Postgraduate Certificate
Cardiovascular Anesthesia

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Postgraduate Certificate
Cardiovascular Anesthesia

Course Modality: **Online**
Duration: **2 months.**
Endorsed by: **TECH - Technological University**
6 ECTS Credits
Hours: **150**
Website: www.techtitute.com/us/medicine/postgraduate-certificate/cardiovascular-anesthesia

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01

Introduction

Anesthesiology has undergone impressive development in the past few 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.

"

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 cardiovascular anesthesia management into their medical practice"

Anesthesiology, Resuscitation and Pain Therapy, as a medica-lsurgical specialty has undergone significant 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.

Knowledge and understanding of cardiovascular physiology is one of the cornerstones of hemodynamic and global management for patients undergoing surgical and anesthetic procedures. Likewise, knowledge of the pathophysiological processes involved in the different cardiovascular pathologies and their impact during anesthesia is a basic principle for the safe practice of anesthesia in general. Moreover, the recognition of the different surgeries that specifically address the cardiovascular apparatus, the particular monitoring and medication used in these procedures and, of course, the integration of this information will help anesthesiologists acquire the necessary knowledge to deal with cardiovascular surgery.

In this Postgraduate Certificate we aim to offer a global and continuous vision of the pre and intraoperative management of complex patients with cardiovascular pathology undergoing surgery. We have made a selection of the most frequent and complex procedures that require constant updating. There is also an introductory chapter on ventricular assist devices, which are of great importance at present and will play an significant role in the future. Lastly, we address the topic of multimodal rehabilitation applied to cardiac surgery, which is a very topical issue.

This **Postgraduate Certificate in Cardiovascular Anesthesia** is the most complete and up-to-date scientific program on the market. The most important features of the course are:

- 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.

- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course.

- All of this will be complemented by 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 be able to learn, through the latest educational technology, the most recent advances in Cardiovascular Anesthesia"

"This Postgraduate Certificate may be the best investment you can make when choosing a refresher program for two reasons: in addition to updating your knowledge of Cardiovascular Anesthesia, 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 Cardiovascular Anesthesia 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.
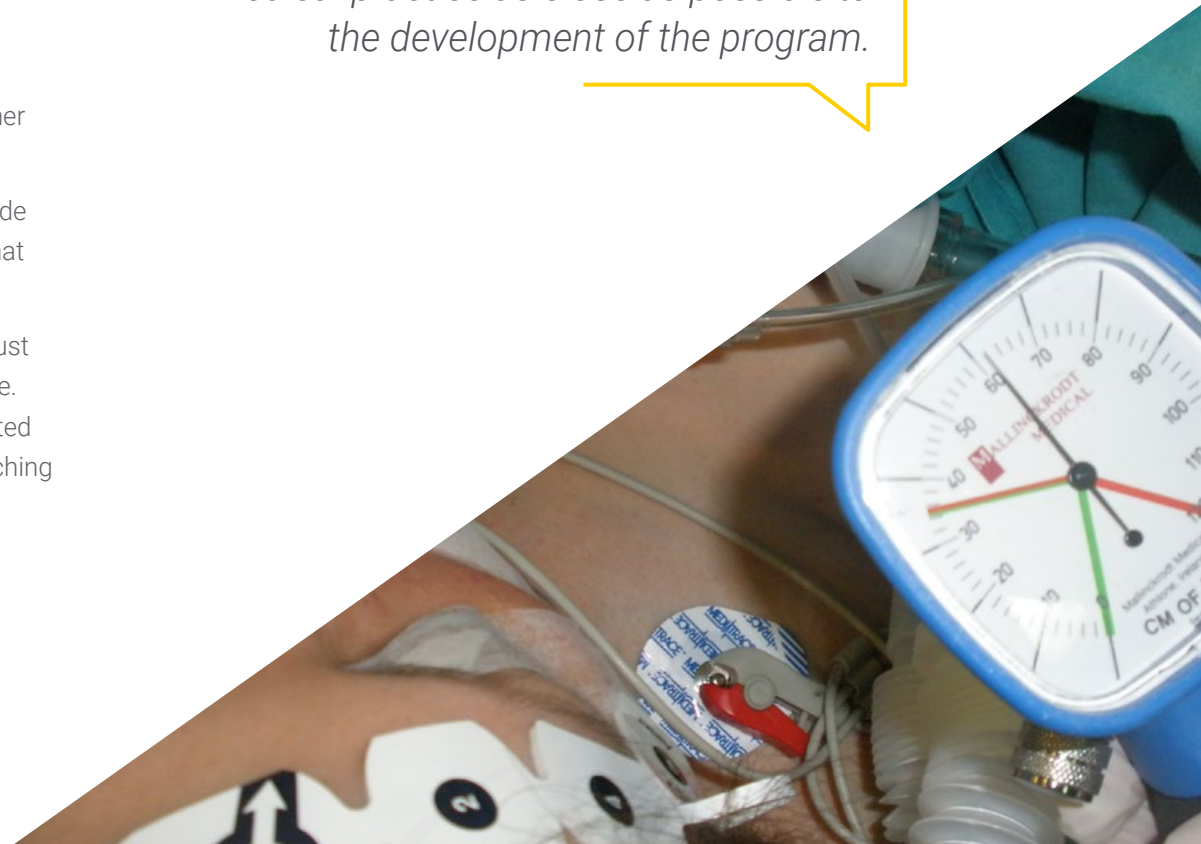
02
Objectives

