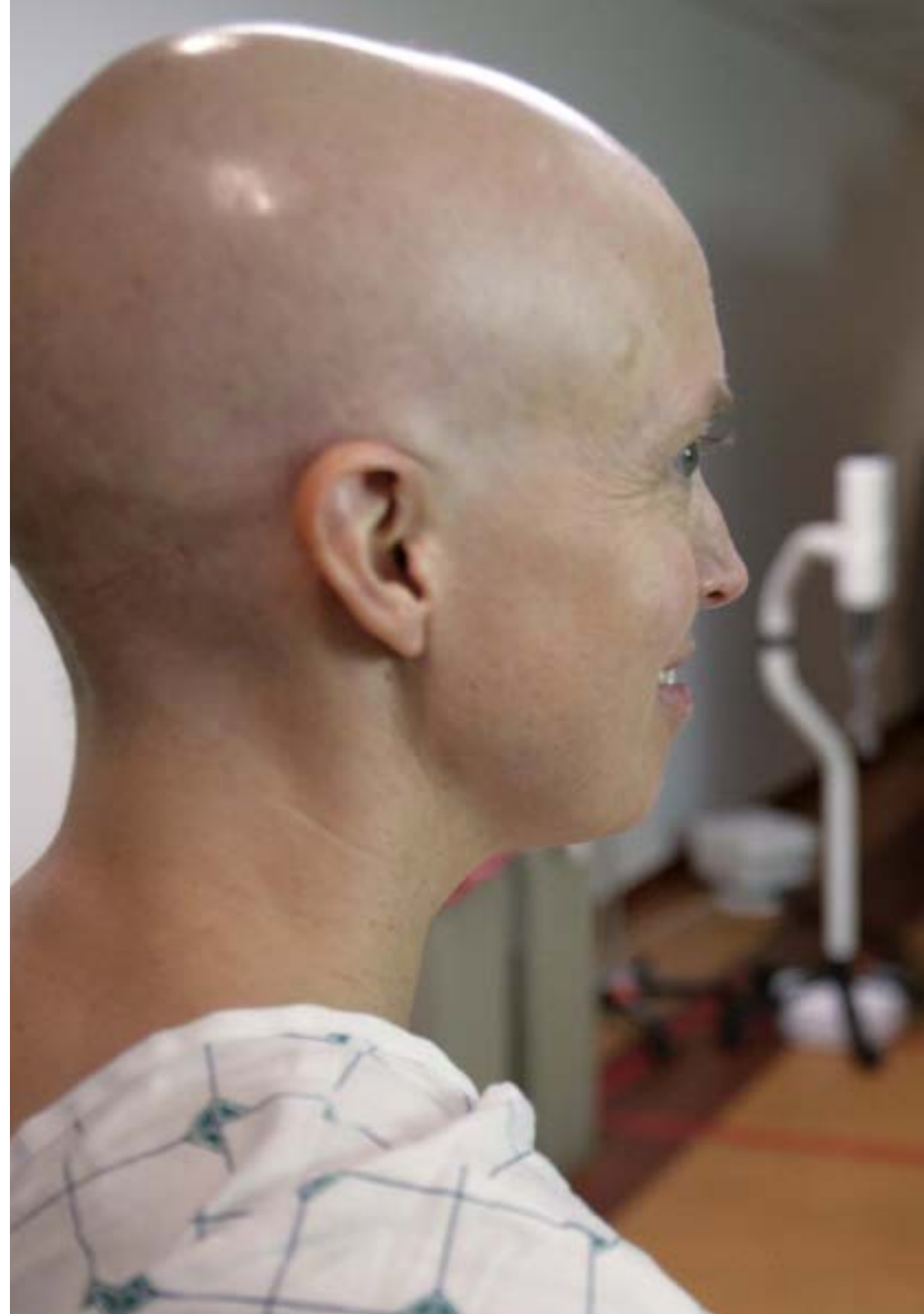
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Don't miss the opportunity and get up to date on advances in radiotherapy treatment in order to incorporate them into your daily medical practice"



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.





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 training program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner.





