

# Postgraduate Diploma

Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU





## Postgraduate Diploma

### Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/medicine/postgraduate-diploma/postgraduate-diploma-heart-failure-cardiogenic-shock-acute-coronary-syndrome-icu](http://www.techtute.com/in/medicine/postgraduate-diploma/postgraduate-diploma-heart-failure-cardiogenic-shock-acute-coronary-syndrome-icu)

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# 01

# Introduction

Acute cardiovascular pathology consists of a group of diseases that frequently require complex, on-the-spot decision making and with great repercussions for the patient's prognosis. The monitoring of patients with cardiovascular pathology in a critical situation is a very common occurrence, both in emergency departments as well as coronary units, ICU and in post-surgery patients with underlying heart disease. Whether the patient's clinical problem is primarily cardiac or is a complication resulting from an acute problem of another organ or system, the appropriate diagnosis and management of acute heart disease is crucial for patient evolution and prognosis in the short, medium and long term.

The field of acute cardiac pathology includes conditions that play a role in the differential diagnosis of the most frequent reasons for consultation in the emergency department.







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*This specialization will generate a sense of confidence when practicing medicine, which will help you grow personally and professionally”*

The field of cardiology is an areas full of research activity, which leads to the frequent emergence of new studies, reviews, clinical practice guidelines, etc. that modify or should modify the management of patients with acute heart disease. Gaining up-to-date knowledge in this area is essential for cardiologists interested in developing specific skills; for cardiologists who aren't in daily contact with acute cardiac patients, but who need to be competent in dealing with them, or for non-cardiologists who work in an environment where they treat these types of patients.

The program is clearly structured to allow students to take an orderly approach to each topic. The modules are divided in a simple way focusing on each one of the main groups of acute heart disease. They are taught by professionals who combine their high academic skill level with their teaching experience and their dealings with critical cardiology patients. The learning tools and texts available to the student are fully up-to-date and are oriented to the development of skills which are directly applicable to clinical practice.

The structure of this Postgraduate Diploma compiles more theoretical content and the latest developments in diagnosis and medical management with other content that is focused on students acquiring more practical skills as well.

Future students will acquire knowledge and skills that will improve their ability to manage critical cardiovascular patients. With this, they will be able to participate in a team oriented toward managing acute cardiac patients, or to stand out as leaders in treating these patients within a broader team or other specialties.

This **Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU** contains the most complete and up-to-date scientific on the market.

- The presentation of clinical cases by experts in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU
- The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional
- Diagnostic-therapeutic developments in the evaluation, diagnosis, and intervention of Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU.
- Practical exercises where self-assessment can be used to improve learning
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- With special emphasis on evidence-based medicine and research methodologies in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

“Update your knowledge through the Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU”

“ *This Postgraduate Diploma is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge of Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU, you will obtain a qualification endorsed by TECH – Technological University*”

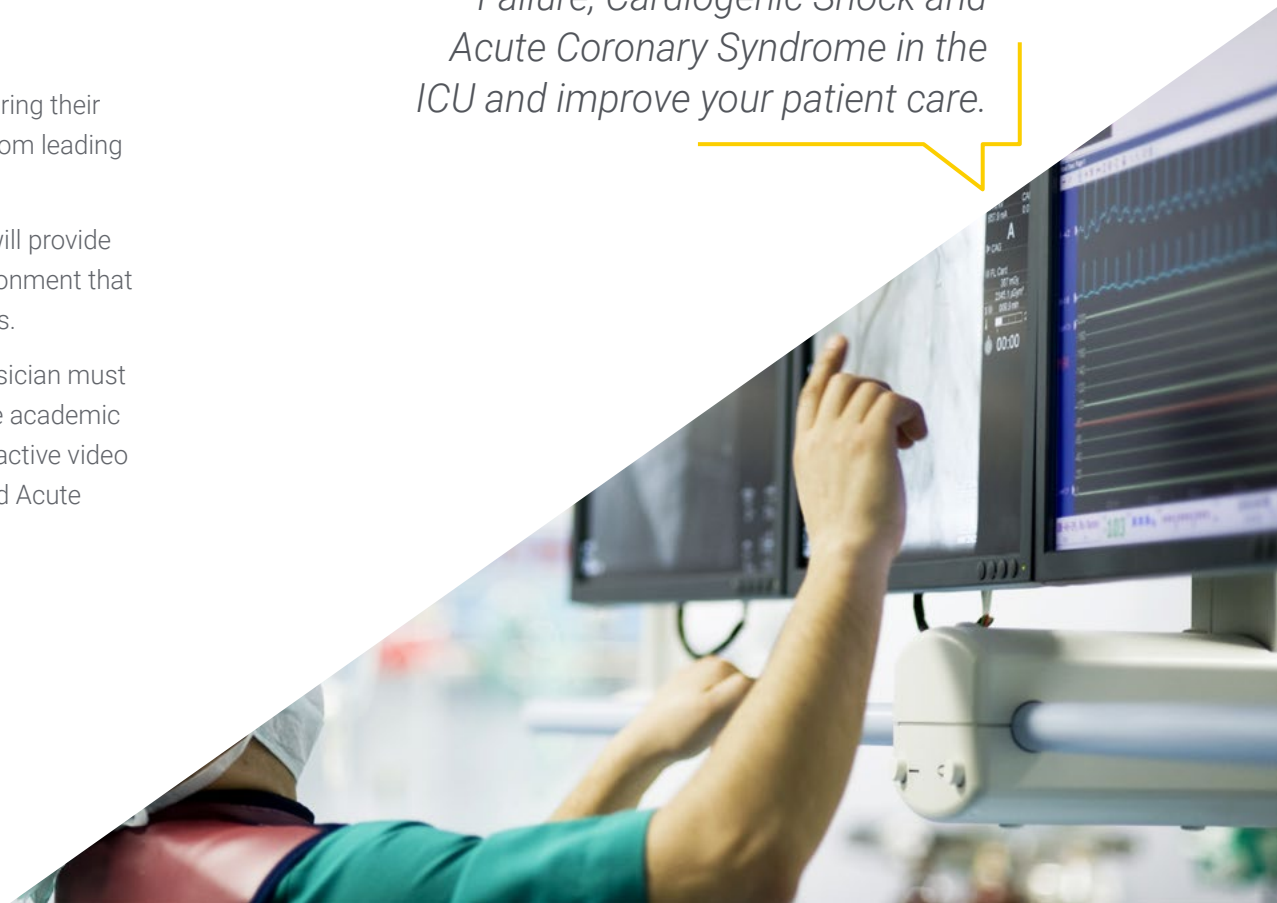
The teaching staff includes professionals from the field of Cardiology, who bring their experience to this specialization program, as well as renowned specialists from leading scientific societies.

