

# Professional Master's Degree Cardiovascular Nursing



## Professional Master's Degree Cardiovascular Nursing

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

Website: [www.techtitute.com/in/nursing/professional-master-degree/master-cardiovascular-nursing](http://www.techtitute.com/in/nursing/professional-master-degree/master-cardiovascular-nursing)

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# 01

# Introduction

The leading cause of death in the world is ischemic heart disease, which is responsible for 16% of all deaths worldwide. Far from falling, these percentages are increasing year on year, reaching 8.9 million deaths in recent years. The study and research of cardiovascular diseases therefore plays an essential role in the development of specialized plans and measures for treating patients. Specific training in the latest epidemiological, diagnostic and therapeutic developments will allow nurses to apply their knowledge to their patients on a daily basis. Students will be able to balance this program with their professional and personal lives, since it is taught in a virtual classroom format, so they only need an electronic device and an Internet connection to have unlimited access to the syllabus.



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*Scientific innovation increasingly drives cardiovascular nurses. In this program, you will have access to the latest developments in Congenital Obstructive Disorders and non-pharmacological treatment”*

Cardiology has progressively incorporated new advances in genetics and molecular biology studies. Cardiovascular nurses must continually update their knowledge and techniques to incorporate them into their daily practice.

The contexts in which cardiovascular nursing is involved are innumerable, as the factors that specifically concern this specialty include population aging, social, economic and consumer changes, and worsening air quality, among others. Healthcare systems must respond to the increase in clinical cases with an up-to-date perspective, addressing the growing complexities based on the latest scientific postulates.

During the program, healthcare professionals will update their knowledge in the treatment and care of patients diagnosed with the main cardiovascular pathologies, including diseases of the myocardium and pericardium, coronary artery disease and arrhythmias.

The Professional Master's Degree in Cardiovascular Nursing aims to refresh and update the professional's skills in the field of cardiology. TECH has a teaching team of practicing cardiology specialists, with careers dedicated to specialization and the pursuit of innovative medical techniques, and a commitment to providing nurses with material that combines current theory and its application in practical cases. The entire syllabus is designed in such a way that it can be viewed, studied and practiced, with self-knowledge exercises from anywhere, since the teaching is 100% online.

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

- ♦ Practical cases presented by experts in Cardiology Nursing
- ♦ 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 the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Access to content from any fixed or portable device with an Internet connection



*You will get up to speed on the main acute cardiovascular syndromes, as well as acute coronary syndromes, left and right heart failure, among others"*

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*You will obtain an up-to-date view on the classification of the different cardiomyopathies from their diagnosis, treatment, evolution and follow-up, differentiating between congenital heart disease and hereditary heart disease"*

The program's teaching staff includes professionals from the sector who contribute their work experience to this program, as well as renowned specialists from leading societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow professionals to learn in a contextual and situated learning environment, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, by means of which professionals must try to solve the different professional practice situations that are presented to them throughout the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*You will analyze the functioning of the Cardiac Rehabilitation Units and the different functions of the professionals in the field of Cardiology.*

*You will have access to a library of contents created by specialists in Cardiology, with high-quality theoretical and practical content.*



# 02 Objectives

The design of the program of this Professional Master's Degree in Cardiovascular Nursing guarantees up-to-date knowledge in cardiology for nursing professionals. In addition, protocols for balanced evaluations of the use of medical resources in relation to individual, social and collective benefit will be reviewed. The specific and general objectives of the program are developed following the maxims of quality that characterize TECH, offering the most innovative tools in the study and application of techniques in prevention, diagnosis and treatment of patients with heart disease.





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*In-depth study of Diagnostic Imaging in Cardiology, including specific topics in Transesophageal Echocardiograms, Stress Echocardiograms and Fundamentals in Cardioresonance”*



## General Objectives

- ◆ Update knowledge in the treatment and care of patients diagnosed with the main cardiovascular pathologies, including myocardial and pericardial diseases, coronary artery disease and arrhythmias
- ◆ Ensure that nurses' knowledge of cardiology is updated and improve their qualification in order to encourage them in their daily work and increase their professional motivation
- ◆ Enhance the professionals' ability to make a balanced assessment of the use of health resources in relation to the individual, social and collective benefit that can be derived from such use
- ◆ Enable the establishment of communication tools among health professionals within a multidisciplinary team
- ◆ Improve the perception of the social role of nursing professionals, as individual agents in a general health care system and of the ethical requirements that this entails





## Specific Objectives

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### Module 1. Cardiovascular Risk Factors

- ◆ Identify the risk factors, the analysis of their predictive capacity and the consequences that these observations have in terms of prevention
- ◆ Provide the necessary knowledge for coordinated work between all the links in public health and, in particular, between the family physician/primary care and health professionals (nurses and specialized care physicians-Cardiology)
- ◆ Promote the early detection of patients at risk, their control and follow-up, preventing the medium and long-term development of cardiovascular disease and type 2 DM and, in particular, associated complications such as cardiac or neurological complications, with the high cost to public health and society due to limitations and personal dependence.

### Module 2. Valvular Myocardial and Pericardial Disease

- ◆ Clarify knowledge of the different cardiomyopathies, their inheritance, clinical presentation and evolution
- ◆ Learn more about these cardiomyopathies because they can present with sudden death as clinical debut, and their tendency to affect patients in younger decades of life, otherwise considered healthy from the cardiovascular point of view

### Module 3. Genetics and Other Cardiovascular Diseases

- ◆ Classify the different cardiomyopathies from diagnosis, treatment, evolution and follow-up, as well as know the difference between congenital heart disease and hereditary or familial heart disease
- ◆ Identify, evaluate and approach the end-of-life phase of cardiological patients, with a correct application of palliative care
- ◆ Know and approach patients with less prevalent pathologies, but with high morbimortality such as pulmonary thromboembolism and cardiac tumors
- ◆ Know the role of nurses in the cardiological clinical research area

#### **Module 4. Clinical Fundamentals of Diagnostic Imaging in Cardiology: Imaging Techniques**

- ♦ Understand the basic anatomical planes that define an echocardiographic study
- ♦ In-depth knowledge in the pathophysiological changes that occur in the different cardiac pathologies
- ♦ Have notions about the basic aspects to be analyzed with Doppler echocardiography in the different cardiac pathologies
- ♦ Learn more about the different types of studies and indications of nuclear cardiology

