# Postgraduate Diploma

## Interventional Cardiology Nursing

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# Postgraduate Diploma

## Interventional Cardiology Nursing

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

Website: **www.techtitute.com/pk/nursing/postgraduate-diploma/postgraduate-diploma-interventional-cardiology-nursing**

# Index

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# Introduction

The results of the latest research on deaths due to heart disease leave no one indifferent. It is the leading cause of death in the world, with figures reaching 9 million in recent years. The approach to these pathologies through the subspecialty of cardiology allows nurses to update their skills thanks to the latest epidemiological, diagnostic and therapeutic developments. The approach of this program is perfectly compatible with the work and family activity of nursing professionals, since it is taught in 100% online mode, requiring only an electronic device and internet to have unlimited access to the syllabus.


*In this program you will have access to the latest developments in electrophysiological differential diagnosis of narrow QRS supraventricular tachycardias"*

The updating of concepts and techniques in the healthcare field is so demanding that nursing professionals are constantly recycling their notions. The minimally invasive procedures that characterize Interventional Cardiology contemplate the progressive incorporation of new techniques and instruments that optimize the daily results of the interventions carried out by hemodynamicists.

Due to the increase in clinical cases with these pathologies, healthcare systems must be up to the task and address the growing complexities based on the latest scientific postulates. Nurses who are committed to updating their knowledge in the area of cardiology, and with this program in particular, will be able to internalize the most updated concepts that revolve around the main cardiovascular pathologies, among which diseases of the myocardium and pericardium stand out.

With this Postgraduate Diploma in Interventional Cardiology Nursing, taught in a virtual classroom format, nursing professionals can delve into very specific features on the latest research in arrhythmias and cardiac electrophysiology. As it is an online itinerary, the compatibility with work and family life is perfect. All multimedia material, self-knowledge exercises and complementary readings will be available to nurses at any time of the day and any day of the week.

This **Postgraduate Diploma in Interventional Cardiology Nursing** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of practical cases presented by experts in Interventional 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 self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- 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

*You will have access from anywhere, to a library of theoretical and practical contents, created by specialists in Interventional Cardiology"*

*You will continue to refine your skills in the classification of syncope and its strategies for initial diagnosis in patients with transient loss of consciousness"*

*Delve into the study of sinus function in the electrophysiology laboratory, and discover the latest techniques in Sinus Node Ablation.*

*You will get an up-to-date view on the pathophysiology of atherosclerosis and its characteristics of coronary lesions.*

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

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 education programmed to learn 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 program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

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# Objectives

The quality assurance of the educational content of the program is, by the hand of TECH, guided by the teaching team of active nurses that make up the program, which is synonymous with demand in order to achieve the objectives expected by nurses. The most innovative tools in the study and application of techniques in prevention, diagnosis and treatment of patients with heart disease are detailed throughout the 3 modules that make up this itinerary, allowing nursing professionals to update their knowledge in the specialty of interventional cardiology.

*Thanks to the didactic methodology of the Postgraduate Diploma, you will not have to give up your daily routine as the entire program is 100% online"*

## General Objectives

- To provide students with the theoretical knowledge and practical resources necessary for the performance of their healthcare activity
- Provide comprehensive patient care to solve health problems individually, or as members of a team, with criteria of efficiency and quality
- Apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study
- To be able to acquire a comprehensive and updated vision in the field of acute and critical cardiac care that combines hospital, primary and social-health care of patients

*Discover the latest advances in research on the pathophysiology of atherosclerosis and the characteristics of coronary lesions"*

## Specific Objectives

### Module 1. 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)
- To provide students with the necessary knowledge to ensure the care of patients with arrhythmias

### Module 2. 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 3. Acute Cardiac 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

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# Course Management

This qualification has the commitment, on the part of TECH and its teaching team, to offer nursing professionals the latest developments in Interventional Cardiology. The faculty has an impressive work and academic curriculum, and has been carefully chosen to achieve, along with nurses, the theoretical and practical notions leading the international health care scene. This qualification addresses the entire syllabus from the study of cardiovascular pathology in a deep and updated way, seeking its practical application and using study techniques that facilitate understanding for its development in the care activity by nurses in the different areas of cardiology.