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

This program is designed around Problem Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the academic year. For this purpose, professionals will be supported by an innovative interactive video system created by renowned experts in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU with extensive teaching experience.

*Increase your decision-making confidence by updating your knowledge through this Postgraduate Diploma.*

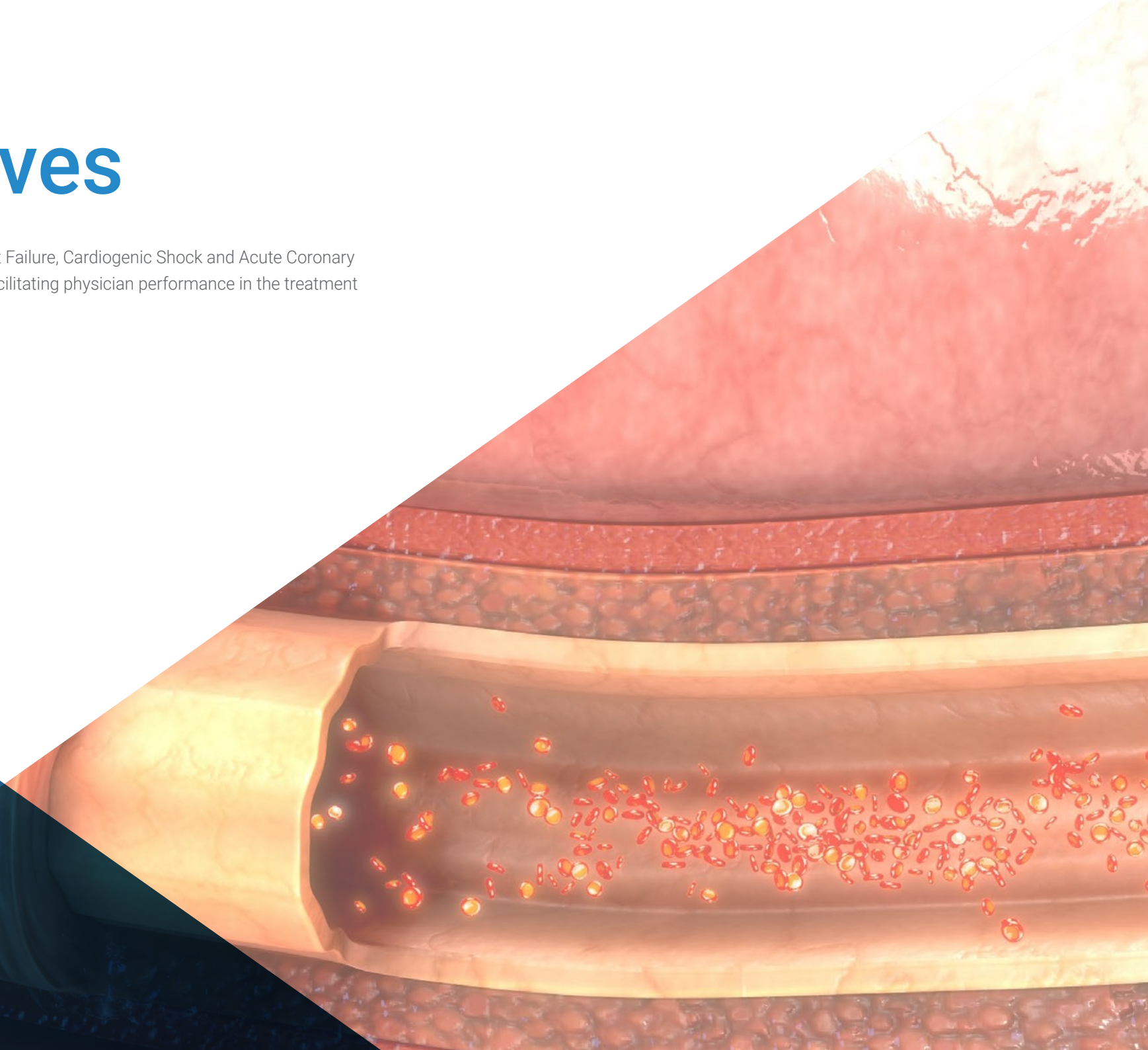
*Take the opportunity to learn about the latest advances in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU and improve your patient care.*



