

Postgraduate Certificate

New Technologies and Cardiology Imaging Techniques



Postgraduate Certificate New Technologies and Cardiology Imaging Techniques

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/medicine/postgraduate-certificate/new-technologies-cardiology-imaging-techniques

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01

Introduction

New technologies in cardiology are revolutionizing the diagnosis and treatment of cardiovascular disease and every day there are more advances in the digital era and virtual revolution; where the use of the metaverse, virtual reality and infinite possibilities can be integrated into current medical processes. These undoubtedly have a clear benefit, both for the patient and for the cardiologist's daily clinical practice. Therefore, it is essential for the specialist to be familiar with them and to be updated in the methodologies related to imaging techniques. This is the origin of this program dedicated to 100% online teaching, designed by experts under the most innovative methodology that is revolutionizing the current university environment.





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You will delve into the less common aspects of cardiac surgery, but which are of enormous importance for a complete development of this specialty"

The heart is one of the most complex organs of the human body, which is very difficult to access and visualize due to its position. The evolution of both diagnostic and treatment techniques in the last 25 years for medical-surgical procedures has been surprising, and what is to come will be just as surprising. Since the first pacemakers or the pioneering catheter interventions, there has been a revolution in the development of cardiovascular imaging techniques.

Modern imaging techniques make it possible to understand the anatomy of the heart and how it is functioning, providing a series of fundamental advantages when diagnosing the patient and applying the appropriate treatment. In this sense, future lines of research include the development of diagnostic techniques before the patient develops the disease, non-invasive procedures and the implementation of the latest generation of imaging techniques, such as the new CT scans.

In this Postgraduate Certificate a tour is made of the new technologies in cardiac surgery that are improving therapies. The fundamental concepts in cardiovascular imaging are analyzed to improve the specialist's level of interpretation. As well as a fundamental part in the elaboration and understanding of studies, statistics, to which 3 topics are dedicated to advance with the concepts of care management and research methodology, which are essential nowadays to improve performance and productivity in the healthcare field. Finally, a historical review of cardiac surgery and its future prospects is given.

All this, with a completely online study system, which provides flexibility to the practitioner by being able to connect from any device and adjusting the schedule of your choice, obtaining the degree in 6 weeks. With the contents available from the first day, 24 hours a day and designed using an innovative repetitive methodology, Relearning. This Technique is characteristic of TECH's programs and has benefited millions of students around the world.

This **Postgraduate Certificate in New Technologies and Imaging in Cardiology Techniques** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in cardiology
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ 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



The agenda of this program delves into the past, present and future of cardiovascular surgery and the use of technology and imaging techniques in cardiology"

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It provides an in-depth study of care management and research methodology, which are currently essential to improve performance and productivity in the healthcare field”

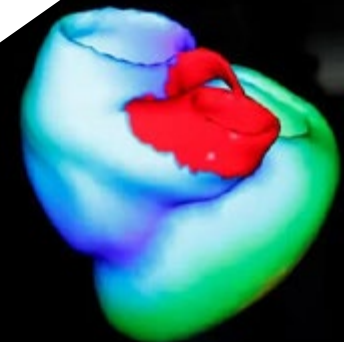
This Postgraduate Certificate aims to improve the level of interpretation of cardiovascular images by the specialist.

TECH offers pedagogy with professionals trained for today's era.

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.

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

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



02 Objectives

Delving into the less common aspects of cardiac surgery, but which are of enormous importance for a complete development of the specialty, is the objective of this Postgraduate Certificate in New Technologies and Imaging Techniques in Cardiology, developed under an innovative study system of avant-garde methodology and 100% online. So that the specialist can perform in an up-to-date, safe and cutting-edge way.





