

# Postgraduate Diploma Cardiothoracic Anesthesiology





## Postgraduate Diploma

### Cardiothoracic Anesthesiology

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

Website: [www.techtute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-cardiothoracic-anesthesiology](http://www.techtute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-cardiothoracic-anesthesiology)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 18*

05

Methodology

---

*p. 22*

06

Certificate

---

*p. 30*

# 01

# Introduction

Cardiothoracic Anesthesiology has undergone impressive development in the last 20 years. Pharmacological and biotechnological advances, intraoperative and postoperative monitoring, imaging techniques and new paradigms of safety and multimodal management, as well as sub-specialization by specific areas, have contributed decisively to this transformation, and help reduce the patient morbidity and mortality.

*Keeping up to date on Cardiothoracic Anesthesiology procedures is key to providing better patient care.*





“

*The new scenarios in anesthesia procedures in critically ill patients motivate us to propose new training programs that meet the real needs of experienced professionals, so that they can incorporate advances in cardiothoracic anesthesia management into their medical practice”*

This Postgraduate Diploma offers specialists a global and updated vision of the perioperative management of patients undergoing cardiovascular and thoracic surgery. It includes an exhaustive selection of the most frequent procedures, as well as the most complex ones, which require constant updating.

Furthermore, among other new aspects, these stand out: preoperative evaluation, nutritional and hematometric optimization of the patient, perioperative rehabilitative physiotherapy, and new transfusion management and blood saving policies, as well as advances in monitoring such as transthoracic and transesophageal echocardiography, new pulse wave analysis systems, target-guided fluid therapy, or monitoring of acute hemostasis disorders through thromboelastometry.

The program also covers the most important aspects of new drugs, cardiac transplantation management, anesthetic management without extracorporeal circulation, multimodal management of cardiac surgery, adapted to the new minimally invasive surgical approaches, as well as management of cardiac transplantation, ventricular assists of notable importance at present and with a highly relevant role in the future.

We address thoracic anesthesiology through the important advances that have taken place in the last decade. Aspects related to preoperative preparation, new criteria for resectability-operability, one-lung ventilation, different modalities of ventilatory assistance and lung protection, as well as management of cardiac transplantation, echocardiographic pulmonary monitoring, and advances in the field of post-thoracotomy pain.

This **Postgraduate Diploma in Cardiothoracic Anesthesiology** is the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Clinical cases presented by specialists in anesthesiology and other areas. The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ Real high-resolution images of pathologies, diagnostic imaging tests and guided procedures.
- ♦ Presentation of practical workshops on procedures and techniques.
- ♦ Algorithm-based interactive learning system for decision-making in the presented clinical situations.
- ♦ Action protocols with the most important advances in the specialty.
- ♦ All this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments.
- ♦ With a special emphasis on evidence-based medicine and research methodologies in anesthesiology.
- ♦ Content that is accessible from any fixed or portable device with an Internet connection.



*You will be able to learn, through the latest educational technology, the most recent advances in Cardiothoracic Anesthesiology”*

“ *This Postgraduate Diploma may be the best investment you can make when choosing a refresher program for two reasons: in addition to updating your knowledge of Cardiothoracic Anesthesiology, you will obtain a qualification from TECH - Technological University”*