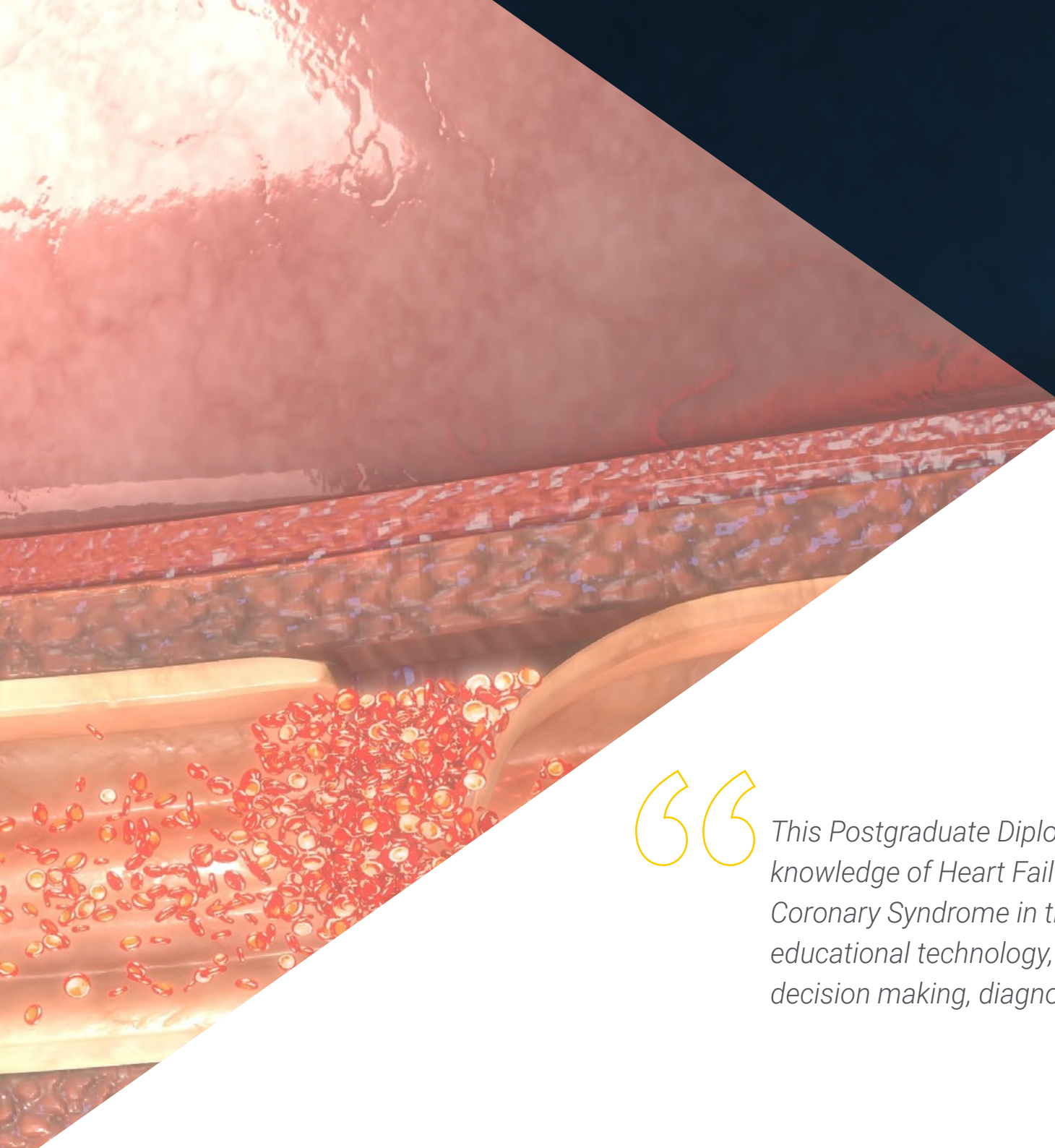


# 02 Objectives

The Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU is aimed at facilitating physician performance in the treatment of these pathologies.





