

Professional Master's Degree

Cardiac Arrhythmias





Professional Master's Degree Cardiac Arrhythmias

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Accreditation: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/medicine/professional-master-degree/master-cardiac-arrhythmias

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01

Introduction

The increase in obesity or alcohol consumption in developed countries has increased both the concern and the risk of developing pathologies such as Atrial Fibrillation, with a high prevalence and mortality risk in regions such as Europe. Therefore, the specialist must maintain a constant level of updating in all cardiological developments that occur in the field of arrhythmias. TECH, along with a team of prestigious cardiology professionals, has brought together in this program the main scientific postulates and advances to which the specialist should have access in a convenient, accessible and flexible online format.





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Access a syllabus that covers Cardiac Arrhythmias in a comprehensive manner, from new developments in physiology and genetics to developments in the various devices and current clinical management”

In recent years, there have been numerous advances in the field of Cardiac Arrhythmias, both in cardiac stimulation and defibrillation devices and in the diagnostic procedures of electrophysiological studies and ablation. One of the main problems in the field of arrhythmias is the late diagnosis of most pathologies, or the intrinsic difficulty of providing information tailored to the pathologies and conditions of each patient.

Therefore, the work of updating the specialist in this area is essential to ensure good professional practice. Advances such as genetic studies for prevention, pharmacogenomics or even developments in the treatment of athletes are a great advantage for every Cardiology Unit.

TECH has brought together a team of professional cardiologists from prestigious hospitals, where they have developed and put into practice the most recent advances in Cardiac Arrhythmias. In this way, the student is brought closer to the latest developments in this medical area, in a much more effective way. In addition, this Professional Master's Degree offers a comprehensive approach to arrhythmias, with an innovative and practical approach so that specialists can incorporate the latest and most effective developments in the area into their daily work.

All this in a convenient 100% online format that respects the high professional and personal demands of the specialist. There are neither face-to-face classes nor fixed schedules, with total freedom to decide how the entire teaching load is distributed. The virtual classroom is available 24 hours a day, with all the educational material of the program available for download from any device with an Internet connection.

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

- ◆ The development of practical cases presented by experts in 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
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions for experts and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



You will have a large amount of audiovisual material available for each of the units, including clinical videos of real cases and videos in detail on the most important concepts"

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Incorporate into your daily practice the most relevant advances and developments in Cardiac Arrhythmias, with the guarantee of quality and efficacy of a teaching staff that knows them first hand”

The program includes, in its teaching staff, professionals from the sector who bring to this education the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning. In other words, a simulated environment that will provide immersive education programmed to prepare for real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. This will be done with the help of an innovative system of interactive videos made by renowned experts.

You decide where, when and how. You can download the entire syllabus and distribute it according to your own pace and interests.

You will find entire topics dedicated to Ventricular Tachyarrhythmias, Supraventricular Tachyarrhythmias, Atrial Fibrillation, Bradyarrhythmias and more pathologies in the field of Cardiac Arrhythmias.

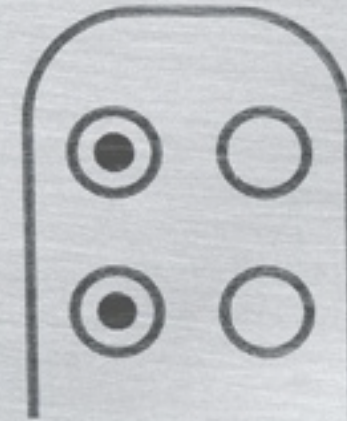


02 Objectives

Since cardiac arrhythmias are a subject of growing concern for specialists around the world due to their high prevalence, the objective of this program is precisely to provide the main developments in this field, which the specialist can incorporate into their daily work. Thanks to TECH's pedagogical methodology, combined with the use of the most innovative educational technology, this update is carried out exhaustively in all the main areas of interest of the Cardiology specialist.

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You will have the support and assistance of the world's largest online academic institution"



General Objectives

- ◆ Update general knowledge as well as the most innovative aspects of cardiological processes involving cardiac rhythm disorders
- ◆ Delve into the clinical management and indications of the different procedures performed for the diagnosis and treatment of these cardiac conditions
- ◆ Delve into the diagnosis and treatment of arrhythmias, based on clinical and electrocardiographic aspects as well as invasive techniques and electrophysiological studies
- ◆ Broaden knowledge in the operation, monitoring and implantation technique of the main implantable devices used for the treatment of arrhythmias
- ◆ Delve deeper into the problems in cardiac rhythm disorder that can arise across the spectrum of patients
- ◆ Achieve a mastery of the rhythm disorder problems present in the various scenarios faced by the cardiologist in his or her routine clinical practice





Specific Objectives

Module 1. Arrhythmias. Fundamental Concepts

- ◆ Understand the fundamental mechanisms that produce arrhythmias, including cellular physiology, the conduction system, cardiac anatomy of arrhythmias (with the addition of a radiological approach) and the role of genetics
- ◆ Review the most common antiarrhythmic drugs, focusing on their most important indications, contraindications and common adverse effects
- ◆ Review basic diagnostic techniques and common procedures in the Electrophysiology Department

Module 2. Bradyarrhythmias

- ◆ Know the definition and types of Bradyarrhythmias, as well as their basic mechanisms
- ◆ Review the studies available for its diagnosis and characterization
- ◆ Study in depth the fundamental groups of Bradyarrhythmias (sinus node disease and AV block), with special emphasis on diagnosis and treatment
- ◆ Delve into the study of the patient with syncope from mechanisms and causes to diagnosis and treatment
- ◆ Review in detail the current indications for pacemaker implantation

Module 3. Supraventricular Tachyarrhythmias

- ◆ Know the definition and types of Supraventricular Tachyarrhythmias. Understand the differential diagnosis between these types
- ◆ Understand the management of these arrhythmias in the acute (emergency) and chronic (consultation) setting
- ◆ Review the main aspects of the electrophysiological study of these arrhythmias
- ◆ In-depth study of the epidemiology, clinical presentation, characteristics of the electrophysiological study and ablation techniques in the 4 main types of supraventricular tachyarrhythmias (nodal reentrant tachycardia, AV reentrant tachycardia, common atrial flutter and focal atrial tachycardia)

Module 4. Ventricular Tachyarrhythmias

- ◆ Review the key aspects of its diagnostic process, with a clinical and electrocardiographic approach. Review the electrocardiographic differential diagnosis between wide QRS tachycardias
- ◆ Know the approach to these arrhythmias in the acute (emergency) and chronic (consultation) setting
- ◆ Review the pharmacological treatment of these arrhythmias
- ◆ In-depth study of the specific electrophysiological study of these arrhythmias, as well as the therapeutic approach using ablation techniques
- ◆ Review the knowledge of Ventricular Extrasystole, from its mechanisms and initial approach, to therapeutic strategies, including the specific electrophysiological study

Module 5. Devices (Pacemaker, ICD and Resynchronizer)

- ◆ Review in detail the indication of pacemakers, their implantation technique, their basic operation, as well as the programming modes and other aspects of monitoring
- ◆ Review in detail the indication for ICD, as well as the particularities of the implantation technique, operation and programming/monitoring
- ◆ Know the differential aspects of the novel physiological pacing techniques, as well as their current indications and future perspectives
- ◆ Know other current implantable devices: Leadless pacemaker and subcutaneous ICD. Review their indications
- ◆ Update on the electrode extraction technique and its indications