#### **Module 5. Cardiac Arrhythmias and Electrophysiology**

- ♦ Incorporate the necessary knowledge for the adequate periodicity and quality control of patients with implantable devices (insertable Holter, pacemakers, ICDs and resynchronizers)
- ♦ Provide the student with the necessary knowledge to guarantee the care of patients with arrhythmias

#### **Module 6. Coronary Artery Disease: Hemodynamics**

- ♦ In-depth knowledge of the indications and contraindications of percutaneous interventional procedures, surgery and medical treatment, as well as to have experience in the prevention, diagnosis and treatment of possible complications of the procedures (coronary dissection, perforation, *No Reflow* phenomenon, hemorrhagic and vascular complications, etc.)
- ♦ In-depth knowledge of techniques for the treatment of non-coronary heart disease, usually included under the heading of structural heart disease
- ♦ Acquire an integral and up-to-date vision of the operation of hemodynamic and interventional units

#### **Module 7. Heart Failure**

- ♦ Acquire competence in performing a clinical examination and evaluating treatment effects
- ♦ Provide the student with a comprehensive knowledge of HF, its causes, natural history, prevention, diagnosis and treatments based on scientific evidence, including pharmacological and non-pharmacological therapies; devices and surgery, with special emphasis on drug titration
- ♦ Acquire skills in assessing educational and psychosocial needs and providing patient education and psychosocial support

#### **Module 8. Acute Cardiovascular Care**

- ♦ Know the hospital management of the main acute cardiovascular syndromes such as acute coronary syndromes, left and right heart failure, arrhythmias, cardiac arrest, acute aortic syndromes and acute complications of valvular, myocardial and pericardial diseases
- ♦ Obtain the essential knowledge to understand, prevent and manage the most frequent complications and comorbidities in patients with critical cardiac disease (hydroelectrolytic, metabolic, respiratory, renal and infectious)
- ♦ Acquire basic knowledge of the techniques and procedures most commonly used in these patients, such as vascular punctures, hemodynamic monitoring and circulatory support systems, induced hypothermia systems, orotracheal intubation and invasive and non-invasive mechanical ventilation, pericardiocentesis, insertion of pacemakers and other electrical devices, and extrarenal depuration systems, as well as nutritional support and concomitant medication

**Module 9. Cardiac Rehabilitation**

- ♦ Analyze the functioning of Cardiac Rehabilitation Units and the different functions of the professionals
- ♦ Detect the different cardiovascular risk factors and know the guidelines for their control
- ♦ Learn the diagnostic techniques when classifying the prognostic risk of patients
- ♦ Know the benefits and application of cardiac rehabilitation programs

**Module 10. Organizational, Diagnostic and Therapeutic Innovation in Endovascular Care**

- ♦ Emphasize the importance of the nurse's attitude and the way of relating to the patient as a necessary condition to favor the process of change and development of the human being
- ♦ In-depth knowledge of the principles of ethics applied to cardiovascular interventions
- ♦ Assume the dignity of the person as a central value

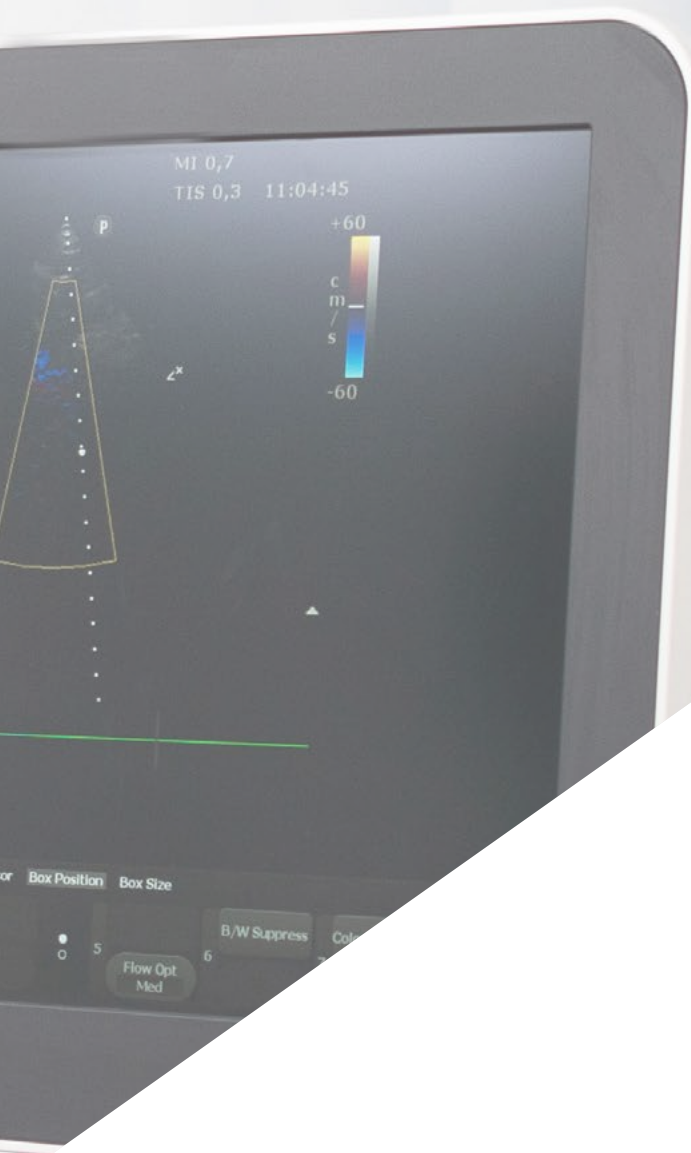


*You will have all the multimedia material, complementary reading material and self-knowledge exercises at your fingertips in a virtual classroom available 24 hours a day"*

# 03 Skills

The structure of this Professional Master's Degree brings students the latest advances in skills and scientific developments in the field of cardiology. The requirements for nurses are to be up to date in the health specialty they practice. Access to the main imaging techniques in cardiovascular diagnostics, with an up-to-date teaching approach, will provide nurses with the opportunity to continue to improve their skills in a continuous effort to maintain a high level of practice.