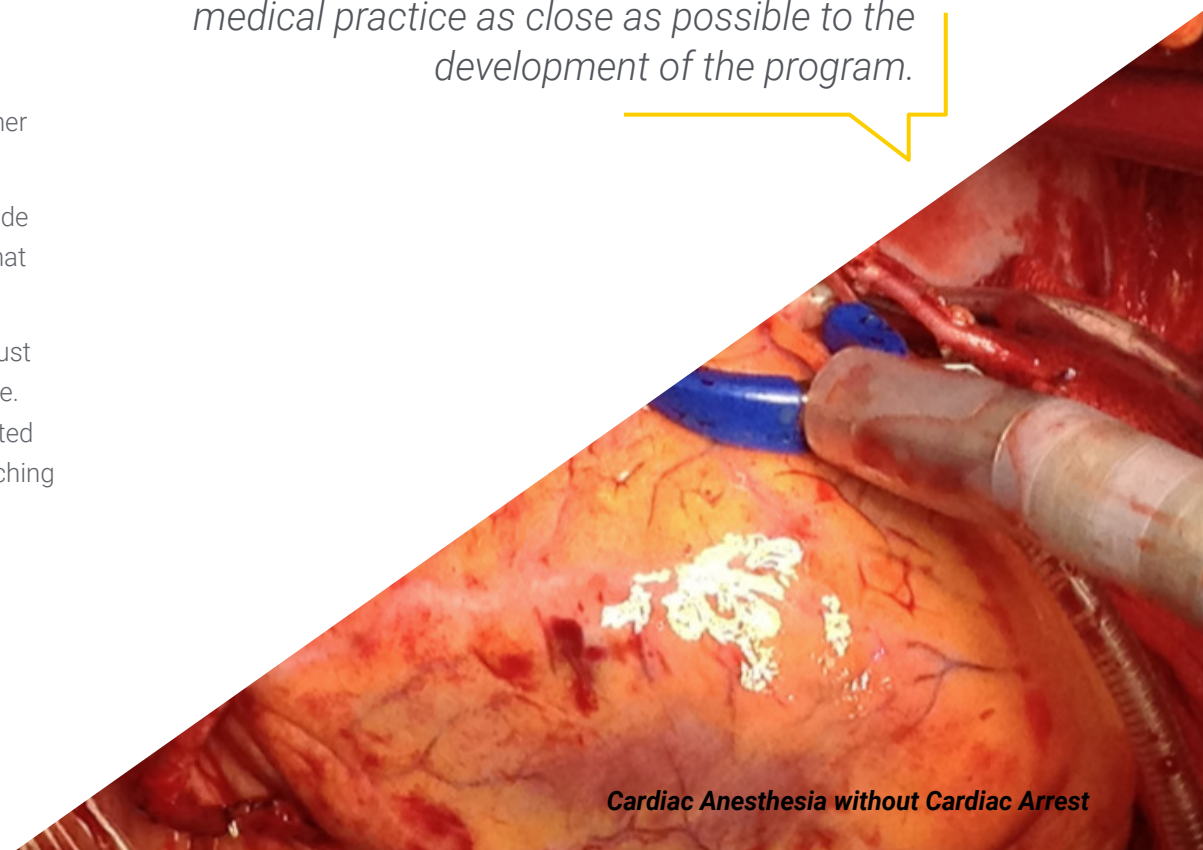
The teaching staff is made up of a team of leading anesthesiologists, who bring to this training the experience of their work, in addition to recognized specialists in other medical areas.

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

This program is designed around Problem Based Learning, whereby the student must try to solve the different professional practice situations that arise during the course. For this reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of psychology with extensive teaching experience.

*Incorporate the latest developments in Cardiothoracic Anesthesiology to your medical practice and improve patient prognosis.*

*It includes real clinical cases to bring medical practice as close as possible to the development of the program.*





# 02 Objectives

The main objective is to facilitate the incorporation of advances in cardiothoracic anesthesiology, so that specialists can update their knowledge in a practical way, using the latest educational technology and adapting the educational process to their real needs.



*Heart-lung Bypass Pump*





“

*This refresher program will generate a sense of confidence in decision making during cardiothoracic anesthesia procedures, and will help you grow professionally”*



## General Objective

- ♦ Update specialist physicians on the procedures and techniques performed in cardiothoracic anesthesiology, incorporating the latest advances to increase the quality of their daily medical practice and improve patient prognosis.