Module 6. Atrial Fibrillation

- ◆ Review the importance of Atrial Fibrillation: epidemiology and socioeconomic impact
- ◆ Review the main clinical aspects and initial diagnostic approach
- ◆ A detailed update on the complete management of Atrial Fibrillation, starting with the prevention of thromboembolism and continuing with the clinical management strategy
- ◆ Delve into the Atrial Fibrillation ablation technique: indication, evidence, technique and expected results. Review the future of this technique
- ◆ Review the particularities of AF in other specific contexts and anticoagulation therapy in the patient with ischemic heart disease

Module 7. Arrhythmias and Heart Failure

- ◆ Review the importance of rhythm disorders in heart failure
- ◆ Know in depth the importance of the AF-Heart Failure relationship, from its epidemiology to its prognostic implication
- ◆ Review the role of antiarrhythmic drugs, especially ablation, in the management of AF in patients with heart failure
- ◆ Update on the assessment of ventricular arrhythmias in heart failure, delving into the role of genetics and MRI
- ◆ Review the current indications for CRS therapy and other devices in HF
- ◆ Learn about the novel aspects of physiological stimulation therapies
- ◆ Review the concept of Tachycardiomyopathy with a broad approach, including its epidemiology, diagnosis and treatment, both pharmacological and electrophysiological

Module 8. Arrhythmic Syndromes, Sudden Cardiac Death and Channelopathies

- ◆ In-depth knowledge of sudden cardiac death: concept, epidemiology, causes, diagnostic study and clinical management
- ◆ Review the concept of channelopathies and their epidemiology
- ◆ Review the fundamental aspects of the most frequent channelopathies: Brugada Syndrome and Long QT Syndrome
- ◆ Learn the role of genetics in these entities. Review the indications for family studies and how to perform them

Module 9. Cardiomyopathies and Arrhythmias

- ◆ Review the general aspects of arrhythmias associated with cardiomyopathies
- ◆ Review the characteristics of the most frequent arrhythmias in dilated cardiomyopathy and arrhythmogenic dysplasia
- ◆ Delve into the prevention and management of ventricular arrhythmias, reviewing the indications for ICD in these pathologies
- ◆ Learn about the role of genetics in this context
- ◆ Review the rhythm disorders associated with other less frequent cardiomyopathies

Module 10. Arrhythmias in Other Clinical Contexts

- ◆ Review the most common arrhythmias in patients without heart disease and in athletes
- ◆ Review the most common arrhythmias in the critically ill cardiac patient. Know their epidemiology, diagnosis and management
- ◆ Know in detail the therapeutic algorithm of arrhythmic storm
- ◆ Review the indications and technique of transient pacemaker implantation
- ◆ Review the most frequent arrhythmias in the non-cardiac critical patient, after cardiac surgery and after TAVI, with special attention to their management
- ◆ Review, in general, the most prevalent arrhythmias in patients with congenital heart disease, as well as their fundamental implications and particularities of management



Achieve your goal of staying completely up to date with this innovative program"

03

Course Management

Ensure the highest quality of content and adaptation to the most modern scientific postulates, TECH has assembled a team of specialists and professionals from various areas of Cardiology, with proven experience in addressing the most common and infrequent pathologies in this field. This provides all the content with a first class theoretical and practical perspective, with real cases for self-study and review throughout the syllabus.



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You will be able to consult directly with the teaching staff about any doubts or difficulties you may encounter in the program, obtaining personalized tutoring”

International Guest Director

Awarded the “Outstanding Patient Experience Award” on multiple occasions for his excellence in patient care, Dr. Konstantinos Aronis has become a prestigious **Cardiac Electrophysiologist**. In this sense, his clinical specialty is based on the **Invasive Management of Arrhythmias** in patients suffering from **Adult Congenital Heart Disease**.

He has developed his professional work in health institutions of international reference, including the **Johns Hopkins Hospital** in Maryland or the **Beth Israel Deaconess Medical Center** in Massachusetts. In this way, he has contributed to optimizing the quality of life of numerous individuals suffering from diseases ranging from **Atrial Fibrillation** or **Ventricular Tachycardia** to **Structural Malformations of the heart**. To do so, he has employed a variety of advanced technological tools such as **Computational Modeling**, **Holder Monitors** and even **Magnetic Resonance Imaging**.

Among his main contributions, he has promoted the **Complex Ablation Program for Congenital Heart Diseases**. This has consisted in the use of **computed tomography** images to create **3D printed models** of hearts with complicated anatomies, which has made it possible to plan medical interventions with greater precision and efficiency. It has also carried out the first **intraoperative excision** for **Atrial Tachycardia**, performing the procedure in real time during cardiac surgery. This innovation made it possible to address cardiac rhythm disturbances that could not be treated conventionally without damaging nearby critical structures.

On the other hand, he balances this work with his role as a **Clinical Researcher** in Cardiac Electrophysiology. In fact, he has published numerous **scientific articles** in high-impact specialized journals. His clinical findings have contributed to the advancement of the knowledge of health professionals in areas such as **Atrial Fibrillation**, **Resynchronization** therapies or personalized **Cardiac Prototypes**.



Dr. Aronis, Konstantinos

- Physician at Johns Hopkins Hospital, Maryland, United States
- Cardiovascular Disease and Clinical Cardiac Electrophysiology Investigator at Johns Hopkins Hospital
- Translational Investigator at Beth Israel Deaconess Medical Center, Massachusetts
- Internal Medicine Residency at Boston University Medical Center, Massachusetts
- Internship in Computational Electrophysiology at the Institute of Computational Medicine at Johns Hopkins Hospital
- Doctorate in Internal Medicine, University of Patras
- Degree in Medical Sciences from the University of Patras
- American College of Cardiology
- American Heart Association
- Heart Rhythm Society

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

Management



Dr. Jiménez Sánchez, Diego

- ◆ Assistant specialist in Cardiology at the University Hospital El Escorial
- ◆ Attending Doctor Specialist at Unit of the Puerta De Hierro University Hospital
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in electrophysiology at the Arrhythmia Unit of the Puerta de Hierro University Hospital
- ◆ Master's degree in diagnostic and therapeutic cardiac electrophysiology at San Pablo CEU University



Dr. Vázquez López-Ibor, Jorge

- ◆ Assistant Cardiology Specialist at University Hospital El Escorial
- ◆ Assistant Cardiology Specialist at the Heart Failure Unit of the Puerta de Hierro Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Theoretical and practical Master in Critical and Advanced Heart Failure (MICCA) at the Gregorio Marañón Hospital
- ◆ Theoretical and practical training in Cardiovascular Research at the National Center for Cardiovascular Research (CNIC)
- ◆ Fellowship in Advanced Heart Failure, Heart Transplantation and Pulmonary Hypertension at the Puerta de Hierro University Hospital



Dr. Castro Urda, Víctor

- ◆ Assistant Specialist in the Arrhythmia Unit of the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Internship at the Electrophysiology and Cardiology Department of the Hospital UZ Brussel, Belgium
- ◆ Master's degree in diagnostic and therapeutic cardiac electrophysiology at the Complutense University of Madrid

Professors

Dr. Toquero Ramos, Jorge

- ◆ Assistant Specialist in the Arrhythmia Unit of the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Graduate in Medicine and Surgery from the University of Valladolid
- ◆ Doctor cum laude in Medicine from the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in Clinical Electrophysiology at the Arrhythmia Unit of the Center
- ◆ Cardiovascular at OLV Aalst Hospital, Belgium
- ◆ Master in Diagnostic and Therapeutic Cardiac Electrophysiology at the Gregorio Marañón Hospital and Complutense University of Madrid