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*You will continue to improve your skills in pathologies such as bradyarrhythmias, cardiac arrest or supraventricular tachyarrhythmias”*



## General Skills

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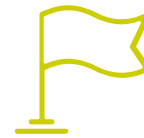
- Know the pathway to the identification of factors associated with cardiovascular disease
- Know and understand the main imaging techniques used in cardiological diagnosis
- Correctly interpret the results of cardiac imaging tests
- Acquire a comprehensive and up-to-date vision in the field of acute and critical cardiac care that brings together hospital care, primary care and socio-health care of patients
- Identify the work of cardiac rehabilitation units
- Know the main contribution and the truly innovative aspect of person-centered care models as opposed to service-oriented models, in which even though individualized care is one of their objectives, the subject has a more passive role and is placed as a recipient of services, with the professionals, in their role as experts, prescribing what is most appropriate for their individual needs

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*You will get an up-to-date diagnosis on restrictive cardiomyopathies and hypertrophic cardiomyopathy, their symptoms, treatments and prognosis”*







## Specific Skills

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- ♦ Apply the knowledge, skills and attitudes necessary to care for patients diagnosed with heart failure in a scientific, up-to-date, safe and effective manner
- ♦ Solve, individually or as a member of a team, health problems with efficiency and quality criteria
- ♦ Explain the diagnostic particularities of the different cardiomyopathies, approaching them from their epidemiology, clinical and genetic point of view
- ♦ Apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study
- ♦ In-depth study of the different types of cardiomyopathies from their epidemiology, diagnosis, treatment, evolution and follow-up by nurses
- ♦ Manage the current indications of cardio resonance and cardio CT
- ♦ Perform the different treatments according to the etiology and severity of the heart disease
- ♦ Handle and interpret stress and contrast echocardiography techniques, as well as their main indications

04

# Course Management

The faculty is made up of active nursing professionals committed to their careers, always committed to innovation and research in the field of cardiac pathologies. TECH selects, after an exhaustive search of résumés, the best health professionals who, in addition to having an extraordinary work background, are able to meet the quality standards in the educational methodology that characterize the university.



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*Thanks to the teaching methodology of the Professional Master's Degree, you will be able to balance your professional and personal life with one of the best online educational systems"*

## Management



### Ms. Capote Toledo, María Luz

- ♦ Supervisor of Heart Failure, Cardiac Rehabilitation, Cardiopulmonary Explorations (Imaging, Ergometry and Holter) and High-Resolution Cardiology Consultations at Clinical Hospital San Carlos in Madrid
- ♦ Coordinator of the Hemodynamics and Arrhythmia Room at the Hospital Príncipe de Asturias and Hospital Severo Ochoa, in Madrid
- ♦ Supervisor of Hemodynamics and Electrophysiology at San Carlos Clinical Hospital, in Madrid
- ♦ Associate Professor of the Faculty of Nursing, Physiotherapy and Podiatry at the Complutense University of Madrid
- ♦ Graduate in Nursing at the Complutense University of Madrid
- ♦ Master 's Degree in Health Care Quality, Rey Juan Carlos University in Madrid in collaboration with the Laín Entralgo Agency

## Professors

### Ms. Gómez Barriga, María Dolores

- ♦ Cardiology Supervisor at the Cardiovascular Institute of the San Carlos Clinical Hospital in Madrid
- ♦ Graduate in Nursing at the Complutense University in Madrid
- ♦ Diploma in Physiotherapy at Rey Juan Carlos University, Madrid
- ♦ Master's Degree in Health Management at the University of La Rioja
- ♦ Course in Ultrasound: study of the musculoskeletal system for Physiotherapists, Continuing Education Commission of the Health Professions of the Valencian Community

### Ms. Pérez Serrano, Mónica

- ♦ Nurse at the Heart Failure Unit of the San Carlos Clinical Hospital in Madrid
- ♦ Diploma in Nursing from the European University of Madrid
- ♦ Master's Degree in Value Based Management at Rey Juan Carlos University in Madrid
- ♦ Expert in Heart Failure for Nurses at the Francisco de Victoria University
- ♦ Expert in Operating Room and Resuscitation at the European University of Madrid
- ♦ Expert in Nursing in out-of-hospital emergencies at Universidad Europea de Madrid

**Mr. López García, David**

- ♦ Nurse at Clinical Hospital San Carlos in Madrid
- ♦ Degree in Nursing at the Francisco de Vitoria University
- ♦ Course of Clinical Electrocardiography. Diagnosis and Treatment of Cardiac Arrhythmias at Clinical Hospital San Carlos in Madrid
- ♦ Course of Essential Concepts in the Hemodynamics Room at Medtronic
- ♦ Course on Coronary and Structural -CSC 21- Nursing at Clinical Hospital San Carlos

**Ms. López Yaguez, María**

- ♦ Nurse in Intensive Care Unit at Clinical Hospital San Carlos in Madrid
- ♦ Diploma in Nursing from the Complutense University of Madrid
- ♦ Expert in Heart Failure for Nurses at the Francisco de Vitoria University UFV in Madrid
- ♦ Refresher course and multidisciplinary management in HF by the Commission of continuing education of the health professions of the community of Madrid
- ♦ Course in Cardiorespiratory Nursing by Alfonso X El Sabio University in Madrid

**Ms. Seguido, Cristina**

- ♦ Nurse in Hemodynamics-Electrophysiology and ICU at University Hospital Príncipe de Asturias, HUPA in Madrid
- ♦ Surgical Block Nurse at University Hospital Príncipe de Asturias in Madrid
- ♦ Diploma in Nursing at the University of Alcalá de Henares in Madrid
- ♦ National Course of Implantation of PICC in University Hospital Príncipe de Asturias in Madrid
- ♦ Course in Diagnosis and Treatment of Cardiac Arrhythmias at Clinical Hospital San Carlos in Madrid