## Specific Objectives

- ♦ Analyze the implication of anesthesiology in perioperative medicine, its contributions and interest.
- ♦ Review the new drugs included in the anesthetic therapeutic arsenal.
- ♦ know new hemostasis monitoring systems.
- ♦ Analyze the implications of these drugs on anesthetic procedures.
- ♦ Incorporate new strategies for hemodynamic management to regular practice.
- ♦ Specify new perspectives in clinical training through virtual simulators.
- ♦ Contrast therapeutic empiricism versus goal-directed monitoring, the role of advanced hemodynamic optimization.
- ♦ Value simulation and teaching as a postgraduate training tool.
- ♦ Evaluate the predictive factors in morbi-mortality risk determinants.
- ♦ Reflect on the implications of patient safety in anesthesiology.
- ♦ Review the anatomy and physiology of the cardiovascular system.
- ♦ Update on cardiovascular pathophysiology and the risk factors of patients undergoing cardiovascular procedures.

- ♦ Review the pathophysiology of polytransfusion and describe the adverse effects derived from it.
- ♦ Update on the specific cardiovascular procedures that have evolved in recent years, and that show differential aspects in their anesthetic management.
- ♦ Review pre-anesthetic assessment in patients with coronary pathology, estimating perioperative risk factors (cardiovascular, respiratory, renal neurological).
- ♦ Review the latest advances in coronary revascularization surgery.
- ♦ Describe the multimodal recovery protocols in cardiac surgery.
- ♦ Assess the indications for minimally invasive procedures in cardiac surgery and incorporate them into daily medical practice.
- ♦ Estimate perioperative risks (cardiovascular, respiratory, neurological, renal).
- ♦ Identify advances in comprehensive perioperative management of cardiovascular procedures in pediatric patients.
- ♦ Update on techniques with transesophageal and transthoracic echocardiographic monitoring.
- ♦ Incorporate new gold standard hemodynamic monitoring to the patient assessment process.
- ♦ Describe the action protocol for airway difficulty in thoracic surgery.
- ♦ Learn pulmonary protection measures.
- ♦ Update on the processes of implantation of Non Invasive Mechanical Ventilation (NIV) in thoracic surgery, and thoracic surgery in spontaneous ventilation.
- ♦ Perform prophylaxis, management, and diagnosis of cardiovascular complications after pulmonary resection surgery.
- ♦ Assess the role of lung ultrasound in thoracic surgery.






# 04

# Course Management

The materials have been created by a team of leading professionals in the field of cardiothoracic anesthesiology, who work in prestigious hospitals. Additionally, other recognized specialists participate in its design and preparation, which means that the program is developed in an interdisciplinary manner.



system 





“

*Learn about the latest advances in Cardiothoracic Anesthesiology from leading professionals”*

## Management



### Dr. Muedra Navarro, Vicente

- ◆ Coordinator in charge of the Anesthesiology and Critical Care Department in Cardiac Surgery, La Ribera University Hospital. Alzira-Valencia
- ◆ Degree in Medicine from the University of Valencia
- ◆ MIR Specialist in Anesthesiology, Resuscitation and Pain Therapeutics at La Fe University Hospital in Valencia
- ◆ PhD in Medicine and Surgery from the University of Valencia
- ◆ Professor of the Department of Biomedical Sciences. Faculty of Medicine. CEU Cardenal Herrera University. Valencia
- ◆ Director of doctoral theses and Master's Degree theses
- ◆ Member of several Health Care Improvement Commissions at La Ribera University Hospital
- ◆ University Expert in the Comprehensive Management of the Airway, by the Catholic University of Valencia
- ◆ Vice-president of the Department of Anesthesiology and Critical Care in Cardiac Surgery of the Valencian Community
- ◆ Member of the Spanish Society of Anesthesiology, Resuscitation and Pain Therapy
- ◆ Member of the Spanish Society of Multimodal Rehabilitation
- ◆ Principal Investigator in a Consolidated Research Group, with competitive funding from Public Agencies (Instituto de Salud Carlos III-Ministry of Health, and Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunidad Valenciana-Consellería de Sanitat
- ◆ Collaborating Researcher in the Prometeo Program for research groups of Excellence in the Department of Education and Science at Generalitat Valenciana.
- ◆ Research member of the Translational Medicine Doctoral Program in the research line Multidisciplinary Intervention in Prevention and Clinical Therapeutics of International Doctoral School CEINDO

