

# Hybrid Professional Master's Degree Cardio-Oncology





## Hybrid Professional Master's Degree

### Cardio-Oncology

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 créditos ECTS

Website: [www.techtute.com/us/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-cardio-onocology](http://www.techtute.com/us/medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-cardio-onocology)

# Index

01

Introduction

---

*p. 4*

02

Why Study this Hybrid  
Professional Master's Degree?

---

*p. 8*

03

Objectives

---

*p. 12*

04

Skills

---

*p. 19*

05

Course Management

---

*p. 22*

06

Educational Plan

---

*p. 28*

07

Clinical Internship

---

*p. 34*

08

Where can I do  
Clinical Practices?

---

*p. 40*

09

Methodology

---

*p. 44*

10

Certificate

---

*p. 52*

# 01

# Introduction

Nowadays, antitumor treatments have a significant impact on possible cardiovascular pathologies in patients. Various studies indicate that approximately one in three patients with a new diagnosis of cancer has considerable cardiovascular risk factors or previous pathologies. In many cases, these complications can be even more decisive than the tumor itself, which has considerably promoted constant updating in this field. In this way, TECH presents a complete program that combines both the most current scientific theory and the most prestigious clinical practice, giving the specialist the possibility of learning about the most recent news in Oncologic Cardiology from the best experts in the field.





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*Delve into the main vascular complications of cancer patients, focusing on thromboembolic disease and pulmonary hypertension”*

Fortunately, significant advances in the field of oncology have allowed for much more effective treatments for cancer and blood diseases. So much so that the survival and favorable prognosis of patients has improved significantly, not without forgetting the possible complications that may arise from them, especially of Cardiotoxicity.

In fact, while Oncologic treatments improve the complexity of the problems that arise as a result of them also increases. It is common for specialists in the area to seek continuous updating on issues such as therapies with a cardioprotective effect, high blood pressure or early detection of cardiotoxicity. Cardio-Oncology units must be prepared for all types of clinical challenges, which is why this TECH Hybrid Professional Master's Degree responds to this need for both theoretical and practical review.

A teaching team made up of highly prestigious cardiologists and oncologists has brought together, throughout 15 knowledge modules, the most relevant scientific content of the last decade in terms of Oncologic Cardiology. In this way, the specialist will access the most important update on Ischemic Heart Disease, current and future research in Cardio-Oncology, organization of the area's multidisciplinary units, follow-up programs for patients who have received cardiotoxic therapies and many more topics of special interest. All of this, in addition, in a completely online format and supported by high-quality multimedia content, prepared by the teachers themselves.

This extensive update is combined with a practical stay lasting several weeks in a prestigious clinical center. In this way, the specialist will be able to check in situ the developments previously reviewed, forming part of a multidisciplinary work team in a demanding, but at the same time rewarding, practical period, as he will be supported at all times by a designated tutor.

Hybrid Professional Master's Degree in Cardio-Oncology is a first-rate opportunity to access the latest and most current scientific postulates and, in turn, acquire the necessary practical experience that involves applying said innovations in a real environment. All of this is supported by the quality and pedagogical methodology of TECH, which guarantees a dynamic, flexible and adaptable academic experience to all possible professional and personal responsibilities.

This **Hybrid Professional Master's Degree in Cardio-Oncology** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Development of more than 100 clinical cases compiled by a teaching staff with extensive experience in the field of Oncologic Cardiology
- ♦ 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
- ♦ Most relevant lines of research in Cardio-Oncology, including gaps evidence and future research
- ♦ Delve into the coordination of hospital and extra-hospital resources in Cardiology Oncology units
- ♦ Update on the study of vascular and cardiological complications related to Oncologic treatments
- ♦ 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
- ♦ Furthermore, you will be able to carry out a clinical internship in one of the best centers on the international scene



*Complement your theoretical update with a prestigious practical stay in one of the most reference Cardiology Oncology units"*

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*Apply the knowledge and work methodology of the most demanding and advanced clinical environments in your own daily practice”*

In this Master's proposal, of a professional nature and blended modality, the program is aimed at updating medical professionals who carry out their functions in Cardiology Oncology units, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic manner to integrate theoretical knowledge into clinical practice, and the theoretical-practical elements will facilitate the updating of knowledge and will allow decision making in patient management.

Thanks to their multimedia content prepared with the latest educational technology, they will allow the medical professional to obtain situated and contextual learning, that is, a simulated environment that will provide immersive learning programmed to train 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 throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Get up to date on cardiotoxicity and its relationship with Arrhythmias, Valvular and Pericardial Infection and Ischemic Heart Disease.*

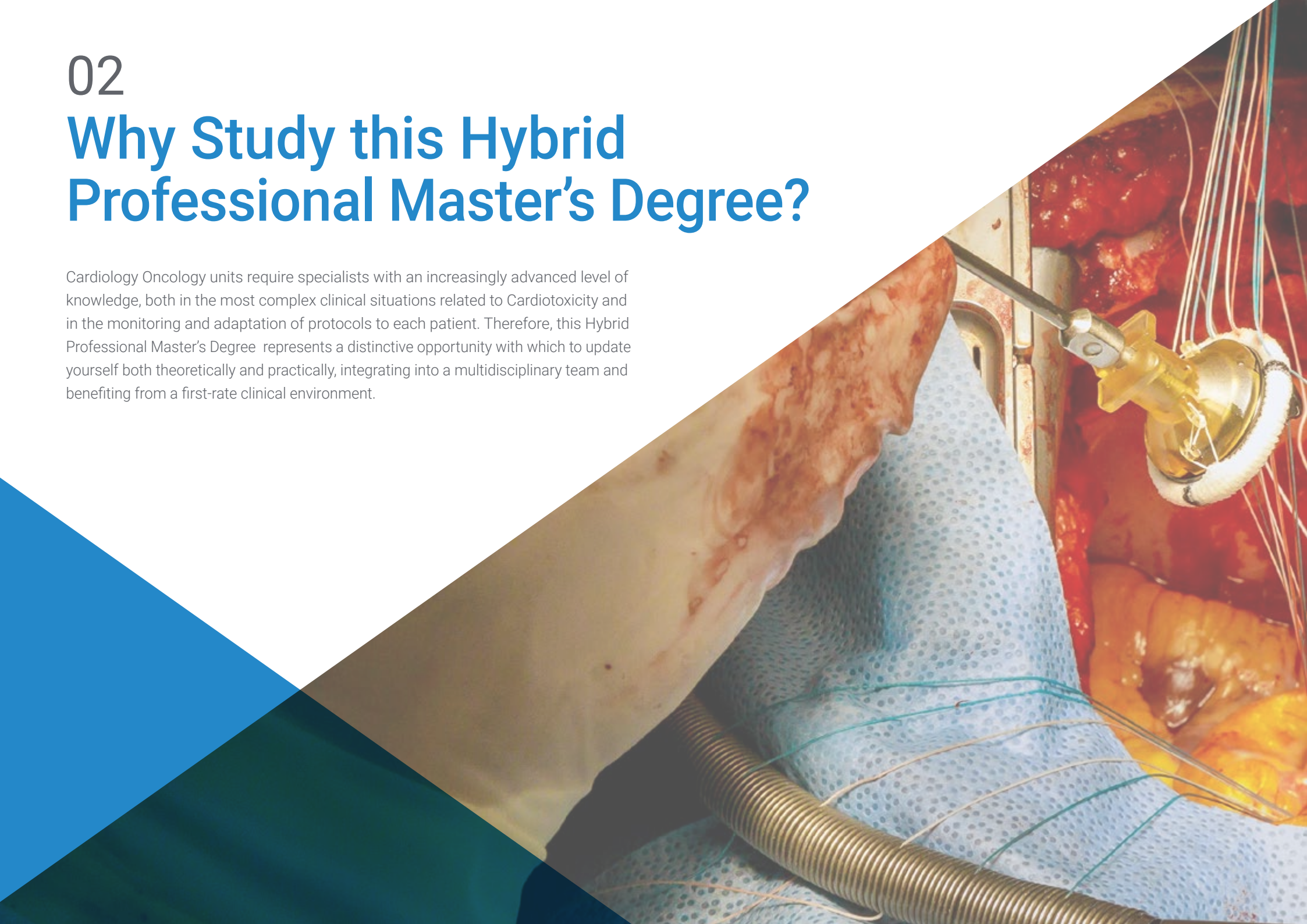
*Access the contents of this Hybrid Professional Master's Degree from any device with an internet connection, whenever, wherever and however you want.*



# 02

## Why Study this Hybrid Professional Master's Degree?

Cardiology Oncology units require specialists with an increasingly advanced level of knowledge, both in the most complex clinical situations related to Cardiotoxicity and in the monitoring and adaptation of protocols to each patient. Therefore, this Hybrid Professional Master's Degree represents a distinctive opportunity with which to update yourself both theoretically and practically, integrating into a multidisciplinary team and benefiting from a first-rate clinical environment.