**Ms. Ropero, Rosa**

- ♦ Nurse of the ICU-Hemodynamics Department at the University Hospital Príncipe de Asturias in Madrid
- ♦ Diploma in Nursing at the University of Castilla-La Mancha
- ♦ Advanced CPR expert level courses at HUPA, Madrid
- ♦ Mechanical Ventilation courses at HUPA, Madrid
- ♦ Courses of Continuous Extracorporeal Depuration Techniques in Hospital 12 de octubre, Madrid

**Dr. Baigorri Ruiz, Elda**

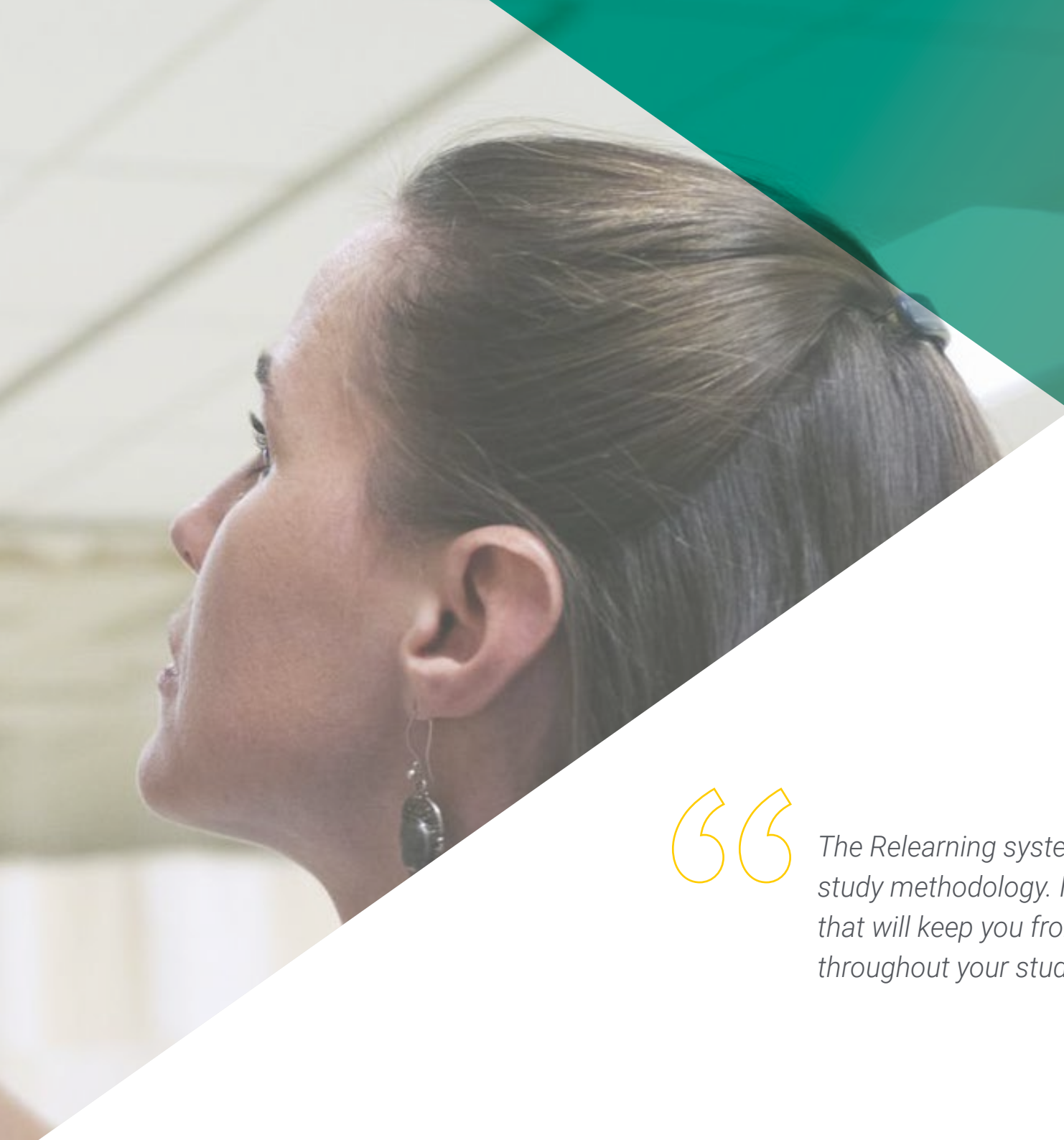
- ♦ Nurse at the Clinical Hospital San Carlos, in Madrid
- ♦ Nurse belonging to the Pain Commission at Clinical Hospital San Carlos, Madrid
- ♦ Doctoral candidate in Health Care, Complutense University of Madrid
- ♦ Degree in Nursing at European University of Madrid
- ♦ Master's Degree in Health Management and Planning, European University of Madrid
- ♦ Master's Degree in Emergency and Critical Care Nursing, European University of Madrid
- ♦ Specialist university in Emergency Nursing and Outpatient Emergencies from the European University of Madrid

# 05

## Structure and Content

The syllabus of this program in Cardiovascular Nursing is divided into 10 modules and will be taught progressively over 12 months. Thanks to this structure, the nurse will have a global and specialized vision in each section, always linked to the learning axis of the use of tools in the diagnosis of cardiovascular diseases. The methodology used by teachers and TECH is the Relearning method. This educational facilitates the acquisition of knowledge by repeating the concepts in the different contexts that take place in the program. In an organic way, the study of techniques and theoretical notions will become part of the nursing professionals, being able to incorporate them into their daily practices without hesitation.





