Postgraduate Certificate

Shock Management in Trauma in the ICU

tech universidad tecnológica

tech technological university

Postgraduate Certificate

Shock Management in Trauma in the ICU

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

Website: **www.techtitute.com/us/medicine/postgraduate-certificate/shock-management-trauma-icu**

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01

Introduction

In medicine, Shock often becomes the end of the road for a variety of processes, ending with cardiovascular collapse and death. Therefore, it is one of the most important problems encountered by physicians dealing with Severe Trauma in Intensive Care Units (ICU). In this scenario, TECH presents this exclusive program for those professionals who wish to be updated in the mastery of the latest trends in diagnosis and treatment of the different types of Shock. With a syllabus designed by a team of highly qualified teachers, the program uses a 100% online methodology, based on the learning methodology known as Relearning.

Put yourself at the forefront of healthcare with TECH! You will be up-to-date with the most recent trends in the treatment of the various types of ICU Shock."

Shock in the context of Trauma and Intensive Care is a critical pathology that can have very dangerous consequences for the health of the patient. In fact, in the ICU setting, where patients often experience severe trauma, *shock* can be a serious and potentially fatal complication.

Therefore, this Postgraduate Certificate dedicated to the diagnosis and comprehensive treatment of Shock in patients with traumatic injuries is born. The specialist will be able to recognize the different types of *shock* and evaluate vital signs, hemodynamic parameters and biomarkers. In addition, it will address strategies to restore blood flow, which may involve surgical interventions to control bleeding, the use of medications to improve cardiac function, and the administration of intravenous fluids to maintain blood volume.

Common triggers of *shock*, such as massive blood loss due to severe injury, will also be delved into. Other causes may include injuries that directly affect the heart, such as cardiac trauma or arrhythmias, or problems that interfere with the lungs' ability to oxygenate blood efficiently.

The program will also explore continuous monitoring and adaptation of treatments based on patient response. In this way, the physician will acquire advanced skills to address Shock in traumatized patients, optimizing their prognosis and recovery in Intensive Care settings, emphasizing interdisciplinary collaboration and evidence-based decision making.

This academic program, completely online, will provide the graduate with the flexibility to complete it from anywhere and at any time, with no time restrictions. Only an electronic device with internet access will be required to incorporate the most advanced skills into daily clinical practice. A unique opportunity for students to update their skills through the revolutionary *Relearning* methodology, consisting of the repetition of key concepts to ensure optimal knowledge acquisition.

This **Postgraduate Certificate in Shock Management in Trauma in the ICU** 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 Shock Management in Trauma in the ICU
- 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 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 update your education in Shock Management in Trauma in the ICU thanks to this Postgraduate Certificate. And in only 6 weeks!"

Thanks to the most innovative didactic resources you will delve into the problems of multi-organ dysfunction in Trauma"

You will analyze Transfusion Secondary Acute Lung Injury (TRALI), a severe respiratory syndrome resulting from transfusion of blood products.

You will delve into the diagnosis and the most current therapeutic strategies to treat Hemorrhagic Shock in Intensive Care Units (ICU).

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

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an 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 academic year For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The Postgraduate Certificate has been meticulously designed to provide the physician with the necessary tools and knowledge to effectively address the critical challenge of Shock in Intensive Care Units (ICU). The physician will be equipped with the most advanced skills in the diagnosis and treatment of Shock, allowing them to excel in the care of traumatized patients in highly complex situations. Thanks to a 100% online approach, TECH will make available to you the possibility to learn at your own pace, through the revolutionary Relearning methodology.

Don't miss this opportunity to update your professional profile with TECH's best program"

General Objectives

- Delve into a thorough understanding of the anatomophysiological, pathophysiological, and clinical basis of severe traumatic injuries, as well as associated complications and comorbidities
- Effectively communicate injury prevention information to different audiences and utilize health promotion strategies
- Integrate quality and safety practices in the management of trauma patients, minimizing risks and optimizing outcomes
- Implement triage protocols in mass trauma situations and prioritize care

You will reach your professional goals in only 6 weeks and with a pioneer methodology in TECH: Relearning"

Specific Objectives

- Delve into the different types of shock in trauma patients in the ICU
- Delve into the interpretation of vital signs and hemodynamic parameters to assess the severity and progression of *shock*
- Learn the principles of intravenous fluid administration and its proper use to maintain perfusion
- Update knowledge of vasoactive medications and their mechanisms of action to correct hemodynamic imbalance
- Identify and address coagulation disorders associated with traumatic *shock*
- Develop strategies for recognizing and treating septic shock, a common complication in trauma patients

