



# Postgraduate Diploma

Congenital Heart Disease Surgery

» Modality: online

» Duration: 6 months

» Certificate: TECH Global University

» Accreditation: 18 ECTS

» Schedule: at your own pace

» Exams: online

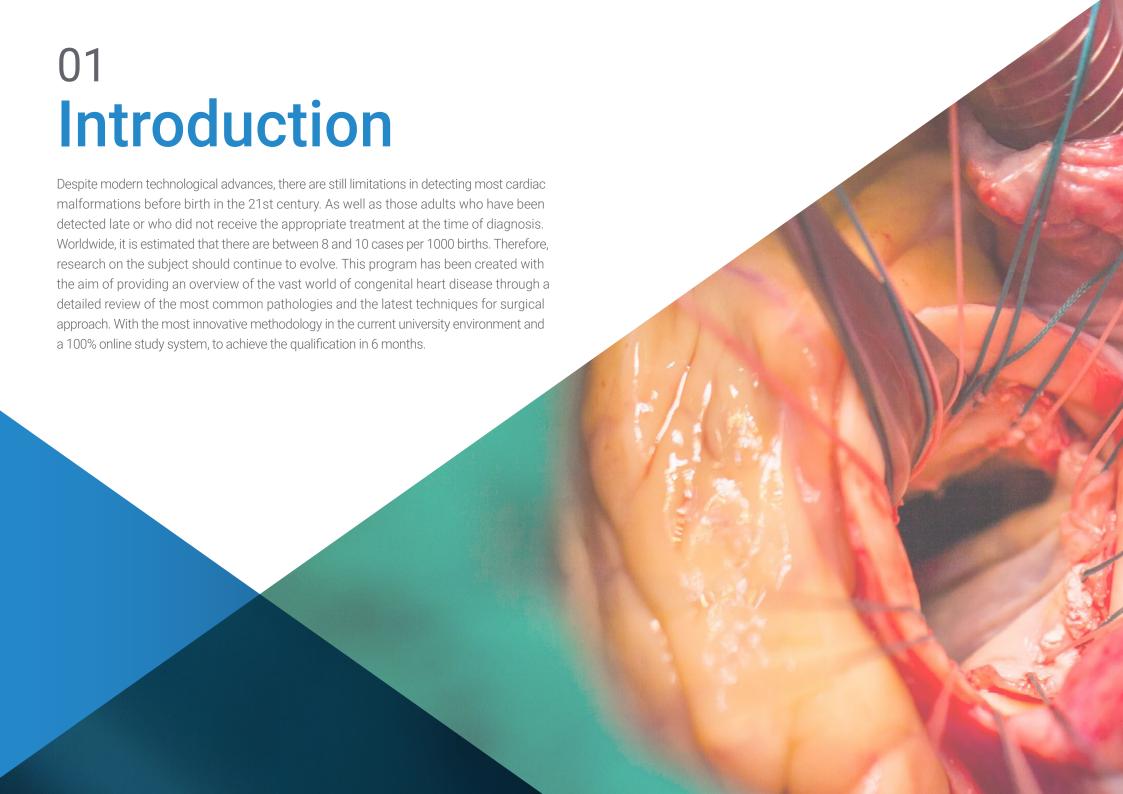
Website: www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-congenital-heart-disease-surgery

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### tech 06 | Introduction

Advances in the diagnosis and treatment of congenital heart disease have significantly changed the pattern of survival of these patients. Some patients reach adulthood without surgical treatment because they did not require surgery neither at the time of diagnosis or afterwards, or simply because there was no treatment available at the time of diagnosis. Then there is the high number of cases that are diagnosed during pregnancy or at birth thanks to constant technological advances and must be treated quickly.