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*TECH gives you the opportunity to access the best theoretical content, then putting it into practice in the most prestigious clinical environments”*

### 1. Updating from the latest technology available

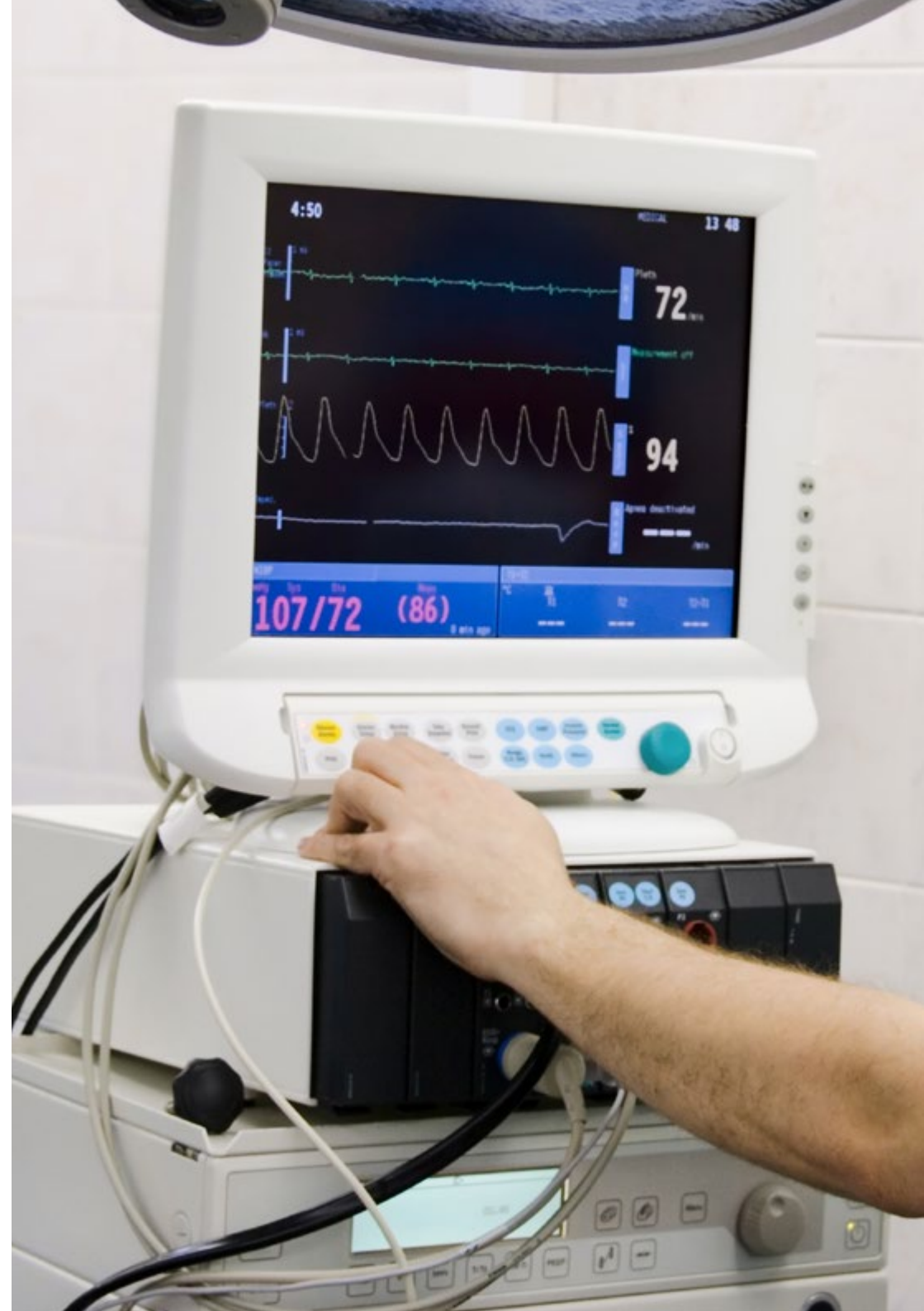
Coordination and rapid response to Cardio-Oncologic complications is essential. For this, it is essential to have the latest technology available, especially in the area of early detection of Cardiotoxicity and vascular complications. For this reason, the specialists will have access to the most innovative equipment and clinical techniques possible during their practical stay.

### 2. Gaining In-Depth Knowledge from the Experience of Top Specialists

Thanks to the practical stay of this Hybrid Professional Master's Degree, the student will have the opportunity to get involved in the day-to-day life of a top-level work team. Made up of highly prestigious specialists, their experience will allow them to delve deeper into the methodology and advanced approach of Oncologic Cardiology, including the most effective work methodology.

### 3. Entering First-Class Clinical Environments

In addition to being part of a multidisciplinary team with extensive experience, the specialist will have the opportunity to access a first-class clinical environment. In this way, you will have at your disposal the most advanced technology in Oncologic Cardiology, at the same time that you will be able to verify the care of real cases with various pathologies and ailments, acquiring distinctive experience in the medical field.





#### **4. Combining the Best Theory with State-of-the-Art Practice**

Added to this advanced practice is reliable and complete updating in the most relevant clinical fields of Oncologic Cardiology. The entire teaching team has remarkable experience in research and medical care, both in the fields of Oncology and Cardiology. This is reflected throughout all the modules that make up the Hybrid Professional Master's Degree, uniting the study of real cases with the most recent developments.

#### **5. Expanding the Boundaries of Knowledge**

In medicine, it is extremely important to maintain a constant level of updating, especially when it comes to areas as delicate as Oncology or Cardiology, since they are also those fields where the most advances occur. Hybrid Professional Master's Degree is a firm commitment to the most relevant update in this field, making it essential for all specialists in the area.

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*You will have full practical immersion  
at the center of your choice”*

# 03 Objectives

Hybrid Professional Master's Degree aims to guarantee complete and quality updating for all specialists with an interest in Oncologic Cardiology. aims to guarantee complete and quality updating for all specialists with an interest in Oncologic Cardiology. aims to guarantee complete and quality updating for all specialists with an interest in Oncologic Cardiology. Moreover, both the theoretical content and the practical stay that make up this degree are taken care of in every detail, providing adequate depth as well as a practical experience unparalleled in the academic panorama.





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*Update yourself in Oncologic Cardiology in a decisive way thanks to an extensive and careful syllabus, with a practical stay that will allow you to take it to a real clinical environment”*



## General Objective

- As a general objective of this Hybrid Professional Master's Degree in Cardio-Oncology the most recent information regarding vascular pathologies and cardiological complications has been compiled, logically attending to cases in Oncologic patients or those with cardiotoxic therapies. During the practical stay, the specialist will be accompanied by a team of renowned cardiologists and oncologists, with whom to explore the follow-up of high-risk patients or those undergoing potentially cardiotoxic treatments



*Thanks to this Hybrid Professional Master's Degree you will have updated knowledge, both practically and theoretically, in the most relevant areas of Oncologic Cardiology"*



## Specific Objectives

### Module 1. Epidemiology of Cancer

- Know the epidemiological relevance of cancer
- Explain the Epidemiological Significance of Cardiotoxicity in Oncology
- Describe the Epidemiological Significance of Cardiotoxicity in Hematology

### Module 2. Oncologic Treatments with Cardiotoxic Effect

- Know the clinical and epidemiological importance of cardiac toxicity
- Become familiar with other potentially cardiotoxic biological agents
- Analyze the cardiotoxic effects of cell kinase inhibitors

### Module 3. Comprehensive Assessment of the Risk of Cardiotoxicity Development

- Identify the epidemiological importance of prevention and early detection of cardiotoxicity
- Describe individual susceptibility to cardiotoxicity by determining both genetic factors and non-genetic factors
- Understand the individual susceptibility factors, both genetic and acquired, involved in the development of cardiac toxicity
- Be able to perform a comprehensive risk assessment of patients undergoing oncologic treatment

### Module 4. Early Detection of Cardiotoxicity

- Know the structure and organization of Cardio-Oncology Units
- Define the concept of cardiotoxicity
- Learn the types of cardiotoxicity depending on the area affected
- Learn the types of cardiotoxicity based on the pathophysiological mechanism. Understand the molecular and tissue mechanisms that lead to CT
- Recognize the cardiotoxic effects of thoracic radiotherapy
- Update the knowledge concerning the evolution of radiothoracic radiotherapy equipment and methods

