

Postgraduate Diploma

Affectation of Cardiac Structure and Function Mediated by Oncologic Treatments





Postgraduate Diploma

Affectation of Cardiac Structure and Function
Mediated by Oncologic Treatments.

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

19 ECTS Credits

Teaching Hours: 475 hours.

Website: www.techtute.com/in/medicine/postgraduate-diploma/postgraduate-diploma-affectation-cardiac-structure-mediated-oncologic-treatment

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01

Introduction

In recent years there has been an enormous development of therapeutic options in all types of oncological processes. Although much more effective and precise, the new treatments are not without risk, and the physician must face the daily challenge of dealing with the toxicity of the therapeutic options, especially in patients with multiple pathologies. This program is oriented to towards facilitating the professional's update in a practical way.



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This training will provide you with a sense of security in medical practice, which will help you grow personally and professionally”

Cancer patients often present pathologies associated with the oncological process that require care. On the other hand, approaches to cancer patients are often aggressive and can affect other systems, which in the case of frail patients is a major problem in managing risk in therapeutic choices.

The heart is undoubtedly one of the organs most affected by systemic cancer treatments, and considering the importance of its functioning, it becomes an area of study that requires rigor, depth and timeliness.

Cardiological affectation is routinely present in the side effects of most treatments for the oncology patient. The management of the medication, as well as of other therapeutic options, is fundamental in the adjustment of the appropriate dosage for medical praxis. Being up to date on the details of cardiac risk management in this type of patient is a fundamental skill for the physician to possess when dealing with the patient and his or her symptoms.

This program is designed to facilitate the specialist's updating process, so that he/she can include in the clinical practice of their patients all the innovations and the latest knowledge about oncological therapeutics.

The **Postgraduate Diploma in Affectation of the Cardiac Structure and Function Mediated by Oncological Treatments** contains the most complete and up to date scientific program on the market. The most important features of the program include:

- ♦ Development of case studies presented by experts on the cardiotoxic effect of oncological therapies. 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.
- ♦ Developments on the cardiotoxic effect in heart disease.
- ♦ It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ With special emphasis on innovative methodologies in cardiopathies of oncologic toxic etiology.
- ♦ 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.

“Update your knowledge with the *Postgraduate Diploma in Affectation of Cardiac Structure and Function Mediated by Oncological Treatments*”

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This Postgraduate Diploma may be the best investment you can make in the selection of an updating program for two reasons: in addition to updating your knowledge in Affectation of Cardiac Structure and Function Mediated by Oncological Treatments, you will obtain a Postgraduate Diploma certificate from TECH Technological University"