Dr. García-Izquierdo Jaén, Eusebio

- ◆ Assistant Specialist in the Arrhythmia Unit of the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Graduated in Medicine at the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in electrophysiology at the Arrhythmia Unit of the Puerta de Hierro University Hospital
- ◆ Clinical researcher of the AORTASANA Project
- ◆ Master's degree in diagnostic and therapeutic cardiac electrophysiology at San Pablo CEU University

Dr. Toquero Ramos, Jorge

- ◆ Assistant Specialist in the Arrhythmia Unit of the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Graduate in Medicine and Surgery from the University of Valladolid
- ◆ Doctor cum laude in Medicine from the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in Clinical Electrophysiology at the Arrhythmia Unit of the Center
- ◆ Cardiovascular at OLV Aalst Hospital, Belgium
- ◆ Master in Diagnostic and Therapeutic Cardiac Electrophysiology at the Gregorio Marañón Hospital and Complutense University of Madrid

Dr. García-Izquierdo Jaén, Eusebio

- ◆ Assistant Specialist in the Arrhythmia Unit of the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Graduated in Medicine at the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital.
- ◆ Fellowship in electrophysiology at the Arrhythmia Unit of the Puerta de Hierro University Hospital
- ◆ Clinical researcher of the AORTASANA Project
- ◆ Master's degree in diagnostic and therapeutic cardiac electrophysiology at San Pablo CEU University

Dr. Domínguez Rodríguez, Fernando

- ◆ Assistant Cardiology Specialist at the Heart Failure Unit of the Puerta de Hierro Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in Familial Heart Disease at the Familial Heart Disease Unit of the University Hospital Puerta de Hierro
- ◆ Doctor of Medicine, Cum Laude, Autonomous University of Madrid



Dr. García Magallón, Belén

- ◆ Fellow of the Heart Failure Unit in the Cardiology Service of the University Hospital Puerta de Hierro
- ◆ Residency in the specialty of Cardiology at the University Hospital of Guadalajara
- ◆ Graduated in Medicine at the Catholic University of Valencia San Vicente Mártir
- ◆ Master's Degree in Diagnostic Imaging in Cardiology at the Catholic University of Murcia

Dr. Aguilera Agudo, Cristina

- ◆ Assistant Specialist Physician in the Cardiology Service of the Puerta de Hierro Hospital
- ◆ Personal Physician of Continuous Care at the University Hospital of Guadalajara
- ◆ Degree in Medicine and Surgery at the University of Granada
- ◆ Diploma in Statistics in Health Sciences at the Autonomous University of Barcelona
- ◆ Master's Degree in Diagnostic and Therapeutic Cardiac Electrophysiology at San Pablo CEU University

Dr. Cobo Marcos, Marta

- ◆ Assistant Cardiology Specialist at the Heart Failure Unit of the Puerta de Hierro Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Promoter and coordinator of the working group on Cardiorenal Syndrome and Treatment of Congestion in Heart Failure of the Heart Failure Association of the Spanish Society of Cardiology

Dr. Vilches Soria, Silvia

- ◆ Associate Specialist at the Family Cardiopathies Unit of the Gregorio Marañón University Hospital
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in Familial Heart Disease at the Familial Heart Disease Unit of the University Hospital Puerta de Hierro
- ◆ PhD Candidate in Medicine and Surgery at the Autonomous University of Madrid

Dr. García Rodríguez, Daniel

- ◆ Fellow in Electrophysiology and Arrhythmias at the Arrhythmia Unit of the Puerta de Hierro University Hospital
- ◆ Graduated in Medicine at the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Master's Degree in Diagnostic and Therapeutic Cardiac Electrophysiology at San Pablo CEU University

Dr. Parra Esteban, Carolina

- ◆ Assistant Cardiology Specialist at the Coronary Care Unit of the Puerta de Hierro Hospital
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Lecturer in the course Simulation in the Integral Management of the Patient in Cardiogenic Shock organized by the Cardiology Service of the University Hospital
- ◆ Puerta de Hierro and the Foundation for Biomedical Research of the Puerta de Hierro University Hospital

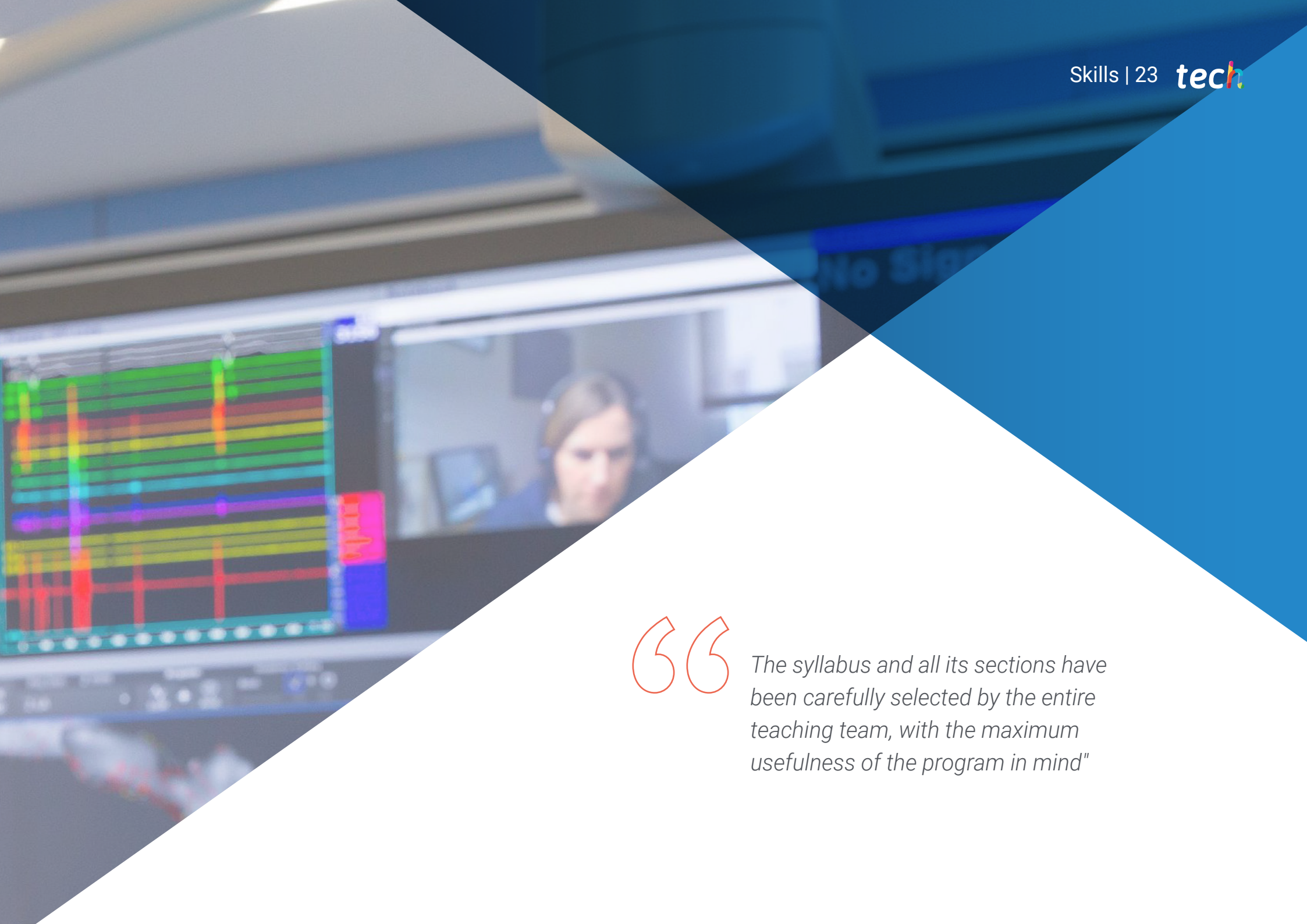
Dr. Sánchez García, Manuel

- ◆ Area Specialist in the Electrophysiology and Cardiac Stimulation Unit of the Cardiology Service of Salamanca University Health Care Complex
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Residency in the specialty of Cardiology at the Puerta de Hierro University Hospital
- ◆ Fellowship in Electrophysiology and Arrhythmias at the Arrhythmia Unit of the Puerta de Hierro University Hospital
- ◆ University Master in Diagnostic and Therapeutic Cardiac Electrophysiology at San Pablo CEU University

04 Skills

TECH seeks the highest excellence in its academic programs, with the support of the best specialists in each area for the writing of all the contents. The teaching team has placed a particular emphasis, throughout the entire syllabus, on the competencies of the clinical approach to all types of arrhythmias, both the more general and the more specific cases that the specialist may encounter in their day to day.