**Module 5. Myocardial Toxicity**

- ♦ Explain the factors influencing acute and chronic radioinduced cardiotoxicity
- ♦ Recognize chemotherapeutic drugs implicated in cardiotoxicity
- ♦ Analyze the cardiotoxic effects of anthracyclines
- ♦ Explain the cardiotoxic effects of anti-tubulin drugs
- ♦ Explain the cardiotoxic effects of antimetabolite drugs
- ♦ Explain the cardiotoxic effects of alkylating agents and other drugs that interact with DNA
- ♦ Analyze the cardiotoxic effects of biological agents, specifically trastuzumabtype monoclonal antibodies

**Module 6. Ischemic Heart Disease and Cardiotoxicity**

- ♦ 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 Oncologic 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

- ♦ Expand knowledge of the diagnostic methods of radiation-induced coronary artery disease
- ♦ Analyze the treatment options in coronary artery disease associated with thoracic radiotherapy
- ♦ Improve knowledge of the treatment strategy for chronic ischemic patients receiving oncologic treatment

**Module 7. Arrhythmias and Cardiotoxicity**

- ♦ Know the risk of developing ventricular arrhythmias and their specific treatment
- ♦ Identify strategies to prevent prolongation of the QT interval on the electrocardiogram
- ♦ Define the implications of prolongation of the QT interval on the electrocardiogram and the appearance of ventricular arrhythmias on the continuity of specific treatment
- ♦ Recognize the clinical relevance and mechanisms of atrial tachyarrhythmias, especially atrial fibrillation in oncologic patients
- ♦ Learning about cancer treatments that favor the development of atrial fibrillation
- ♦ Analyze the need for anticoagulation and its risk-benefit in oncologic patients with atrial fibrillation
- ♦ Review therapeutic options in atrial fibrillation in the context of cardiotoxicity
- ♦ Recognize the clinical significance of bradyarrhythmias related to oncologic treatment
- ♦ Learn the Oncologic treatments that are associated with the development of bradyarrhythmias and their therapeutic implications
- ♦ Broaden knowledge in relation to oncology patients with arrhythmias and require implantable devices (pacemakers, defibrillators)

### Module 8. Valvular and Pericardial Involvement Related to Cardiotoxicity

- ♦ Know the potential toxic effects of oncological treatments at the valvular level
- ♦ Update knowledge on the attitude towards chronic valvular patients and prosthetic valve patient receiving oncological treatment
- ♦ Know the potential toxic effects of oncological treatments on the pericardium
- ♦ Learn the treatment strategy for patients with pericardial effusion secondary to cardiac toxicity
- ♦ Recognize the specific role of radiotherapy in the development of pericardial disease
- ♦ Define the assessment of metastatic pericardial involvement

### Module 9. Arterial Hypertension as a Result of Oncologic Treatments

- ♦ Recognize the clinical relevance of hypertension in oncologic patients
- ♦ Analyze the relationship between antiangiogenic drugs and arterial hypertension and its mechanisms
- ♦ Deepen the knowledge of the diagnosis of arterial hypertension associated with the use of antiangiogenic drugs
- ♦ Define the strategy for monitoring arterial hypertension during oncologic treatment
- ♦ Know the treatment of arterial hypertension related to oncologic treatment





### **Module 10. Venous Thromboembolic Disease and Other Vascular Complications in the Oncology Patient**

- ♦ Recognize the clinical relevance of venous thromboembolic disease in oncologic patients
- ♦ Know the different factors and situations that contribute to the development of venous thromboembolic disease in oncologic patients
- ♦ Learn the antineoplastic treatments associated with increased risk of venous thromboembolic disease
- ♦ Describe prevention measures for cancer-related venous thromboembolic disease in different clinical scenarios
- ♦ Analyze the relationship and clinical significance of venous thromboembolic disease with the use of central venous catheters
- ♦ Learn the forms of clinical presentation, diagnostic and follow-up methods, as well as the treatment of venous thromboembolic disease with the use of central venous catheters
- ♦ Know the methods of prevention of venous thromboembolic disease with the use of central venous catheters
- ♦ Identify the forms of presentation and deepen the knowledge of the diagnosis of deep vein thrombosis and cancer-associated pulmonary thromboembolism

### **Module 11. Therapies with Cardioprotective Effects**

- ♦ Analyze the role of beta-blockers in cardioprotection
- ♦ Analyze the role of angiotensin receptor inhibitors and antagonists in cardioprotection
- ♦ Identify other pharmacological treatments with a possible cardioprotective effect

### **Module 12. Long-Term Monitoring Programs for Patients Who Have Received Cardiotoxic Therapies**

- ♦ Describe the monitoring required by patients during treatment with cardiotoxicity therapies
- ♦ Recognize the ability of therapies directed against novel molecular targets (cellular kinase inhibitors) and proteasome inhibitors that produced cause ventricular dysfunction and heart failure
- ♦ Explain the long-term follow-up of patients who have received thoracic radiotherapy

### **Module 13. Complex Clinical Situations in the Context of Cardiotoxicity**

- ♦ Understand the occurrence and determine the clinical management of patients with established oncologic disease who present with an acute ischemic event
- ♦ Understand the occurrence and determine the clinical management of pediatric patients requiring potentially cardiotoxic oncologic treatment
- ♦ Understand the onset and determine the clinical management of geriatric patients requiring oncologic treatment

### **Module 14. The Future of Cardio-Oncology: Most Relevant Lines of Research**

- ♦ Recognize the importance of research in the context of cardiotoxicity
- ♦ Become familiar with current basic lines of research and future perspectives
- ♦ Become familiar with current clinical lines of research and future perspectives

### **Module 15. Multidisciplinary Cardio-Oncology Units**

- ♦ Learn the objectives of Cardio-Oncology Units
- ♦ Become familiar with the follow-up required in patients with cardiac toxicity or at high risk of developing it
- ♦ Get up to date on anticoagulant and antiplatelet therapy in oncology patients

# 04 Skills

Thanks to the practical stay of this Hybrid Professional Master's Degree, the specialist will develop those skills necessary to care for patients with various pathologies in the Cardio-Oncology Unit. This work will be reinforced thanks to the techniques, work methodology and organization of the prestigious clinical environment to which the student will have access.



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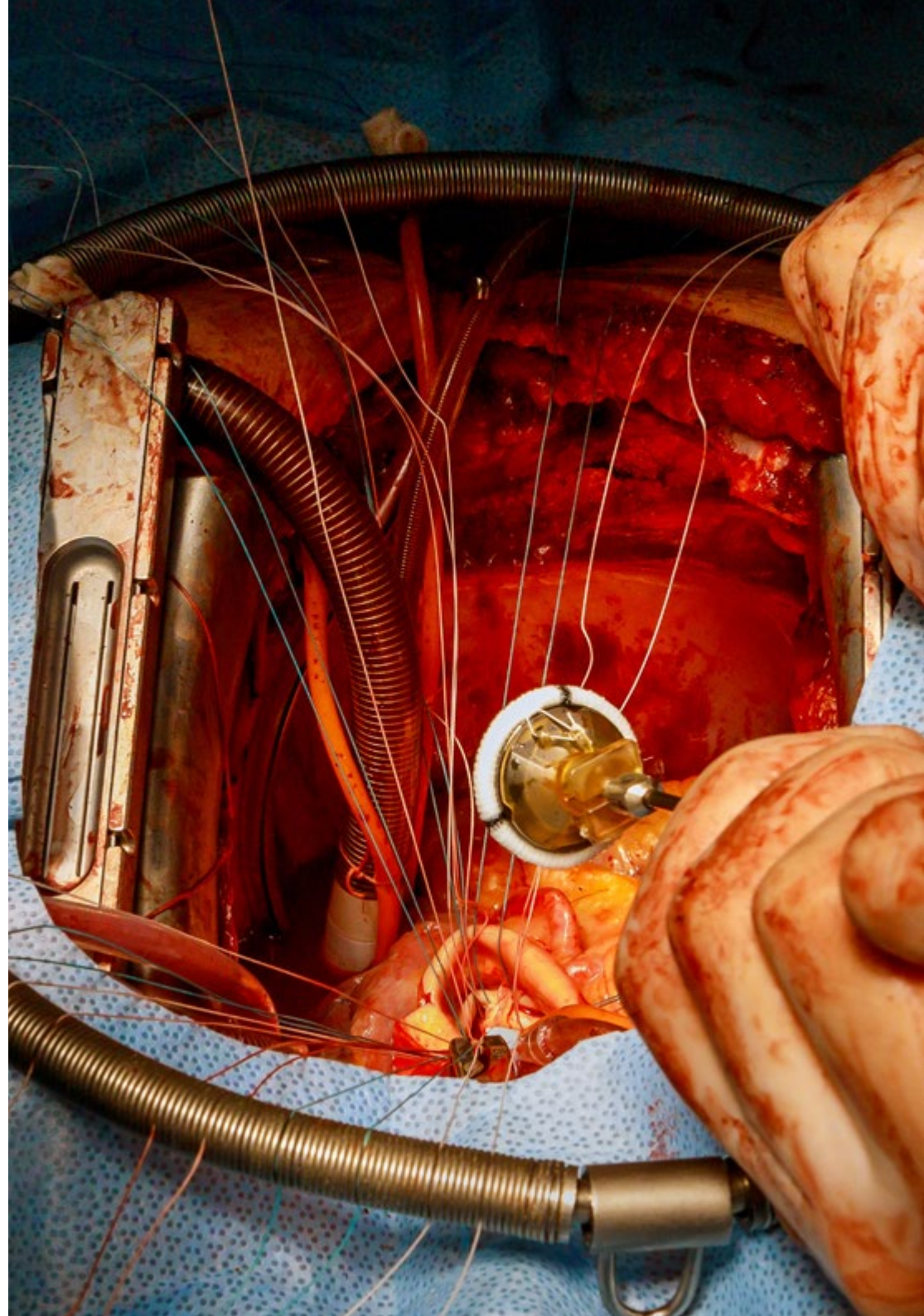
*Take your clinical skills to the most recent scientific news in this Hybrid Professional Master's Degree in Cardio-Oncology”*