Whatever the case may be, congenital heart disease research must continue to improve people's quality of life and find accurate and efficient solutions. For this reason, TECH has brought together a large team of professionals from different fields of cardiac surgery to share their clinical knowledge on this urgent issue. Thanks to its wide experience, multidisciplinarity and high-level scientific contribution, this is the best educational program to get up to date in everything related to the surgical approach to Congenital Heart Disease, perioperative care and the Anatomy and Pathophysiology of the Cardiovascular System.

Knowing how difficult it is for the specialist to assume a program of these characteristics, TECH offers it completely online. This means that there are no pre-set classes or fixed schedules, allowing the specialists themselves to decide where and how to take on the course workload. The contents are available 24 hours a day from day one from any device with an Internet connection; they can even be downloaded to be viewed offline at a later time.

This **Postgraduate Diploma in Congenital Heart Disease Surgery** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Practical cases presented by experts in Cardiac Surgery
- 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 for experts and individual reflection work
- \* Content that is accessible from any fixed or portable device with an Internet connection



You will be assisted at all times by TECH's professional team. To advance quickly and efficiently in each module"



This new social reality demands a new way of learning. TECH has everything you need to provide you with the best educational experience"

The program's teaching staff includes professionals from the industry who contribute their work experience to this 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.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

Get updated on the most modern and efficient methods to address and correct congenital heart disease.







# tech 10 | Objectives



### **General Objectives**

- In-depth knowledge of all cardiac diseases and their forms of treatment
- Broaden the knowledge and understanding of extracorporeal circulation as a whole
- Analyze the importance of new technologies involved in the management and control of cardiac pathologies and imaging techniques
- Obtain the necessary knowledge to improve patient recovery, avoid complications and reduce mortality
- Obtain the most up-to-date knowledge to approach comprehensively and from the surgical point of view, as appropriate all valvular pathologies, ischemic heart, aortic pathology and congenital heart diseases
- Study the treatment of other cardiac diseases, transcatheter valve implantation and concomitant diseases





### Module 1. Anatomy and Pathophysiology of the Cardiovascular System

- \* Study embryology to understand the origin of cardiac anatomy
- Outline the basic aspects of the pathophysiology of the heart
- In-depth study of the conduction system, coronary anatomy, great vessels and peripheral vascular system
- In-depth knowledge of all cardiac diseases
- Analyze hemostasis and the different pathways from of blood coagulation
- Know the new trends in cardiovascular pharmacology

### Module 2. Perioperative Care

- \* Acquire in-depth knowledge of all perioperative measures and strategies
- Update monitoring techniques in the operating room.
- Understand ways to improve for optimal recovery of the surgical patient
- In-depth study of the techniques to be applied prior to surgery, to avoid complications and reduce mortality
- Achieve more efficient postoperative control
- Reduce transfusions of blood products as much as possible

### Module 3. Congenital Heart Disease

- Provide an overview of congenital heart disease through a detailed review of the most common pathologies
- Study the physiology of congenital heart diseases in order to group them according to their physiological behavior
- Make an anatomical description of each group of anomalies
- Verify the different surgical options to correct congenital cardiopathies
- Evaluate the best time to correct congenital heart disease



A modern and secure virtual campus will be the study center for your next update in Congenital Heart Disease Surgery. Start now"





### **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 **Lamonica 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 disease, 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.

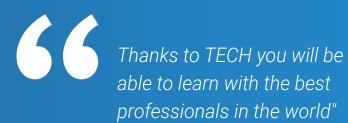
At the same time, this specialist maintains an active work as a surgeon at the European Hospital Georges Pompidou. In this institution, he also directs the Inserm 970 Unit. On the other hand, in the academic field, he is a professor in the Department of Biomedical Engineering at the University of Alabama 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
- Regenerative Therapies for Heart and Vascular Diseases Team Leader
- Professor of Thoracic and Cardiac Surgery at the Paris Descartes University
- 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