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The syllabus and all its sections have been carefully selected by the entire teaching team, with the maximum usefulness of the program in mind"



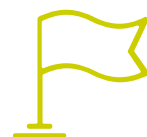
General Skills

- ◆ Master the cardiac rhythm disorders that can occur, both in a consultation and in a cardiology emergency, from the healthy patient to patients with different types of heart disease
- ◆ Manage the latest advances in electroanatomical mapping systems
- ◆ Manage all types of devices, from conventional pacemakers, to novel physiological pacing, to leadless pacemakers and subcutaneous ICDs
- ◆ Master patient management, both in the emergency and ward environment, and in the office setting up to the patient with specific pathologies such as Heart Failure, Cardiomyopathies or Arrhythmic Syndromes



You will enhance your clinical skills by learning more about the main novelties in Cardiac Arrhythmias, such as those related to Pacemakers, ICDs and resynchronizers"





Specific Skills

- ◆ Understand the organization and operation of the Arrhythmia Units
- ◆ Know the role of electrophysiological study in the diagnosis and management of Bradyarrhythmias
- ◆ Know the techniques and procedures used in the diagnosis of Supraventricular Tachyarrhythmias, as well as the drugs indicated for their treatment
- ◆ Understand the concept of ventricular tachycardia, from the mechanism to the most frequent types
- ◆ Manage the theoretical foundations on which resynchronization therapy is based and review its current indications. Review the particularities of its implantation and the modes of programming and follow-up
- ◆ Review current knowledge on the implications and management of AHREs and subclinical AF
- ◆ Know the fundamental aspects of ventricular dysfunction due to pacing and the relationship between LBBB and ventricular dysfunction
- ◆ Know the most prevalent tachyarrhythmias and conduction disorders in cardiac amyloidosis, as well as the particularities of their management
- ◆ Manage the current algorithms for out-of-hospital cardiac arrest care

05

Structure and Content

Thanks to *relearning*, an educational methodology in which TECH is a pioneer, the program is much more efficient in its objective. The most important concepts and terminology are reiterated throughout the entire syllabus, resulting in the specialist obtaining a progressive and natural update, without having to invest large amounts of time in the study. This enables a better distribution of the teaching hours, being able to dedicate them to the extensive amount of additional material provided.



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You will be able to access complementary readings, activities based on real clinical cases and different tests that will reinforce all the teaching material"

Module 1. Arrhythmias. Fundamental Concepts

- 1.1. Physiology
 - 1.1.1. Special Features of Myocardial Cells
 - 1.1.2. Action Potential
 - 1.1.3. Main Ionic Currents Involved
- 1.2. Genetics of Arrhythmias
- 1.3. Cardiac Conduction System
 - 1.3.1. Sinoatrial Node and AV Node
 - 1.3.2. His-Purkinje System
- 1.4. Mechanisms of Arrhythmias
 - 1.4.1. Automatism
 - 1.4.2. Triggered Activity
 - 1.4.3. Reentry
 - 1.4.4. Micro-Entry
- 1.5. Antiarrhythmic Drugs
 - 1.5.1. Type I
 - 1.5.2. Type II
 - 1.5.3. Type III
 - 1.5.4. Type IV
- 1.6. Basic Diagnostic Techniques Used in Arrhythmias
 - 1.6.1. Holter
 - 1.6.2. Tilt Test
 - 1.6.3. Pharmacological Tests
 - 1.6.4. Implantable Holter
 - 1.6.5. Wearables and Other Devices
- 1.7. Common Procedures Performed for the Diagnosis and Treatment of Arrhythmias
 - 1.7.1. EPS and Ablation
 - 1.7.2. Electroanatomical Mapping Systems. Navigation Systems
- 1.8. Cardiac Anatomy Focused on Arrhythmias
- 1.9. Radiological Anatomy
- 1.10. Organization and Operation of Arrhythmia Units

Module 2. Bradyarrhythmias

- 2.1. Bradyarrhythmia
- 2.2. Types of Bradyarrhythmias
- 2.3. Mechanisms/Physiopathology of Bradyarrhythmias
- 2.4. Diagnostic Studies Aimed at Bradyarrhythmias
- 2.5. Sick Sinus Syndrome
- 2.6. AV Blocks
- 2.7. Syncope
 - 2.7.1. Causes of Syncope
 - 2.7.2. Mechanisms of Syncope
 - 2.7.3. Diagnostic Study and Differential Diagnosis
- 2.8. Indication for Pacemaker Implantation. Indications for Transient PM Implantation
 - 2.8.1. Sinus Dysfunction
 - 2.8.2. AV Blocks
- 2.9. EEF Study of Bradyarrhythmias

Module 3. Supraventricular Tachyarrhythmias

- 3.1. Supraventricular Tachycardia
- 3.2. Types of Supraventricular Tachyarrhythmias. Clinical Differential Diagnosis
- 3.3. Acute Management of Supraventricular Tachycardia. View from the Emergency Department
 - 3.3.1. Clinical Presentation
 - 3.3.2. Complementary Tests
 - 3.3.3. Therapeutic Maneuvers and Pharmacological Treatment
 - 3.3.4. Discharge Treatment
- 3.4. Chronic Management of Supraventricular Tachycardia. View from the Consultation Room
- 3.5. Pharmacological Treatment of Supraventricular Tachycardia.
- 3.6. Electrophysiological Study of Supraventricular Tachycardia.
 - 3.6.1. Indications
 - 3.6.2. Description and Maneuvers
- 3.7. Nodal Reentrant Tachycardia
 - 3.7.1. Epidemiology
 - 3.7.2. Clinical Peculiarities
 - 3.7.3. Findings in Electrophysiological Study
 - 3.7.4. Ablation



- 3.8. AV Reentrant Tachycardia (Accessory Pathway)
 - 3.8.1. Epidemiology
 - 3.8.2. Clinical Peculiarities
 - 3.8.3. Findings in Electrophysiological Study
 - 3.8.4. Ablation
- 3.9. Common Atrial Flutter
 - 3.9.1. Epidemiology
 - 3.9.2. Clinical Peculiarities
 - 3.9.3. Findings in Electrophysiological Study
 - 3.9.4. Ablation
- 3.10. Other Macroreentrant Tachycardias
- 3.11. Focal Atrial Tachycardia
 - 3.11.1. Epidemiology
 - 3.11.2. Clinical Peculiarities
 - 3.11.3. Findings in Electrophysiological Study
 - 3.11.4. Ablation