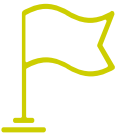


## General Skills

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- ♦ Possess and understand knowledge that provides a basis or opportunity to be original when developing and/or applying ideas, often in a research context
- ♦ Apply the acquired knowledge and problem-solving skills of Problems
- ♦ in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
- ♦ Integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities related to the application of their knowledge and judgments
- ♦ Know how to communicate conclusions knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way





## Specific Skills

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- ♦ Assess the clinical and epidemiological importance of toxicity and organization of Cardio-Oncology Units
- ♦ Understand the molecular and tissue mechanisms that lead to cardiac toxicity
- ♦ Determine the potential role that radiotherapy, immunotherapy, and chemotherapy treatments may play in causing CT
- ♦ Understand the individual susceptibility factors for the appearance of cardiac toxicity and be able to carry out a comprehensive risk assessment of the patient who is going to undergo cancer treatment
- ♦ Incorporate early detection methods for cardiac toxicity in each clinical context
- ♦ Identify the mechanisms and clinical significance of ventricular dysfunction and heart failure secondary to cardiac toxicity and become familiar with the different therapeutic options in the setting of established cardiac toxicity
- ♦ Incorporate knowledge of the relationship of cardiotoxic therapies to the genesis of ischemic cardiopatia disease
- ♦ Identify the arrhythmogenic capacity of cardiac toxicity and the management of arrhythmias in Oncologic patients
- ♦ Identify the potential toxic effects of Oncologic treatments at the valvular and pericardial levels
- ♦ Point out the implications on the oncologic treatment of arterial hypertension
- ♦ Describe the various vascular complications related to oncologic treatments
- ♦ Add to your knowledge the different treatment options with cardioprotective effect
- ♦ Become familiar with the follow-up required in patients with cardiac toxicity or at high risk of developing it
- ♦ Point out the importance and perform the appropriate management of complex clinical situations derived from cardiac toxicity
- ♦ Incorporate the latest advances in basic and clinical research in the context of cardiac toxicity



*Rely on a top-level professional team, who will guide you throughout the practical stay during 3 intensive weeks in which you will care for real patients”*

# 05

# Course Management

All the teachers in charge of writing the content of this Hybrid Professional Master's Degree have extensive skills and experience in the various areas of Oncologic Cardiology. Both from the point of view of research and clinical care itself, the teaching material provided is based on real cases and top-level practical simulations, in order to offer adequate contextualization.





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*You will delve into the epidemiology of cancer and its impact on Hematology with the help of the greatest experts in the area”*

## 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

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- 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

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

## Management



### 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 of Madrid
- ♦ specialist in Cardiology at La Paz University Hospital in Madrid
- ♦ Master's Degree in Clinical Arrhythmology (Complutense University of Madrid)
- ♦ Master's Degree in Diagnostic and Therapeutic Electrophysiology, from the Complutense University of Madrid
- ♦ Fellowship in Investigative Arrhythmology at Columbia University, New York
- ♦ Member of: Spanish Society of Cardiology Cardio-Oncology Work Group



### Dr. García-Foncillas López, Jesús

- ♦ Director of the Oncohealth Institute
- ♦ Director of the Chair of Molecular Individualized Medicine in the Autonomous University of Madrid
- ♦ 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)
- ♦ Specialist in Oncology
- ♦ Professor of Oncology at the Autonomous University of Madrid



### Dr. Ibáñez Cabeza, Borja

- ♦ Head of the Jiménez Díaz in Cardiology Foundation Research Unit
- ♦ Director of the Clinical Research Department of the Carlos III National Center for Cardiovascular Research (CNIC)
- ♦ interventional cardiology in Hospital in San Carlos Clinical Hospital
- ♦ Degree in Medicine, Complutense University of Madrid
- ♦ Specialty in Cardiology at the Jiménez Díaz Foundation
- ♦ Postdoctoral research fellowship at Mount Sinai in New York
- ♦ 'Young Talent' Award in the 6th edition of the Constantes y Vitales Awards for Biomedical Research and Health Prevention
- ♦ President of the clinical practice guidelines for the treatment of acute myocardial infarction by the European Society of Cardiology

## Professors

### Dr. Porta Sánchez, Andreu

- ♦ Director of the cardiology Department of the Carlos III National Center for Cardiovascular Research (CNIC)
- ♦ Specialist in Cardiologist in the Arrhythmia Unit of the Children's Hospital La Paz
- ♦ Cardiology Quirónsalud Madrid University Hospital
- ♦ Doctor of Ventricular Tachycardias from the University of Barcelona
- ♦ Master's Degree in Research Methodology. Design and Statistics in Health Sciences from Autonomous University of Barcelona
- ♦ Degree in Medicine from the University of Barcelona

### Dr. Fernández, José

- ♦ Head Cardiology Service of in Cardiology the Jiménez Díaz Foundation
- ♦ National Coordinator of the Odyssey Outcomes and AMPLITUDE studies
- ♦ Specialty in cardiologia at the Jiménez Díaz Foundation
- ♦ Degree in Medicine from the University of Oviedo
- ♦ Member of: Fellow of the European Society of Cardiology, Working Group on Atherosclerosis and Vascular Biology of the European Society of Cardiology, Member of the Advisory Board of the Research Agency of the Spanish Society of Cardiology, Spanish Society of Cardiology and Spanish Society of arteriosclerosis

**Dr. Caramés Sánchez, Cristina**

- ♦ Coordinator of the of Digestive System Tumors Unit at Jiménez Díaz La Foundation
- ♦ resident tutor for the at Hospital Universitario Fundación Jiménez Díaz
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Degree in Medicine from the University of Barcelona
- ♦ Specialist in Oncology Physician at Hospital Universitario Fundación Jiménez Díaz
- ♦ Stay at the Center for Gastrointestinal Cancer Research, Epigenetics and Prevention at the Baylor Research Institute

**Dr. Kallmeyer Mayor, Andrea**

- ♦ Cardiologist at the Jiménez Díaz Foundation University Hospital
- ♦ Master in Acute Cardiological Care from the Menéndez Pelayo International University
- ♦ Further Training in Acute Cardiological Care
- ♦ Specialist in Geriatrics, San Carlos Clinical Hospital
- ♦ Degree in Medicine from the Autonomous University Madrid

**Dr. Taibo Urquía, Mikel**

- ♦ Attending cardiology, Heart Failure and Imaging Unit of Service, Jiménez Díaz Foundation Hospital
- ♦ Member of the cardiology Group of the SEC

**Dr. Sánchez Fernández, Pedro Luis**

- ♦ Head in the Cardiology Unit of the Salamanca University Care Complex
- ♦ Researcher in Cardiovascular Medicine at the ISCIII
- ♦ Assistant Cardiology Specialist at the Coronary Care Unit of the Puerta de Valladolid Hospital
- ♦ Specialist in in Cardiology the Gregorio Marañón Hospital
- ♦ Graduated in Medicine, University of Salamanca