*The teaching staff of this Postgraduate Diploma is made up of active professionals in Interventional Cardiology, committed to providing you with the most innovative techniques in the field of heart disease diagnosis"*

## Management

### Ms. Capote Toledo, María Luz

- Coordinator of the Hemodynamics and Arrhythmia Room at the Hospital Príncipe de Asturias and Hospital Severo Ochoa, in Madrid
- Supervisor of Heart Failure, Cardiac Rehabilitation, Cardiopulmonary Explorations (Imaging, Ergometry and Holter) and High-Resolution Cardiology Consultations at Clinical Hospital San Carlos in Madrid
- Supervisor of Hemodynamics and Electrophysiology at San Carlos Clinical Hospital, in 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. Ropero, Rosa

- Nurse of the ICU-Hemodynamics Department at the University Hospital Príncipe of Asturias in Madrid
- Nurse from the Intensive Care Medicine Unit. University Hospital Prince of Asturias, - Alcalá de Henares, Madrid
- Main tutor of clinical internships in ICU for 3rd and 4th year students of the Nursing Degree at the University of Alcalá de Henares
- Head trainer of the nursing team of the Hemodynamics Unit of HUPA.
- Nurse in the Intensive Care Unit Hospital 12 de Octubre - Madrid
- Nurse of hospitalization and central services, Hospital Universitario 12 de Octubre, Madrid
- Support to Scientific Research of the Community of Madrid in the Department of Biochemistry and Molecular Biology of the University of Alcalá
- Diploma in Nursing from the University of Castilla-La Mancha
- ICU Specific Postgraduate Training
- Interventional Cardiology Postgraduate Training
- 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

### Ms. López Yaguez, María

- Intensive Care Nurse
- Nurse in Intensive Care Unit at Clinical Hospital San Carlos in Madrid
- Post-operative education nurse for patients undergoing cardiac surgery in Hospital Clínico Universitario San Carlos
- Nurse in Heart Failure Unit
- Nurse collaborator of practical teaching
- 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
- Course in critical patient care Clinical Hospital San Carlos in Madrid

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# Structure and Content

The Postgraduate Diploma in Interventional Cardiology Nursing is composed of 3 modules that will be taught progressively throughout the 6 months of the program. The syllabus provides nurses with a global and specialized vision of the latest non-invasive or minimally invasive techniques in diagnostic and treatment procedures in patients with cardiological diseases. TECH is committed to the Relearning study method, which guarantees its effectiveness thanks to the acquisition of knowledge by repeating the concepts in the different contexts that take place throughout the program.

*TECH's educational methodology is based on Relearning, thanks to this technique, nurses will improve their skills in an organic and gradual way"*

## **Module 1.** Cardiac Arrhythmias and Electrophysiology

1.1. Bradyarrhythmias
- 1.1.1. Study of Sinus Function in the Electrophysiology Laboratory: Sinus Node Ablation
- 1.1.2. Electrophysiology of Atrioventricular Conduction: AV Node Radiofrequency Ablation

1.2. Supraventricular Tachycardias I
- 1.2.1. Electrophysiological Differential Diagnosis of Narrow QRS Complex Supraventricular Tachycardias
- 1.2.2. Intranodal Reentrant Tachycardia
- 1.2.3. Accessory Pathways: Classification and/or Electrocardiographic Identification
- 1.2.4. Accessory Pathways Ablation
- 1.2.5. Atrial tachycardia

1.3. Supraventricular Tachycardias II
- 1.3.1. Atrial Flutter
- 1.3.2. Atrial Fibrillation

1.4. Ventricular Tachycardias (VT)
- 1.4.1. Differential Diagnosis of Wide QRS Complex Tachycardia
- 1.4.2. VT in Ischemic Heart Disease: Invasive Treatment
- 1.4.3. VT in Non-Ischemic Heart Disease
- 1.4.4. VT without Structural Heart Disease

1.5. Extrasystoles: Antiarrhythmic Drugs

1.6. Syncope
- 1.6.1. Classification
- 1.6.2. Initial Diagnostic Strategy in Patients with Transient Loss of Consciousness
- 1.6.3. Tests Aimed at Diagnosing an Arrhythmic Etiology of Syncope
- 1.6.4. Patient Strategy with Syncope of Unknown Etiology