Module 4. Ventricular Tachyarrhythmias

- 4.1. Ventricular Tachycardias
 - 4.1.1. Mechanisms and Pathogenesis of Ventricular Tachycardias
 - 4.1.2. Types of Ventricular Tachycardias
- 4.2. Idiopathic Ventricular Tachycardia
- 4.3. Clinical and Electrocardiographic Diagnosis
- 4.4. Electrocardiographic Differential Diagnosis Between Wide QRS Tachycardias
- 4.5. Acute Management of Ventricular Tachycardia. Vision from the Emergency Department and the Critical Patient
 - 4.5.1. Clinical Presentation
 - 4.5.2. Complementary Tests
 - 4.5.3. Therapeutic Maneuvers and Pharmacological Treatment
 - 4.5.4. Discharge Treatment
- 4.6. Chronic Management of Supraventricular Tachycardia. View From the Consultation Room
- 4.7. Pharmacological Treatment in Ventricular Tachycardia

- 4.8. Electrophysiological Study and Ablation of Ventricular Tachycardia
- 4.9. Ventricular Extrasystole
 - 4.9.1. Mechanisms of Genesis of Ventricular Extrasystole
 - 4.9.2. Clinical Management
 - 4.9.3. Therapeutic Strategy
- 4.10. Ventricular Extrasystole. Study and Ablation

Module 5. Devices (Pacemaker, ICD and Resynchronizer)

- 5.1. Pacemaker
 - 5.1.1. Operation of a Pacemaker
 - 5.1.2. Indications for Pacemaker Implantation
- 5.2. Pacemaker Implantation Technique
 - 5.2.1. Venous Canalization
 - 5.2.2. Surgical Pocket Creation
 - 5.2.3. Ventricular Electrode Implantation
 - 5.2.4. Atrial Electrode Implantation
- 5.3. Basic Pacemaker Programming
 - 5.3.1. Programming at Discharge After Implantation
 - 5.3.2. Monitoring Protocol in the Consultation Room
- 5.4. ICD
 - 5.4.1. Operation of an ICD
 - 5.4.2. Indications for ICD Implantation
- 5.5. ICD II
 - 5.5.1. ICD Implantation Technique. Peculiarities with Respect to Pacemaker.
 - 5.5.2. Programming at Discharge After Implantation
 - 5.5.3. Monitoring Protocol in the Consultation Room
- 5.6. Resynchronization Therapy
 - 5.6.1. Theoretical Basis
 - 5.6.2. Indications for Cardiac Resynchronization Device Implantation
- 5.7. Resynchronization Therapy II
 - 5.7.1. CRS Implantation Technique. Peculiarities with Respect to Other Devices
 - 5.7.2. Programming at Discharge After Implantation
 - 5.7.3. Monitoring Protocol in the Consultation Room

- 5.8. Physiological Stimulation
 - 5.8.1. Hisian Stimulation
 - 5.8.2. Left Bundle Branch Stimulation
- 5.9. Other Implantable Devices
 - 5.9.1. Wireless Pacemakers
 - 5.9.2. Subcutaneous ICD
- 5.10. Electrode Removal
 - 5.10.1. Indications for Electrode Extraction
 - 5.10.2. Extraction Procedure

Module 6. Atrial Fibrillation

- 6.1. Importance of Atrial Fibrillation
 - 6.1.1. Epidemiology of Atrial Fibrillation
 - 6.1.2. Socioeconomic Impact of Atrial Fibrillation
- 6.2. Atrial Fibrillation in the Clinic
 - 6.2.1. Clinical Presentation and Symptomatology
 - 6.2.2. Initial Diagnostic Study
- 6.3. Assessment of Thromboembolic and Hemorrhagic Risk
 - 6.3.1. Anticoagulant Treatment. Clinical Evidence
 - 6.3.2. Direct Acting Anticoagulants
 - 6.3.3. Vitamin K Antagonists
 - 6.3.4. Auricle Closure
- 6.4. Clinical Management of Atrial Fibrillation
 - 6.4.1. Rate Control Strategy
 - 6.4.2. Rhythm Control Strategy
- 6.5. Atrial Fibrillation Ablation
 - 6.5.1. Indications
 - 6.5.2. Evidence of Efficacy
- 6.6. Atrial Fibrillation Ablation
 - 6.6.1. Atrial Fibrillation Ablation Techniques
 - 6.6.2. AF Ablation Results
 - 6.6.3. Possible Complications of AF Ablation
- 6.7. Monitoring after Atrial Fibrillation Ablation

- 6.8. Future Prospects for Atrial Fibrillation Ablation
- 6.9. AF in Specific Contexts: Postoperative Period, Intracranial Hemorrhage, Pregnancy, Athletes
- 6.10. Anticoagulant Therapy in Patients with Ischemic Heart Disease
- 6.11. Implications and Management of AHREs and Subclinical AF

Module 7. Arrhythmias and Heart Failure

- 7.1. Importance of Rhythm Disorders in Heart Failure
- 7.2. AF and Heart Failure
 - 7.2.1. Epidemiology of AF in Heart Failure
 - 7.2.2. Prognostic Implication of the Presence of AF in Patients with Heart Failure
- 7.3. AF and Heart Failure. Role of Ablation and Antiarrhythmic Drugs
- 7.4. Risk Assessment of Ventricular Arrhythmias in HF
 - 7.4.1. Role of MRI
 - 7.4.2. Role of Genetics
- 7.5. Management of Ventricular Arrhythmias in Heart Failure
- 7.6. Indications for CRS Therapy and Other Devices in the Context of Heart Failure
 - 7.6.1. Conventional Resynchronizer
 - 7.6.2. Physiological Stimulation (Hisian and Left Bundle Branch)
- 7.7. Tachycardiomyopathy
 - 7.7.1. Concept and Epidemiology
 - 7.7.2. Diagnostic Study
- 7.8. Management of Patients with Tachycardiomyopathy
 - 7.8.1. Medical Treatment
 - 7.8.2. Indications and Ablation Approach
- 7.9. PM-Mediated Ventricular Dysfunction. Prevalence and Management
- 7.10. LBBB and Ventricular Dysfunction. Does Dyssynchronopathy Exist?

Module 8. Arrhythmic Syndromes, Sudden Cardiac Death and Channelopathies

- 8.1. Sudden Cardiac Death
 - 8.1.1. Concept and Epidemiology of Sudden Cardiac Death
 - 8.1.2. Causes of Sudden Cardiac Death
- 8.2. Sudden Cardiac Death
 - 8.2.1. Diagnostic Study after a Recovered Cardiac Arrest
 - 8.2.2. Clinical Management. Prevention

- 8.3. Concept of Canalopathy. Epidemiology
- 8.4. Brugada Syndrome
 - 8.4.1. Indications for Electrophysiological Study
 - 8.4.2. Indications for ICD
 - 8.4.3. Medical treatment
- 8.5. Long QT Syndrome
 - 8.5.1. Indications for ICD
 - 8.5.2. Medical treatment
- 8.6. Short QT Syndrome
 - 8.6.1. Indications for ICD
 - 8.6.2. Medical treatment
- 8.7. Early Repolarization and PTVC
 - 8.7.1. Indications for ICD
 - 8.7.2. Medical treatment
- 8.8. The Importance of Genetics
 - 8.8.1. Family Studies

