

# Professional Master's Degree

## Cardiovascular Critical Care in the ICU





## Professional Master's Degree Cardiovascular Critical Care in the ICU

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/medicine/professional-master-degree/master-cardiovascular-critical-care-icu](http://www.techtute.com/in/medicine/professional-master-degree/master-cardiovascular-critical-care-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 the acute heart disease is crucial for the patient's evolution and prognosis in the short, medium and long term.



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*Improve your knowledge in Cardiovascular Critical Care in the ICU through this program, where you will find the best teaching material with real cases. Learn here about the latest advances in the specialty to be able to perform a quality medical practice"*

The field of cardiology is one of the areas of great 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 in this area; for cardiologists who aren't in daily contact with acute cardiac patients but 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 structured in a clear way, allowing the student 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 Professional Master's Degree unites the more theoretical content and latest developments on diagnosis and medical management, with other content that is focused on the students acquiring more practical skills as well. One of the modules in the Professional Master's Degree is entirely dedicated to the development of practical skills and mastering the essential techniques for dealing with critical cardiovascular patients. A second module is focused on developing the essential skills for performing and interpreting echocardiograms (ECG), and their correlation with the patient's clinical situation, to make decisions on the treatment and management of the patient.

The program is aimed at encouraging and enabling the development of essential skills in the management of a patient with acute heart disease. The type of student that will benefit from this Professional Master's Degree is one that requires training or needs to be brought up to date in the management of this type of patients. This mainly includes intensive care staff or anaesthetists who look after patients with heart disease, cardiologists who don't have daily contact with acute patients, but need to be kept up to date in how to care for them, or cardiologists interested in perfecting and deepening their knowledge on how to care for patients with critical heart disease.

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

- More than 75 clinical cases presented by experts in Cardiovascular Critical Care in the ICU. 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
- Diagnostic-therapeutic developments on assessment, diagnosis and intervention in Cardiovascular Critical Care in the ICU
- It contains practical exercises where the self-evaluation process can be carried out to improve learning
- Iconography of clinical and diagnostic imaging tests
- 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 cardiology
- Content that is accessible from any fixed or portable device with an Internet connection



*Update your knowledge through this Professional Master's Degree in Cardiovascular Critical Care in the ICU"*

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*This Professional Master's Degree may be the best investment you can make when selecting a refresher program, for two reasons: in addition to updating your knowledge in Cardiovascular Critical Care in the ICU, you will obtain a Professional Master's Degree from TECH University"*

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

The multimedia content developed with the latest educational technology will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training program 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 course. For this purpose, the physician will be assisted by an innovative interactive video system created by renowned and experienced experts in the field of Cardiovascular Critical Care in the ICU with extensive teaching experience.

*Increase your decision-making confidence by updating your knowledge through this Professional Master's Degree.*

*Take the opportunity to learn about the latest advances in Cardiovascular Critical Care in the ICU and improve your patient care.*



# 02 Objectives

The Professional Master's Degree in Cardiovascular Critical Care in the ICU is designed to facilitate the performance of the physician dedicated to the treatment of heart problems in critically ill patients.





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*This Professional Master's Degree is designed to help you update your knowledge in Cardiovascular Critical Care in the ICU, with the use of the latest educational technology, to contribute with quality and safety to decision-making, diagnosis, treatment, and patient support”*



## General Objectives

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- ♦ 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



*Take the step to get up to speed on the latest developments in Cardiovascular Critical Care in the ICU Service"*



## Specific Objectives

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### **Module 1. Management of a Critical Patient with Heart Failure and Cardiogenic Shock**

- ♦ 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

### **Module 2. Management of a Critical Patient with Acute Coronary Syndrome (ACS)**

- ♦ 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

### **Module 3. Arrhythmias and Cardiac Pacing Devices: Diagnosis and Management in the Acute Phase**

- ♦ Describe the types of tachycardia and their differential diagnosis based on the electrocardiogram characteristics findings
- ♦ Identify the pharmacological and invasive treatment options and the scientific basis that supports each one
- ♦ Explain the expected and most common electrical alterations based on the patient profile and the underlying cardiac or extracardiac pathology
- ♦ Explain the types of bradyarrhythmias and their risk of progression to cardiac arrest due to asystole

**Module 4. Non-Invasive Cardiac Imaging and Functional Tests**

- ♦ Describe the echocardiographic planes and the structures to look out for in each one of them
- ♦ Explain the hemodynamic calculations based on echocardiographic Doppler technology and their importance in the cardiovascular critical patient
- ♦ Identify the most common expected findings in an echocardiogram in a patient in surgery or undergoing structural or coronary interventionism