### Management



### Dr. Rodríguez-Roda, Jorge

- Chief of Cardiac Surgery Service at the Ramón and Cajal University Hospita
- Cardiac Surgeon of the Cardiac Surgery Unit at the Montepríncipe Hospital
- Clinical Professor in the Department of Surgery at the University of Alcalá de Henares
- Care Coordinator Department of the Gregorio Marañón General University Hospita
- Assistant Physician of Cardiac Surgery at Gregorio Marañón General University Hospital, Central Hospital de la Defensa Gómez Ulla and Hospital del Aire
- Resident physician of the Cardiac 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 Cardiac Surgery in the Department of Cardiovascular and Thoracic Surgery, Puerta de Hierro University Hospital, 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. Varela Barca, Laura

- Resident Intern at the Adult Cardiac Surgery Department of the Ramón y Cajal University Hospital of Madrid
- Assistant Physician of the Adult Cardiac Surgery Service of the Son Espases University Hospital of Palma de Mallorca
- Assistant Physician of the Cardiac Surgery Department of the Jiménez Díaz Foundation University Hospital
- PhD from the University of Alcalá de Henares in Health Sciences
- \* Bachelor's Degree in Medicine Faculty of Medicine from the University of Valladolid
- Master's Degree in Cardiovascular Emergencies at the University of Alcalá de Henares