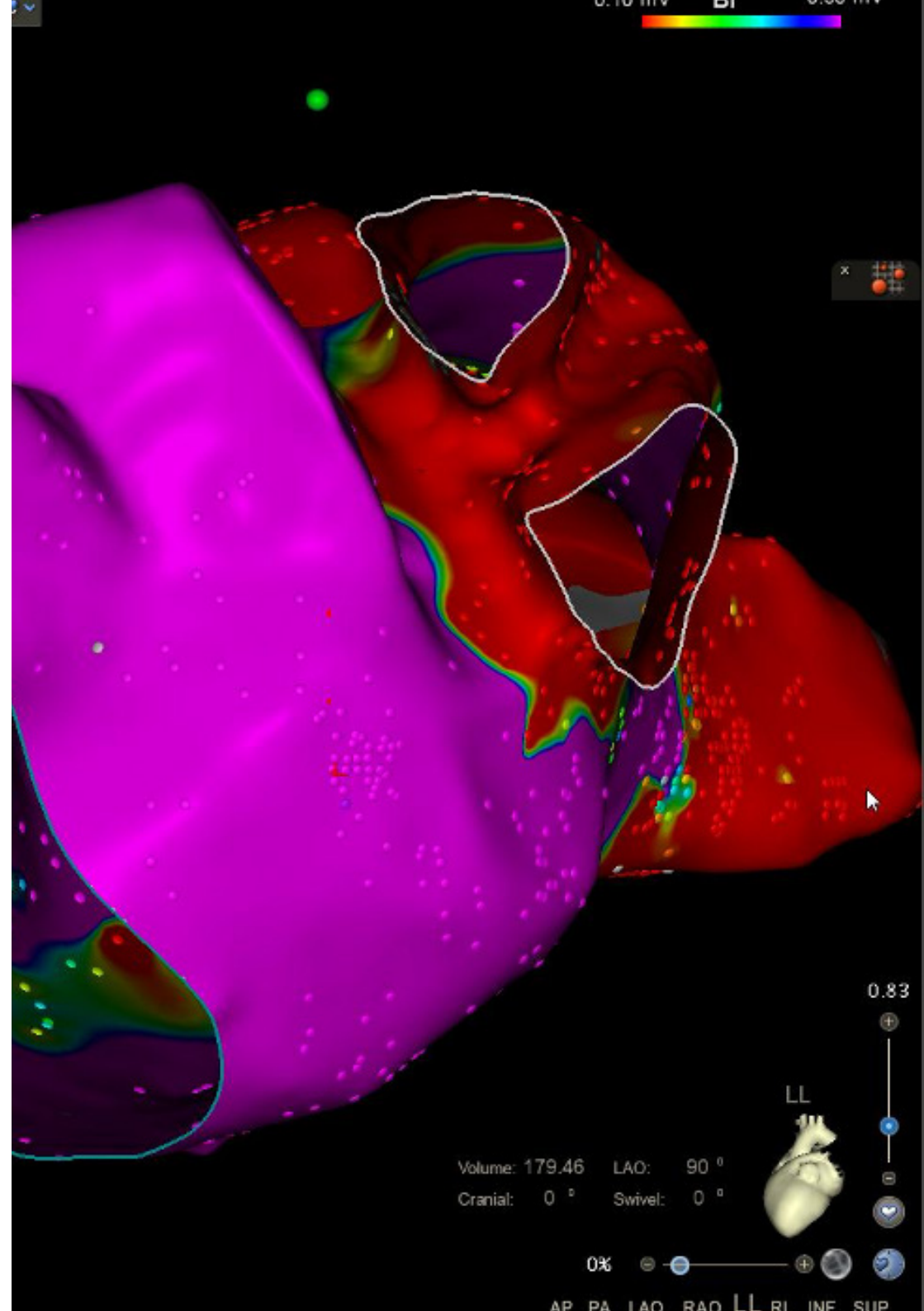
Module 9. Cardiomyopathies and Arrhythmias

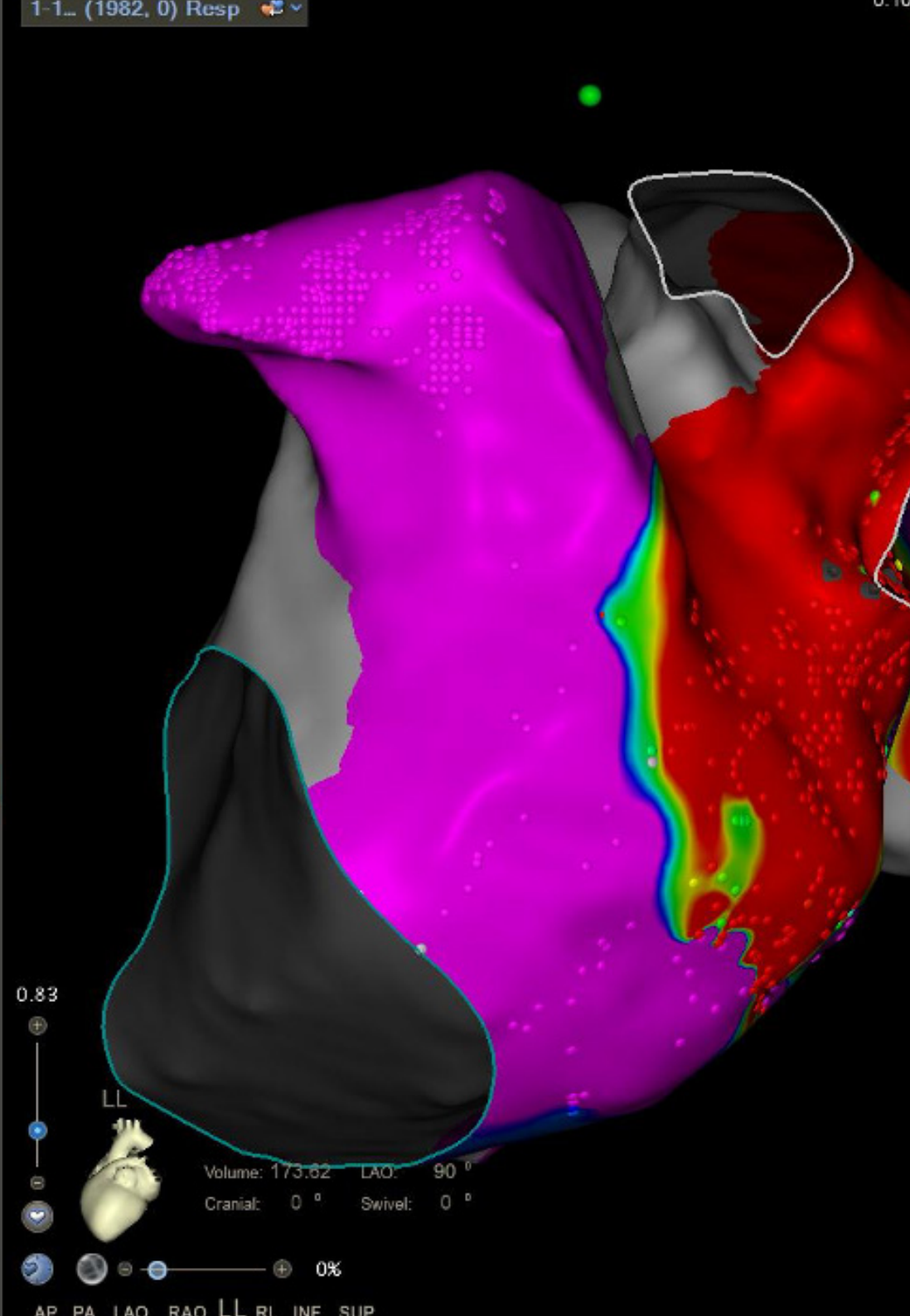
- 9.1. Association of Cardiomyopathies and Arrhythmias
- 9.2. Dilated Cardiomyopathy
 - 9.2.1. Atrial Arrhythmias
 - 9.2.2. Ventricular Arrhythmias
- 9.3. Prevention of Arrhythmias and Sudden Cardiac Death in Dilated Cardiomyopathy
 - 9.3.1. Indications for ICD
 - 9.3.2. Role of Genetics
- 9.4. Hypertrophic Cardiomyopathy Indications for ICD
 - 9.4.1. Atrial Arrhythmias
 - 9.4.2. Ventricular Arrhythmias
- 9.5. Prevention of Arrhythmias and Sudden Cardiac Death in Hypertrophic Cardiomyopathy
 - 9.5.1. Indications for ICD
- 9.6. Arrhythmogenic Cardiomyopathy
 - 9.6.1. Description
 - 9.6.2. Most Frequent Arrhythmias and Peculiarities in their Management
 - 9.6.3. Prevention of Sudden Death. Indications for ICD