03

Course Management

This program is made up of a teaching team of accomplished experts in the field of Intensive Care Medicine. They have been carefully selected, not only for their impressive academic credentials, but also for their experience facing challenges on the front lines of critical care. Furthermore, it should be noted that these faculty members are fully committed to integrating the latest research and advances in the field, with a dynamic and up-to-date approach. In this way, the professional will acquire in-depth theoretical knowledge, as well as its application in real-world situations, making a difference in the lives of patients.

The faculty of this Postgraduate Certificate will give you a tangible connection to clinical reality and a passion for excellence in critical care"

Management

Dr. Bustamante Munguira, Elena

- Head of the Intensive Care Medicine Department of the Hospital Clínico de Valladolid
- Medical Director of the Health Area of Ibiza and Formentera
- Specialist in Intensive Care Medicine
- Teacher of refresher courses and workshops
- Illustrious Official College of Physicians of Salamanca Award
- Ramón Llul Award of the Patient Safety Unit
- PhD in Medicine and Surgery
- Master's Degree in Management
- Medical and Healthcare Management
- Master in Patient Safety

Professors

Dr. De la Torre Vélez, Paula

- Internist at Burgos Hospital
- Physician at Summa 112. Emergency Service of the Community of Madrid
- Degree in Medicine from the University of Burgos
- Master's Degree in Integration and Clinical Problem Solving in Medicine

04

Structure and Content

The program will ensure the graduate will have a solid theoretical understanding of the fundamental principles of Shock Management in Trauma in the ICU. In addition, each concept will be translated directly into practical application, through real case studies, experiencing critical decision making in emergency situations. In fact, the physician will have access to specialized topics that integrate the most recent research. All this through TECH's innovative *Relearning* educational methodology, which will ensure optimal knowledge acquisition by repeatedly reinforcing key fundamentals.

Benefit from the best Postgraduate Certificate, which will equip you with exceptional skills and inspire you to evolve in your medical career"

Module 1. Management of *shock* in ICU trauma

1.1. Objectives end points of trauma resuscitation
- 1.1.1. Resuscitation
- 1.1.2. Pathophysiology
- 1.1.3. Global parameters
  - 1.1.3.1. Clinical parameters, physical examination, vital signs
  - 1.1.3.2. Hemodynamic parameters: Optimization of volemia
  - 1.1.3.3. Hemodynamic parameters: Cardiac work
  - 1.1.3.4. End-expiratory CO2 values (End-tidal CO2)
  - 1.1.3.5. Oximetric values
  - 1.1.3.6. Measurement of tissue metabolism anaerobiosis
- 1.1.4. Regional parameters
  - 1.1.4.1. Gastric mucosal tonometry
  - 1.1.4.2. Sublingual capnography
  - 1.1.4.3. Tissue oximetry and capn ometry
  - 1.1.5.4. Near Infrared Spectrometry (NIRS)
- 1.1.5. Conclusions

1.2. Multi-organ dysfunction in trauma
- 1.2.1. Dysfunction
- 1.2.2. Pathophysiology
- 1.2.3. Classification
  - 1.2.3.1. Early Onset
  - 1.2.3.2. Late Onset
- 1.2.4. Diagnosis
  - 1.2.4.1. Scales
  - 1.2.4.2. Risk Factors
- 1.2.5. Therapeutic Approach
  - 1.2.5.1. Cardiorespiratory support
  - 1.2.5.2. Damage control surgeries
  - 1.2.5.3. Surgeries for debridement of infectious foci
  - 1.2.5.4. Blood volume and blood products supply
  - 1.2.5.5. Others: Protective mechanical ventilation and nutrition
- 1.2.6. Conclusions