**Module 5. Procedures and Techniques in a Patient in Cardiovascular Critical Care**

- ♦ Identify acute complications in patients with acute myocardial infarction
- ♦ Explain the indication of intubation, invasive and non-invasive mechanical ventilation in a critical cardiovascular patient
- ♦ Describe the hemodynamic and respiratory impact of each type of ventilation
- ♦ Identify the need for drainage in a pericardial effusion

**Module 6. Special Situations in a Patient in Cardiovascular Critical Care**

- ♦ Know how balloon counterpulsation works and the indications and contraindications for its implantation
- ♦ Define the possible complications and the natural evolution of the patient undergoing cardiac surgery

**Module 7. Action Guides in Acute Heart Disease**

- ♦ Explain the echocardiographic and hemodynamic alterations present in patients with indications of emergency surgery for acute valvular disease
- ♦ Identify the key aspects in the treatment of myocarditis, pericarditis and pericardial effusion

**Module 8. Surgery, Anesthesia and Intensive Care in Heart Disease**

- ♦ Identify the main aspects of surgery in cardiopathies
- ♦ Study the process of anesthesia delivery prior to heart surgery in depth
- ♦ Develop a plan of action to be followed for care after surgery



*Make the most of the opportunity and take the step to get up to date on the latest developments in Cardiovascular Critical Care in the ICU*

# 03 Skills

After passing the assessments on the Professional Master's Degree in Cardiovascular Critical Care in the ICU, the physician will have acquired the necessary professional skills for quality, up-to-date practice based on the most recent scientific evidence.



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*With this program you will be able to master new diagnostic and therapeutic procedures in Cardiovascular Critical Care in the ICU”*



## General Skills

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- Apply the acquired knowledge, both in diagnosis and in treatment, to acute heart disease.
- Apply clinical practice guidelines and the most relevant studies in relation to the treatment of acute heart disease
- Develop resources and skills for enabling self-directed learning
- Relate clinical findings to the underlying pathophysiology that causes them
- Through the above, choose the best treatment strategy in situations where the clinical problem does not conform to clinical practice guidelines
- When performing the necessary procedures and techniques on cardiovascular critical patients, integrate the anatomical and physiological basis on which they are based into the practice
- Acquire an orderly systematic approach to the performance of a specific technique
- Be aware of the possible complications that can arise from performing techniques in critical cardiovascular patients, and anticipate the possible occurrence of such complications

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*With this program we want to meet your objective of acquiring superior training in this in-demand field"*





## Specific Skills

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- Create an appropriate treatment plan for a patient with acute pulmonary edema, accurately evaluate the response to said treatment and adapt decision-making accordingly
- Differentiate the different types of shock of the cardiogenic profile
- Manage the main vasoactive drugs and adjust the administration of each one according to the indication based on the patient's situation
- Establish the indication of the need for circulatory support and choose the appropriate one according to the patient's profile
- Accurately diagnose the patient's acute coronary event profile
- Establish a treatment strategy that is most appropriate for the type of coronary event suffered by the patient
- Anticipate and appropriately deal with possible complications that can present themselves in the context of acute coronary syndrome
- Make a diagnosis of type of arrhythmia that a patient has on the basis of electrocardiographic findings
- Correctly indicate the need for monitoring a patient with a rhythm disorder based on the possibility of it progressing to a more serious alteration
- Establish the need for transient or permanent cardiac pacing in a patient with bradycardia
- Identify the steps for implanting a transient pacemaker in a patient requiring urgent or temporary pacing
- Modify the programming of a pacemaker and defibrillator in preparation for an MRI or a surgical procedure
- Consult the programming of a pacemaker and defibrillator and identify if its operation is correct
- Acquire echocardiographic plans of sufficient quality for the identification of structures and possible alterations
- Operate an echocardiograph in its basic functions: two-dimensional, M-mode, color, pulsed and continuous Doppler
- Identify a pericardial effusion and establish the indication for percutaneous puncture to evacuate it
- Apply a systematic order to proceed with orotracheal intubation
- Apply a systematic order to proceed with pericardiocentesis
- Apply a systematic order for intra-aortic balloon counterpulsation implantation
- Apply a systematic order for intra-aortic balloon counterpulsation implantation
- Plan and indicate the appropriate treatment in patients with myocarditis and pericarditis to prevent recurrences and to support possible mechanical complications
- Identify possible postoperative complications in an echocardiogram
- Evaluate the severity of a pericardial effusion and its hemodynamic consequences
- Establish the indication for a pericardial effusion

# 04

# Course Management

The program's teaching staff includes leading specialists in Cardiovascular Critical Care in the ICU and other related areas, who bring their years of work experience to this training program. Additionally, other recognized specialists participate in the design and preparation, which means the program is developed in an interdisciplinary manner.