**Dr. Córdoba Mascaño, Raúl**

- ♦ Coordinator of the Lymphoma Unit of the Hematology Service of the Jiménez Díaz Foundation Hospital
- ♦ Hematology Specialist at the Infanta Sofía, La Paz and La Princesa hospitals
- ♦ Head of the Lymphoma Line at the IIS-FJD Health Research Institute
- ♦ Associate Researcher in the laboratory of Research Institute of the La Paz Hospital
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Degree in Medicine from the Autonomous University Madrid
- ♦ Master's Degree in Molecular Oncology by the National Cancer Research Center
- ♦ Master's university in Clinical Research from the Camilo José Cela University
- ♦ Master's Degree in Clinical Pharmacology and Translational Research by the University of Extremadura
- ♦ International Master for Leaders in Oncology in Europe from Bocconi University
- ♦ International Certificate in Lymphomas by the Oncological Institute of Italian Switzerland and University of Ulm
- ♦ Member of: European Hematology Association (EHA), International Cardio-Oncology Society, American Society of Hematology, SIOG - International Society of Geriatric Oncology, Spanish Society of Hematology and Hemotherapy (SEHH), The Lancet Haematology, International Advisory Board Member

**Dr. Gómez-Talavera, Sandra**

- ♦ cardiology at the Fundación Jiménez Díaz Hospital
- ♦ Research in CNIC

**Dr. Llamas Sillero, Pilar**

- ♦ of Hematology Hospitalization at Hospital Universitario Fundación Jiménez Díaz
- ♦ Corporate Head of the Hematology and Hemotherapy Department, from Public Quironsalud Madrid Hospitals; Jiménez Díaz Foundation, University Hospital Rey Juan Carlos, University Hospital Infanta Elena University Hospitals and Villalba university General Hospital
- ♦ Director of the Thrombosis Unit at the Fundación Jiménez Díaz University Hospital
- ♦ Phase IV Clinical Trial Monitor at the La Princesa University Hospital
- ♦ Professor of the Update Program in Primary Care for Physicians at the Illustrious Official College of Physicians of Madrid (ICOMEM)
- ♦ Honorary Professor of the Department of Medicine in Hematology of the Faculty of Medicine and honorary tutor of the Rey Juan Carlos University
- ♦ PhD Cum Laude in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Degree in Medicine and Surgery from the University of Cordoba

**Dr. Mitroi, Cristina**

- ♦ Specialist in Cardiology at the Puerta De Hierro University Hospital
- ♦ Specialist in Cardiology at La Zarzuela University Hospital
- ♦ Specialist in Cardiology El Escorial Hospital
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Degree in Medicine, Carol Davila University of Medicine and Pharmacy
- ♦ Specialist in Cardiology at the Puerta De Hierro University Hospital

**Dr. Gómez Rubín, María Carmen**

- ♦ Cardiologist at Ruber Juan Bravo Hospital Complex
- ♦ Cardiologist at La Paz University Hospital
- ♦ Specialist Physician at the Quirón San Camilo Hospital
- ♦ PhD in Medicine and Surgery from the University of Salamanca

**Dr. Martín García, Ana**

- ♦ Cardiologist at the University Health Care Complex of Salamanca
- ♦ Researcher in the Institute of Biomedical Research of Salamanca (IBSAL)
- ♦ Member of the Board of Directors of Spanish Society of Cardiology
- ♦ PhD in Medicine from the University of Salamanca

**Dr. Pastor Planas, Ana**

- ♦ Cardiology Department at Montepíncipe Hospital, Madrid
- ♦ Specialist in Cardiology in the Heart Failure and Cardio-Oncology Unit of the Madrid Montepíncipe Hospital
- ♦ Cardiologist at the Quiron University Hospital Madrid
- ♦ Degree in Medicine and Surgery, Autonomous University of Barcelona
- ♦ Specialist in Cardiology from the Jiménez Díaz Foundation Hospital in Madrid
- ♦ Stay in Cardiology at Linköping Hospital

# 06

## Educational Plan

The entire syllabus of this Hybrid Professional Master's Degree has been designed based on the most recent scientific evidence in the field of Oncological Cardiology, as well as the areas of greatest interest to its specialists such as current and future lines of research or the different programs. monitoring for patients on cardiotoxic therapies. Its high level of multimedia content also makes all teaching dynamic and progressive, without requiring considerable effort on the part of the student during study hours.





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*Explore module by module the oncological therapies of greatest interest in the cardiological area, as well as the different treatments to follow in cases of Cardiotoxicity”*

### Module 1. Epidemiology of Cancer

- 1.1. Epidemiological Significance of Cancer
- 1.2. Epidemiological Significance of Cardiotoxicity in Oncology
- 1.3. Epidemiological Significance of Cardiotoxicity in Hematology

### Module 2. Oncologic Treatments with Cardiotoxic Effect

- 2.1. Definition of Cardiotoxicity. Affected Cardiac Chambers. Pathophysiological Mechanisms of Cardiotoxicity
- 2.2. Radiotherapy as a Cause of Cardiotoxicity
  - 2.2.1. Evolution of Radiotherapy Equipment and Methods
  - 2.2.2. Factors that Influence Radiation-Induced Cardiotoxicity
  - 2.2.3. Acute Toxicity
  - 2.2.4. Chronic Toxicity
- 2.3. Chemotherapy as a Cause of Cardiotoxicity
  - 2.3.1. Anthracyclines
  - 2.3.2. Antitubulin Drugs
  - 2.3.3. Antimetabolites
  - 2.3.4. Alkylating Agents and Other Drugs that Interact with DNA
- 2.4. Biological Agents as a Cause of Cardiotoxicity: Monoclonal Antibodies
  - 2.4.1. Trastuzumab
  - 2.4.2. Other Monoclonal Antibodies
- 2.5. Other Potentially Cardiotoxic Biological Agents
  - 2.5.1. Cytokines
  - 2.5.2. Interferons
- 2.6. Therapies Aimed at New Molecular Targets and Cardiotoxicity: Cellular Kinase Inhibitors
- 2.7. Immune Checkpoint Inhibitors and Cardiotoxicity
- 2.8. Other Potentially Cardiotoxic Oncologic Treatments
  - 2.8.1. Histone Deacetylase Inhibitors
  - 2.8.2. Oral Antiangiogenics
  - 2.8.3. Differentiation and/or Apoptosis Inducers
  - 2.8.4. Hormonal Agents

### Module 3. Comprehensive Assessment of the Risk of Cardiotoxicity Development

- 3.1. Individual Susceptibility to Cardiotoxicity: Genetic Factors
- 3.2. Individual Susceptibility to Cardiotoxicity: Non-Genetic Factors
  - 3.2.1. Cardiovascular Risk Factors
  - 3.2.2. Comorbidities
  - 3.2.3. Combination of Oncologic Treatments
- 3.3. Cardiological Evaluation before Treatment in Patients without Known Heart Disease
  - 3.3.1. Clinical Assessment
  - 3.3.2. Complementary Tests
- 3.4. Cardiological Evaluation before Treatment in Patients with Known Heart Disease
  - 3.4.1. Clinical Assessment
  - 3.4.2. Complementary Tests
- 3.5. Monitoring during Treatment of Patients Subjected to Cardiotoxic Treatments
  - 3.5.1. Clinical Assessment
  - 3.5.2. Complementary Tests

### Module 4. Early Detection of Cardiotoxicity

- 4.1. Circulating Biomarkers: Troponins
- 4.2. Circulating Biomarkers: Natriuretic Peptides
- 4.3. Other Circulating Biomarkers for Early Detection of Cardiotoxicity
- 4.4. Echocardiography
- 4.5. Cardiovascular Magnetic Resonance Imaging
- 4.6. Computerized Axial Tomography

### Module 5. Myocardial Toxicity

- 5.1. Incidence and Clinical Relevance
- 5.2. Pathophysiology of Ventricular Dysfunction and Heart Failure in the Context of Cardiotoxicity
- 5.3. Drugs Implicated in the Development of Ventricular Dysfunction and lv Heart Failure
  - 5.3.1. Anthracyclines
  - 5.3.2. Other Chemotherapy Drugs



- 5.3.3. Biological Agents: Monoclonal Antibodies
- 5.3.4. Therapies Aimed at New Molecular Targets: Inhibitors of Cellular Kinases
- 5.3.5. Protease Inhibitors
- 5.4. Radiotherapy and Heart Failure
- 5.5. Methods for Diagnosing Myocardial Involvement
  - 5.5.1. Electrocardiogram
  - 5.5.2. Echocardiography
  - 5.5.3. Other Non-Invasive Imaging Techniques
- 5.6. Treatment Strategies
  - 5.6.1. Treatment of Acute Heart Failure
  - 5.6.2. Chronic Treatment of Patients with Ventricular Dysfunction
- 5.7. Presymptomatic Myocardial Involvement
  - 5.7.1. Management of Patients with Elevated Circulating Biomarkers during Oncologic Treatment
  - 5.7.2. Management of Patients with Preclinical Impairment of Ventricular Function during Oncologic Treatment
- 5.8. Monitoring Strategy during Treatment with Drugs Capable of Causing Myocardial Toxicity
  - 5.8.1. Anthracyclines
  - 5.8.2. Biological Agents: Monoclonal Antibodies
  - 5.8.3. Therapies Aimed at New Molecular Targets: Inhibitors of Cellular Kinases
  - 5.8.4. Immune Checkpoint Inhibitors