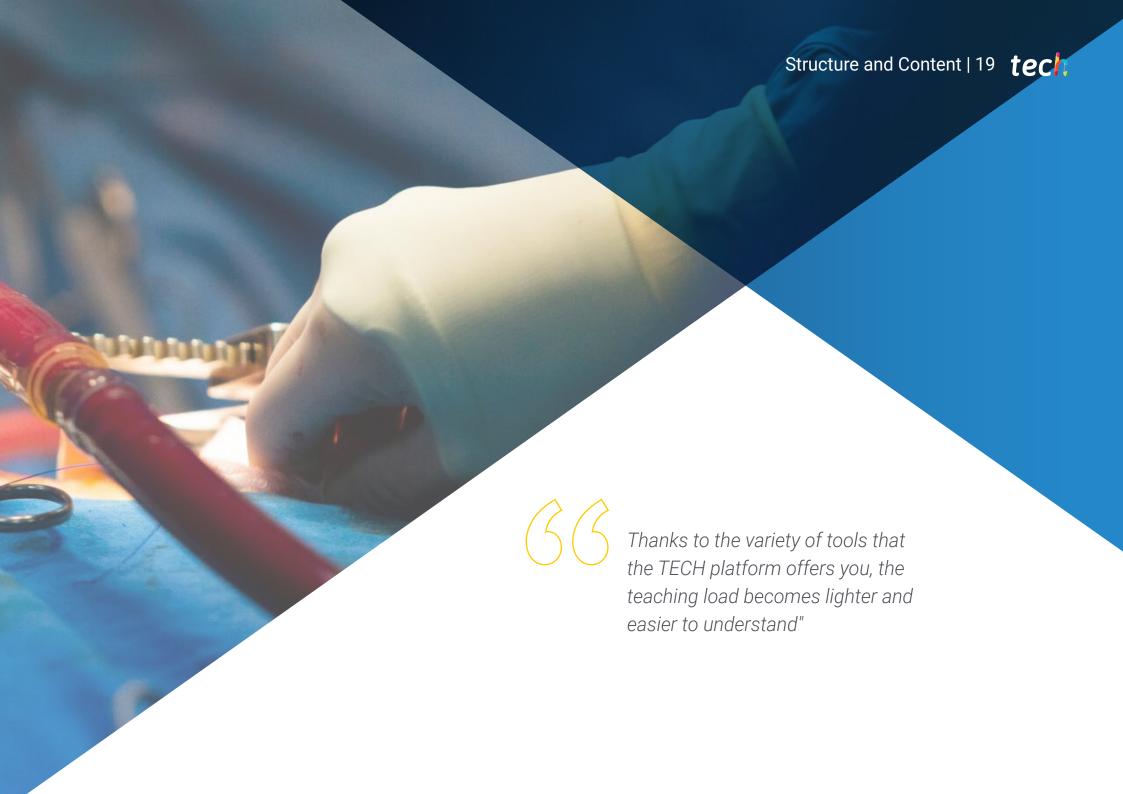
#### Dr. Martin, Miren

- \* Cardiovascular Surgery Specialist. Ramón y Cajal University Hospital.
- Resident Intern. Ramón y Cajal University Hospital.
- PhD in Medicine and Surgery University of the Basque Country
- Master's Degree in Cardiac Surgery Minimal access University of Málaga
- Master's Degree in Cardiovascular Emergencies. University of Alcalá
- Specialization in Clinical Research Methodology for Residents.
   University of Alcalá
- \* Specialist in Cardiovascular Surgery Ramón y Cajal University Hospital.

### Dr. Pérez-Caballero Martínez, Ramón

- \* Assistant of Children's Cardiovascular Surgery Gregorio Marañón General University Hospital
- \* Assistant at the Children's Cardiovascular Surgery Unit (Dr. R. Greco) Sanitas La Zarzuela Hospital
- \* Assistant at the Children's Cardiovascular Surgery Unit (Dr. R. Greco) Sanitas La Moraleja Hospital
- Assistant at the Children's Cardiovascular Surgery Unit (Dr. R. Greco) Nisa Pardo de Aravaca Hospital
- \* Assistant at the Children's Cardiovascular Surgery Unit (Dr. R. Greco) Quirón Pozuelo Hospital
- Assistant in Children's Cardiac Surgery Pediatric Heart Institute Doce de Octubre University Hospital
- PhD in Surgery from the Complutense University of Madrid
- Degree in Medicine and Surgery from the Faculty of Medicine, University of Santander University of Cantabria
- Specialist in Cardiovascular Surgery Gregorio Marañón General University Hospital
- Honorary Collaborator of the Department of Surgery I at the Complutense University
- Diploma of Advanced Studies. Synchronized ventricular assistance
- \* He has numerous publications in the area of cardiac surgery and transplantation in pediatrics.





### tech 20 | Structure and Content

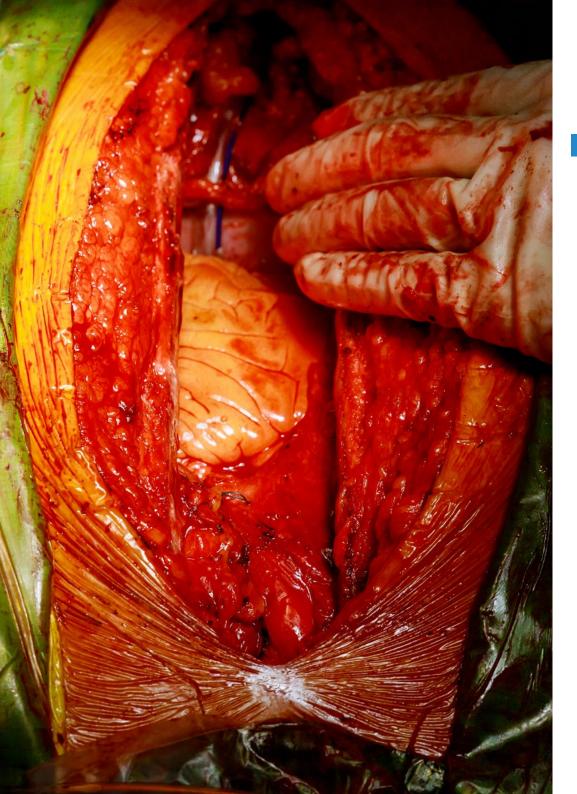
### Module 1. Anatomy and Pathophysiology of the Cardiovascular System