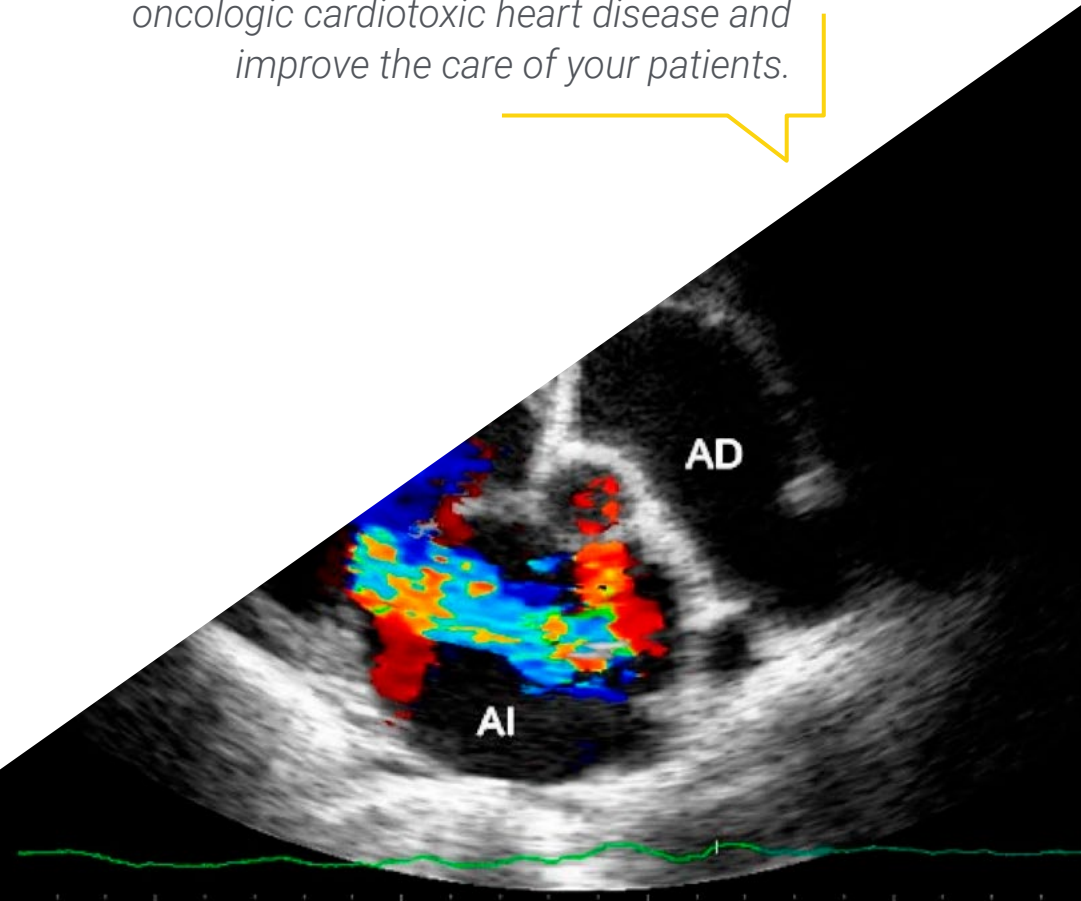
Its teaching staff includes professionals belonging to the field of cardiotoxic cardiopathies, who bring to this training the experience of their work, in addition to recognized specialists belonging to prestigious reference societies and universities.

The multimedia content developed with the latest educational technology will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training program to train in real situations.

The design of this program is based on Problem-Based Learning, by means of which the student must try to solve the different professional practice situations that arise throughout the course. For this purpose, the student will be assisted by a innovative interactive video system developed by recognized experts in the field of Affectation of Cardiac Structure and Function Mediated by Oncologic Treatments, with extensive teaching experience.

Increase your decision-making confidence by updating your knowledge through this specialist course.

Take the opportunity to learn about the latest advances in the approach to oncologic cardiotoxic heart disease and improve the care of your patients.



02 Objectives

The Postgraduate Diploma in Affection of Cardiac Structure and Function Mediated by Oncological Treatments is aimed at facilitating the actions of the physician dedicated to the treatment of oncological pathology, in which it is necessary to accurately interpret the toxic effects of possible occurrence and assess the cardiological risks inherent to the disease process.



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This Postgraduate Diploma is designed for you to update your knowledge in Affection of Cardiac Structure and Function Mediated by Oncologic Treatments, using the latest educational technology, to contribute with quality and safety to decision making”



General Objective

- Update the knowledge of the specialist Cardiologist, Oncologist and Hematologist in the field of Cardio-Oncology.
- Promote work strategies based on a comprehensive approach to the patient as a standard model for achieving excellent care.
- Encourage the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online simulation workshops and/or specific training.
- To encourage professional stimulation through continuous education and research.