## Module 6. Ischemic Heart Disease and Cardiotoxicity

- 6.1. Incidence of Ischemic Heart Disease in Oncology Patients
- 6.2. Identifying Patients at High Risk of Coronary Artery Disease
- 6.3. Pathophysiology of Ischemic Heart Disease in the Context of Oncologic Treatment
- 6.4. Pharmacologic Oncologic Therapies that are Associated with Ischemic Heart Disease
  - 6.4.1. Fluoropyrimidine
  - 6.4.2. Vascular Endothelial Growth Factor Inhibitors
  - 6.4.3. Other (Cisplatin)

- 6.5. Diagnostic Methods for Coronary Artery Disease Related to Cardiotoxic Drugs
  - 6.5.1. Electrocardiogram
  - 6.5.2. Functional Tests
  - 6.5.3. Non-Invasive Imaging Tests
  - 6.5.4. Invasive Imaging Tests
- 6.6. Acute Coronary Syndrome in the Context of Oncologic Treatment
- 6.7. Monitoring and Treatment Strategy in the Patient with Coronary Ischemia
- 6.8. Thoracic Radiotherapy and Ischemic Heart Disease
  - 6.8.1. Incidence and Pathophysiology of Radiation-Induced Coronary Artery Disease
  - 6.8.2. Risk Factors for the Development of Ischemic Heart Disease in Radiotherapy Patients
  - 6.8.3. Clinical Assessment and Diagnostic Methods of Coronary Heart Disease in Radiotherapy Patients
  - 6.8.4. Treatment Options in Coronary Artery Disease Associated with Radiotherapy
- 6.9. Management of Chronic Ischemic Patients Receiving Oncologic Treatment

## Module 7. Arrhythmias and Cardiotoxicity

- 7.1. Incidence and Pathophysiology of Cardiac Arrhythmias Related to Oncologic Treatments
- 7.2. QT Interval Prolongation: Causative Drugs and Associated Risk Factors
- 7.3. QT Interval Prolongation: Diagnostic Criteria and Risk Stratification of Ventricular Arrhythmias
- 7.4. QT Interval Prolongation: Prevention Strategies and Implications on the Continuity of Specific Treatment
- 7.5. Atrial Fibrillation: Incidence, Risk Factors, and Clinical Presentation
- 7.6. Atrial Fibrillation: Oncologic Treatments Involved in its Development
- 7.7. Atrial Fibrillation: Anticoagulant Treatment
  - 7.7.1. Thrombotic and Hemorrhagic Risk Assessment
  - 7.7.2. Anticoagulation with Heparin
  - 7.7.3. Anticoagulation with Dicoumarinics
  - 7.7.4. Direct Acting Anticoagulants
- 7.8. Treatment Strategy in Atrial Fibrillation: Rate Control versus Rhythm Control

- 7.9. Bradyarrhythmias Associated with Oncologic Treatment
  - 7.9.1. Sinus Dysfunction
  - 7.9.2. Atrioventricular Block
  - 7.9.3. Therapeutic Implications

### Module 8. Valvular and Pericardial Involvement Related to Cardiotoxicity

- 8.1. Oncologic Treatments that May Lead to the Development of Valvulopathies
  - 8.1.1. Pharmacological Treatments
  - 8.1.2. Thoracic Radiotherapy
- 8.2. Management of Chronic Valvular Patients Receiving Oncologic Treatment
  - 8.2.1. Mitral Valve Disease
  - 8.2.2. Aortic Valve Disease
  - 8.2.3. Valve Prosthesis
- 8.3. Pharmacological Treatments that May Lead to the Development of Pericardial Disease
  - 8.3.1. Incidence and Physiopathology
  - 8.3.2. Clinical Presentation and Diagnosis
  - 8.3.3. Approach to Pericardial Effusion Secondary to Treatment
- 8.4. Thoracic Radiotherapy and Pericardial Disease
  - 8.4.1. Acute Pericarditis
  - 8.4.2. Chronic Pericarditis
- 8.5. Assessing Patients with Metastatic Pericardial Involvement

### Module 9. Arterial Hypertension as a Result of Oncologic Treatments

- 9.1. Clinical Relevance of Hypertension in Oncology Patients
- 9.2. Arterial Hypertension Associated with Antiangiogenic Drugs
  - 9.2.1. Incidence
  - 9.2.2. Pathophysiology
  - 9.2.3. Diagnosis
- 9.3. Other Treatments Associated with the Development of Arterial Hypertension
- 9.4. Treatment of Arterial Hypertension Related to Oncologic Treatment
- 9.5. Monitoring Strategy

### Module 10. Venous Thromboembolic Disease and Other Vascular Complications in the Oncology Patient

- 10.1. Venous Thromboembolic Disease in the Oncologic Patient: Clinical Relevance
  - 10.1.1. Incidence
  - 10.1.2. Pathophysiology
  - 10.1.3. Risk Factors
- 10.2. Antineoplastic Treatments Associated with Increased Risk of Thromboembolic Disease
  - 10.2.1. Chemotherapy and Antiangiogenic Drugs
  - 10.2.2. Hormone Therapy
- 10.3. Prevention of Cancer-Related Venous Thromboembolic Disease
  - 10.3.1. Prevention Strategy in Outpatients with Active Oncology Treatment. Thrombotic Risk Scales
  - 10.3.2. Prevention Strategy in Hospitalized Patients
  - 10.3.3. Perisurgical Prevention Strategy
- 10.4. Venous Thromboembolic Disease Related to the Use of Central Venous Catheters
  - 10.4.1. Incidence
  - 10.4.2. Clinical Presentation
  - 10.4.3. Diagnostic Techniques
  - 10.4.4. Treatment and Monitoring
  - 10.4.5. Prevention
- 10.5. Forms of Presentation and Diagnosis of Cancer-Associated Thromboembolic Disease
  - 10.5.1. Deep Vein Thrombosis
  - 10.5.2. Pulmonary Embolism
- 10.6. Treatment of Cancer-Associated Thromboembolic Disease
  - 10.6.1. Initial Treatment
  - 10.6.2. Extended Treatment
- 10.7. Management of Thromboembolic Disease in Special Situations
  - 10.7.1. Brain Tumors
  - 10.7.2. Obesity
  - 10.7.3. Renal Insufficiency
  - 10.7.4. Thrombopenia

- 10.8. Primary Prevention of Cardiovascular Disease in Cancer Patients
  - 10.8.1. Incidence and Risk Factors
  - 10.8.2. Implicated Drugs
  - 10.8.3. Clinic, Diagnosis and Treatment
- 10.9. Cerebrovascular Disease
  - 10.9.1. Incidence and Risk Factors
  - 10.9.2. Implicated Treatments
  - 10.9.3. Clinic, Diagnosis and Treatment
- 10.10. Pulmonary Hypertension
  - 10.10.1. Implicated Drugs Pathophysiology
  - 10.10.2. Clinical Diagnosis
  - 10.10.3. Treatment and Monitoring

### Module 11. Therapies with Cardioprotective Effects

- 11.1. Identification and Control of Cardiotoxicity Risk
  - 11.1.1. Treatment of Traditional Risk Factors
  - 11.1.2. Treatment of Comorbidities
- 11.2. Strategies to Limit Oncologic Drug-Related Cardiotoxicity
  - 11.2.1. Anthracyclines
  - 11.2.2. Monoclonal Antibodies. HER2 Inhibitors
  - 11.2.3. Cell Kinase Inhibitors
- 11.3. Strategies to Limit Cardiotoxicity Related to Thoracic Radiotherapy
- 11.4. Role of Beta-Blockers in Cardioprotection
- 11.5. Role of Angiotensin Receptor Inhibitors and Antagonists in Cardioprotection
- 11.6. Other Interventions with a Possible Cardioprotective Effect

### Module 12. Long-Term Monitoring Programs for Patients Who Have Received Cardiotoxic Therapies

- 12.1. Risk of Late Cardiotoxicity Secondary to Oncological Drugs
- 12.2. Monitoring Protocol for the Detection of Late Cardiotoxicity
- 12.3. Risk of Late Cardiotoxicity Secondary to Thoracic Radiotherapy
- 12.4. Monitoring Protocol for Detecting Late Radiation-Induced Toxicity