## Coordination

### Dr. Carmona García, Paula

- ◆ Attending Physician. La Fe Polytechnic and University Hospital. Valencia

### Dr. Sánchez García, Fernando

- ◆ Head of the Cardiac Surgery Anesthesia Section of the CHGUV. Valencia

## Professors

### Dr. Barrio, José María

- ◆ Attending Physician
- ◆ Gregorio Marañón General University Hospital. Madrid

**Dr. Blázquez, Eva**

- ♦ Attending Physician
- ♦ San Joan de Déu Hospital. Barcelona

**Dr. Carmona, Paula**

- ♦ Attending Physician
- ♦ La Fe Polytechnic and University Hospital. Valencia

**Dr. Duque, Patricia**

- ♦ Attending Physician
- ♦ Gregorio Marañón General Hospital. Madrid

**Dr. Espinosa, Ángel**

- ♦ Attending Physician
- ♦ Örebro University Hospital. Örebro (Sweden)

**Dr. Galbis, Marcelo**

- ♦ Chief of the Thoracic Surgery Department Service
- ♦ La Ribera University Hospital. Alzira

**Dr. Gallego, Lucia**

- ♦ Attending Physician
- ♦ Miguel Servet University Hospital. Zaragoza

**Dr. García Candel, Antonio**

- ♦ Attending Physician
- ♦ Virgen de la Arrixaca University Hospital. Murcia

**Dr. Garutti Martínez, Ignacio**

- ♦ Attending Physician
- ♦ Gregorio Marañón General Hospital. Madrid

**Dr. Gomar Sancho, Carmen**

- ♦ Chair of Anesthesiology
- ♦ Department Director
- ♦ Barcelona Clinical Hospital

**Dr. González, Antonio M.**

- ♦ Attending Physician
- ♦ Marqués de Valdecilla General Hospital Santander

**Dr. Iñigo, José Miguel**

- ♦ Attending Physician
- ♦ Valencia Clinical Hospital. Valencia

**Dr. Llau, Juan Vicente**

- ♦ Head of Department
- ♦ Clinical University Hospital. Valencia

**Dr. López Cantero, Marta**

- ♦ Attending Physician
- ♦ La Fe Polytechnic and University Hospital. Valencia

**Dr. López, Marta**

- ♦ Attending Physician
- ♦ San Joan de Déu Hospital. Barcelona

**Dr. Maestre, María Luz**

- ♦ Attending Physician
- ♦ Sant Pau i Santa Tecla Hospital Barcelona

**Dr. Martínez, Néstor**

- ♦ Attending Physician, Department of Thoracic Surgery
- ♦ La Ribera University Hospital. Alzira

**Dr. Matute, Purificación**

- ♦ Barcelona Clinical Hospital Barcelona
- ♦ La Ribera University Hospital. Alzira-Valencia

**Dr. Moreno, Joaquín**

- ♦ Attending Physician
- ♦ Consortium University Hospital Valencia

**Dr. Muñoz, Pedro**

- ♦ Attending Physician
- ♦ Doce de Octubre University Hospital. Madrid

**Dr. Muedra, Vicente**

- ♦ Attending Physician

**Dr. Novoa, Emma**

- ♦ Attending Physician
- ♦ Gregorio Marañón Hospital

**Dr. Pajares, Azucena**

- ♦ Attending Physician
- ♦ La Fe i Politècnic University Hospital Valencia





**Dr. Pérez Carbonell, Ana**

- ♦ Head of Department
- ♦ Elche General Hospital. Elche-Alicante

**Dr. Pérez violating, Ignacio**

- ♦ Research Vice-rector
- ♦ CEU Cardenal Herrera University

**Dr. Ranucci, Marco**

- ♦ Department Head
- ♦ San Donato Policlinic Mián (Italy)