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*The Relearning system is a highly effective study methodology. It is the learning vehicle that will keep you from getting discouraged throughout your studies"*

## Module 1. Cardiovascular Risk Factors

- 1.1. Cardiovascular Prevention
  - 1.1.1 When and How to Assess Risk
- 1.2. Nutrition
  - 1.2.1 Body Weight
- 1.3. Sedentary Lifestyle and Physical Activity
- 1.4. High Blood Pressure
  - 1.4.1 Classification
  - 1.4.2 Treatment
- 1.5. Lipid Control
- 1.6. Intervention on Smoking Habits
- 1.7. Diabetes Mellitus
  - 1.7.1 Cardiovascular Risk
- 1.8. Behavioral Changes and Psychosocial Factors
- 1.9. Therapeutic Adherence
  - 1.9.1 Strategies for Improvement
- 1.10. Continuity of Care
  - 1.10.1 Coordination between Cardiology and Primary Care
  - 1.10.2 Disease-Specific Intervention vs. How to Intervene on a Population Scale

## Module 2. Valvular Myocardial and Pericardial Disease

- 2.1. Acute Myocarditis
- 2.2. Dilated Cardiomyopathy (DCM)
  - 2.2.1 Causes and Symptoms
  - 2.2.2 Recent Advances and Current Treatment
- 2.3. Restrictive Cardiomyopathies
- 2.4. Hypertrophic Cardiomyopathy (HCM)
  - 2.4.1 Symptoms, Diagnosis
  - 2.4.2 Genetic Studies
  - 2.4.3 Treatment and Prognosis

- 2.5. Etiology and Classification of Pericardial Diseases
  - 2.5.1 Congenital Pericardial Defects
  - 2.5.2 Acute Pericarditis
  - 2.5.3 Chronic Pericarditis
  - 2.5.4 Recurrent Pericarditis
  - 2.5.5 Pericardial Effusion and Cardiac Tamponade
  - 2.5.6 Constrictive Pericarditis
  - 2.5.7 Pericardial Cysts
  - 2.5.8 Specific Forms of Pericarditis: Bacterial, Tuberculous, in Renal Insufficiency, etc.
- 2.6. Rheumatic Fever and Rheumatic Heart Disease
- 2.7. Tricuspid Valve Disease
  - 2.7.1 Tricuspid Regurgitation
  - 2.7.2 Tricuspid Stenosis
- 2.8. Aortic and Mitral Valve Disease
- 2.9. Infectious Endocarditis
- 2.10. Inflammatory Disorders of the Cardiac Valves
  - 2.10.1 Non-Bacterial Thrombotic Endocarditis
  - 2.10.2 Endocarditis in Systemic Lupus Erythematosus

## Module 3. Genetics and Other Cardiovascular Diseases

- 3.1. Pediatric Congenital Heart Disease
- 3.2. Adult Congenital Heart Disease
  - 3.2.1 Left to Right Short Circuits
    - 3.2.1.1 Atrial Septal Defect (ASD)
    - 3.2.1.2 Ventricular Septal Defect (VSD)
    - 3.2.1.3 Patent Ductus Arteriosus (PDA)
    - 3.2.1.4 Atrioventricular Septal Defect (AVSD)



- 3.2.2 Right-to-Left Short Circuits
  - 3.2.2.1. Tetralogy of Fallot
  - 3.2.2.2. Transposition of the Great Arteries
  - 3.2.2.3. Truncus Arteriosus
  - 3.2.2.4. Tricuspid Atresia
  - 3.2.2.5. Total Anomalous Connection of the Pulmonary Veins
- 3.2.3 Obstructive Congenital Disorders
  - 3.2.3.1. Pulmonary Stenosis and Atresia
  - 3.2.3.2. Aortic Stenosis and Atresia
- 3.3. Primary Rhythm and Conduction Disorders
  - 3.3.1 Marfan Syndrome
  - 3.3.2 Ehlers-Danlos Syndrome
  - 3.3.3 Elastic Pseudoxanthoma
- 3.4. Hereditary Circulatory Disorders
  - 3.4.1 Hereditary Hemorrhagic Telangiectasia
  - 3.4.2 Van Hippel-Lindau Syndrome
  - 3.4.3 Arterial Disease
  - 3.4.4 Venous Disease
- 3.5. Pulmonary Thromboembolism and Pulmonary Hypertension
- 3.6. Oral Anticoagulation in Cardiology
- 3.7. Cardiac Tumors
- 3.8. Palliative Care in Cardiology
- 3.9. Clinical Trials in Cardiology
- 3.10. Amyloidosis

#### Module 4. Clinical Fundamentals of Diagnostic Imaging in Cardiology: Imaging Techniques

- 4.1. Chest X-Ray
- 4.2. Fundamentals of Doppler Echocardiography
- 4.3. Complete Transthoracic Echocardiography
- 4.4. Transesophageal Echocardiogram
  - 4.4.1 Main Indications

- 4.5. Echocardiogram in the Different Cardiac Pathologies
  - 4.5.1 Echocardiogram in Valvular Diseases
  - 4.5.2 Echocardiogram in Ischemic Heart Disease
  - 4.5.3 Echocardiogram in Emergency Situations
  - 4.5.4 Other Diseases
- 4.6. Stress Echocardiogram
  - 4.6.1 Indications
- 4.7. Contrast Echocardiogram
  - 4.7.1 Indications
- 4.8. Fundamentals of Nuclear Cardiology
  - 4.8.1 Main Indications
- 4.9. Fundamentals of Cardioresonance
  - 4.9.1 Clinical Applications
- 4.10. Fundamentals of Cardiac CT
  - 4.10.1 Clinical Applications

#### Module 5. Cardiac Arrhythmias and Electrophysiology

- 5.1. Bradyarrhythmias
  - 5.1.1 Study of Sinus Function in the Electrophysiology Laboratory: Sinus Node Ablation
  - 5.1.2 Electrophysiology of Atrioventricular Conduction: AV Node Radiofrequency Ablation
- 5.2. Supraventricular Tachycardias I
  - 5.2.1 Electrophysiological Differential Diagnosis of Narrow QRS Complex Supraventricular Tachycardias
  - 5.2.2 Intranodal Reentrant Tachycardia
  - 5.2.3 Accessory Pathways: Classification and/or Electrocardiographic Identification
  - 5.2.4 Accessory Pathways Ablation
  - 5.2.5 Atrial Tachycardia
- 5.3. Supraventricular Tachycardias II
  - 5.3.1 Atrial Flutter
  - 5.3.2 Atrial Fibrillation
- 5.4. Ventricular Tachycardias (VT)
  - 5.4.1 Differential Diagnosis of Wide QRS Complex Tachycardia
  - 5.4.2 VT in Ischemic Heart Disease: Invasive Treatment
  - 5.4.3 VT in Non-Ischemic Heart Disease
  - 5.4.4 VT without Structural Heart Disease