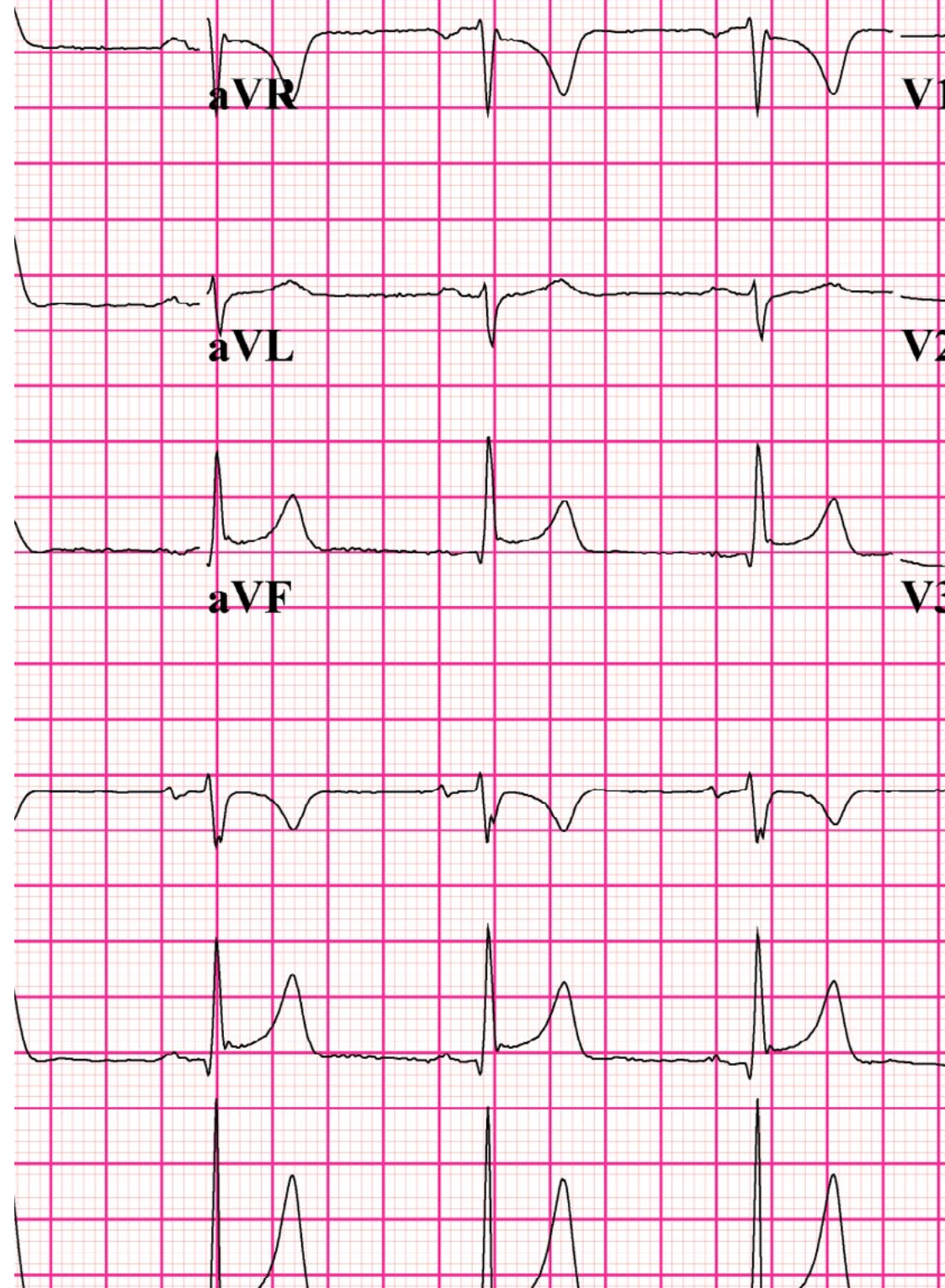
A 3D medical illustration showing a cross-section of a blood vessel. A yellow stent is placed inside the vessel. Red blood cells are shown flowing through the vessel. The background is a warm, reddish-orange color.

“ This Postgraduate Diploma will allow you to update your knowledge of Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU, with the use of the latest educational technology, to contribute quality and safety to decision making, diagnosis, treatment and patient support”