**Dr. Sánchez, Sebastián**

- ♦ Attending Physician
- ♦ Virgen de la Arrixaca University Hospital. Murcia

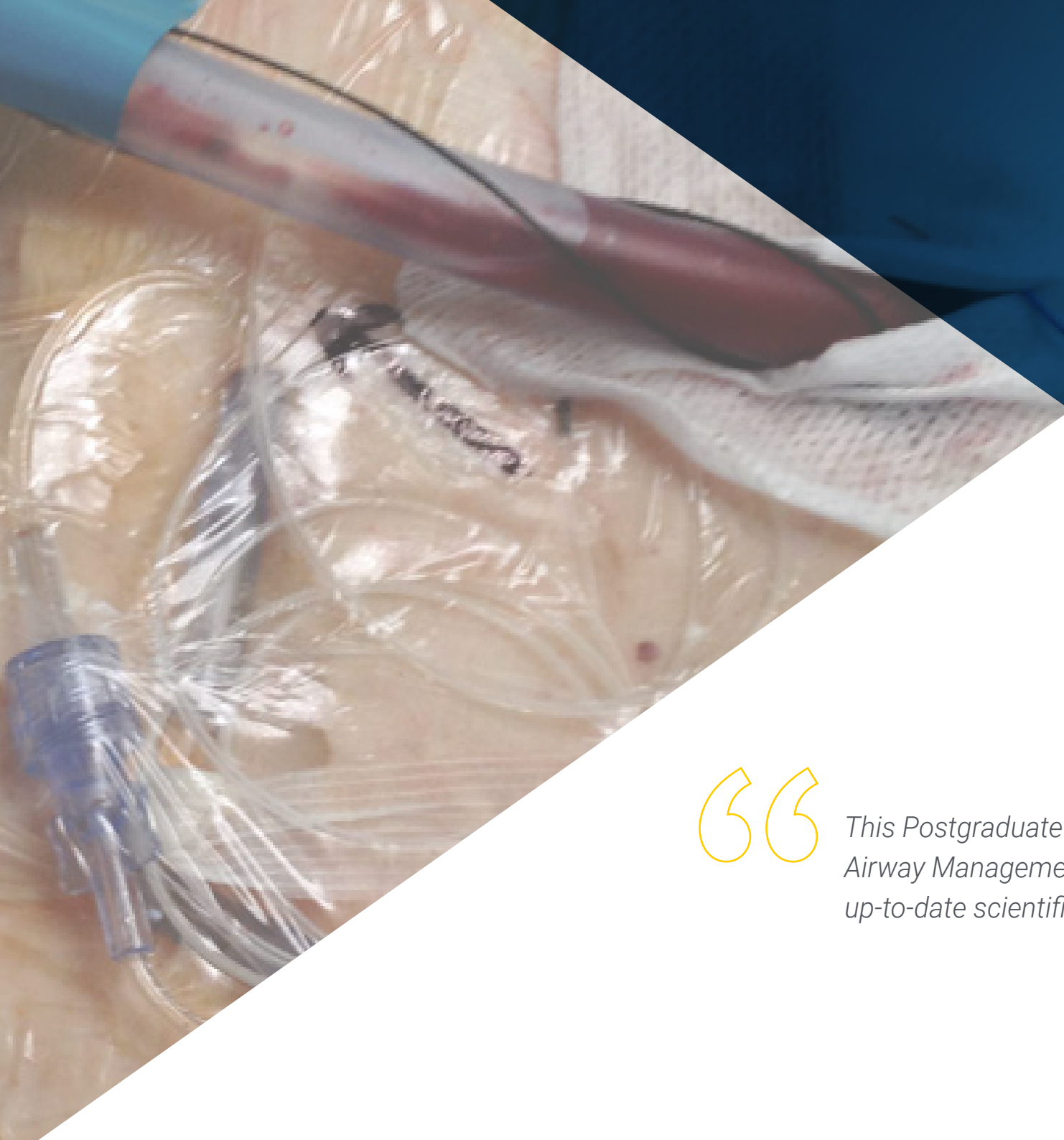
**Dr. Zarragoikoetxea, I.**

- ♦ Attending Physician
- ♦ La Fe Polytechnic and University Hospital. Valencia

05

# Structure and Content

The curriculum structure has been designed by a team of professionals who recognize the implications of medical training in comprehensive airway management, who are aware of the relevance of current professional training and are committed to quality teaching through new educational technologies.



“

*This Postgraduate Diploma in Comprehensive Airway Management is the most complete and up-to-date scientific program on the market”*