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Take advantage of technological advances in the development of your functions. This program provides you with the necessary knowledge in New Technologies and Imaging Techniques in Cardiology”



General Objectives

- ◆ Deepen the knowledge of the less common but influential areas in the cardiological area
- ◆ Analyze the importance of new technologies involved in the management and control of cardiac pathologies and imaging techniques
- ◆ Obtain the necessary knowledge for the elaboration and understanding of studies through statistics
- ◆ Obtain the most up-to-date knowledge to analyze, understand, comprehend and report as appropriate all pathologies through the study of imaging





Specific objectives

- ◆ Delve into the less common but influential aspects of Cardiac Surgery
- ◆ Evaluate new technologies in Cardiac Surgery for the improvement of therapies
- ◆ Raise the level of interpretation of cardiovascular imaging
- ◆ Elaborate and understand studies through statistical analysis
- ◆ Deepen the concepts of care management and research methodology
- ◆ Analyze the evolution of Cardiac Surgery and its future perspectives

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*TECH has what you need to
update you on New Technologies
and Cardiology Imaging
Techniques Start now”*

03

Course Management

A Postgraduate Certificate in New Technologies and Imaging Techniques in Cardiology with the most exclusive content selected by renowned professional cardiac surgeons, who currently hold positions of responsibility in prestigious hospitals in the country, which provides a deep experiential sense. The professional and human quality allows us to provide warmth and proximity within a 100% virtual environment, thanks to the resources that TECH has available for this purpose.



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Cardiac surgeons who are experts in the field and teachers with invaluable professional experience lead this Valvular Pathology refresher program"

International Guest Director

With pioneering contributions in the field of **cell therapy for cardiovascular diseases**, Dr. Philippe Menasché is considered one of the most prestigious surgeons in the world. The researcher has been awarded several prizes such as the **Lamont of Cardiology laureates of the French Academy of Sciences** and the **Matmut for Medical Innovation**, as well as the **Earl Bakken Award** for his scientific achievements.

His work has established him as a reference in the understanding of **Heart Failure**. In relation to this pathology, he stands out for having participated in the **first intramyocardial transplant of autologous skeletal myoblasts**, marking a true therapeutic milestone. He has also led clinical trials on the use of **cardiac progenitors** derived from **human embryonic stem cells**, as well as the application of **tissue therapy** combined with these progenitors in patients with **terminal heart disease**.

His research has also revealed the **crucial role of paracrine signals in cardiac regeneration**. As a result, his team has succeeded in developing cell therapy strategies based exclusively on the **use of the secretome**, with the aim of optimizing the clinical effectiveness and transmissibility of these procedures.

At the same time, this specialist maintains an active work as a surgeon at the **European Hospital Georges Pompidou**. In this institution, he also directs the **Inserm 970 Unit**. On the other hand, in the academic field, he is a professor in the **Department of Biomedical Engineering** at the University of Alabama at Birmingham, as well as at the University of Paris Descartes.

He holds a **PhD in Medical Sciences** from the Faculty of Paris-Orsay. He has also served as Director of the **French National Institute of Health and Medical Research** and, for almost two decades, he managed the **Biosurgical Research Laboratory of the Carpentier Foundation**.



Dr. Menasché, Philippe

- ♦ Director of the National Institute of Health and Medical Research (INSERM), Paris, France
- ♦ Clinical Surgeon in the Heart Failure Unit of the European Hospital Georges Pompidou, Paris, France
- ♦ Regenerative Therapies for Heart and Vascular Diseases Team Leader
- ♦ Professor of Thoracic and Cardiovascular Surgery at the University Paris Descartes
- ♦ Academic Consultant to the Department of Biomedical Engineering at the University of Alabama at Birmingham
- ♦ Former Director of the Biosurgical Research Laboratory of the Carpentier Foundation
- ♦ Doctor of Medical Sciences from the Faculty of Paris-Orsay
- ♦ Member of: National Council of Universities, Medical and Scientific Council of the Agency for Biomedicine, Working Group on Regenerative and Reparative Cardiovascular Medicine of the European Society of Cardiology