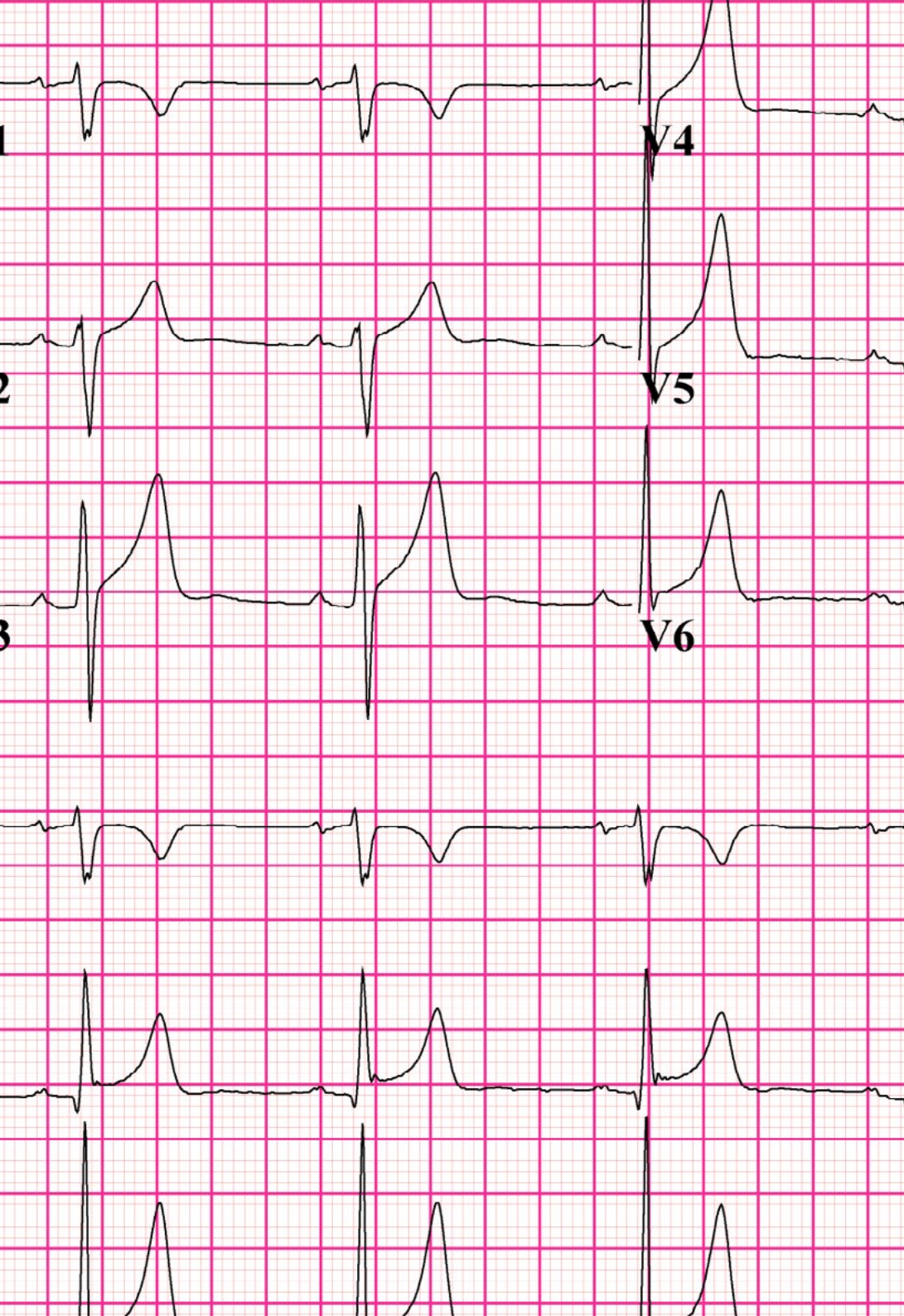


## General Objectives

- Handle with ease the diagnostic arsenal available in a tertiary center for the management of critically ill cardiovascular patients
- Identify a patient in a serious or potentially serious short-term situation due to cardiovascular problems
- Explain the treatment indications and the therapy options in critical cardiovascular patients
- Lead a group attending to urgent or emergency situation caused by acute cardiovascular problems and guide fellow colleagues in the treatment of critical patients







## Specific Objectives

- ◆ Explain the anatomical and functional alterations present in heart failure
- ◆ Explain the echocardiographic manifestations corresponding to these pathophysiological alterations
- ◆ Correlate the metabolic alterations produced in heart failure and the influence that medical treatment has on them
- ◆ Describe the pathophysiological and anatomical alterations in coronary circulation which leads to the appearance and clinical manifestation of ischemic heart disease
- ◆ Explain the recommendations collected in clinical practice guides in relation to the treatment of acute coronary syndrome
- ◆ Use the available resources in a way that guarantees continuous self-learning and periodically bringing knowledge in this area up to date
- ◆ Identify the possible complications in the context of acute coronary syndrome