- 9.7. Amyloidosis
 - 9.7.1. Description
 - 9.7.2. Most Frequent Arrhythmic Disorders and Peculiarities in their Management
 - 9.7.3. Indications for MP
- 9.8. Other Cardiomyopathies and their Association with Cardiac Rhythm Disorders
 - 9.8.1. Dystrophies and Neuromuscular Diseases. Indications for ICD and PM
- 9.9. Study of AVB in Young Patients
 - 9.9.1. Diagnostic and Therapeutic Algorithm

Module 10. Arrhythmias in Other Clinical Contexts

- 10.1. Arrhythmias in the Population without Heart Disease
- 10.2. Arrhythmias in Athletes
- 10.3. Arrhythmias in the Critically Ill Cardiac Patient
 - 10.3.1. Epidemiology
 - 10.3.2. Study and Clinical Management
 - 10.3.3. Management of Arrhythmic Storm
 - 10.3.4. Transient Pacemaker Indications and Implantation Technique
- 10.4. Out-of-Hospital Cardiac Arrest Care
- 10.5. Arrhythmias in the Non-Cardiac Critically Ill Patient
- 10.6. Arrhythmias in Patients Undergoing Cardiac Surgery and after TAVI
- 10.7. Arrhythmias in Infantile Congenital Cardiopathies
- 10.8. Arrhythmias in Adult Congenital Heart Diseases





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This program will be key for you to obtain a professional update in Cardiac Arrhythmias, adapted to the new challenges faced by the most prestigious specialists"

06

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.

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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 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.



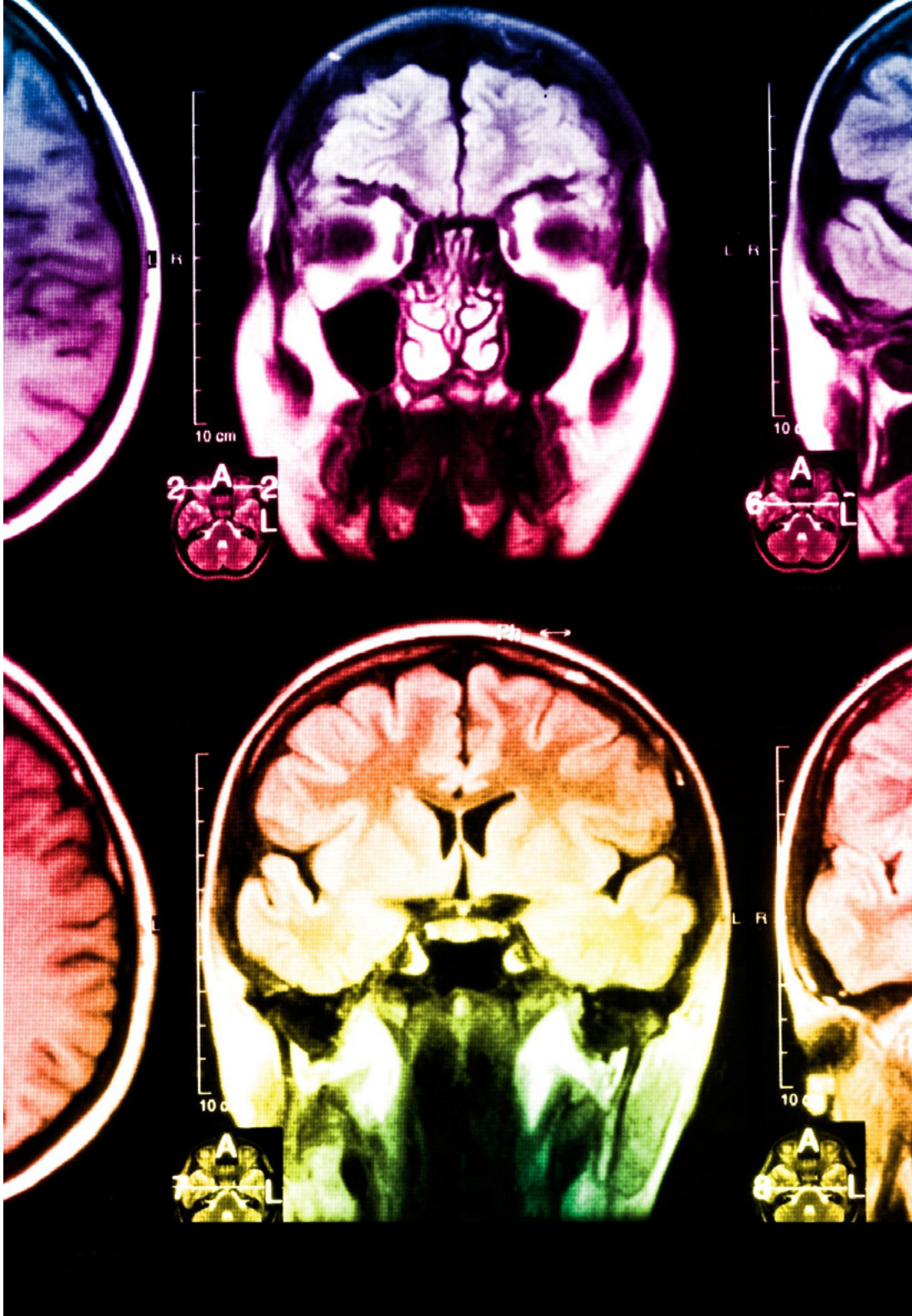
At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

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.

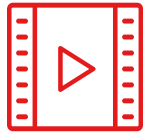
Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

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 adapted in 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

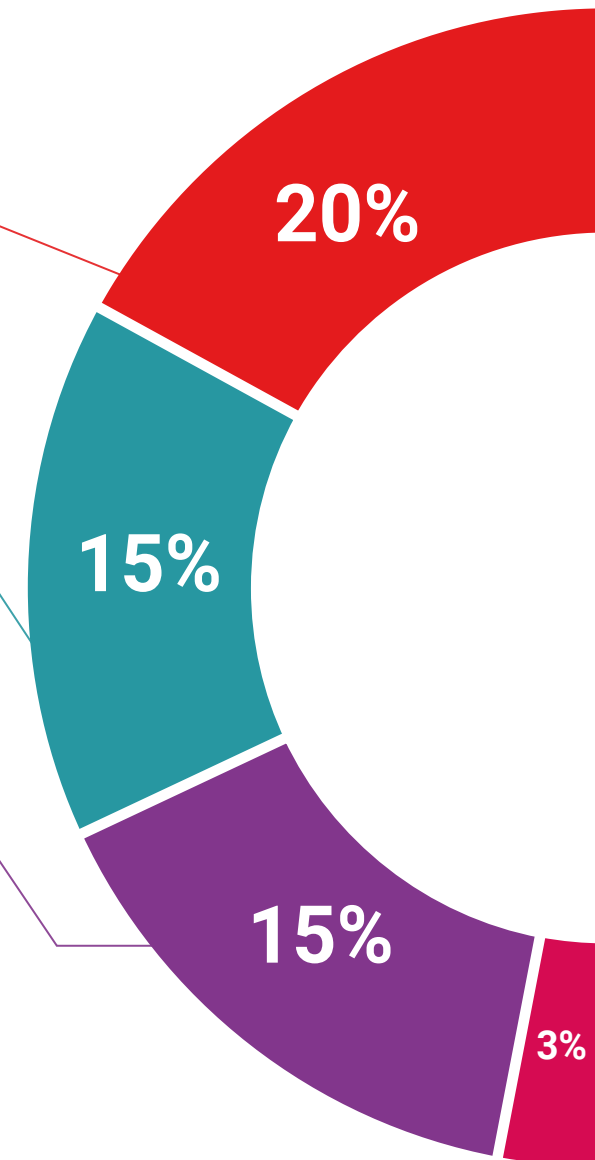
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