Specific Objectives

- ♦ Describe the monitoring required by patients during treatment for cardiotoxicity.
- ♦ Identify biomarkers as a method used to detect cardiotoxicity early, especially troponins and natriuretic peptides.
- ♦ Deepen the knowledge of echocardiography, with special attention to the "global longitudinal strain" technique as a marker for early detection of cardiac toxicity.
- ♦ Know the role of cardiac magnetic resonance imaging in the early detection of cardiotoxicity.
- ♦ Recognize the clinical relevance and mechanisms involved in the onset of ventricular dysfunction and heart failure secondary to cardiac toxicity.
- ♦ Deepen our knowledge of myocardial involvement caused by anthracyclines.
- ♦ Identify other chemotherapy drugs with the capacity to produce myocardial toxicity.
- ♦ Deepen our knowledge of myocardial toxicity induced by monoclonal antibodies, especially trastuzumab.
- ♦ Recognize the ability of therapies directed against new molecular targets (cellular kinase inhibitors) and proteasome inhibitors to produce ventricular dysfunction and heart failure.
- ♦ Learn the effects of thoracic radiotherapy on the myocardium.
- ♦ Improve knowledge in the clinical diagnosis of heart failure associated with cardiotoxicity.
- ♦ Acquire updated knowledge in the treatment of heart failure and ventricular dysfunction related to oncological treatments.
- ♦ Know the importance of early detection of myocardial involvement due to cardiotoxicity.
- ♦ Describe the appropriate action to be taken in the event of an increase in circulating biomarkers during oncologic treatment.
- ♦ Describe the appropriate response to the appearance of "global longitudinal strain" alteration during oncological treatment.
- ♦ Learn the monitoring strategy during treatment with anthracyclines.
- ♦ Learn the monitoring strategy during treatment with monoclonal antibodies, especially trastuzumab.
- ♦ Learn the monitoring strategy during treatment with cell kinase inhibitors.
- ♦ Understand the potential causes and mechanisms of ischemic heart disease in the context of cardiac toxicity.
- ♦ Identify patients at high risk of coronary artery disease.
- ♦ Define the role of oncological treatments such as fluoropyrimidines in the development of ischemic heart disease.
- ♦ Acquire updated knowledge on diagnostic methods for coronary artery disease related to cardiotoxic drugs.
- ♦ Get up to date on the management of acute coronary syndrome in the context of oncologic treatment.
- ♦ Learn the monitoring strategy in patients who have had coronary ischemia.
- ♦ Know the clinical relevance of thoracic radiotherapy in the development of coronary artery disease and its mechanisms.
- ♦ Recognize the risk factors for the development of ischemic heart disease in patients who have received thoracic radiotherapy.

04

Course Management

The program's teaching staff includes leading specialists in the management of heart disease in the presence of oncologic cardiotoxicity, who bring the experience of their work to this training. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner.



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Learn from leading professionals the latest advances in the approach to heart disease with the presence of oncologic cardiotoxicity"

International Guest Director

Dr. Arjun Ghosh is recognized in the healthcare field for his many efforts to improve the quality of care at the University College London Hospital (UCLH) and Barts Heart Center. Both institutions have become international references in Cardiology, an area in which this doctor is considered a true eminence.

From his position as Head of the Clinical Service at UCLH, the expert has devoted great efforts to the care of patients with cancer and to reduce the cardiac side effects that may result from aggressive treatments such as chemotherapy, radiotherapy and surgery. Thanks to his extensive experience in this field, he is a consultant specialist in the Long-Term Follow-Up Unit, created to monitor the evolution of people who have survived tumors.

Dr. Ghosh's research has been at the forefront of clinical innovation throughout his career. His PhD, for example, was defended at the Imperial College of London and subsequently presented to the British Parliament. This merit is only plausible for studies that make unquestionable contributions to society and science. The thesis has also received numerous national and international awards. It has also been endorsed by presentations at various congresses around the world.

The famous cardiologist is also a specialist in advanced Diagnostic Imaging techniques, using state-of-the-art tools: Magnetic Resonance Imaging and Echocardiography. He also has a broad academic vocation that led him to complete a Master's degree in Medical Education, obtaining accreditations from the Royal College of Physicians of the United Kingdom and University College London.

Dr. Ghosh is also the Director of the Foundation Program at St. Bartholomew's Hospital and holds various positions in local and international societies, such as the American College of Cardiology.