- 1.1. Embryology
- 1.2. Anatomy
  - 1.2.1. Cardiac Cavities
  - 1.2.2. Atrial Septum and Interventricular Septum
  - 1.2.3. Heart Valves
- 1.3. Biochemistry of the Heart
  - 1.3.1. Metabolic Regulation
  - 1.3.2. Regulation of Oxygen Consumption
  - 1.3.3. Plasma Lipoproteins
- 1.4. Conduction System
- 1.5. Coronary Anatomy and Coronary Pathophysiology
- 1.6. Large Vessels and Peripheral Vascular System
- 1.7. Physiology of the Cardiovascular Apparatus
- 1.8. Anatomophysiology of Pulmonary Circulation
- 1.9. Hemostasis and Blood Coagulation
- 1.10. Update on Cardiovascular Pharmacology

### Module 2. Perioperative Care

- 2.1. Preoperative Optimization
  - 2.1.1. Risk Assessment
  - 2.1.2. Nutritional Status
  - 2.1.3. Anemia
  - 2 1 4 Diabetes Mellitus
  - 2.1.5. ATB Prophylaxis
- 2.2. Intraoperative
  - 2.2.1. Monitoring
  - 2.2.2. Anesthetic Induction and Maintenance
  - 2.2.3. Fluid Use
  - 2.3.4. Pulmonary Hypertension

- 2.3. Cardiovascular System
  - 2.3.1. Volemia and Contractility
  - 2.3.2. Postoperative AMI
  - 2.3.3. Arrhythmias
  - 2.3.4. Cardiopulmonary Arrest and Cardiopulmonary Resuscitation
- 2.4. Low-Energy Expenditure Syndrome
  - 2.4.1. Monitoring and Diagnosis
  - 2.4.2. Treatment
- 2.5. Respiratory System
  - 2.5.1. Postoperative Changes in Pulmonary Function
  - 2.5.2. Ventilator Management
  - 2.5.3. Pulmonary Complications
- 2.6. Kidney Function
  - 2.6.1. Kidney Pathophysiology
  - 2.6.2. Predisposing Factors for Kidney Failure
  - 2.6.3. Prevention of Kidney Failure
  - 2.6.4. Treatment of Kidney Failure
- 2.7. Nervous System. Neurological Damage
  - 2.7.1. Types of Neurological Damage
  - 2.7.2. Risk Factors
  - 2.7.3. Etiology and Prevention
  - 2.7.4. Neuropathy in Critically III Patients
- 2.8. Hematological Complications
  - 2.8.1. Postoperative Bleeding
  - 2.8.2. Diagnosis of Coagulopathies
  - 2.8.3. Prevention of Bleeding
  - 2.8.4. Treatment
- 2.9 Infections
  - 2.9.1. Pneumonia Associated with Mechanical Ventilation
  - 2.9.2. Infection of Surgical Wounds
  - 2.9.3. Infections Associated with Catheter Devices
  - 2.9.4. Antibiotic Prophylaxis
- 2.10. Optimization of Blood Derivative Transfusion