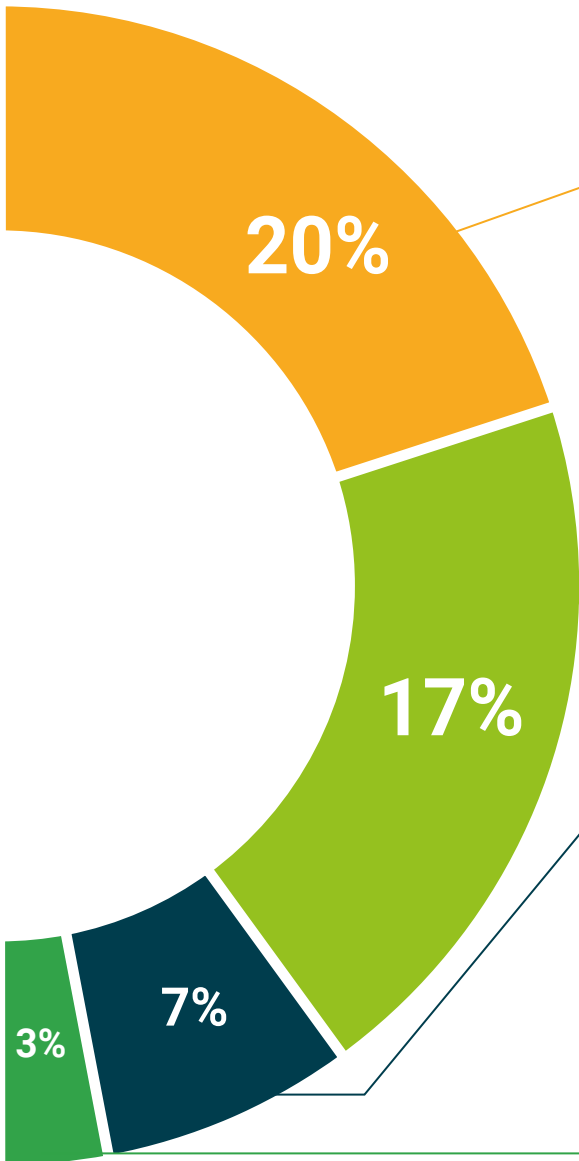
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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.



07 Certificate

The Professional Master's Degree in Cardiac Arrhythmias guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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 private qualification will allow you to obtain a **Professional Master's Degree in Cardiac Arrhythmias** endorsed by **TECH Global University**, the world's largest online university.

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

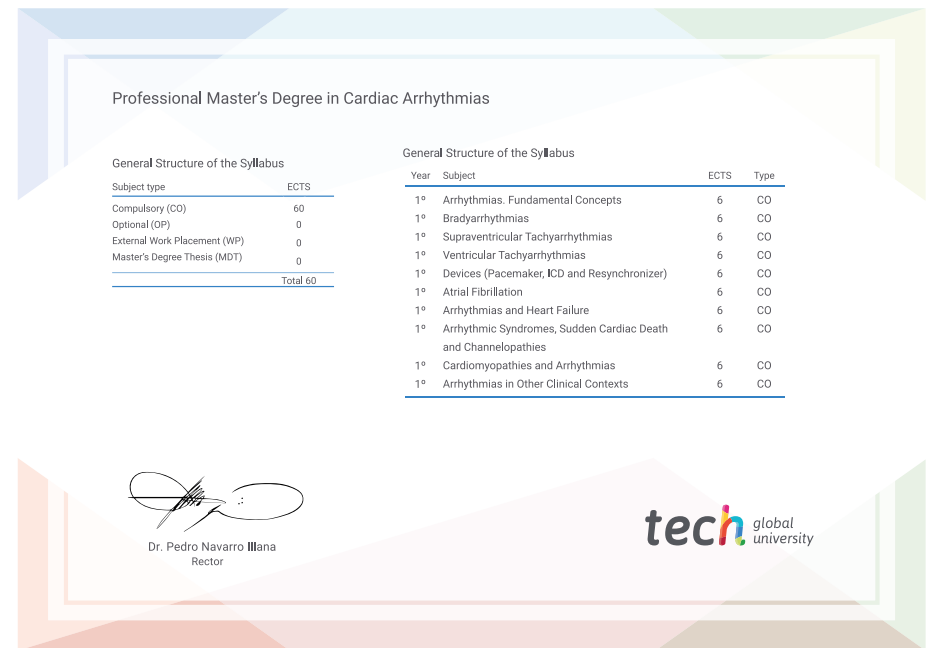
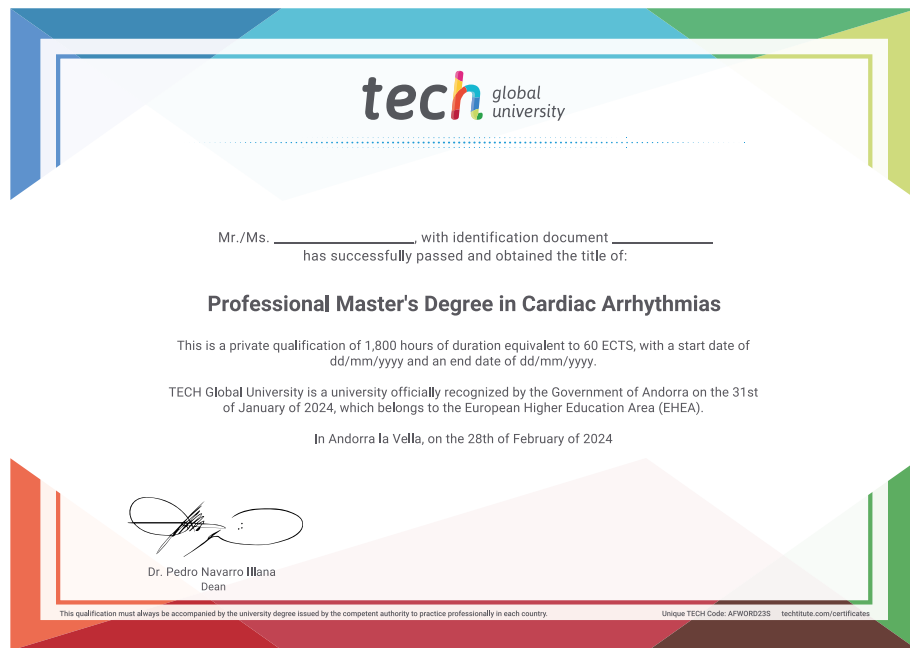
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Professional Master's Degree in Cardiac Arrhythmias**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**



*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.

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education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present quality
development language
virtual classroom

tech global
university

Professional Master's Degree

Cardiac Arrhythmias

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Professional Master's Degree

Cardiac Arrhythmias