The main objective is to facilitate the incorporation of advances in Cardiovascular Anesthesia, 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.

This refresher program will provide you with the skills to act safely in decision making during procedures in Cardiovascular Anesthesia, and will help you grow professionally"

General Objective

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

Specific Objectives

- Review cardiovascular anatomy and physiology as applied to cardiovascular surgery.

- Update on the current use of cardiovascular drugs and their indications.

- Review pre-anesthetic assessment in patients with cardiac pathology, estimating perioperative risk factors (cardiovascular, respiratory, renal neurological).

- Inquire into the different advanced hemodynamic monitoring devices: Pulmonary artery catheter, pulse contour reading devices, cerebral oximetry, their applicability in cardiovascular procedures and their indications and contraindications.

- Acquire knowledge and technical skills with transesophageal and transthoracic echocardiographic monitoring, establishing the new gold standard of hemodynamic monitoring.

- Identify the pathophysiology of hemostasis associated with cardiovascular procedures. Pathophysiology of polytransfusion and adverse effects derived from transfusion.

- Reflect on new transfusion therapy strategies, new blood product sparing programs and coagulation monitoring.

- Review the pathophysiology of extracorporeal circulation and ECC systems and flows.

- Reflect on anesthetic considerations during CPB.

- Review aortic valve pathophysiology: stenosis and insufficiency, as well as its anesthetic implications of aortic pathology in perioperative management

- Highlight the new multimodal recovery protocols in cardiac surgery.

- Review mitral valve pathophysiology, with emphasis on insufficiency and stenosis, as well as the pre-anesthetic assessment of patients with mitral pathology, and the management and diagnosis of complications after mitral valve replacement and repair.

- Review pulmonary hypertension pathophysiology associated with mitral pathology.

- Update on anesthetic management procedures in minimally invasive cardiac surgery.

- Evaluate chronic and acute aortic pathology: aneurysm and dissection, and its implications of hybrid and combined approaches with extracorporeal circulation support, as well as systemic protection measures (cerebral, medullary and renal).

- Describe the peculiarities of total circulatory arrest.

- Update on the operation of ventricular assist devices with / without oxygenator.

- Describe destination therapy devices and bridging devices for recovery or transplantation. Indications:

- Analyze the pathophysiology of ventricular assist devices.

- Update on anesthetic procedures during device implantation and their implications of TEE monitoring during implantation, as well as immediate complications after implantation.

- Explain cardiovascular physiology in the pediatric age group and update on the procedures for pre-anesthetic assessment of cardiac surgery pediatric patients.
- Determine perioperative risk estimation (cardiovascular, respiratory, renal neurological). Physiopathology of cyanotic and non-cyanotic pathology.
- Update on the procedure of integral perioperative cardiovascular management in the pediatric age.
- Update the procedure for pre-anesthetic assessment of patients with vasculopathy, as well as the estimation of perioperative risk (cardiovascular, respiratory, renal neurological).
- Update on perioperative management procedures of the abdominal aorta: Aneurysm, Leriche syndrome.
- Describe the characteristics of conventional vs. endovascular management of vasculopathy.
- Update on the procedures of anesthetic management of carotid artery surgery and cerebral monitoring during the procedure.
- Analyze the implication of anesthesiology in perioperative medicine, its contributions and interest.
- Review updates on cardiac transplantation anesthetic management.

Seize the opportunity and take the step to get up-to-date on the latest developments in Cardiovascular Anesthesia"

03
Course Management

The materials have been created by a team of leading professionals in the field of Cardiovascular Anesthesia, 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.