### Module 13. Complex Clinical Situations in the Context of Cardiotoxicity

- 13.1. Patient with Complex Cardiovascular Disease Requiring Oncologic Treatment
- 13.2. Patient with Established Oncologic Disease Presenting with an Acute Ischemic Event
- 13.3. Pediatric Patients in Need of Potentially Cardiotoxic Oncology Treatment
- 13.4. Geriatric Patients in need of Oncologic Treatment
- 13.5. Oncology Patients Requiring Anticoagulation or Antiplatelet
- 13.6. Oncology Patients who Exhibit Arrhythmias and Require Implantable Devices (Pacemakers or Defibrillators)

### Module 14. The Future of Cardio-Oncology: Most Relevant Lines of Research

- 14.1. Basic Research
- 14.2. Clinical Research
- 14.3. Gaps in Evidence and Future Research

### Module 15. Multidisciplinary Cardio-Oncology Units

- 15.1. Objectives of the Cardio-Oncology Units
  - 15.1.1. Care Objectives
  - 15.1.2. Research Objectives
  - 15.1.3. Teaching and Dissemination Objectives
- 15.2. Components of Cardio-Oncology Equipment
  - 15.2.1. Coordination between the In-Hospital and Out-of-Hospital Environment
  - 15.2.2. Coordination between Different Healthcare Professionals

07

# Clinical Internship

After passing the online theoretical period, the program includes a practical training period in a reference clinical center. The student will have at their disposal the support of a tutor who will accompany them during the whole process, both in the preparation and in the development of the clinical practice.





“

*It brings the most up-to-date  
knowledge in Cardiology Oncology  
to the most demanding practice”*

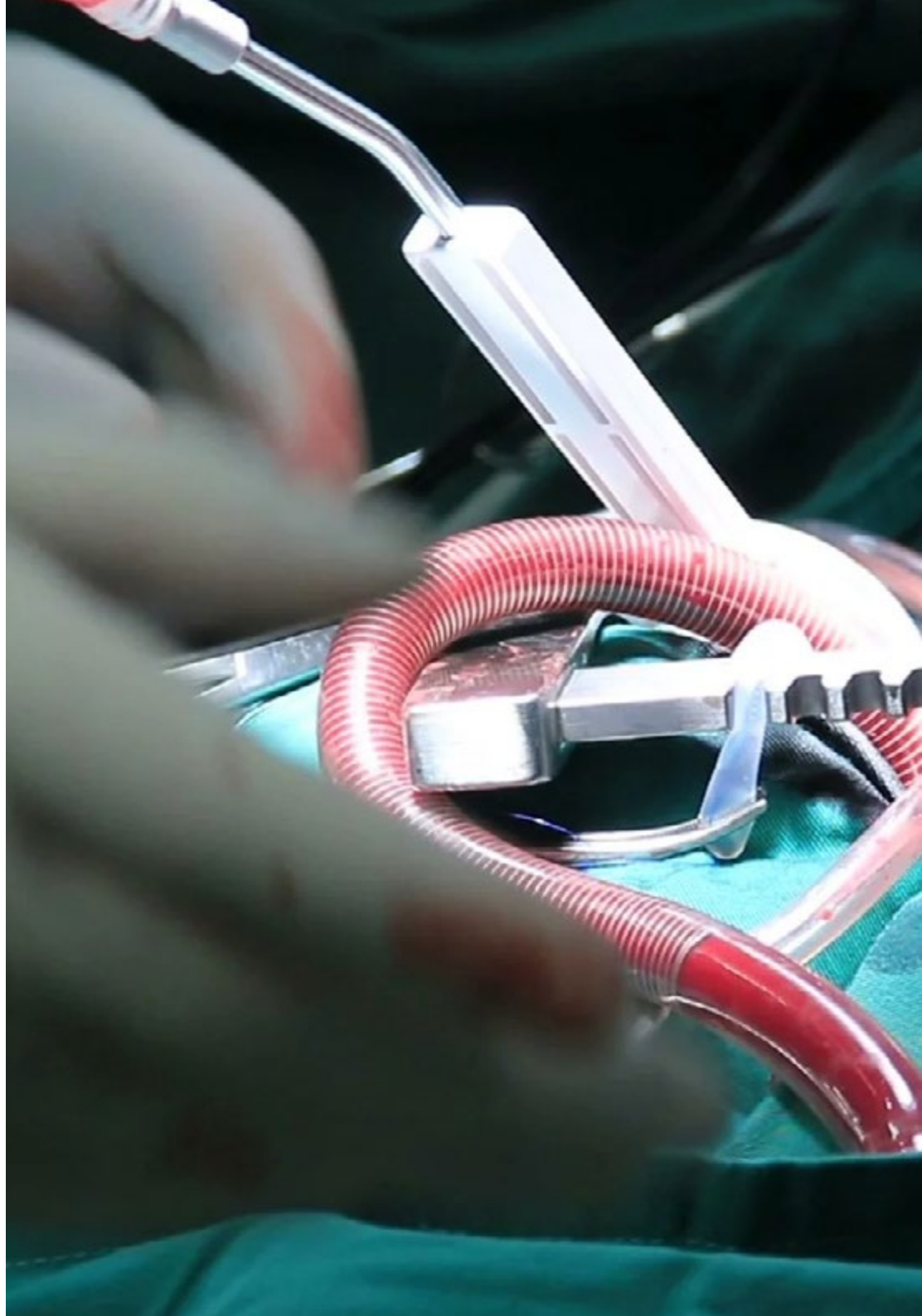
In this completely practical Internship Program, the activities are aimed at developing and perfecting the skills necessary to provide healthcare care in areas and conditions that require highly qualified professionals, and are oriented towards specific expertise for practicing the activity, in a safe environment for the patient and with highly professional performance.

The internship will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners that facilitate teamwork and multidisciplinary integration as transversal competencies for Cardio-Oncology praxis (learning to be and learning to relate).

The procedures described below will form the basis of the practical part of the training, and their implementation is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:

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*You will have at your disposal both the most advanced medical equipment and technology and cardiological intervention techniques of greater effectiveness and validity”*