Dr. Arjun Ghosh

- Specialist in Cardio-Oncology and Advanced Cardiac Imaging
- Head of Clinical Service University College London Hospital (UCLH)
- Consultant Cardiologist at the Barts Heart Center
- Director of the St Bartholomew's Hospital Foundation Program
- Doctorate in Cardiology at Imperial College London
- Master's Degree in Medical Education from the Royal College of Physicians of the United Kingdom and University College London
- Member of:
 - American College of Cardiology
 - British Cardiovascular Society
 - Royal Society of Medicine
 - International Society of Cardio-Oncology



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

Management



Dr. García –Foncillas, Jesús

- Director of the Chair of Molecular Individualized Medicine of the Autonomous University of Madrid (UAM-Merck).
- Director of the Oncology Institute "OncoHealth".
- Director of the Oncology Department of the University Hospital "Fundación Jiménez Díaz".
- Director of the Translational Oncology Division of the Health Research Institute FJD-UAM.
- Professor of Oncology, Autonomous University of Madrid.

Coordinators

Dr. Ibáñez Cabeza, Borja

- ♦ Head of the Fundación Jiménez Díaz Cardiology Research Unit.
- ♦ Director of the Clinical Research Department of the Carlos III National Center for Cardiovascular Research (CNIC).

Dr. Macía Palafox, Ester

- ♦ Clinical Manager of the Cardio-Oncology Unit of the Fundación Jiménez Díaz University Hospital in Madrid.
- ♦ Degree in Medicine from the Complutense University Madrid.
- ♦ Cardiology Specialist at La Paz University Hospital in Madrid..
- ♦ TECH Master's Degree in Clinical Arrhythmology (Complutense University of Madrid).
- ♦ Fellowship in Investigative Arrhythmology (Columbia University, New York).
- ♦ Member of the Spanish Society of Cardiology. Cardio-Oncology Work Group.

Professors

Dr. Barón, Lourdes De Ingunza

- ♦ Degree in Medicine from the University of Cadiz.

D. Bravo Calero, Loreto

- ♦ Cardiology Department, University Hospital Fundación Jiménez Díaz Quironsalud, Madrid.

Dr. Casado Álvarez, Raquel

- ♦ Cardiology Service University Hospital Quirónsalud Madrid.

Dr. Díez Medrano, María José

- ♦ Graduate in Medicine. Alfonso X el Sabio University. Junio 2015.

Dr. Gómez Rubín, María Carmen

- ♦ Cardiology Department, Hospital Complex Ruber Juan Bravo Quironsalud, Madrid.

Dr. Higuera Nafria, Javier

- ♦ Cardiology Department, University Hospital Clínico San Carlos, Madrid, Madrid.

Dr. Lorenzo Muñoz, Natalia

- ♦ Cardiology Department, University Hospital Infanta Cristina, Madrid.

Dr. Martínez Milla, Juan

- ♦ Cardiology Department, University Hospital Fundación Jiménez Díaz Quironsalud, Madrid.

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- ♦ Cardiology Department at Ruber Juan Bravo Hospital Complex Quironsalud, Madrid.

Dr. Montañés, Óscar Salvador

- ♦ Cardiology Service University Hospital Quirónsalud Madrid.

Dr. Olmos, Carmen

- ♦ Degree in Medicine and PhD in Biomedical Sciences from the Complutense University of Madrid.

Pertejo, Ana

- ♦ Associate of Medical Oncology. Mayo 2019 – actualidad (febrero 2020). University Hospital La Paz, Madrid.

Dr. Porta Sánchez, Andreu

- ♦ Cardiology Service University Hospital Quirónsalud Madrid. Carlos III National Center for Cardiovascular Research (CNIC).

Dr. Salamanca Vilorio, Jorge

- ♦ Cardiology Department, University Hospital La Princesa, Madrid.

Dr. Sánchez Enrique, Cristina

- ♦ Cardiology Service University Hospital Quirónsalud Madrid.

Dr. Vega Primo, Alejandro

- ♦ Cardiology Department at Ruber Juan Bravo Hospital Complex Quironsalud, Madrid.

Dr. Vélez Salas, Andrea

- ♦ Cardiology Department, Hospital Infanta Sofía, Madrid.

05

Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities in the country, aware of the relevance of current training to be able to intervene in the toxic effects of oncological therapies at the cardiac level, and committed to quality teaching through new educational technologies.