- 5.5. Extrasystoles: Antiarrhythmic Drugs
- 5.6. Syncope
  - 5.6.1 Classification
  - 5.6.2 Initial Diagnostic Strategy in Patients with Transient Loss of Consciousness
  - 5.6.3 Tests Aimed at Diagnosing an Arrhythmic Etiology of Syncope
  - 5.6.4 Patient Strategy with Syncope of Unknown Etiology
- 5.7. Non-Invasive Tests in Electrophysiology
  - 5.7.1 Tilt Table Test
  - 5.7.2 Ambulatory Electrocardiogram Monitoring
- 5.8. Electrophysiology Devices: Device Implantation Techniques
  - 5.8.1 Pacemakers
    - 5.8.1.1. Implant Indications, Types and Programming
    - 5.8.1.2. Components of a Cardiac Pacing System
    - 5.8.1.3. Pacing Modes, Letter Code
    - 5.8.1.4. Selection of the Stimulation Mode, Programmable Parameters
    - 5.8.1.5. Monitoring a Patient with a Pacemaker: Complications
    - 5.8.1.6. Questions and Tests
    - 5.8.1.7. Frequency of Monitoring
    - 5.8.1.8. Remote Transtelephonic Monitoring
  - 5.8.2 Implantable Cardioverter-Defibrillator (ICD)
    - 5.8.2.1. Implant Indications, Types and Programming
    - 5.8.2.2. Types of ICDs: Device Selection
    - 5.8.2.3. Programming of ICDs
    - 5.8.2.4. ICD Patient Monitoring
    - 5.8.2.5. Recommendations for ICD Patients
    - 5.8.2.6. Complications in Patients with ICDs
  - 5.8.3 Cardiac Resynchronization
    - 5.8.3.1. Indications for Implantation, Types and Device Programming
    - 5.8.3.2. Monitoring a Patient with a Resynchronizer
    - 5.8.3.3. Pre-Discharge Management
    - 5.8.3.4. Post-Discharge and Long-Term Monitoring

- 5.9. Arrhythmias and Sport: Sudden Death
  - 5.9.1 Cardiovascular Adaptations to Exercise
  - 5.9.2 Sudden Death in Athletes
  - 5.9.3 Recommendations on Recreational and Competitive Sports Practice in Cardiopathic Patients
  - 5.9.4 Pediatric Arrhythmias
- 5.10. The Nurse, a Key Figure in Arrhythmia Units
  - 5.10.1 Scope of Action in Arrhythmia Units

## Module 6. Coronary Artery Disease: Hemodynamics

- 6.1. Pathophysiology of Atherosclerosis
  - 6.1.1 Characteristics of Coronary Arterial Lesions
- 6.2. Stable Angina
- 6.3. Acute Coronary Syndrome: With and without ST Elevation
  - 6.3.1 Non-ST Elevation Acute Coronary Syndrome (NSTEMI-ACS)
  - 6.3.2 ST Segment Elevation Acute Coronary Syndrome
- 6.4. Treatment of Coronary Heart Disease
- 6.5. Right Heart Catheterization
- 6.6. Percutaneous Interventions in Structural Heart Disease
  - 6.6.1 Percutaneous Aortic Valve Interventions: Aortic Valvuloplasty + TAVI Implantation
  - 6.6.2 Percutaneous Mitral Valve Interventions
- 6.7. Drugs Associated with Coronary Interventionism
- 6.8. Vascular Access Routes
- 6.9. Hemostasis Methods
- 6.10. Nursing Care for Patients Undergoing Catheterization

## Module 7. Heart Failure

- 7.1. General Epidemiology of Heart Failure
  - 7.1.1 Prevalence, Incidence, Hospitalizations and Mortality Due to Heart Failure
  - 7.1.2 Demographic and Clinical Characteristics
- 7.2. Heart Failure Pathophysiology
  - 7.2.1 Pathophysiological Mechanisms: Residual Congestion
  - 7.2.2 Etiology
  - 7.2.3 Classification of Heart Failure
  - 7.2.4 Clinical Manifestations
  - 7.2.5 Prognosis and Risk Stratification
- 7.3. Diagnosis of Heart Failure
  - 7.3.1 Diagnostic Elements: Imaging Techniques
  - 7.3.2 Biomarkers in the Diagnosis and Prognosis of HF
  - 7.3.3 Clinical Assessment of the Hemodynamic Profile
  - 7.3.4 Hemodynamics, Coronary Angiography and Endomyocardial Biopsy
  - 7.3.5 Genetic Study of Patients with HF: Familial Cardiomyopathies
- 7.4. HF Treatment
  - 7.4.1 Non-Pharmacological Treatment: Cardiovascular Education. The Role of the Nurse
  - 7.4.2 Medical Treatment of Chronic HF
  - 7.4.3 Medical Treatment of Acute HF
  - 7.4.4 Treatment of HF with Preserved EF
- 7.5. Most Relevant Comorbidities in HF
  - 7.5.1 Metabolic Cardiomyopathies: HF and Diabetes
  - 7.5.2 Cardiorenal Syndrome: Anemia and HF
  - 7.5.3 COPD
  - 7.5.4 HF in Elderly Patients
  - 7.5.5 Congenital Heart Disease in Adults: HF of Valvular Origin
  - 7.5.6 Assessment of Frailty in Patients with HF
- 7.6. Implantable Devices
  - 7.6.1 Cardiac Arrhythmias and their Treatment for Patients with Heart Failure: Ablation Techniques in HF
  - 7.6.2 Incidence of ICD and Cardiac Resynchronization Therapy in HF
  - 7.6.3 Nursing Care of Patients with Devices
  - 7.6.4 Operation, Alarms and Monitoring of the HF Patient
  - 7.6.5 Remote Monitoring of the HF Patient with these Types of Devices
- 7.7. Advanced HF: Mechanical Circulatory Assistance and Cardiac Transplantation
  - 7.7.1 Ventricular Assist Device: Implantation Types, Techniques and Short-Term Complications
  - 7.7.2 Nursing Care for Patients with a Ventricular Assist Device
  - 7.7.3 Complications of Ventricular Assist Devices
  - 7.7.4 Ventricular Remodeling Surgery and Revascularization in HF
  - 7.7.5 Heart Transplant
- 7.8. Palliative and Terminal Care
  - 7.8.1 Refractory HF: Pharmacological and Non-Pharmacological Treatment
  - 7.8.2 Palliative Care: Identification of the Terminal Patient
  - 7.8.3 Ethical Conflicts or Dilemmas in the Care of the Terminally Ill Patient
  - 7.8.4 Coordination between Levels of Care and with the Patient and Family for Palliative Care: Withdrawal of Life Support
- 7.9. The Day Hospital within the HF Unit and New Consultations
  - 7.9.1 Cardio-Oncology
  - 7.9.2 Inherited Heart Disease
  - 7.9.3 Pulmonary Hypertension in HF
  - 7.9.4 Cardiorenal Syndrome
  - 7.9.5 Cardiac Rehabilitation
  - 7.9.6 Sexology
- 7.10. The HF Unit Nurse as the Leader of the Entire Care Process
  - 7.10.1 Organization of the Nurse's Consultation: Taking the Clinical History and Patient Assessment
  - 7.10.2 Education and Communication: Conflict Resolution with Patients and Family
  - 7.10.3 Drug Titration: Starting and Target Doses of Each Drug. Problems in Each One of Them and Solutions to Follow
  - 7.10.4 Geriatric Heart Failure, Palliative Care, Coordination and Continuity of Care, Telemedicine and Telemonitoring
  - 7.10.5 Nurse Case Manager
  - 7.10.6 Care Process Management