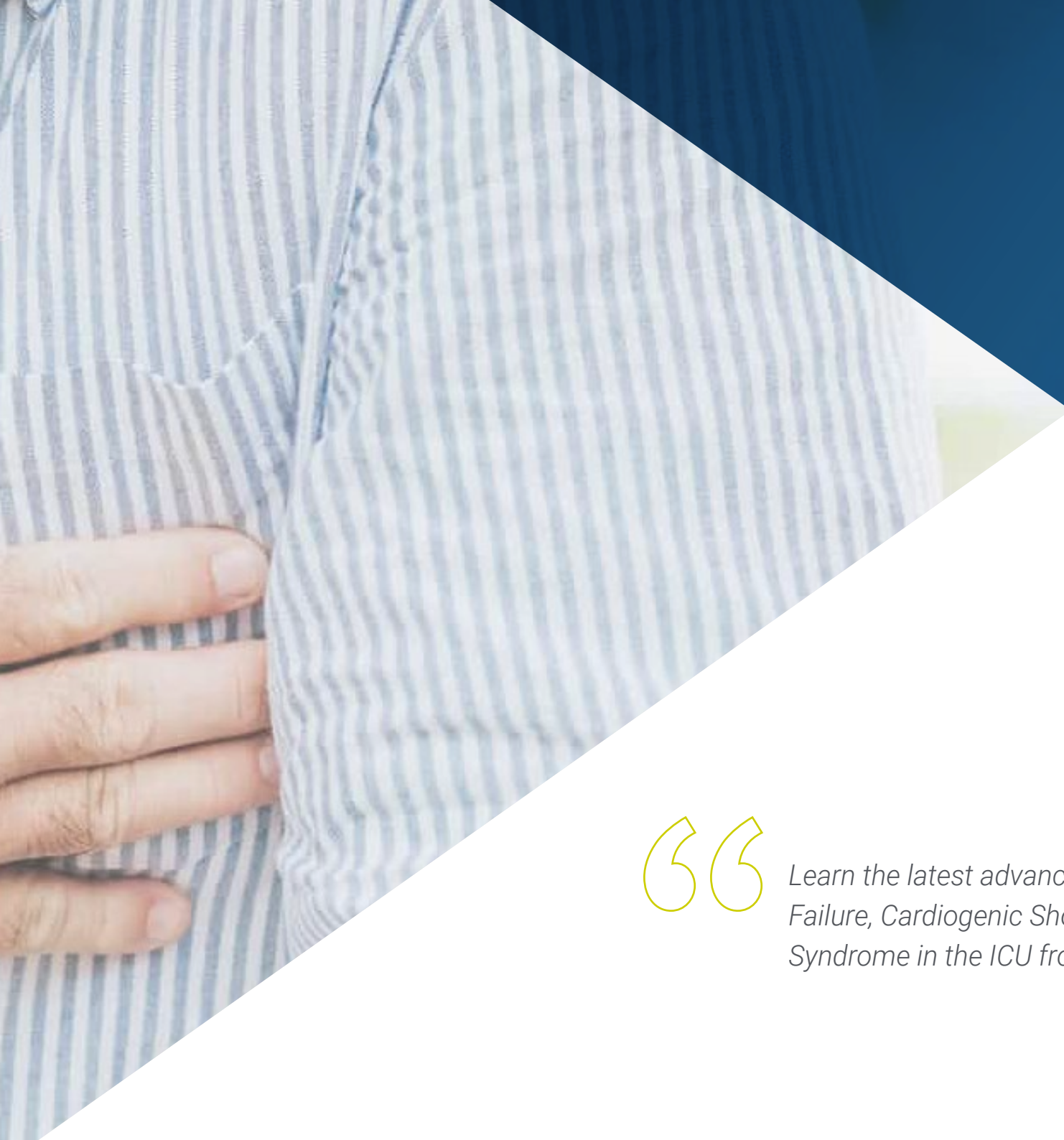
03

# Course Management

The teaching staff includes leading specialists in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU and other related areas, who bring the experience of their work to this specialization. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.







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*Learn the latest advances in procedures in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU from leading professionals"*

## International Guest Director

Alain Combes, M.D., a recognized **specialist** in **Intensive Care Medicine**, and an outstanding leader in the field of **critical care**, has an eminent career in the management of critically ill patients. As **Head** of the **ICU Department** at **La Pitié-Salpêtrière Hospital**, an integral part of the Paris Public Assistance Hospitals, he has led significant advances in the treatment of patients with **acute cardiac conditions** and **cardiac transplantation**.

His extensive **research** interests range from the care of the **critically ill cardiac patient**, including situations of **Cardiogenic Shock**, **Acute Myocardial Infarction** and **Complex Cardiac Surgery**. Likewise, his pioneering work in **Mechanical Circulatory Assistance** and **Extracorporeal Membrane Oxygenation** has positively impacted the treatment of **Severe Respiratory Failure**, excelling in rescue therapies such as **ECMO** and **ECCO<sub>2</sub>R**.

In fact, his active participation in technological advances also stands out. A great example is its collaboration with **Hemovent GmbH**, which has been crucial for the development of the world's most compact **Portable Extracorporeal Membrane Oxygenation System (ECMO)**. This revolutionary device not only offers unparalleled mobility, but also improves performance parameters compared to standard therapies. In this way, it has demonstrated its commitment to **medical innovation** and improved **care for patients** with cardiac and respiratory failure.

To this must be added the **solid international reputation** that Dr. Combes has forged as an opinion leader, being an active member of renowned medical organizations such as The Société de Réanimation de Langue Française (SRLF), The European Society of Intensive Care Medicine (ESICM), The American Thoracic Society (ATS), The European Society of Cardiology (ESC) and The Extra Corporeal Life Support Organization (ELSO). In addition, his expertise has been instrumental in publishing **cutting-edge research** in prestigious medical journals, consolidating his influence in the field.



## Dr. Combes, Alain

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- Specialist in Intensive Care Medicine
- Doctorate in Medicine and Philosophy
- Member of: The Société de Réanimation de Langue Française (SRLF), The European Society of Intensive Care Medicine (ESICM), The American Thoracic Society (ATS), The European Society of Cardiology (ESC), The Extra Corporeal Life Support Organization (ELSO), The International ECMO Network (ECMONet)

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

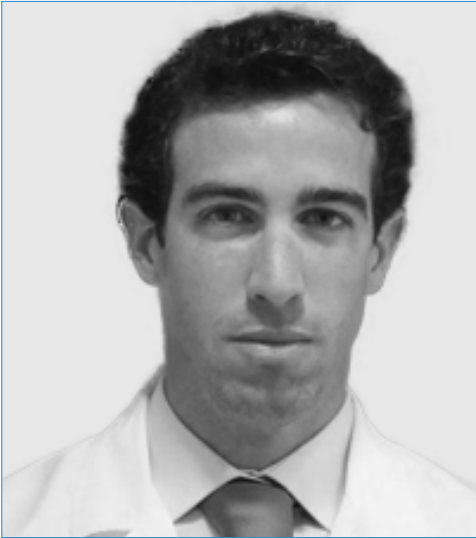
## Management



### Dr. Zamorano Gómez, José Luis

- ♦ Head of the Cardiology Services. Ramón y Cajal University Hospital Madrid
- ♦ Doctor of Medicine- Cum Laude.
- ♦ Executive Management and Health Resources (ESADE, Madrid)
- ♦ National Qualification Professor of Medicine.
- ♦ Member of the First European Echocardiography Accreditation Committee of the European Association of Echocardiography.
- ♦ Honorary Fellow American Society of Echocardiography.
- ♦ Chairman of the Clinical Guidelines Committee of the European Society of Cardiology.
- ♦ Chairman National Cardiovascular Panel FIS, Instituto Carlos III
- ♦ Member of the Editorial Board of the Spanish Society of Cardiology Journal .
- ♦ Member of the Editorial Board of the Journal of Echocardiography.
- ♦ Member of the Editorial Board of the American Society of Echocardiography.
- ♦ Member of International Relations Task Force of the American Society of Echocardiography.
- ♦ Associate Editor of the European Heart Journal Cardiovascular Imaging.
- ♦ Author of more than 20 books, more than 500 articles in scientific journals and more than 400 communication in National and International Conferences.