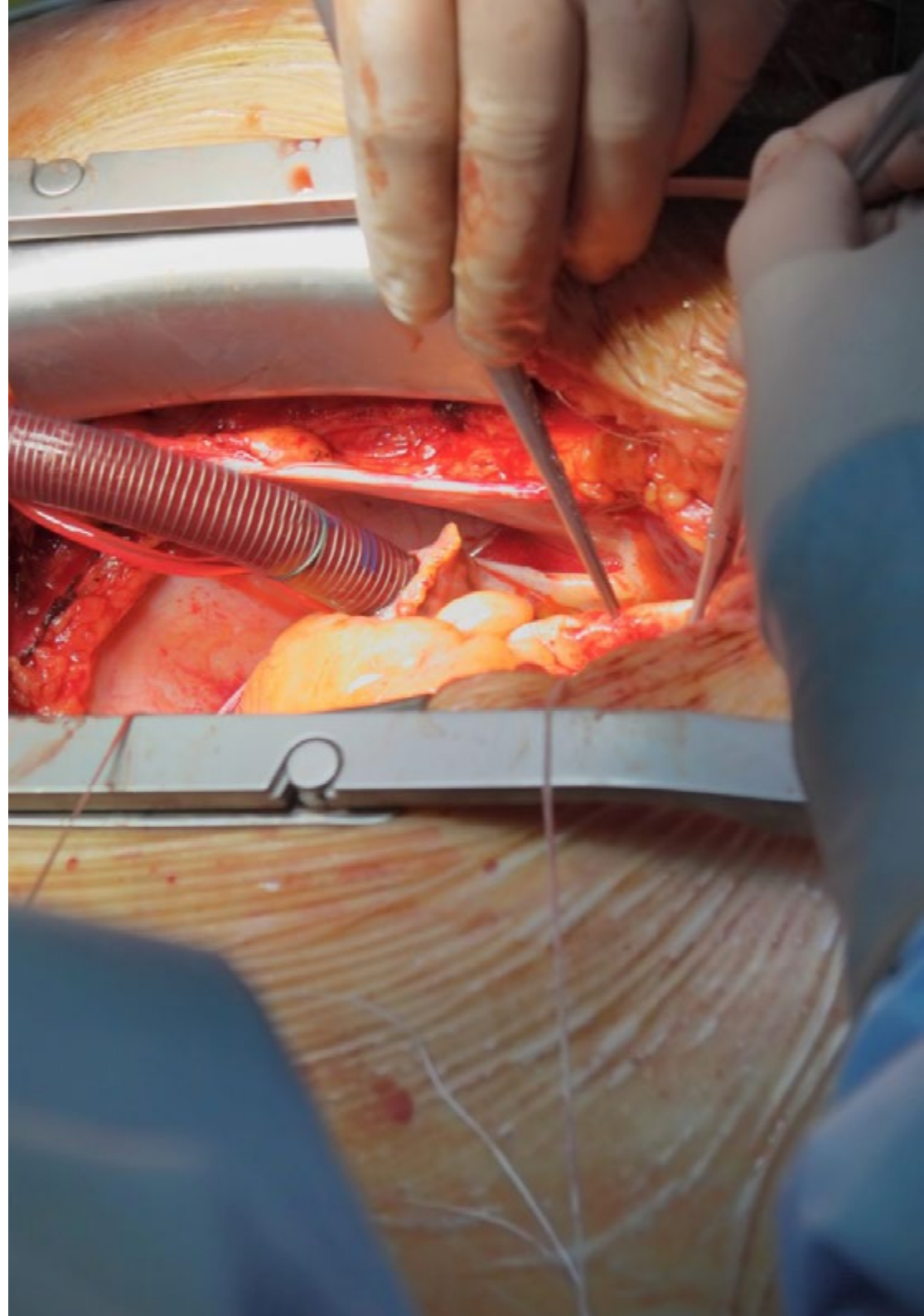
| Module   | Practical Activity   |
|--|--|
| <b>Early diagnosis of possible cardiological complications</b>     | Analyze the effects of radiotherapy, chemotherapy and biological agents as possible causes of Cardiotoxicity in real patients                      |
|  | Evaluate patients based on genetic and nongenetic factors with those who may be susceptible to Cardiotoxicity                                      |
|  | Perform a Monitoring and Clinical Assessment of Patients Subjected to Cardiotoxic Treatments   |
|  | Use echocardiography, cardiac magnetic resonance and computed axial tomography in early detection of cardiotoxicity                                |
| <b>Protocols of vigilance in cancer patients</b>                   | Study and evaluate Geriatric Patients in need of Oncologic Treatment   |
|  | Evaluate the approach to follow with oncology patients who present arrhythmias or have pacemakers  |
|  | Detect possible cases of Late Radioinduced Toxicity or Late Cardiotoxicity   |
|  | Schedule close monitoring of patients on oncological drugs or in thoracic radiotherapy treatments that may cause possible Cardiotoxicity           |
|  | Intervene through therapies with a cardioprotective effect   |
| <b>Coordination and response in the Cardio-Oncology Unit</b>       | Quickly evaluate the initiation of oncologic treatment, whether surgical or adjuvant   |
|  | Be part of the coordination between multidisciplinary teams in the area of Cardio-Oncology   |
|  | Be a participant in the evaluation, monitoring and possible referral processes of patients with cardiological pathologies from other medical areas |
|  | Jointly schedule cardiological and oncological treatments that allow to the patient prevent cardiovascular damage                                  |
| <b>Management of cardiovascular pathologies in cancer patients</b> | Treat cases of venous thromboembolic disease in cancer patients  |
|  | Establish prevention strategies in hospitalized patients with active oncological treatments  |
|  | Manage patients with mitral or aortic valve disease undergoing oncological treatment   |
|  | Assessing Patients with Metastatic Pericardial Involvement   |
|  | Management of Chronic Ischemic Patients Receiving Oncologic Treatment  |

## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.





## General Conditions of the Internship Program

The general terms and conditions of the internship program agreement shall be as follows:

**1. TUTOR:** During the Hybrid Professional Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

**2. DURATION:** The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

**3. ABSENCE:** If the student does not show up on the start date of the Hybrid Professional Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** Professionals who pass the Hybrid Professional Master's Degree will receive a certificate accrediting their stay at the center.

**5. EMPLOYMENT RELATIONSHIP:** the Hybrid Professional Master's Degree shall not constitute an employment relationship of any kind.

**6. PRIOR EDUCATION:** Some centers may require a certificate of prior education for the Hybrid Professional Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

**7. DOES NOT INCLUDE:** The Hybrid Professional Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

# 08

## Where Can I Do the Clinical Internship?

All centers selected for this The Hybrid Professional Master's meet the highest clinical quality standards, including highly trained multidisciplinary teams, as well as the latest technology available in the area of oncology and hematology. In this way, the specialist is updated in the use of the highest level and most effective equipment currently, as well as in the intra-hospital organization of a complex and extensive work team.





“

*You will have the best predisposition so that, from day one, you begin to get involved in the most advanced processes in the Cardio-Oncology unit”*



The student will be able to complete the practical part of this Hybrid Master's Degree at The following centers:



Medicine

### Hospital HM Modelo

|         |           |
|---------|-----------|
| Country | City      |
| Spain   | La Coruña |

Address: Rúa Virrey Osorio, 30, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Rosaleda

|         |           |
|---------|-----------|
| Country | City      |
| Spain   | La Coruña |

Address: Rúa de Santiago León de Caracas, 1, 15701, Santiago de Compostela, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Hair Transplantation
- Orthodontics and Dentofacial Orthopedics



Medicine

### Hospital HM La Esperanza

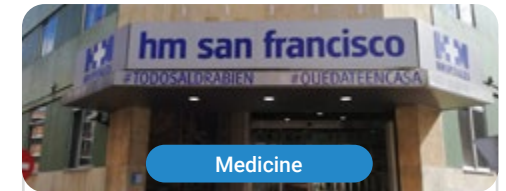
|         |           |
|---------|-----------|
| Country | City      |
| Spain   | La Coruña |

Address: Av. das Burgas, 2, 15705, Santiago de Compostela, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Oncology Nursing
- Clinical Ophthalmology



Medicine

### Hospital HM San Francisco

|         |      |
|---------|------|
| Country | City |
| Spain   | León |

Address: C. Marqueses de San Isidro, 11, 24004, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Update in Anesthesiology and Resuscitation
- Trauma Nursing



Medicine

### Hospital HM Nou Delfos

|         |           |
|---------|-----------|
| Country | City      |
| Spain   | Barcelona |

Address: Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Aesthetic Medicine
- Clinical Nutrition in Medicine



Medicine

### Hospital HM Madrid

|         |        |
|---------|--------|
| Country | City   |
| Spain   | Madrid |

Address: Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Anaesthesiology and Resuscitation



Medicine

### Hospital HM Montepíncipe

|         |        |
|---------|--------|
| Country | City   |
| Spain   | Madrid |

Address: Av. de Montepíncipe, 25, 28660, Boadilla del Monte, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Aesthetic Medicine



Medicine

### Hospital HM Torrelodones

|         |        |
|---------|--------|
| Country | City   |
| Spain   | Madrid |

Address: Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Sanchinarro

Country: Spain  
City: Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

### Hospital HM Nuevo Belén

Country: Spain  
City: Madrid

Address: Calle José Silva, 7, 28043, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- General and Digestive System Surgery
- Clinical Nutrition in Medicine



Medicine

### Hospital HM Puerta del Sur

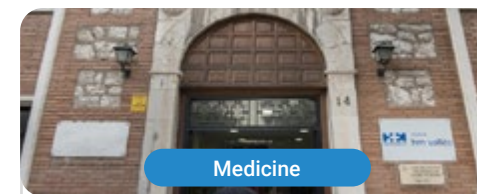
Country: Spain  
City: Madrid

Address: Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Clinical Ophthalmology



Medicine

### Hospital HM Vallés

Country: Spain  
City: Madrid

Address: Calle Santiago, 14, 28801, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Gynecologic Oncology
- Clinical Ophthalmology



Medicine

### HM CIOCC - Centro Integral Oncológico Clara Campal

Country: Spain  
City: Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Gynecologic Oncology
- Clinical Ophthalmology



Medicine

### HM CIOCC Barcelona

Country: Spain  
City: Barcelona

Address: Avenida de Vallcarca, 151, 08023, Barcelona

Network of private clinics, hospitals and specialized centers distributed. The Spanish Geography

**Related internship programs:**

- Advances in Hematology and Hemotherapy
- Oncology Nursing



Medicine

### HM CIOCC Galicia

Country: Spain  
City: La Coruña

Address: Avenida das Burgas, 2, 15705, Santiago de Compostela

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Gynecologic Oncology
- Clinical Ophthalmology

09

# 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.



# 10 Certificate

The Hybrid Professional Master's Degree in Cardio-Oncology guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Professional Master's Degree diploma issued by TECH Global University.



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

This program will allow you to obtain your **Hybrid Professional Master's Degree diploma in Cardio-Oncology** endorsed by **TECH Global University**, the world's largest online university.

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

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

Title: **Hybrid Professional Master's Degree in Cardio-Oncology**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**



\*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.



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



## Hybrid Professional Master's Degree

Cardio-Oncology

Modality: Hybrid (Online + Clinical Internship)

Duration: 12 months

Certificate: TECH Global University

60 + 5 créditos ECTS

# Hybrid Professional Master's Degree Cardio-Oncology