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

Management



Dr. Rodríguez - Roda, Jorge

- ♦ Chief of Cardiovascular Surgery Service at the Ramon and Cajal University Hospital
- ♦ Cardiac Surgeon of the Cardiac Surgery Unit of the Hospital Madrid Monteprincipe
- ♦ Clinical Professor in the Department of Surgery, University of Alcalá de Henares
- ♦ Care Coordinator of the Cardiovascular Surgery Service of the Gregorio Marañón General University Hospital
- ♦ Assistant Physician of Cardiovascular Surgery at Gregorio Marañón General University Hospital, Hospital Central de la Defensa Gómez Ulla and Hospital del Aire
- ♦ Resident physician of the Cardiovascular Surgery, specialty in the Cardiovascular and Thoracic Surgery Service Puerta de Hierro University Hospital. Madrid
- ♦ Medical Officer in the Military Health Corps of Spain
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Executive Master's Degree in Healthcare Organization Management ESADE
- ♦ Healthcare Organization Leadership Program at Georgetown University
- ♦ Resident Medical Intern in the specialty of Cardiovascular Surgery in the Department of Cardiovascular and Thoracic Surgery, Puerta de Hierro Autonomous University Hospital of Madrid
- ♦ Diploma of Advanced Studies (DEA) of the Department of Surgery of the Faculty of Medicine of the Complutense University of Madrid
- ♦ General Practitioner in the Spanish National Health System and in the Public Social Security Systems of the Member States of the European Communities



Professors

Dr. López Menéndez, José

- ◆ Adult Cardiac Surgery Specialist. Ramón y Cajal University Hospital
- ◆ Cardiac Surgery Specialist. Oviedo University Hospital
- ◆ Clinical Professor in the Department of Surgery, University of Alcalá de Henares
- ◆ Resident tutor. MIR training in cardiovascular surgery. Gregorio Marañón Hospital, Madrid
- ◆ Area Specialist Physician. Asturias Central University Hospital
- ◆ Doctor in Official Postgraduate Program in Health Sciences and Biomedicine Oviedo University
- ◆ Degree in Medicine and Surgery. University of Oviedo
- ◆ Extraordinary award at the end of his degree. University of Oviedo
- ◆ Master's Degree in Research Methodology in Health Sciences. Autonomous University of Barcelona
- ◆ "Innovations in Cardiac Surgery" Master's Degree Scuola Superiore Sant'Anna, University of Pisa, Italy
- ◆ Postgraduate in Statistics and Health Sciences City. Autonomous University of Barcelona
- ◆ Specialization in Cardiovascular Surgery. Gregorio Marañón General University Hospital

04

Structure and Content

This program's design is based on Relearning, an innovative method that facilitates learning and understanding of the content, allowing students to update their knowledge progressively and naturally from the first day for consultation or downloading from any device with an internet connection. A 100% online study system where the health professional will have access to a variety of research articles, real case studies, meeting rooms, private chats with professors and interactive summaries of each unit.



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With TECH you will have a great application available for mobile devices and computers, with the essential functions to ensure a comfortable and safe learning process”

Module 1. New Technologies and Imaging Techniques Statistics

- 1.1. New Technologies in Cardiac Surgery
 - 1.1.1. New Polymer Prostheses
 - 1.1.2. Vest/Duragraft
 - 1.1.3. 3D Printing
 - 1.1.4. Augmented Reality
 - 1.1.5. Robotics
- 1.2. Transthoracic Echocardiography
- 1.3. Transesophageal Echocardiogram
- 1.4. Imaging Techniques in Cardiac Pathology
 - 1.4.1. Cardiac CT
 - 1.4.2. Cardio resonance
 - 1.4.3. Perfusion Studies
 - 1.4.4. PET/CT
- 1.5. Statistics I for Surgeons
 - 1.5.1. Sample Collection
 - 1.5.2. Graphic Representation
- 1.6. Statistics II for Surgeons
 - 1.6.1. Statistical Inference
 - 1.6.2. Proportion Comparison
 - 1.6.3. Comparison of Averages
- 1.7. Statistics III for Surgeons
 - 1.7.1. Regression Analysis
 - 1.7.2. Linear Regression
 - 1.7.3. Logistic Regression
 - 1.7.4. Survival Studies