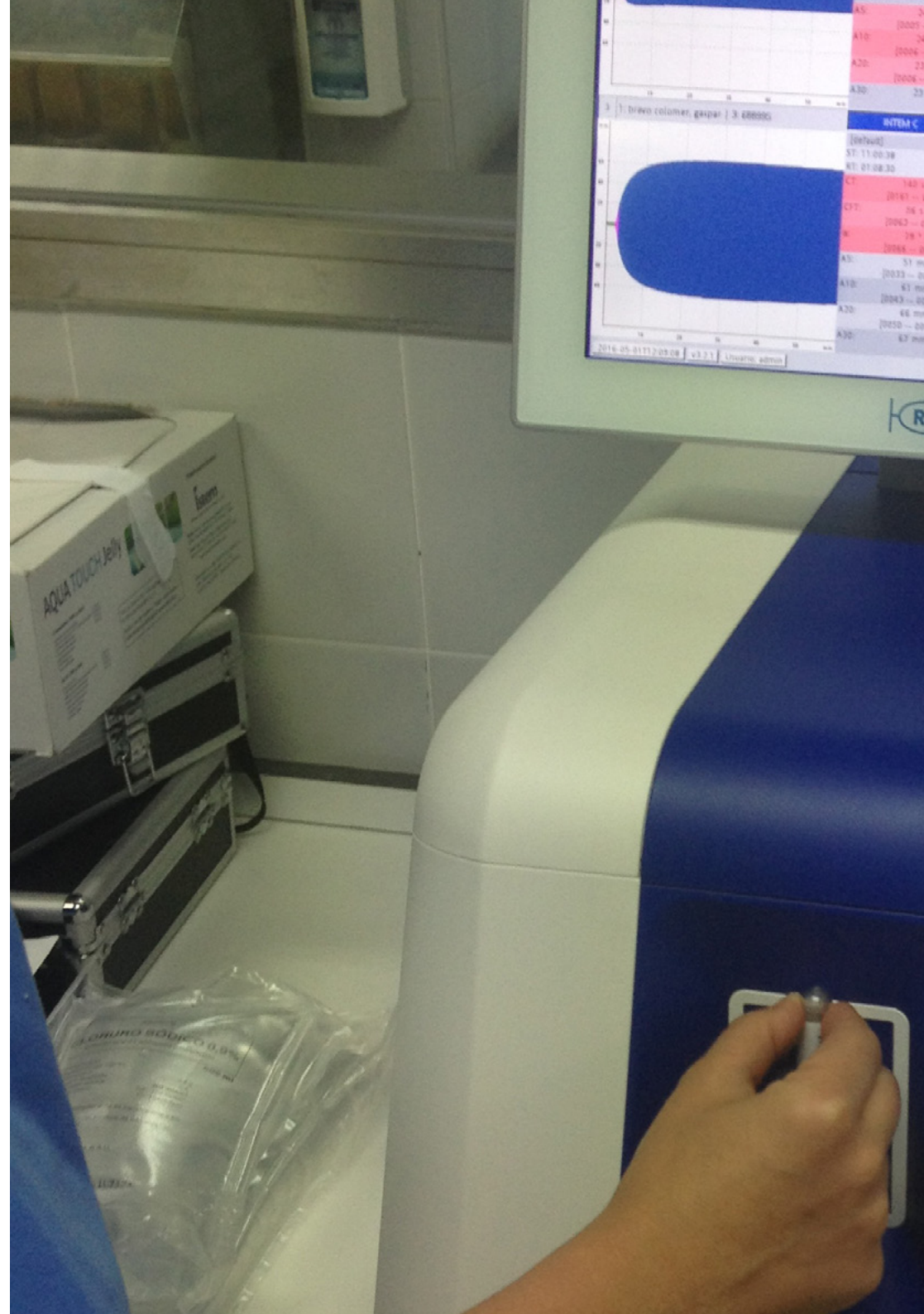


### Module 1. Latest Advances in Anesthesiology

- 1.1. Perioperative Medicine and Multimodal Rehabilitation: Future of Anesthesiology
- 1.2. Hemodynamic Optimization and Target-Guided Fluid Therapy
- 1.3. Clinical Simulation as a Teaching Tool in Postgraduate Education
- 1.4. Evidence-Based Medicine (EBM) in Anesthesiology
- 1.5. Contributions of Anesthesiology to Current Patient Expectations: Clinical Safety Pain Treatment
- 1.6. Pharmacological Developments in Anesthesiology
- 1.7. Perioperative Hemorrhage Preoperative Optimization, Monitoring, New Transfusion Strategies
- 1.8. Research as a Source of Progress in Anesthesiology
- 1.9. New Antiplatelet and Anticoagulant Drugs Involvement in Anesthetic Practice

### Module 2. Cardiovascular Anesthesia

- 2.1. Cardiovascular Anatomy and Physiology
- 2.2. Advanced Hemodynamic and Neurological Monitoring in Cardiovascular Procedures
- 2.3. Transesophageal Echocardiography in Cardiovascular Surgery
- 2.4. Management of Hemostasis and Transfusion Therapy in Cardiovascular Surgery
- 2.5. Updates in the Management of Extracorporeal Circulation (ECC)
- 2.6. Coronary Revascularization Surgery
- 2.7. Aortic Valve Surgery
- 2.8. Mitral Valve Surgery
- 2.9. Minimally Invasive Cardiac Surgery Multimodal Management
- 2.10. Updates on Anesthesia for Cardiovascular Procedures outside the Operating Room