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Module 1. Myocardial Toxicity

- 1.1. Incidence and Clinical Relevance.
- 1.2. Pathophysiology of Ventricular Dysfunction and Heart Failure in the Context of Cardiotoxicity.
- 1.3. Drugs Implicated in the Development of Ventricular Dysfunction and Heart Failure.
 - 1.3.1. Anthracyclines.
 - 1.3.2. Other Chemotherapy Drugs.
 - 1.3.3. Biological Agents: Monoclonal Antibodies.
 - 1.3.4. Therapies Aimed at New Molecular Targets: Inhibitors of Cellular Kinases.
 - 1.3.5. Proteasome Inhibitors.
- 1.4. Radiotherapy and Heart Failure.
- 1.5. Methods for Diagnosing Myocardial Involvement.
 - 1.5.1. Electrocardiogram.
 - 1.5.2. Echocardiography.
 - 1.5.3. Other Non-Invasive Imaging Techniques.
- 1.6. Treatment Strategies.
 - 1.6.1. Treatment of Acute Heart Failure
 - 1.6.2. Chronic Treatment of Patients with Ventricular Dysfunction.
- 1.7. Presymptomatic Myocardial Involvement.
 - 1.7.1. Management of Patients with Elevated Circulating Biomarkers during Oncologic Treatment.
 - 1.7.2. Management of Patients with Preclinical Impairment of Ventricular Function during Oncologic Treatment.
- 1.8. Monitoring Strategy during Treatment with Drugs Capable of Causing Myocardial Toxicity.
 - 1.8.1. Anthracyclines.
 - 1.8.2. Biological Agents: Monoclonal Antibodies.
 - 1.8.3. Therapies Aimed at New Molecular Targets: Inhibitors of Cellular Kinases.
 - 1.8.4. Immune Checkpoint Inhibitors.



Module 2. Ischemic Heart Disease and Cardiotoxicity

- 2.1. Incidence of Ischemic Heart Disease in Oncology Patients.
- 2.2. Identifying Patients at High Risk of Coronary Artery Disease.
- 2.3. Pathophysiology of Ischemic Heart Disease in the Context of Oncologic Treatment.
- 2.4. Pharmacologic Oncologic Therapies that are Associated with Ischemic Heart Disease.
 - 2.4.1. Fluoropyrimidine.
 - 2.4.2. Vascular Endothelial Growth Factor Inhibitors.
 - 2.4.3. Others (Cisplatin).
- 2.5. Diagnostic Methods for Coronary Artery Disease Related to Cardiotoxic Drugs.
 - 2.5.1. Electrocardiogram.
 - 2.5.2. Functional Tests.
 - 2.5.3. Non-Invasive Imaging Tests.
 - 2.5.4. Invasive Imaging Tests.
- 2.6. Acute Coronary Syndrome in the Context of Oncologic Treatment.
- 2.7. Monitoring and Treatment Strategy in the Patient with Coronary Ischemia.
- 2.8. Thoracic Radiotherapy and Ischemic Heart Disease.
 - 2.8.1. Incidence and Pathophysiology of Radiation-Induced Coronary Artery Disease.
 - 2.8.2. Risk Factors for the Development of Ischemic Heart Disease in Radiotherapy Patients.
 - 2.8.3. Clinical Assessment and Diagnostic Methods of Coronary Heart Disease in Radiotherapy Patients.
 - 2.8.4. Treatment Options in Coronary Artery Disease Associated with Radiotherapy.
- 2.9. Management of Chronic Ischemic Patients Receiving Oncologic Treatment.

Module 3. Arrhythmias and Cardiotoxicity

- 3.1. Incidence and Pathophysiology of Cardiac Arrhythmias Related to Oncologic Treatments.
- 3.2. QT Interval Prolongation: Causative Drugs and Associated Risk Factors.
- 3.3. QT Interval Prolongation: Diagnostic Criteria and Risk Stratification of Ventricular Arrhythmias.
- 3.4. QT Interval Prolongation: Prevention Strategies and Implications on the Continuity of Specific Treatment.