### **Dr. Rodríguez Muñoz, Daniel**

- ♦ Specialist Cardiologist in Electrophysiology and Arrhythmias at Ramón y Cajal University Hospital.
- ♦ PhD in Health Sciences, University of Alcalá.
- ♦ Master's Degree in Pacemakers, Defibrillators and Resynchronization.
- ♦ Master's Degree in Medical Education.
- ♦ Master's Degree in Diagnostic and Therapeutic Cardiac Electrophysiology.
- ♦ Fellow of the European Society of Cardiology (FESC)
- ♦ Member of the European Heart Rhythmia Association (EHRA)
- ♦ Member of the Spanish Society of Cardiology (SEC).
- ♦ Member of the Arrhythmia and Electrophysiology Section of the SEC.

## **Professors**

### **Dr. Castillo Orive, Miguel**

- ♦ Cardiology Specialist in Hospitalization Unit and Cardio-diabetes Unit.
- ♦ Ramón y Cajal University Hospital Madrid.

### **Dr. Fernández-Golfín Lobán, Covadonga**

- ♦ Cardiac Imaging Unit Coordinator.
- ♦ Ramón y Cajal University Hospital Madrid.

### **Dr. Sanmartín Fernández, Marcelo**

- ♦ Head of Acute Coronary Syndrome Department.
- ♦ Ramón y Cajal University Hospital, Madrid.

### **Dr. Sionis Green, Alessandro**

- ♦ Head of Cardiac Intensive Care Unit, Cardiology Department.
- ♦ Santa Creu and Sant Pau Hospital Barcelona.

# 04

# Structure and Content

The content structure has been designed by a team of professionals from the best hospitals and universities in the country, who are aware of the relevance of current specialization to intervene in the diagnosis, treatment and monitoring of Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU and who are committed to quality teaching through new educational technologies.



“

*This Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU is the most complete and up-to-date scientific program on the market”*

## Module 1. Heart Failure and Cardiogenic Shock

- 1.1. Underlying Pathology in Heart Failure
  - 1.1.1. Structural Alterations
    - 1.1.1.1. From Anatomy to Echocardiography
  - 1.1.2. Physiological Alterations
    - 1.1.2.1. The Reason for Chronic Treatment and its Effect on Prognosis
- 1.2. Acute Pulmonary Edema
  - 1.2.1. Diagnostic and Prognostic Tools
  - 1.2.2. Acute Treatment and Adjustments
- 1.3. Cardiogenic Shock
  - 1.3.1. Diagnostic and Prognostic Tools
    - 1.3.1.1. Differential Diagnosis for Shock
  - 1.3.2. Indication and Management of Vasoactive Drugs
  - 1.3.3. Indication and Management of Circulatory Assistances

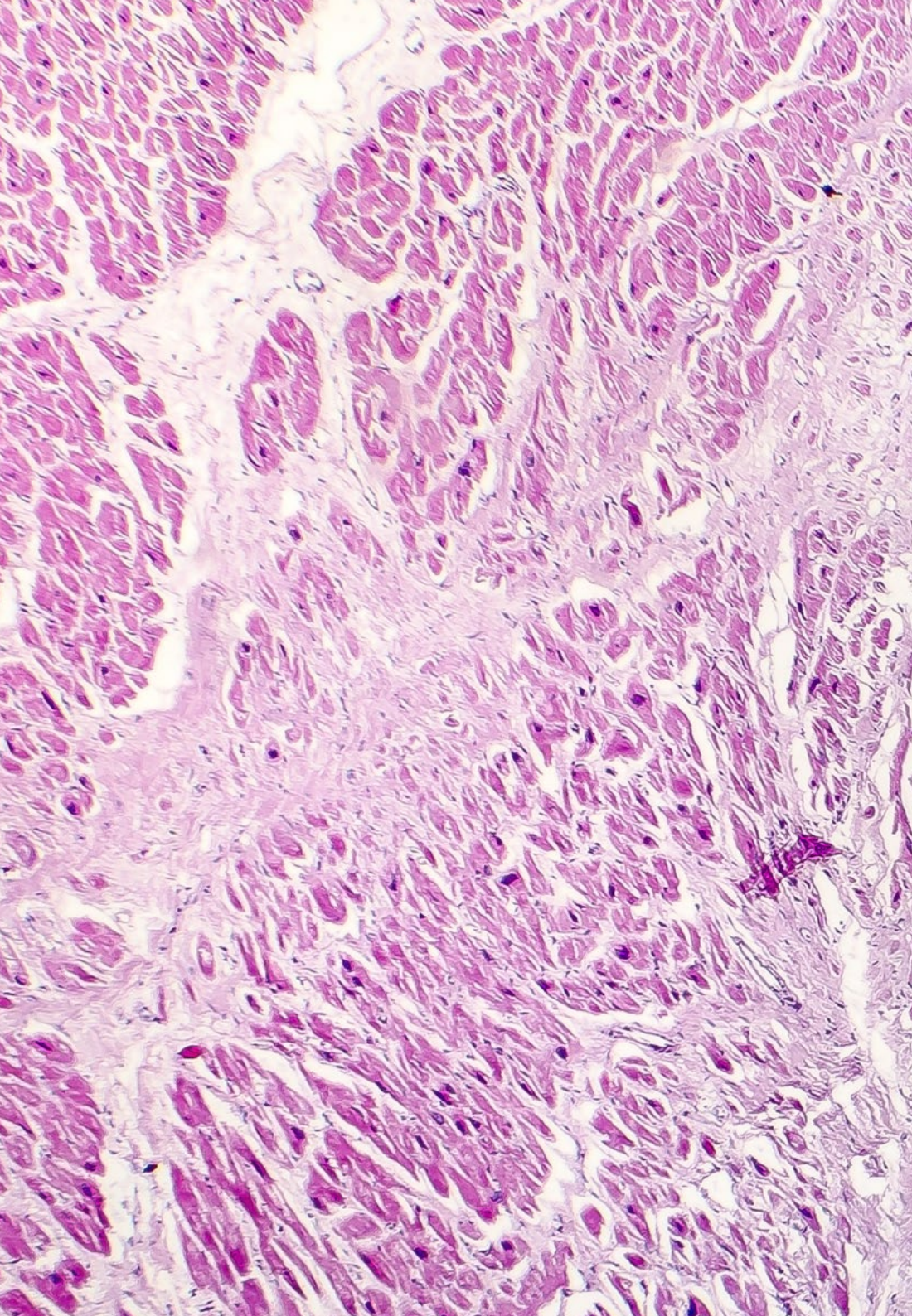
## Module 2. Acute Coronary Syndrome (ACS)