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*Learn the latest advances in the procedures in Cardiovascular Critical Care 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 Cardiology at Ramón y Cajal University Hospital, Madrid
- ♦ PhD in 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.
- ♦ Impact Factor > 1500. IH 84. Citations > 40,000



### **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**

- ♦ Assistant Specialist in Cardiology in the Hospitalization Unit and Cardio-diabetes Unit, Ramon and Cajal University Hospital, Madrid.

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

- ♦ Head of Acute Coronary Syndrome Section, Ramon and Cajal University Hospital, Madrid.

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

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

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

- ♦ Coordinator of the Cardiac Imaging Unit, Ramon and Cajal University Hospital, Madrid.

05

# Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities and aware of the importance of education in order to be able to intervene in Cardiovascular Critical Care in the ICU Service, and finally, committed to quality teaching through new educational technologies.





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*This Professional Master's Degree in Cardiovascular Critical Care in the ICU contains the most complete and up-to-date scientific program on the market”*

## Module 1. Management of a Critical Patient with Heart Failure and Cardiogenic Shock

- 1.1. Underlying Pathology in Heart Failure
  - 1.1.1. Structural Disorders
    - 1.1.1.1. From Anatomy to Echocardiography
  - 1.1.2. Physiological Disorders
    - 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 Adjustment of Chronic Treatment
- 1.3. Cardiogenic Shock
  - 1.3.1. Diagnostic and Prognostic Tools
    - 1.3.1.1. Differential Diagnosis of Shock
  - 1.3.2. Indication and Management of Vasoactive Drugs
  - 1.3.3. Indication and Management of Circulatory Assistancess

## Module 2. Management of a Critical Patient with Acute Coronary Syndrome (ACS)

- 2.1. Underlying Pathology in Acute Coronary Syndrome
  - 2.1.1. Structural Disorders
    - 2.1.1.1. Ischemic 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
- 2.3. Expected Complications and Chronic Treatment in NSTEMACS
- 2.4. ST-Segment Elevation ACS
  - 2.4.1. Acute Management
    - 2.4.1.1. Diagnosis
    - 2.4.1.2. Treatment in the First 24 Hours
  - 2.4.2. Expected Complications and Chronic Treatment





### Module 3. Arrhythmias and Cardiac Pacing Devices: Diagnosis and Management in the Acute Phase

- 3.1. General Principles: Cellular and Cardiac Electrophysiology Anatomy and Embryology of the Conduction System Normal and Pathological ECG
- 3.2. Channelopathies
- 3.3. Preexcitation Management

### Module 4. Non-Invasive Cardiac Imaging and Functional Tests

- 4.1. Basic Skills in Echocardiography
  - 4.1.1. Echocardiographic Planes
  - 4.1.2. Limitations in the Acute Context
  - 4.1.3. Hemodynamic Calculations
- 4.2. Special Situations
  - 4.2.1. Echocardiograms in the Initial Evaluation of the Patient
    - 4.2.1.1. The Patient in Shock and the Echocardiogram as a Diagnostic Tool
  - 4.2.2. Echocardiogram in the Hemodynamic Laboratory
  - 4.2.3. Echocardiogram in Cardiac Surgery Operating Room
  - 4.2.4. Acute Complications in Myocardial Infarction
- 4.3. General Principles of an Echocardiography Equipment
- 4.4. Transthoracic and Transesophageal Echocardiography
- 4.5. Cardiac CAT
- 4.6. Magnetic Resonance
- 4.7. Functional Tests

### Module 5. Procedures and Techniques in a Patient in Cardiovascular Critical Care

- 5.1. Intubation and Invasive Mechanical Ventilation
  - 5.1.1. Orotracheal Intubation
    - 5.1.1.1. Available Tools and Technique
  - 5.1.2. Mechanical Ventilation
    - 5.1.2.1. Forms of Ventilation
    - 5.1.2.2. Adjustment Depending on the Hemodynamic and Respiratory Situation of the Patient
- 5.2. Pericardiocentesis
  - 5.2.1. Indications
  - 5.2.2. Technique
  - 5.2.3. Alternatives to Pericardial Drainage
- 5.3. Arterial and Central Venous Cannulation
  - 5.3.1. Indications
  - 5.3.2. Technique
- 5.4. Balloon Counterpulsation
  - 5.4.1. Indications
  - 5.4.2. Implantation Technique
- 5.5. Transient Pacemaker
  - 5.5.1. Indications
  - 5.5.2. Implantation Technique