- 3.5. Atrial Fibrillation: Incidence, Risk Factors, and Clinical Presentation.
- 3.6. Atrial Fibrillation: Oncologic Treatments Involved in its Development.
- 3.7. Atrial Fibrillation: Anticoagulant Treatment.
 - 3.7.1. Thrombotic and Hemorrhagic Risk Assessment.
 - 3.7.2. Anticoagulation with Heparin.
 - 3.7.3. Anticoagulation with Dicoumarinics.
 - 3.7.4. Direct-Acting Anticoagulants.
- 3.8. Treatment Strategy in Atrial Fibrillation: Rate Control versus Rhythm Control.
- 3.9. Bradyarrhythmias Associated with Oncologic Treatment.
 - 3.9.1. Sinus Dysfunction.
 - 3.9.2. Atrioventricular Block.
 - 3.9.3. Therapeutic Implications.

Module 4. Valvular and Pericardial Involvement Related to Cardiotoxicity

- 4.1. Oncologic Treatments that May Lead to the Development of Valvulopathies.
 - 4.1.1. Pharmacological Treatments.
 - 4.1.2. Thoracic Radiotherapy.
- 4.2. Management of Chronic Valvular Patients Receiving Oncologic Treatment.
 - 4.2.1. Mitral Valve Disease.
 - 4.2.2. Aortic Valve Disease.
 - 4.2.3. Valve Prosthesis.
- 4.3. Pharmacological Treatments that May Lead to the Development of Pericardial Disease.
 - 4.3.1. Incidence and Physiopathology.
 - 4.3.2. Clinical Presentation and Diagnosis.
 - 4.3.3. Approach to Pericardial Effusion Secondary to Treatment.
- 4.4. Thoracic Radiotherapy and Pericardial Disease.
 - 4.4.1. Acute Pericarditis.
 - 4.4.2. Chronic Pericarditis.
- 4.5. Assessing Patients with Metastatic Pericardial Involvement.

06

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 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.



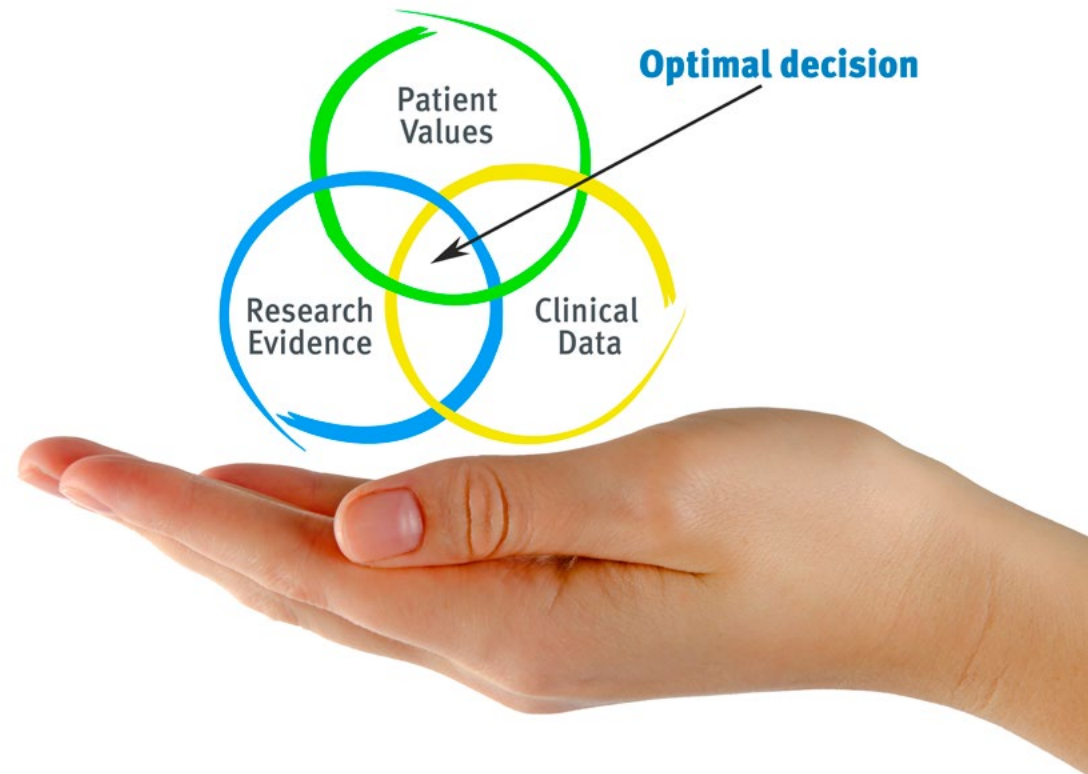
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Discover Re-learning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you 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. Gervas, 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 professional medical 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. The learning process has a clear focus on 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.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.