## Module 8. Acute Cardiac Care

- 8.1. Initial Management of Patients with Suspected ACS
  - 8.1.1 Patients with Non ST-Elevation Acute Coronary Syndrome
  - 8.1.2 Diagnosis, Risk Stratification and Treatment
  - 8.1.3 Prevention and Management of Complications
  - 8.1.4 Lipid-Lowering Drugs and Other Secondary Prevention Measures
  - 8.1.5 Initial Management of Patients with Non ST-Elevation Acute Coronary Syndrome
  - 8.1.6 Diagnosis, Risk Stratification and Treatment
  - 8.1.7 Prevention and Management of Complications
  - 8.1.8 Antithrombotic Drugs for ACS
- 8.2. Heart Failure and Pulmonary Edema
  - 8.2.1 Decompensation of Congenital Heart Disease
  - 8.2.2 Pharmacological Treatment of Acute Heart Failure
  - 8.2.3 Non-Invasive and Invasive Ventilation
- 8.3. Cardiogenic Shock
  - 8.3.1 Hemodynamic Monitoring
  - 8.3.2 Mechanical Circulatory Support
- 8.4. Cardiac Arrest
  - 8.4.1 Initial Management of Cardiac Arrest
  - 8.4.2 Neurological Protection and Prognostic Assessment
- 8.5. Arrhythmias
  - 8.5.1 Atrial Fibrillation and Supraventricular Tachyarrhythmias
  - 8.5.2 Ventricular Tachyarrhythmias and ICD Dysfunction
  - 8.5.3 Bradyarrhythmias: Pacemaker Implantation. Pacemaker Malfunction
- 8.6. Acute Vascular, Myocardial, Pericardial, and Valvular Syndromes
  - 8.6.1 Acute Aortic Syndromes
  - 8.6.2 Pulmonary Embolism
  - 8.6.3 Acute Pericarditis, Myocarditis, Stress-Induced Cardiomyopathy (Takotsubo Syndrome)
  - 8.6.4 Severe Pericardial Effusion: Cardiac Tamponade. Pericardiocentesis
  - 8.6.5 Acute Infectious and Non-Infectious Valvular Disease





- 8.7. General Principles of Cardiovascular Critical Care
  - 8.7.1 Prophylaxis, Nutrition, End-of-Life Support
  - 8.7.2 Postoperative Care after Cardiac Surgery
  - 8.7.3 Acute Respiratory Distress Syndrome
  - 8.7.4 Acute Renal Failure and Renal Support Therapy
- 8.8. Diabetes Management
  - 8.8.1 Blood Glucose Disorders
  - 8.8.2 Electrolyte and Acid-Base Balance Disorders
  - 8.8.3 Bleeding, Anemia and Blood Transfusion
  - 8.8.4 Infectious Complications in Cardiac Intensive Care
- 8.9. Nursing Care in the Different Techniques and Procedures Performed in the Coronary Unit
  - 8.9.1 Nursing Care for Vascular Cannulation
  - 8.9.2 Orotracheal Intubation and Tracheotomy
- 8.10. Accompanying the Terminally Ill Patient in the Coronary Unit

## Module 9. Cardiac Rehabilitation

- 9.1. Cardiac Rehabilitation: Evidence and Rationale
  - 9.1.1 Indications
  - 9.1.2 Staff
  - 9.1.3 Material
- 9.2. Risk Factors and Risk Management
  - 9.2.1 High Blood Pressure
  - 9.2.2 Dyslipidemia and Atherosclerosis
  - 9.2.3 Obesity
  - 9.2.4 Diabetes
  - 9.2.5 Sedentary Lifestyle
  - 9.2.6 Tobacco and Other Toxic Habits
  - 9.2.7 Stress and Factors
- 9.3. Diagnostic Tests
  - 9.3.1 ECG
  - 9.3.2 Ergometry
  - 9.3.3 Ergospirometry
  - 9.3.4 Imaging Tests
  - 9.3.5 Catheterization