## Module 6. Special Situations in a Patient in Cardiovascular Critical Care

- 6.1. The Patient Before, During and After Cardiac Surgery
  - 6.1.1. Aspects to Monitor
  - 6.1.2. Evolution
  - 6.1.3. Expected Complications
  - 6.1.4. Vascular Surgery Indications
  - 6.1.5. Emergency Coronary Surgery Indications
- 6.2. Acute Valvular Disease
  - 6.2.1. Endocarditis
  - 6.2.2. Other Indications of Emergency Surgery
- 6.3. Myocarditis
  - 6.3.1. Certainties and Controversies in Acute Management
- 6.4. Pericarditis, Pericardial Effusion and Cardiac Tamponade
  - 6.4.1. Acute and Chronic Treatment Options in Pericarditis

## Module 7. Action Guides in Acute Heart Disease

- 7.1. ST-Segment Elevation ACS
- 7.2. Non-ST-Segment Elevation ACS
- 7.3. Revascularization and DAPT
- 7.4. Heart Failure
- 7.5. Ventricular Arrhythmias and SCD - ICD Implantation Criteria
- 7.6. Syncope.



**Module 8. Surgery, Anesthesia and Intensive Care in Heart Disease**

- 8.1. Up-to-date Information on Congenital Cardiac Surgery
  - 8.1.1. Introduction and History of Congenital Heart Disease
  - 8.1.2. Principles of ECLS and ECMO
  - 8.1.3. Ventricular and Transplant Care
- 8.2. Palliative and Corrective Surgical Techniques
  - 8.2.1. Surgical Techniques on Septal Defects and Rings
  - 8.2.2. IVC and IAC Partial Pulmonary Venous Anomalies
  - 8.2.3. AV Channel AP Window Cor Triatriatum
  - 8.2.4. TAPVR Vascular Rings, DAP
  - 8.2.5. Right Heart Surgical Techniques
  - 8.2.6. TOF
  - 8.2.7. PA/IVS
  - 8.2.8. Tricuspid Valve
  - 8.2.9. RVOT and Pulmonary Valve
  - 8.2.10. Left Heart Surgical Techniques
  - 8.2.11. Aortic Valve
  - 8.2.12. Mitral Valve and Coronary Anomalies
  - 8.2.13. Surgical Techniques of the Main Veins
  - 8.2.14. Aorta, Coarctation of the Aorta, IAA
  - 8.2.15. TGA and Truncus
  - 8.2.16. Single Ventricle
- 8.3. Low Postoperative Expense Cardiac Dysfunction
- 8.4. Renal Complications Renal Purification Techniques
- 8.5. Pulmonary Complications Ventilatory Support Techniques Pulmonary Hypertension Crisis
- 8.6. Other Complications
  - 8.6.1. Postoperative Infections Pneumonia, Sepsis and Infections of the Surgical Wound Mediastinitis
  - 8.6.2. Cardiac Tamponade Phrenic Plication and Others



*A unique, key, and decisive training experience to boost your professional development”*

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.