- 2.11. Updates on the Management of Thoracic Aortic Pathology
- 2.12. Update on Anesthesia for the Placement and Management of Ventricular Assist Devices
- 2.13. Updates on Pericardial Surgery
- 2.14. Updates on Pediatric Cardiac Surgery
- 2.15. Anesthetic Management of Patients with Congenital Heart Disease Undergoing Non-Cardiac Surgery
- 2.16. Updates on Vascular Surgery
- 2.17. Comprehensive Management of Cardiac Transplant Patients





**Module 3. Thoracic Anesthesia**

- 3.1. Pathophysiology in Thoracic Surgery
- 3.2. Preoperative Assessment in High Risk Patients
- 3.3. Non-invasive Monitoring in Thoracic Surgery
- 3.4. Pulmonary Ultrasound in Thoracic Surgery
- 3.5. Fluid Therapy in Thoracic Surgery
- 3.6. Lung Protective Ventilation and Acute Lung Damage
- 3.7. Difficult Airway (DAV) in Thoracic Surgery
- 3.8. Non-invasive Mechanical Ventilation (NIV) Applied to Thoracic Surgery
- 3.9. Paravertebral Block in Thoracic Surgery
- 3.10. Cardiovascular Complications in Thoracic Surgery
- 3.11. Tracheal Surgeries
- 3.12. Thoracic surgery in Spontaneous Ventilation
- 3.13. Update on Endobronchial Interventionism
- 3.14. Update on Lung Transplants
- 3.15. Multimodal Reahbilitation Protocol in Thoracic Surgery



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



06

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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.