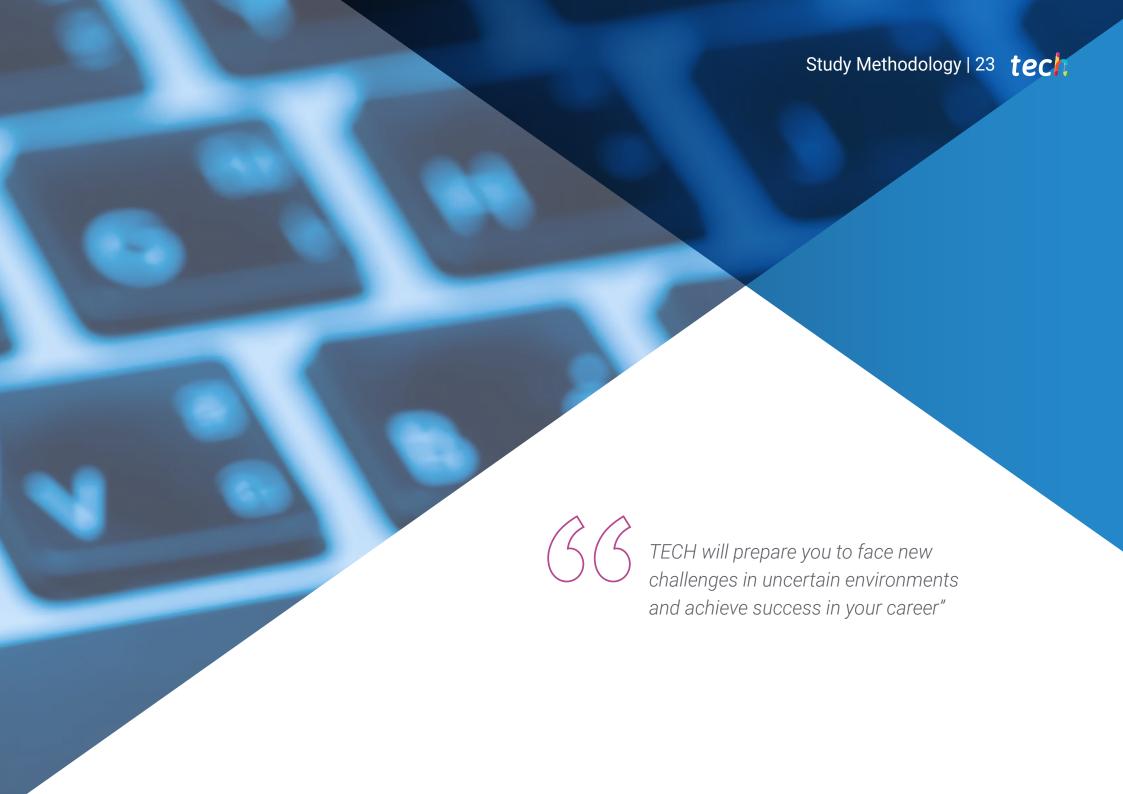


### Structure and Content | 21 tech

### Module 3. Congenital Heart Disease

- 3.1. General Physiology of Congenital Heart Disease
  - 3.1.1. Major Syndromes
  - 3.1.2. Palliative Techniques
- 3.2. Patent Ductus Arteriosus
  - 3.2.1. Aortopulmonary Window
  - 3.2.2. Fistula of the Sinus of Valsalva
  - 3.2.3. Aortoventricular Tunnel
- 3.3. Obstructions to Systemic Flow
  - 3.3.1. Aortic Subvalvular Stenosis
  - 3.3.2. Valvular Aortic Stenosis
  - 3.3.3. Supravalvular Aortic Stenosis and Aortic Coarctation
  - 3.3.4. Interrupted Aortic Arch
- 3.4. Atrial Septal Defect and Ventricular Septal Defect
  - 3.4.1. Atrioventricular Canal
  - 3.4.2. Truncus Arteriosus
- 3.5. Tetralogy of Fallot
  - 3.5.1. Pulmonary Atresia with VSD and MAPCAS
- 3.6. Transposition of the Main Arteries. Double Outlet Right Ventricle
- 3.7. Hypoplastic Left Heart Syndrome
  - 3.7.1. Three-Stage Management of Univentricular Physiology
- 3.8. Pulmonary Venous Return Anomalies
  - 3.8.1. Total and Partial Anomalous Pulmonary Venous Return
  - 3.8.2. Heterotaxia
- 3.9. Congenitally Corrected Transposition of the Great Arteries
- 3.10. Vascular Rings. Coronary Abnormalities