1.7. Non-Invasive Tests in Electrophysiology
- 1.7.1. Tilt Table Test
- 1.7.2. Ambulatory Electrocardiogram Monitoring

1.8. Electrophysiology Devices: Device Implantation Techniques
- 1.8.1. Pacemaker
  - 1.8.1.1. Implant indications, types and scheduling
  - 1.8.1.2. Components of a Cardiac Pacing System
  - 1.8.1.3. Pacing Modes, Letter Code
  - 1.8.1.4. Selection of the Stimulation Mode, Programmable Parameters
  - 1.8.1.5. Monitoring a Patient with a Pacemaker: Complications
  - 1.8.1.6. Questions and Tests
  - 1.8.1.7. Frequency of Monitoring
  - 1.8.1.8. Remote Transtelephonic Monitoring
- 1.8.2. Implantable Cardioverter-Defibrillator IAD
  - 1.8.2.1. Implant Indications, Types and Programming
  - 1.8.2.2. Types of ICDs: Choosing Devices
  - 1.8.2.3. Programming of ICDs
  - 1.8.2.4. ICD Patient Monitoring
  - 1.8.2.5. Recommendations for ICD Patients
  - 1.8.2.6. Complications in Patients with ICDs
- 1.8.3. Cardiac Resynchronization
  - 1.8.3.1. Indications for Implantation, Types and Device Programming
  - 1.8.3.2. Monitoring a Patient with a Resynchronizer
  - 1.8.3.3. Pre-Discharge Management
  - 1.8.3.4. Post-Discharge and Long-Term Monitoring

1.9. Arrhythmias and Sport: Sudden Death
- 1.9.1. Cardiovascular Adaptations to Exercise
- 1.9.2. Sudden Death in Athletes
- 1.9.3. Recommendations on Recreational and Competitive Sports Practice in Cardiopathic Patients
- 1.9.4. Pediatric Arrhythmias

1.10. The Nurse, a Key Figure in Arrhythmia Units
- 1.10.1. Scope of Action in Arrhythmia Units

## **Module 2.** Coronary Artery Disease: Hemodynamics

2.1. Pathophysiology of Atherosclerosis
  2.1.1. Characteristics of Coronary Arterial Lesions
2.2. Stable Angina
2.3. Acute Coronary Syndrome: With and without ST Elevation
  2.3.1. Non-ST Segment Elevation ACS
  2.3.2. ST Segment Elevation ACS
2.4. Treatment of Coronary Heart Disease
2.5. Right Heart Catheterization
2.6. Percutaneous Interventions in Structural Heart Disease
  2.6.1. Percutaneous Aortic Valve Interventions: Aortic Valvuloplasty + TAVI Implantation
  2.6.2. Percutaneous Mitral Valve Interventions
2.7. Drugs Associated with Coronary Interventionism
2.8. Vascular Access Routes
2.9. Hemostasis Methods
2.10. Nursing Care for Patients Undergoing Catheterization

## **Module 3.** Acute Cardiac Care

3.1. Initial Management of Patients with Suspected ACS
  3.1.1. Patients with Non-ST-Elevation Acute Coronary Syndrome
  3.1.2. Diagnosis, Risk Stratification and Treatment
  3.1.2. Prevention and Management of Complications
  3.1.4. Lipid-Lowering Drugs and Other Secondary Prevention Measures
  3.1.5. Initial Management of Patients with Non-ST-Elevation Acute Coronary Syndrome
  3.1.6. Diagnosis, Risk Stratification and Treatment
  3.1.7. Prevention and Management of Complications
  3.1.8. Antithrombotic Drugs for ACS
3.2. Heart Failure and Pulmonary Edema
  3.2.1. Decompensation of Congenital Heart Disease
  3.2.2. Pharmacological Treatment of Acute Heart Failure
  3.2.3. Non-Invasive and Invasive Ventilation
3.3. Cardiogenic Shock
  3.3.1. Hemodynamic Monitoring
  3.3.2. Mechanical Circulatory Support
3.4. Cardiac Arrest
  3.4.1. Initial Management of Cardiac Arrest
  3.4.2. Neurological Protection and Prognostic Assessment
3.5. Arrhythmias
  3.5.1. Atrial Fibrillation and Supraventricular Tachyarrhythmias
  3.5.2. Ventricular Tachyarrhythmias and ICD Dysfunction
  3.5.3. Bradyarrhythmias Pacemaker Implantation. Pacemaker Malfunction
3.6. Acute Vascular, Myocardial, Pericardial, and Valvular Syndromes
  3.6.1. Acute Aortic Syndromes
  3.6.2. Pulmonary Embolism
  3.6.3. Acute Pericarditis, Myocarditis, Stress-Induced Cardiomyopathy (Takotsubo Syndrome)
  3.6.4. Severe Pericardial Effusion: Cardiac Tamponade Pericardiocentesis
  3.6.5. Acute Infectious and Non-Infectious Valvular Disease
3.7. General Principles of Cardiovascular Critical Care
  3.7.1. Prophylaxis, Nutrition, End-of-Life Support
  3.7.2. Postoperative Care after Cardiac Surgery
  3.7.3. Acute Respiratory Distress Syndrome
  3.7.4. Acute Renal Failure and Renal Support Therapy
3.8. Diabetes Management
  3.8.1. Blood Glucose Disorders
  3.8.2. Electrolyte and Acid-Base Balance Disorders
  3.8.3. Bleeding, Anemia and Blood Transfusion
  3.8.4. Infectious Complications in Cardiac Intensive Care
3.9. Nursing Care in the Different Techniques and Procedures Performed in the Coronary Unit
  3.9.1. Nursing Care for Vascular Cannulation
  3.9.2. Orotracheal Intubation and Tracheotomy
3.10. Accompanying the Terminally Ill Patient in the Coronary Unit