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

Management



Dr. Morera López, Rosa María

- ♦ Degree in Medicine and Surgery
- ♦ Doctor of Medicine from the Complutense University of Madrid.
- ♦ Specialist in Oncology Radiotherapy.
- ♦ Master's Degree in Health Services Management and Administration
- ♦ Head of the Radiation Oncology Service at La Paz University Hospital since 2017.
- ♦ Honorary Collaborating Professor in the subject of Radiology and Physical Therapeutics in the Degree of Medicine at the Faculty of Medicine of the UCLM in Ciudad Real
- ♦ Associate Professor in the Onco-Hematology course in the Medicine Degree at the Faculty of Medicine of the UCLM in Ciudad Real
- ♦ 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
- ♦ 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

- Degree in Medicine
- Radiotherapy Specialist
- Specialist in Oncology Radiotherapy. La Paz University Hospital Madrid
- 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
- Collaborating researcher in many research projects
- Editor of several dozen articles in high-impact scientific journals



Dr. Belinchón Olmeda, Belén

- ♦ Degree in Medicine and Surgery from the University of Alcalá de Henares, Madrid
- ♦ Specialist in Radiation Oncology Puerta de Hierro University Hospital, Madrid
- ♦ Diploma of Advanced Studies from the Autonomous University of Madrid.
- ♦ Attending Physician of the Radiation Oncology Service at La Paz University Hospital since 2007.
- ♦ Attending Physician of the Radiation Oncology Service at Ruber International Hospital since 2013.
- ♦ Training clinical residencies in prestigious centers such as The Christie Hospital, Manchester
- ♦ Participation as Head Researcher and collaborator in a large number of research projects.
- ♦ Author of various articles in high impact scientific journals and frequent collaborator in chapters of books and presentations at congresses.

Coordinators

Dr. Celada Álvarez, Francisco Javier

- ♦ Attending physician of the Radiotherapy Oncology Department
- ♦ La Fe Polytechnic University Hospital, Valencia

Dr. Conde Moreno, Antonio José

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

Dr. Gómez Camaño, Antonio

- ♦ Head of Radiation Oncology Service
- ♦ Clinical University Hospital of Santiago de Compostela

Dr. Lozano Martín, Eva María

- ♦ Head of Radiation Oncology Service
- ♦ General University Hospital, Ciudad Real. University of Castilla La Mancha

Dr. Palacios Eito, Amalia

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

Dr. Romero Fernández, Jesús

- ♦ Head of Radiation Oncology Service
- ♦ Puerta de Hierro University Hospital.



Dr. Rodríguez Pérez, Aurora

- ♦ Head of Radiation Oncology Service
- ♦ Ruber International Hospital, Madrid

Dr. Rubio Rodríguez, Carmen

- ♦ Head of Radiation Oncology Service
- ♦ University Hospital H.M. Sanchinarro, Madrid

Dr. Samper Ots, Pilar María

- ♦ Head of Radiation Oncology Service
- ♦ Rey Juan Carlos Hospital, Móstoles

Dr. Vallejo Ocaña, Carmen

- ♦ Head of Radiation Oncology Section
- ♦ Ramón y Cajal University Hospital, Madrid

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 training in the world of medicine in order to advance in radiotherapy treatment and radiobiology. That is why they offer this quality training, adapted to new educational technologies, so that health professionals can provide the best medical care, adapting it to the needs of their patients.



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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





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

05

Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

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 Re-learning, 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 be presented with multiple clinical symptoms simulated cases based on real patients in which they will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you can 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 potential 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.

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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 grasp concepts, but also develop their mental capacity by evaluating real situations and applying their 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.



Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

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 simple 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

Over 250,000 physicians have been trained using this methodology, with unprecedented success in all clinical specialties regardless of surgical load. This teaching methodology is developed in a highly demanding environment, with a university student body of high socio-economic profile and an average age of 43.5 years.

Re-learning 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 the teaching materials are specifically created for the course, by specialists who teach on 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 & Re-Testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see if you are achieving your goals.



Classes

There is scientific evidence on the usefulness of learning by observing experts. The system named Learning from an Expert strengthens knowledge and recall capacity, and generates confidence when facing 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 Basis of Radiotherapy Treatment and Radiobiology** guarantees you, in addition to the most rigorous and up-to-date training, access to a **Postgraduate Certificate** issued by **TECH Technological University**.



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*Successfully complete this training
and receive your diploma without the
hassle of travel or paperwork"*

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

After passing the evaluations, the student will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

This qualification contributes to the academic development of the professional and adds a high university curricular value to their training. It is 100% valid in all competitive examinations, labour exchanges and professional career evaluation committees.

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

ECTS: **3**

Official Number of Hours: **75**



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

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



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Basis of Radiotherapy
Treatment and Radiobiology

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

3 ECTS Credits

Teaching Hours: 75 hours.

Postgraduate Certificate

Basis of Radiotherapy Treatment
and Radiobiology