The physician will learn through real cases and by solving 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).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

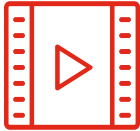
Re-learning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

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

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



In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

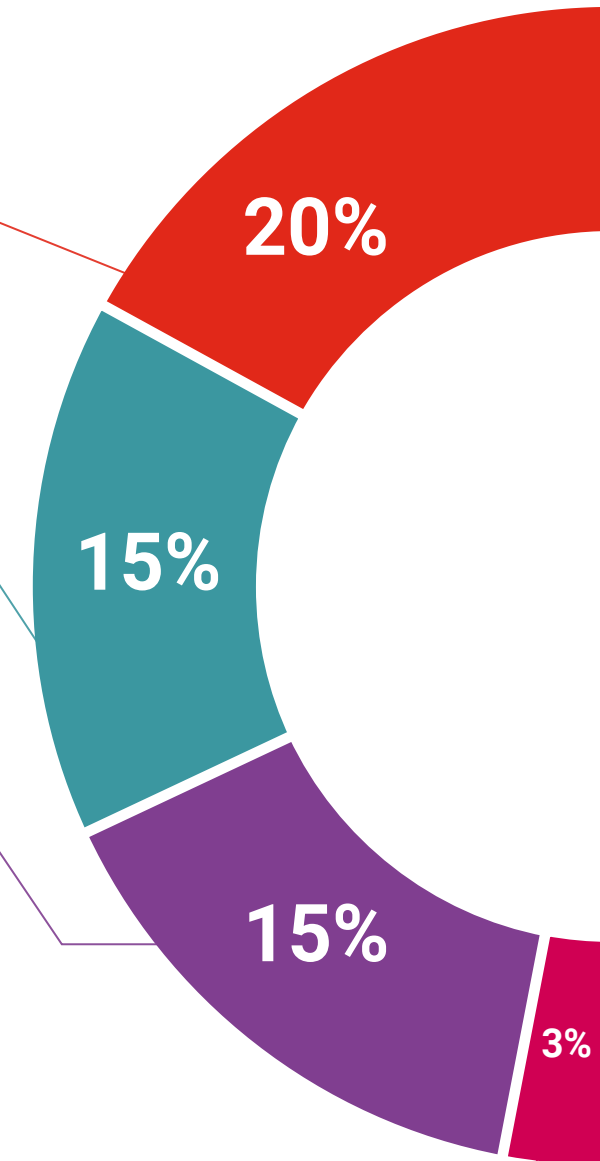
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