05

# Methodology

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

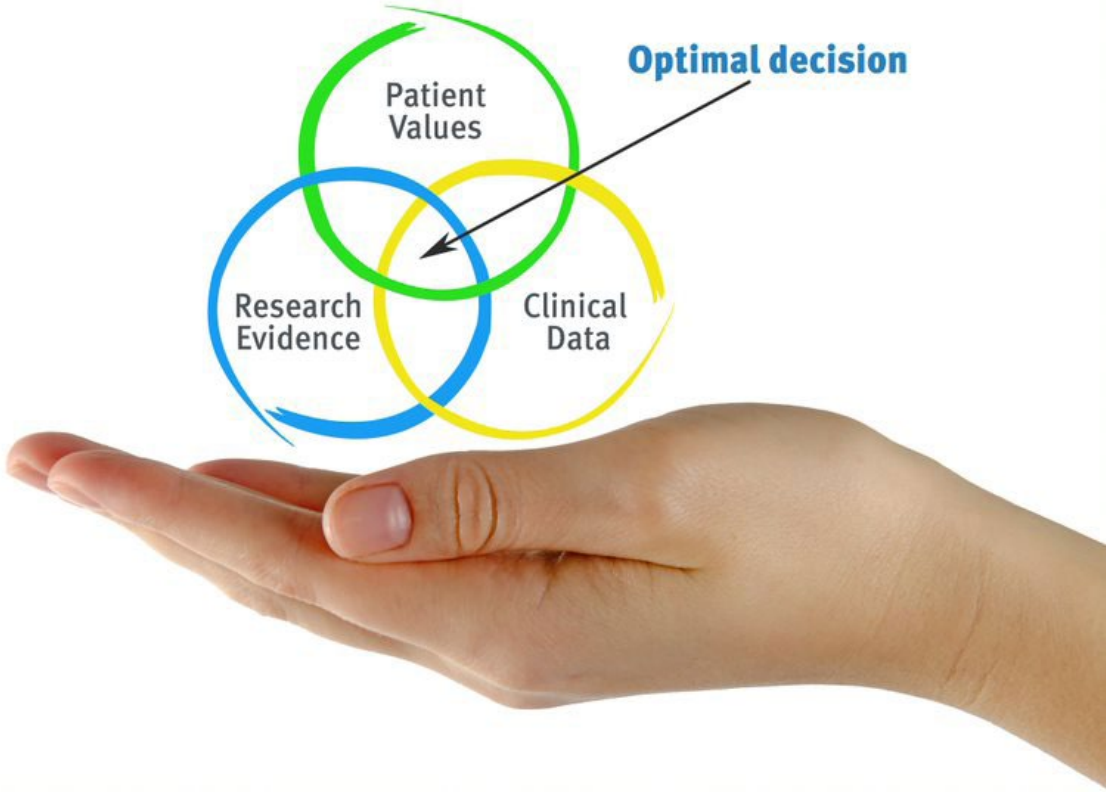
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

*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 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.