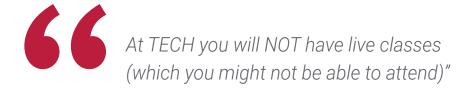


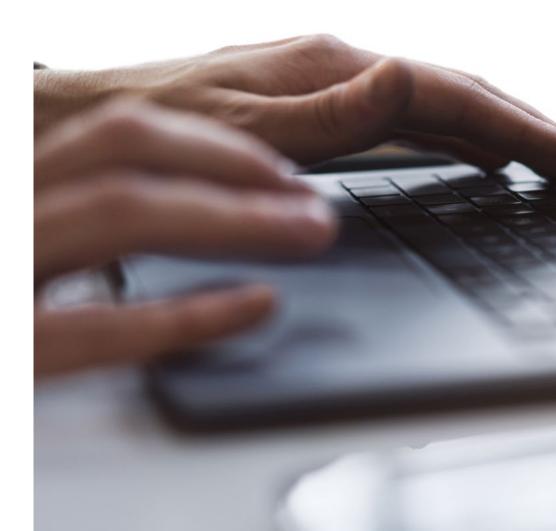
### The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.







### The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.



TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want"

### tech 26 | Study Methodology

#### Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



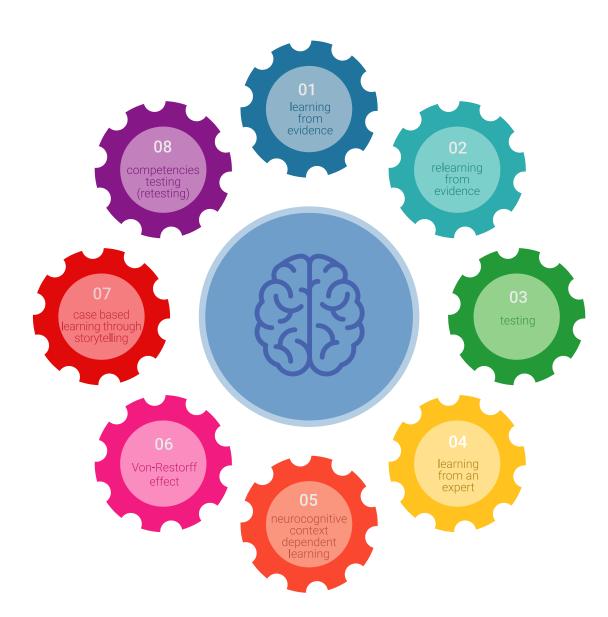
### Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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.





### A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

### 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 assess 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.

### The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the quality of teaching, quality of materials, course structure and objectives is excellent. Not surprisingly, the institution became the best rated university by its students on the Trustpilot review platform, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



### **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.

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.



### **Practicing Skills and Abilities**

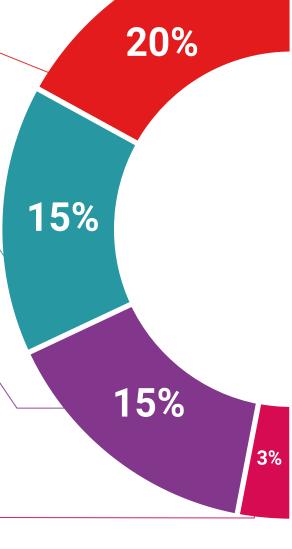
You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



#### **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 exclusive educational system for presenting multimedia content 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 education.

**Case Studies** 

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.



**Testing & Retesting** 

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.



Classes

There is scientific evidence suggesting that observing third-party experts can be useful.





**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.



7%

17%





### tech 34 | Certificate

This private qualification will allow you to obtain a **Postgraduate Diploma in Congenital Heart Disease Surgery** 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** private qualification 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 Diploma in Congenital Heart Disease Surgery

Modality: online

Duration: 6 months

Accreditation: 18 ECTS



has successfully passed and obtained the title of:

#### Postgraduate Diploma in Congenital Heart Disease Surgery

This is a private qualification of 540 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024



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

health confidence people
leducation information tutors
guarantee accreditation teaching
institutions technology learning



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