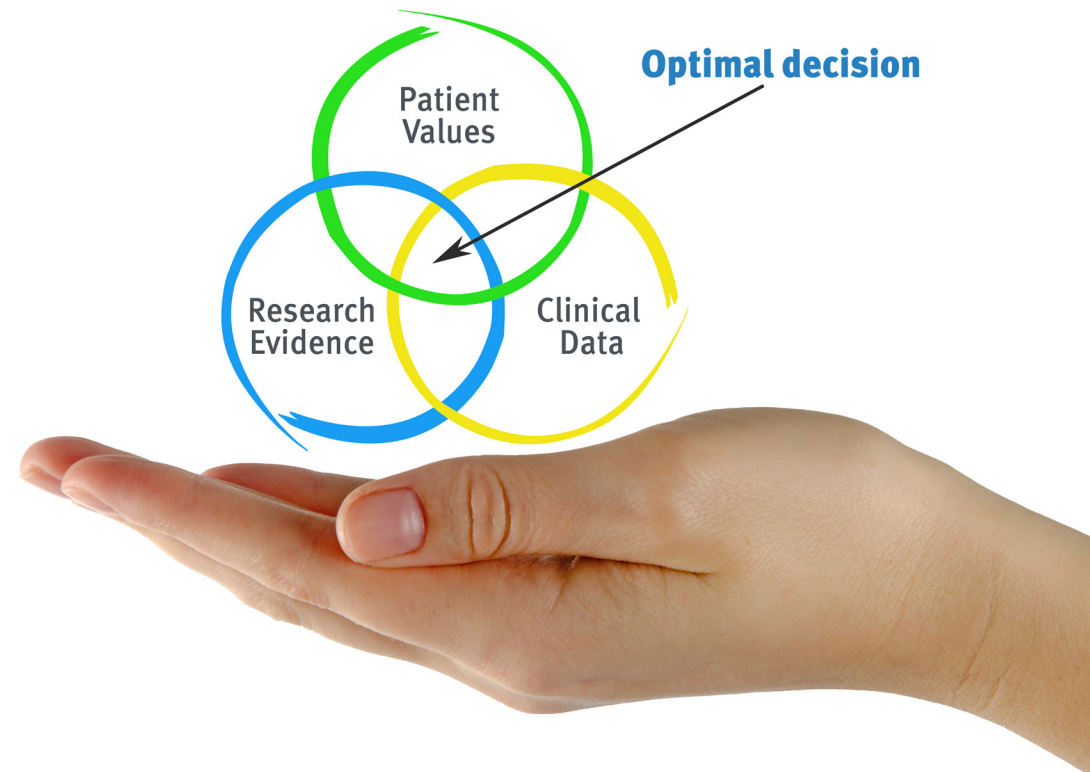
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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.

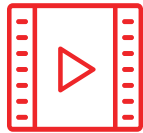
*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

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

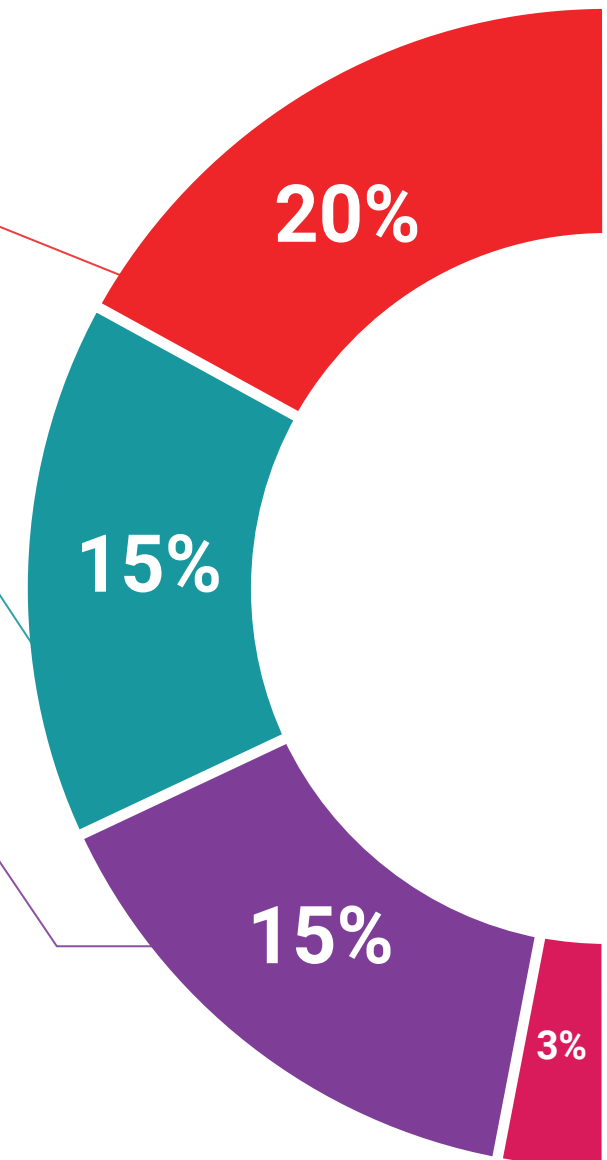
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