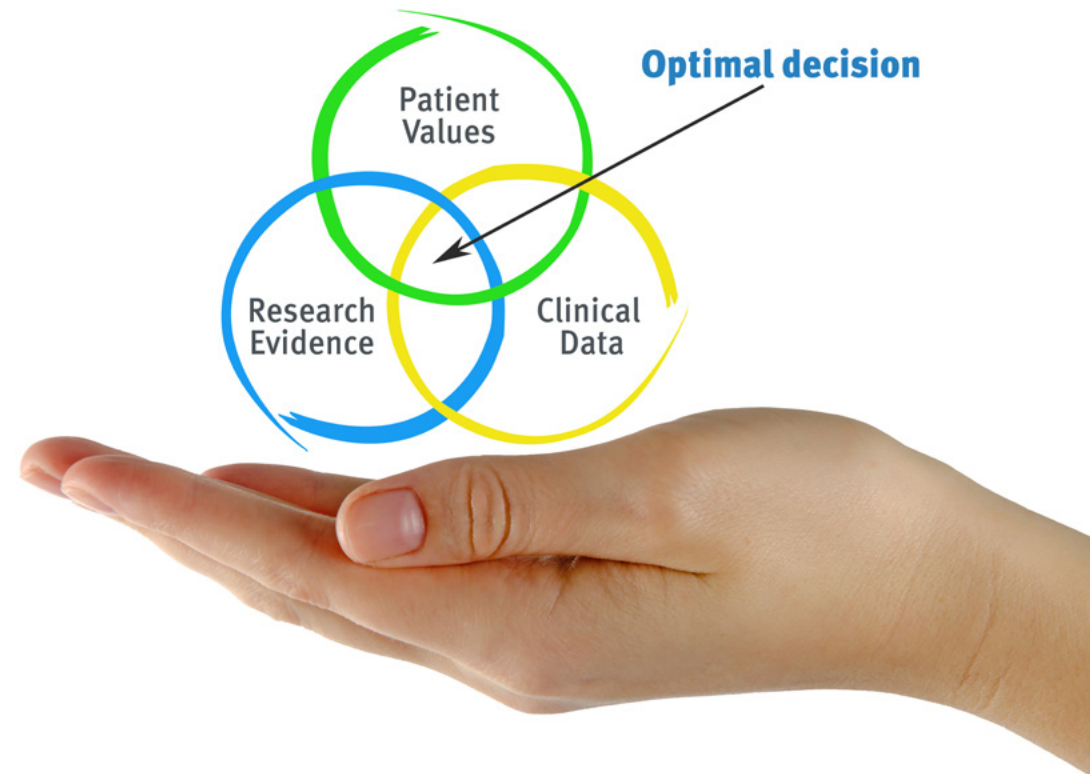
“

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

## At TECH we use the Case Method

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, 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 can experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gervas, 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 potential 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 professional medical 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. Students 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 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.



## Re-learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.



*The physician 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning 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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### Latest 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 this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.







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

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through 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 your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our difficult future decisions.



**Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



# 06 Certificate

The **Postgraduate Diploma in Cardiothoracic Anesthesiology** guarantees, in addition to the most accurate and up-to-date training, access to a qualification issued by **TECH - Technological University**.



“

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

This **Postgraduate Diploma in Cardiothoracic Anesthesiology** 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 diploma 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 Cardiothoracic Anesthesiology**

Official N° of hours: **400 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
development languages  
virtual classroom

**tech** technological  
university

## Postgraduate Diploma

Cardiothoracic  
Anesthesiology

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

# Postgraduate Diploma

## Cardiothoracic Anesthesiology