*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:**

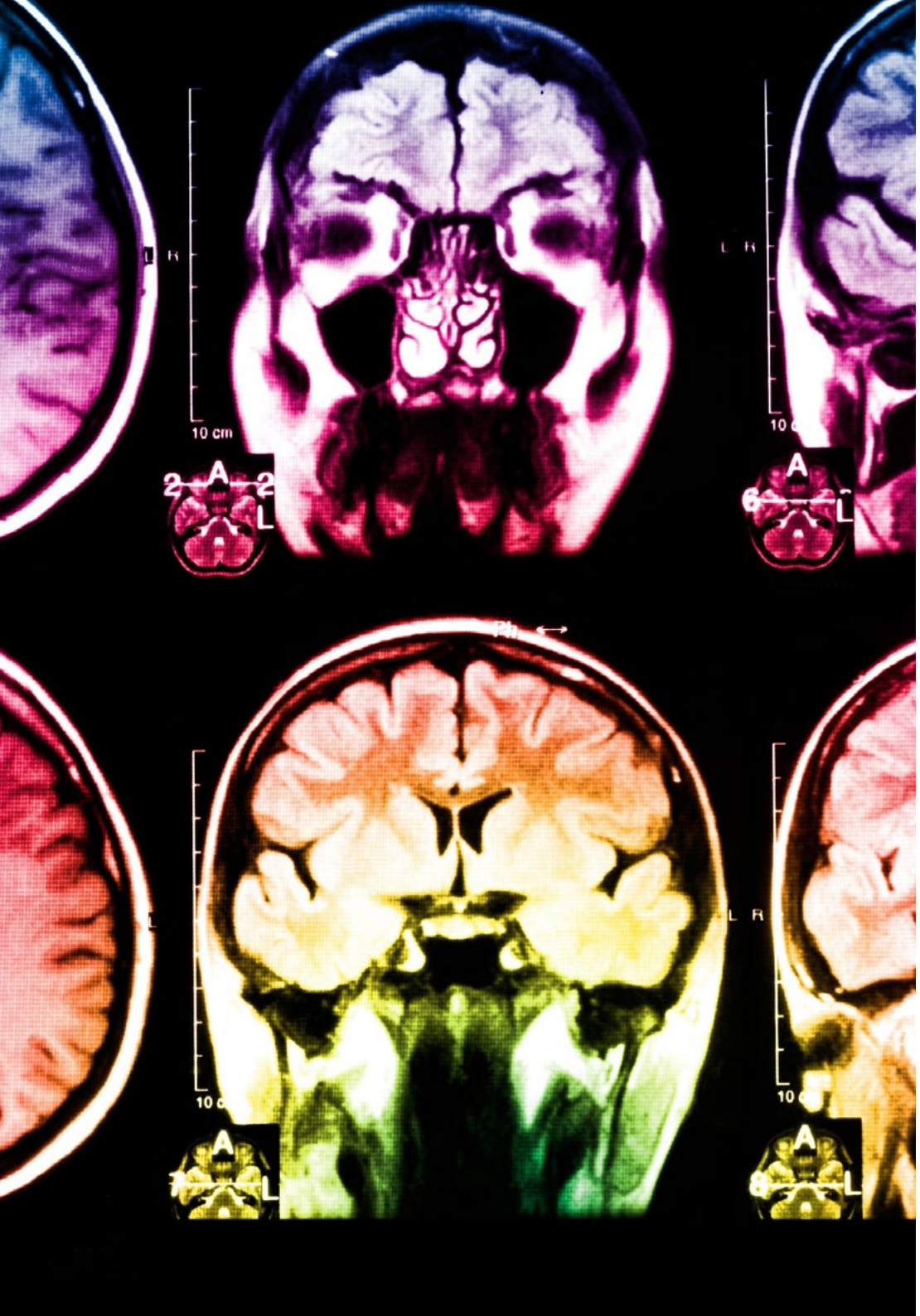
1. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into 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

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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.

*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.