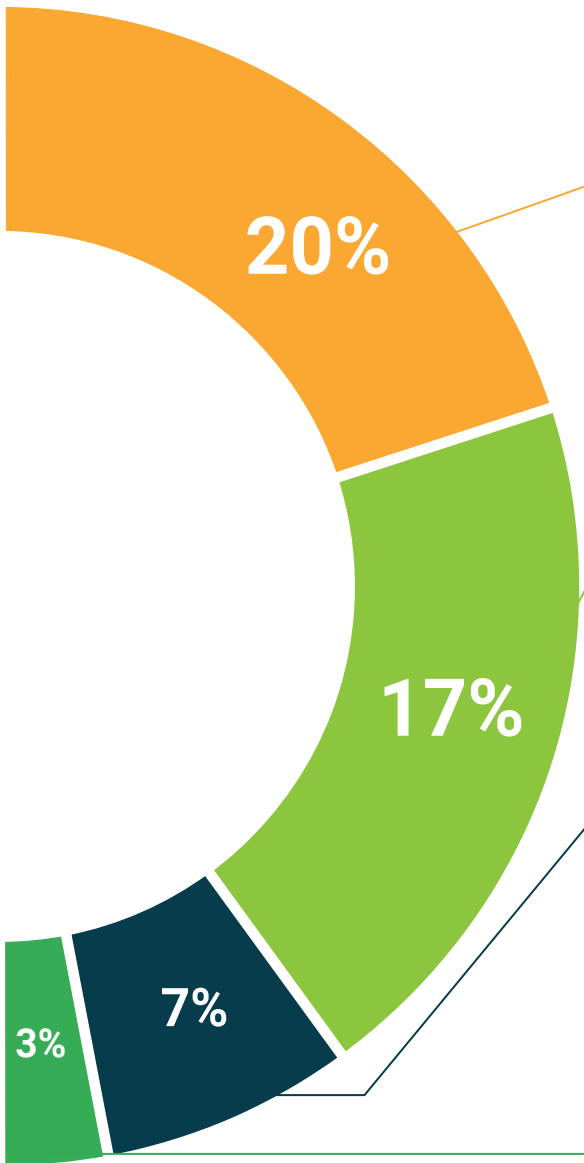
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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.



07

# Certificate

The Professional Master's Degree in Cardiovascular Critical Care in the ICU guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree diploma issued by TECH Technological University.



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

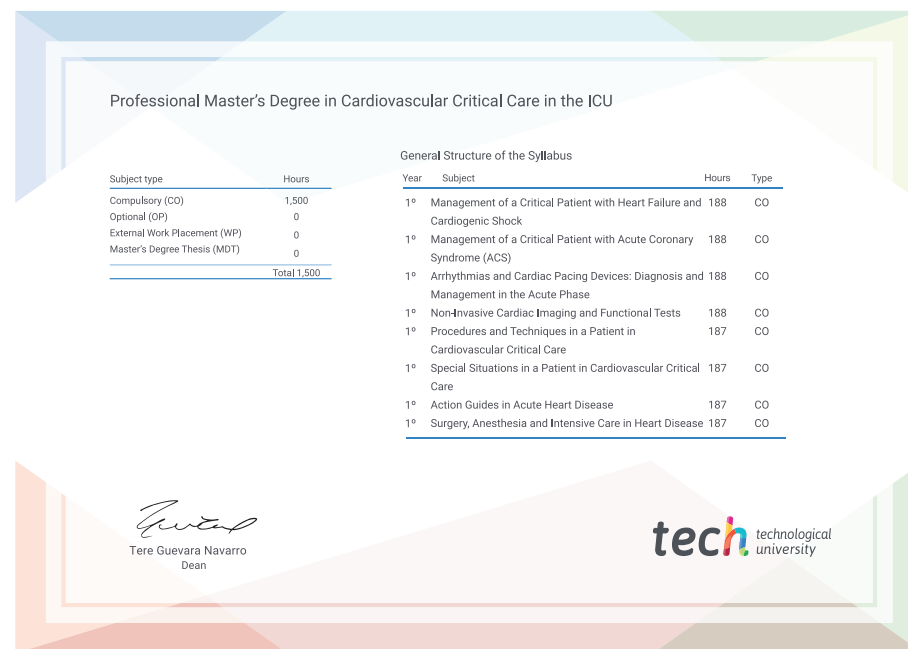
This **Professional Master's Degree in Cardiovascular Critical Care in the ICU** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Cardiovascular Critical Care in the ICU**

Official N° of Hours: **1.500 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.



## Professional Master's Degree

Cardiovascular Critical  
Care in the ICU

- › Modality: online
- › Duration: 12 months
- › Certificate: TECH Technological University
- › Dedication: 16h/week
- › Schedule: at your own pace
- › Exams: online

# Professional Master's Degree

## Cardiovascular Critical Care in the ICU