- 2.1. The Underlying Pathology in Acute Coronary Syndrome
  - 2.1.1. Structural Alterations
    - 2.1.1.1. Ischaemic heart disease
  - 2.1.2. Acute Coronary Syndrome without Evidence of Coronary Lesions
    - 2.1.2.1. The Reason for Chronic Treatment and its Effect on Prognosis
- 2.2. Non-ST-Segment-Elevation in ACS
  - 2.2.1. Acute Management
    - 2.2.1.1. Diagnosis
    - 2.2.1.2. Treatment in the First 24 Hours
  - 2.2.2. Expected Complications and Chronic Treatment
- 2.3. ST-Segment-Elevation ACS
  - 2.3.1. Acute Management
    - 2.3.1.1. Diagnosis
    - 2.3.1.2. Treatment in the First 24 Hours
  - 2.3.2. Expected Complications and Chronic Treatment

## Module 3. Action Guides in Acute Cardiac Pathology

- 3.1. ST-Segment-Elevation ACS
- 3.2. Non-ST-Segment-Elevation ACS
- 3.3. Revascularization y DAPT
- 3.4. Heart Failure
- 3.5. Ventricular Arrhythmias and SCD - ICD Implantation Criteria
- 3.6. Syncope





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*A unique, key, and decisive master's degree experience to boost your professional development”*



# 05 Methodology

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

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



“

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

## At TECH we use the Case Method

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

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



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



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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

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

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



#### Additional Reading

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







**Expert-Led Case Studies and Case Analysis**

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



**Testing & Retesting**

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



**Classes**

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



**Quick Action Guides**

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



06

# Certificate

The Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



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

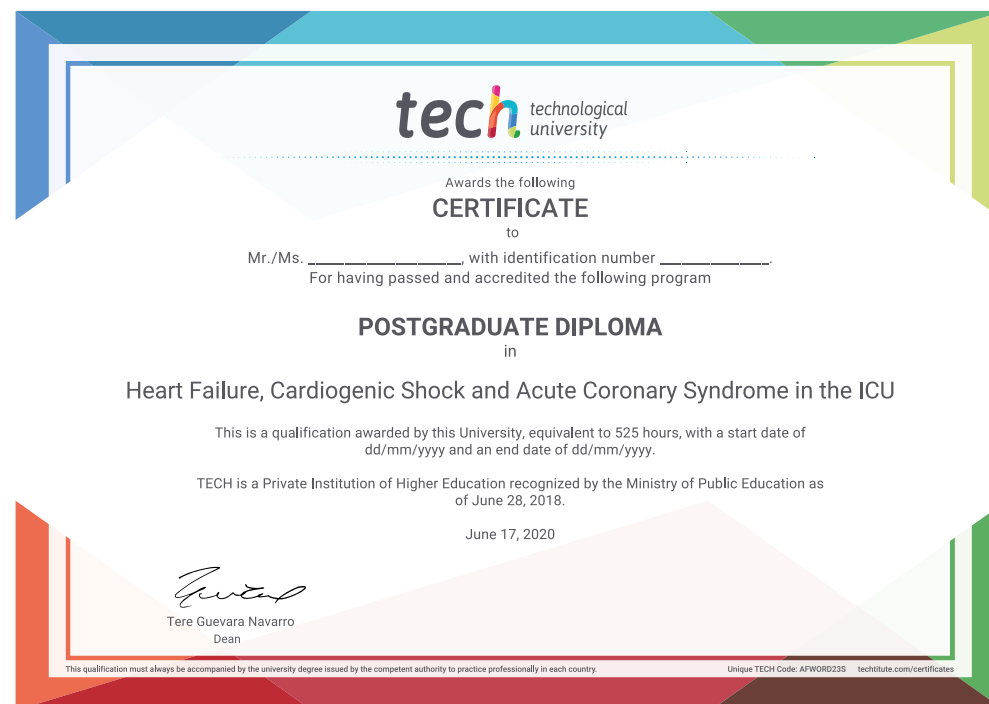
This **Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Diploma in Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU**

Official Number of Hours: **525 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION 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



## Postgraduate Diploma Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU

- » Modality: online
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# Postgraduate Diploma

Heart Failure, Cardiogenic Shock and Acute Coronary Syndrome in the ICU