Learn about the latest advances in Cardiovascular Anesthesia from leading professionals"

Management

Dr. Muedra Navarro, Vicente

- Head of the Anesthesia Service at the General University Hospital Consortium of Valencia.
- Professor-Doctor of Anesthesiology at the Universitat de 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
- Head researcher in several research projects with competitive funding from Public Institutions (Carlos III Health Institute)
- 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

Professors

Dr. Carmona García, Paula
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- La Fe Polytechnic and University Hospital. Valencia, Spain

Dr. Barrio, José Manuel
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Gregorio Marañón General University Hospital. Madrid, Spain

Dr. Blázquez, Eva
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- San Joan de Déu hospital. Barcelona, Spain

Dr. Carmona, Paula
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- La Fe Polytechnic and University Hospital. Valencia, Spain

Dr. Espinosa, Ángel V.
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Örebro University Hospital. Sweden

Dr. Gallego, Lucia
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Miguel Servet University Hospital. Zaragoza, Spain

Dr. García Candel, Antonio
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Virgen de la Arrixaca University Hospital. Murcia, Spain

Dr. López Cantero, Marta
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- La Fe Polytechnic and University Hospital. Valencia, Spain

Dr. López, Marta
- Degree in Medicine and Surgery
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- Attending Physician
- San Joan de Déu hospital. Barcelona, Spain

Dr. Maestre, María Luz
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Sant Pau i Santa Tecla Hospital Barcelona, Spain

Dr. Moreno, J.
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Consortium General University Hospital Valencia, Spain

Dr. Muedra, Vicente
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Coordinator in of the Anesthesiology and Critical Care Department in Cardiac Surgery, La Ribera de Alcira University Hospital. Valencia, Spain
- La Ribera University Hospital, Alzira. Valencia, Spain

Dr. Muñoz, Pedro
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Doce de Octubre University Hospital. Madrid, Spain

Dr. Novoa, Emma
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Gregorio Marañon Hospital. Madrid, Spain

Dr. Matute, Purificación
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Barcelona Clinical Hospital. Barcelona, Spain

Dr. Ranucci, Marco
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Department Head
- San Donato Policlinic Mián, Italy

Dr. Sánchez, Sebastián
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- Virgen de la Arrixaca University Hospital. Murcia, Spain

Dr. Zarragoikoetxea, Iratxe
- Degree in Medicine and Surgery
- Doctor Specialist in Anesthesiology, Resuscitation and Pain Therapy
- Attending Physician
- La Fe Polytechnic and University Hospital. Valencia, Spain

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Structure and Content

The syllabus structure has been designed by a team of professionals who understand the implications of medical training in thoracic anesthesia procedures, aware of the relevance of current training and committed to quality teaching through new educational technologies.

This Postgraduate Certificate in Cardiovascular Anesthesia is the most complete and up-to-date scientific program on the market"

Module 1. Update on Cardiovascular Anesthesia

1.1. Cardiovascular Anatomy and Physiology
- 1.1.1. Perioperative Risk Estimation
- 1.1.2. Update on Cardiovascular Drugs

1.2. Advanced Monitoring in Cardiovascular Procedures
- 1.2.1. Advanced Hemodynamic Monitoring
- 1.2.2. Advanced Neurologic Monitoring

1.3. Transesophageal Echocardiography in Cardiovascular Surgery
- 1.3.1. Anatomical and Functional Hemodynamic Assessment

1.4. Hemostasis and Transfusion Therapy in Cardiovascular Surgery
- 1.4.1. Hemostasis Monitoring
- 1.4.2. Pathophysiology of Polytransfusion
- 1.4.3. Blood Product Savings Programs

1.5. Management of Extracorporeal Circulation (ECC)
- 1.5.1. Extracorporeal Membrane Oxygenation (ECMO)
- 1.5.2. Adverse Effects Associated with ECC

Module 2. Specific Advances in Cardiovascular Anesthesia

2.1. Coronary Revascularization Surgery
- 2.1.1. With / without Extracorporeal Circulation
- 2.1.2. Advantages and Disadvantages of CEC Cardiac Surgery

2.2. Aortic Valve Surgery:
- 2.2.1. Pathophysiology of Aortic Pathology
- 2.2.2. Valvular Substitution
- 2.2.3. Valvular Reparation
- 2.2.4. Implantation of State-of-the-art Valves

2.3. Mitral Valve Surgery
- 2.3.1. Pathophysiology of Mitral Pathology
- 2.3.2. Valvular Substitution
- 2.3.3. Valvular Reparation

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

05
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. 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 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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.

20%

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.

15%

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".

15%

3%

Additional Reading

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

20%

17%

7%

3%

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.

Certificate

The Postgraduate Certificate in Cardiovascular Anesthesia guarantees, in addition to the most accurate and updated 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 Certificate in Cardiovascular Anesthesia** is the most complete and up-to-date scientific program on the market.

After the student has passed the evaluations, they will receive their corresponding **certificate** issued by **TECH - Technological University via tracked delivery.**

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

Diploma: **Postgraduate Certificate in Cardiovascular Anesthesia**

ECTS: **6**

Number of Hours: **150**

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Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Cardiovascular Anesthesia

This is a qualification awarded by this University, with 6 ECTS credits and equivalent to 150 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 diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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Certificate: **TECH - Technological University**

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Teaching Hours: **150**

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