- 9.4. Risk-Based Cardiac Rehabilitation Stratification and Programs
  - 9.4.1 Ischemic Heart Disease
  - 9.4.2 High Risk
  - 9.4.3 HF
  - 9.4.4 Valvulopathies
  - 9.4.5 Devices (Pacemaker, ICD, CRS)
  - 9.4.6 Heart Attack
  - 9.4.7 Treatments
- 9.5. Phases and Objectives of the Cardiac Rehabilitation Program
  - 9.5.1 PHASE 1: During Admission
  - 9.5.2 PHASE 2: Outpatient
  - 9.5.3 PHASE 3: Maintenance
- 9.6. Cardiac Rehabilitation Exercises
  - 9.6.1 Physical Activity, Exercise and Training
  - 9.6.2 Physiology of Exercise
  - 9.6.3 Principles of Exercise
  - 9.6.4 Prescription of Exercise
- 9.7. Outpatient Cardiac Rehabilitation
  - 9.7.1 Outpatient Cardiac Rehabilitation Models
  - 9.7.2 Programs Guided by Primary Care Teams
  - 9.7.3 Home-Based Programs: Telecare and Virtual Cardiac Rehabilitation
- 9.8. Treatments Most Commonly Used by Patients in Cardiac Rehabilitation
  - 9.8.1 Drugs Most Commonly Used by Patients in Cardiac Rehabilitation Programs
    - 9.8.1.1. Nitrates
    - 9.8.1.2. ACE Inhibitors (Angiotensin-Converting Enzyme Inhibitors)
    - 9.8.1.3. Beta-Blockers
    - 9.8.1.4. Calcium Antagonists
    - 9.8.1.5. Platelet Aggregation Inhibitors
    - 9.8.1.6. Anticoagulants
    - 9.8.1.7. Statins
  - 9.8.2 Invasive Treatment
    - 9.8.2.1. Intravenous Fibrinolysis
    - 9.8.2.2. Coronary Angioplasty
    - 9.8.2.3. Cardiac Surgery

- 9.9. Advantages of Cardiac Rehabilitation
  - 9.9.1 Benefits of Cardiac Rehabilitation over Conventional Treatment
  - 9.9.2 Working in Multicultural Teams
  - 9.9.3 Work with Groups of Patients
  - 9.9.4 Individualized Work for Each Patient
- 9.10. Results of Rehabilitation Programs
  - 9.10.1 Quality of Life and Prognosis
  - 9.10.2 Return to Daily Life
  - 9.10.3 Adherence to Treatment and Long-Term Lifestyle Changes
  - 9.10.4 Normalizing the Patient's New Situation
    - 9.10.4.1. Social and Family Relationships
    - 9.10.4.2. Work Relationships
    - 9.10.4.3. Sexuality
    - 9.10.4.4. Sports

## Module 10. Organizational, Diagnostic and Therapeutic Innovation in Endovascular Care

- 10.1. Patient Safety
  - 10.1.1 Develop a Culture of Safety
  - 10.1.2 Lead and Support Staff
  - 10.1.3 Integrate Risk Management
  - 10.1.4 Promote Reporting
  - 10.1.5 Engage and Communicate with Patients and the Public
  - 10.1.6 Learning and Sharing Safety Lessons
  - 10.1.7 Implement Solutions to Prevent Harm



- 10.2. Health Organizations
- 10.3. Health Management Models
  - 10.3.1 Management Systems Based on the UNE EN ISO 9001 Series of Standards
  - 10.3.2 Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Model
  - 10.3.3 EFQM European Model
- 10.4. Quality Management or Quality in Management
- 10.5. Telemedicine and Health Information System ICT
  - 10.5.1 Electronic Medical Records
  - 10.5.2 Health Information and Data Protection Law
  - 10.5.3 Telemedicine
- 10.6. Bioethics and Health Law
  - 10.6.1 Keys to the Nurse/Patient Relationship at the Present Time
  - 10.6.2 Responsibilities in the Civil and Criminal Field
- 10.7. Personalized Care from the Point of View of Autonomy and Independence
  - 10.7.1 We Work with People. We Recognize their Uniqueness
  - 10.7.2 We Work with People. We Promote their Autonomy
  - 10.7.3 We Work with People. Creating Flexible Environments, Enablers and Support Providers
- 10.8. Person-Centered Cardiovascular Care
  - 10.8.1 Shared Care Processes Between Primary Care and Cardiology
- 10.9. Most Efficient Strategy
  - 10.9.1 Programs that Enable People to Take a More Active Role in Managing Their Health
  - 10.9.2 Providing the Support and Resources Needed to Accept and Implement the Changes
- 10.10. The Patient at the Center of the Organization

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 Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
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

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*The nurse will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the 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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. 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 really 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.



### Nursing Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All 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 them as many times as you want.



### 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 suggesting that observing third-party experts can be useful.

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 Professional Master's Degree in Cardiovascular Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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”*

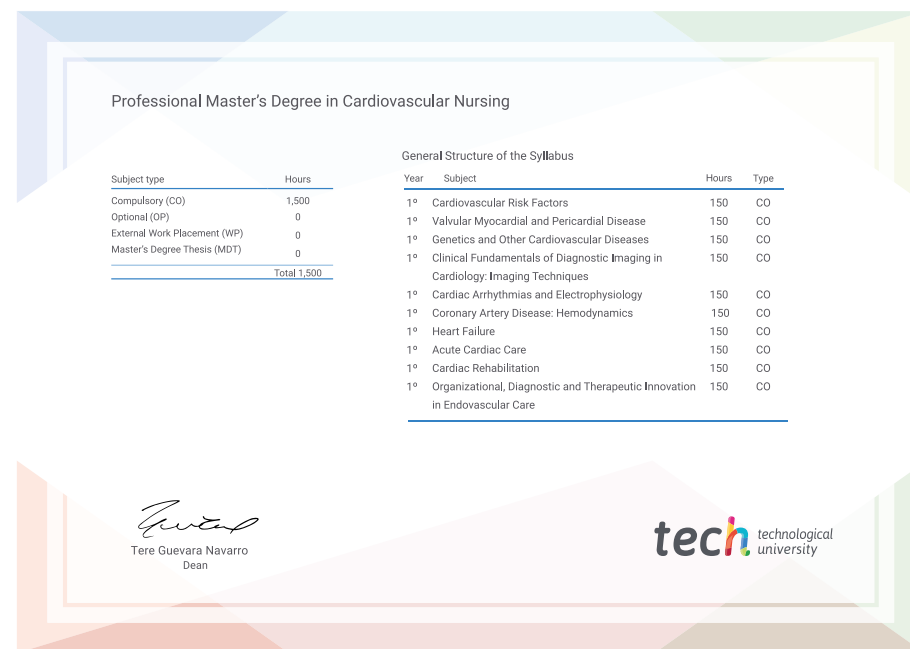
This **Professional Master's Degree in Cardiovascular Nursing** contains the most complete and up-to-date scientific program on the market.

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 express 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 Nursing**

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 Nursing

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

# Professional Master's Degree Cardiovascular Nursing