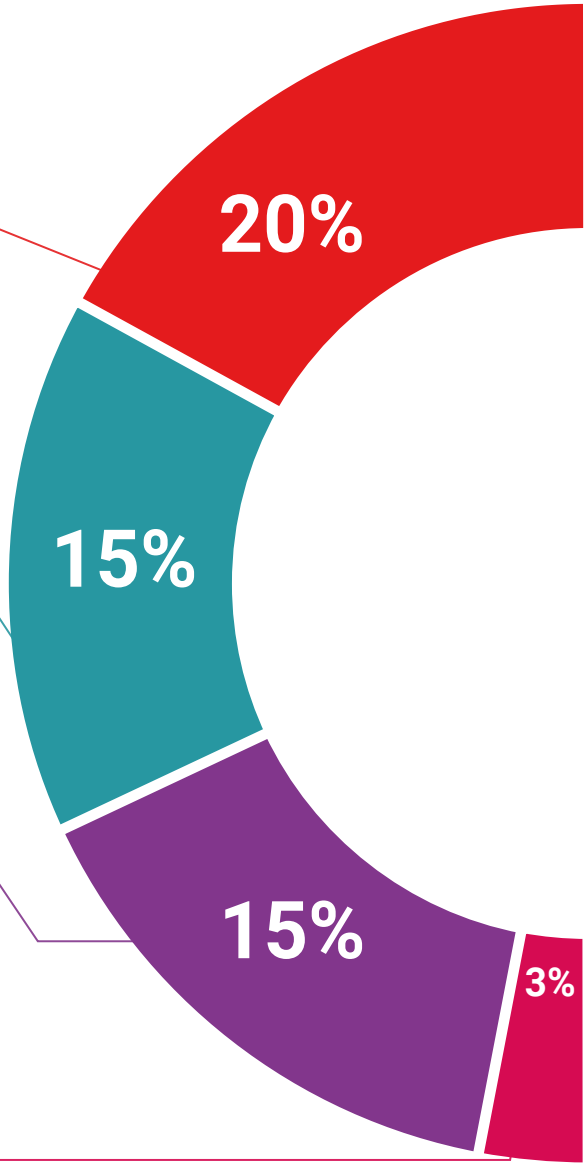
### Interactive Summaries

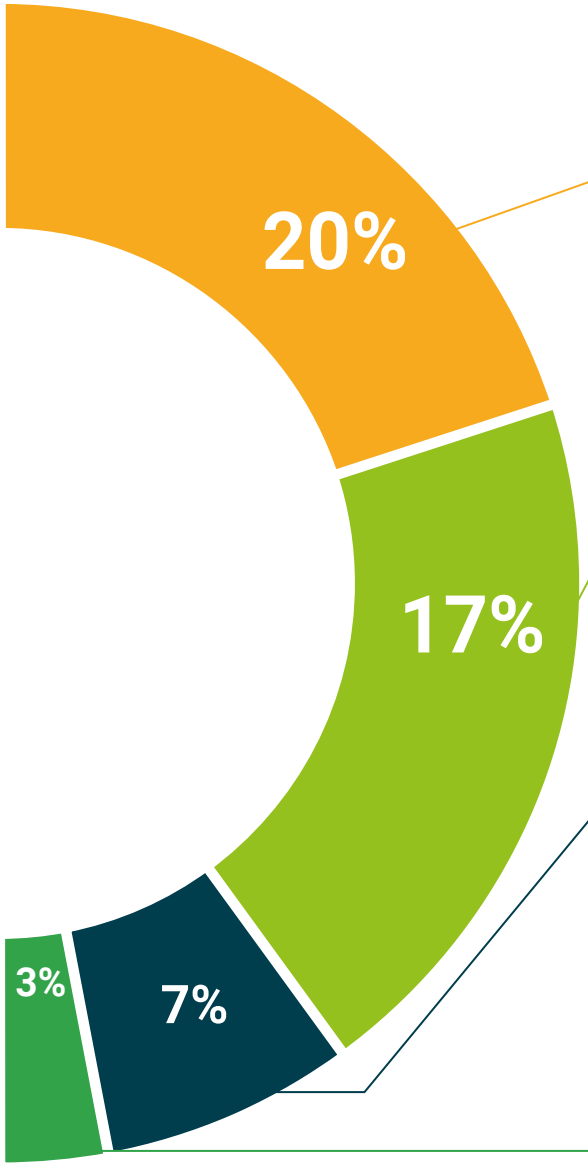
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Postgraduate Diploma in Interventional Cardiology Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

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

This **Postgraduate Diploma in Interventional Cardiology 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 **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Diploma in Interventional Cardiology Nursing**

Official Nº of hours: **450 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Interventional Cardiology Nursing

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

*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.

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