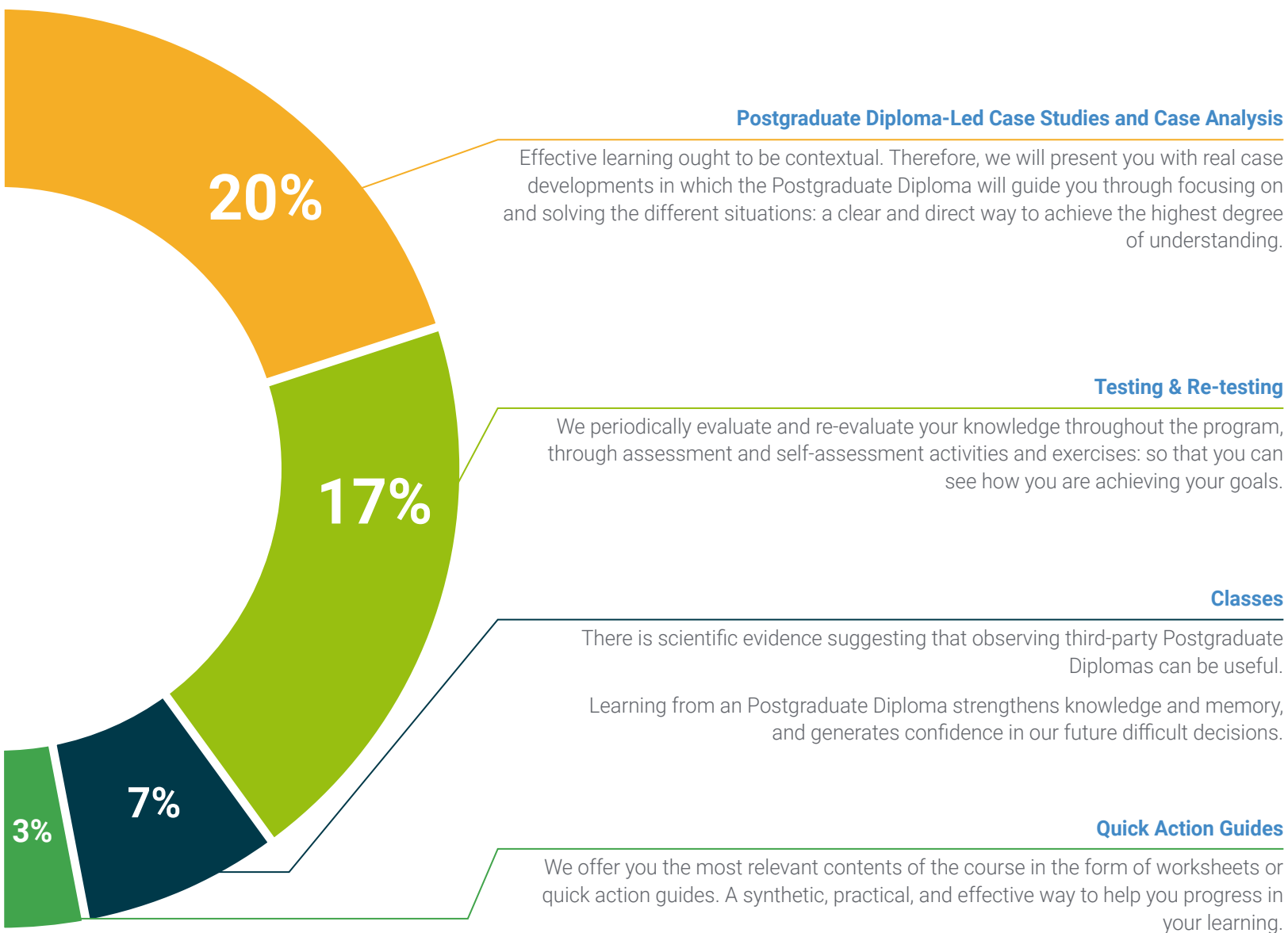
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





06

Certificate

The Postgraduate Diploma in Affection of Cardiac Structure and Function Mediated by Oncologic Treatments guarantees you, in addition to the most rigorous and up to date training, access to a Postgraduate Diploma Certificate issued by TECH Technological University.



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

This **Postgraduate Diploma in Affectionation of Cardiac Structure and Function Mediated by Oncologic Treatments** contains the most complete and up to date scientific program on the market.

After the student has passed the evaluations, he/she will receive by mail with acknowledgment of receipt their corresponding **Postgraduate Diploma Certificate** issued by **TECH Technological University**.

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

Title: **Postgraduate Diploma in the Affectionation of Cardiac Structure and Function Mediated by Oncological Treatments.**

ECTS: **19**

Official Number of Hours: **475**





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