- 1.8. Care Management
 - 1.8.1. Quality Criteria
 - 1.8.2. Records and Databases
 - 1.8.3. Criteria for the Timing of Cardiovascular Interventions
- 1.9. Research Methodology
 - 1.9.1. Design
 - 1.9.2. Ethics
 - 1.9.3. Critical Reading of Articles
 - 1.9.4. Evidence-Based Medicine
- 1.10. Past, Present and Future of Cardiovascular Surgery



The most innovative methodology in a 100% online system facilitates the development of your learning. Enroll now"

05

Methodology

This training program offers 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 publications from 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 departs from traditional linear learning and embraces cyclical teaching methods. This approach to learning has proven to be highly effective, particularly in subjects that involve memorization.

At TECH we use the Case Method

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

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



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

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Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

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



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

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

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



Surgical Techniques and Procedures on Video

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



Interactive Summaries

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

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



Additional Reading

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





Expert-Led Case Studies and Case Analysis

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



Testing & Retesting

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



Classes

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



Quick Action Guides

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



06 Certificate

The Postgraduate Certificate in New Technologies and Cardiology Imaging Techniques guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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

This program will allow you to obtain your **Postgraduate Certificate in New Technologies and Cardiology Imaging Techniques** endorsed by **TECH Global University**, the world's largest online university.

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

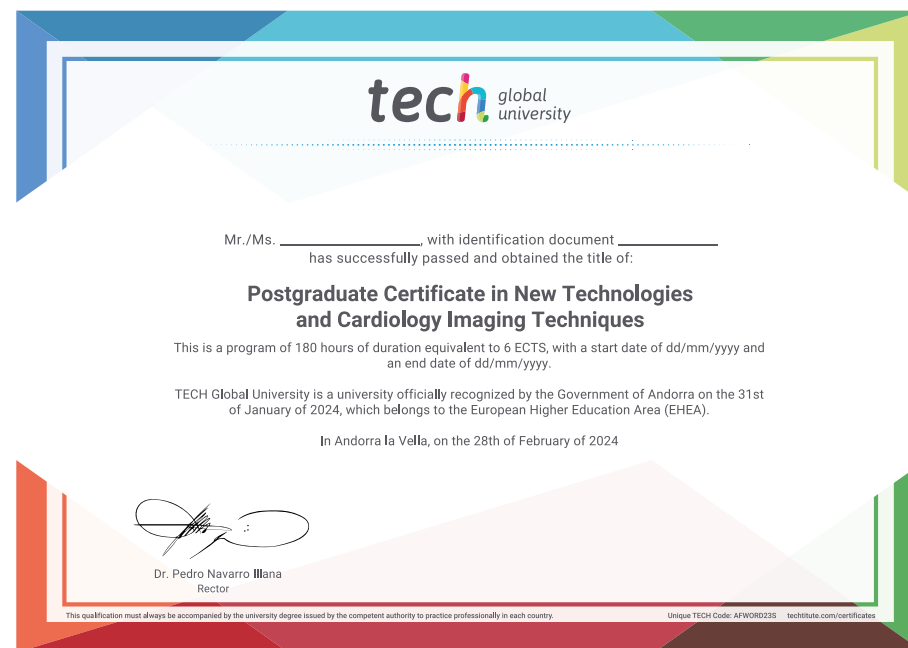
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in New Technologies and Cardiology Imaging Techniques**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





Postgraduate Certificate
New Technologies and
Cardiology Imaging Techniques

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Postgraduate Certificate

New Technologies and Cardiology
Imaging Techniques