1.3. Hemorrhagic shock
- 1.3.1. Recognition of the state of shock
- 1.3.2. Clinical differentiation of shock etiology
  - 1.3.2.1. General description of hemorrhagic shock
- 1.3.3. Physiological classification
  - 1.3.3.1. Grade I hemorrhage >15% blood volume loss
  - 1.3.3.2. Hemorrhage grade II 15-30% of blood volume loss
  - 1.3.3.3. Hemorrhage grade III 31-40% of blood volume loss
  - 1.3.3.4. Hemorrhage grade IV >40% blood volume loss
- 1.3.4. Initial management of hemorrhagic shock
  - 1.3.4.1. Physical Examination
    - 1.3.4.1.1. Airway and Breathing
    - 1.3.4.1.2. Circulation, hemorrhage control
    - 1.3.4.1.3. Neurological Deficit
    - 1.3.4.1.4. Exposure: complete examination
  - 1.3.4.2. Vascular Access
  - 1.3.4.3. Initial treatment with liquids
  - 1.3.4.4. Blood restitution
    - 1.3.4.4.1. Crossmatching tests
    - 1.3.4.4.2. Prevention of hypothermia
    - 1.3.4.4.3. Autotransfusion
    - 1.3.4.4.4. Massive transfusion
    - 1.3.4.4.5. Coagulopathy
    - 1.3.4.4.6. Calcium administration

1.4. Systemic inflammatory response syndrome and sepsis in severe trauma
- 1.4.1. Systemic inflammatory response
- 1.4.2. CNS
  - 1.4.2.1. Common infections
  - 1.4.2.2. Treatment
  - 1.4.2.3. Antibiotic prophylaxis for CNS infections
- 1.4.3. Pneumonia
- 1.4.4. Infections related to fractures
  - 1.4.4.1. Introduction
  - 1.4.4.2. Factors associated with infection
  - 1.4.4.3. Diagnosis of fracture-related infection
  - 1.4.4.4. Infection-related treatment

1.5. Coagulation disorders in trauma
- 1.5.1. Coagulation
- 1.5.2. Coagulopathy associated with trauma
  - 1.5.2.1. Trauma-associated coagulopathy (TAC)
    - 1.5.2.1.1. Tissue damage and inflammation
    - 1.5.2.1.2. Endothelial Dysfunction
    - 1.5.2.1.3. Shock and hypoperfusion
    - 1.5.2.1.4. Platelet dysfunction
    - 1.5.2.1.5. Coagulation factor consumption and dysfunction
    - 1.5.2.1.6. Hyperfibrinolysis
  - 1.5.2.2. Coagulopathy Secondary to Trauma (CST)
    - 1.5.2.2.1. Associated with the patient's situation
      - 1.5.2.2.1.1. Hypothermia
      - 1.5.2.2.1.2. Acidosis
    - 1.5.2.2.2. Dilutional
    - 1.5.2.2.3. Added
      - 1.5.2.2.3.1. Comorbidities
      - 1.5.2.2.3.2. Concomitant Drug
- 1.5.3. Diagnosis
  - 1.5.3.1. Conventional tests
    - 1.5.3.1.1. Conventional coagulation tests
      - 1.5.3.1.1.1. Platelet count
      - 1.5.3.1.1.2. Fibrinogen levels
    - 1.5.3.1.2. Viscoelastic test
      - 1.5.3.1.2.1. Reactions and parameters
      - 1.5.3.1.2.2. Interpretation
      - 1.5.3.1.2.3. Advantages and Limitations
  - 1.5.3.2. Evaluation of CIT and prediction of massive transfusion

1.5.4. Management of coagulopathy
1.5.4.1. Management of CIT/HECTRA
1.5.4.1.1. Red blood Cell Concentrates
1.5.4.1.2. Fresh frozen plasma
1.5.4.1.3. Platelets
1.5.4.1.4. Fibrinogen
1.5.4.1.5. Protombinic Concentrate Complexes (PCC)
1.5.4.1.6. Tranexamic Acid
1.5.4.1.7. Other hemostatic drugs
1.5.4.1.8. Other Measures
1.5.4.2. Management of hypercoagulability
1.6. Massive transfusion
1.6.1. Transfusion
1.6.2. Definition
1.6.3. Transfusion management guidelines in severely traumatized patients
1.6.4. Associated risks
1.6.4.1. Coagulopathy
1.6.4.2. TRALI
1.6.4.3. Infections
1.7. Cardiac arrest in trauma
1.7.1. Stop
1.7.2. Etiopathogenesis of traumatic CRA
1.7.3. Cardiopulmonary resuscitation algorithm in traumatic CRA
1.7.4. Prognosis of traumatic CRA
1.7.5. Emergency thoracotomy
1.7.5.1. Indications and Contraindications
1.7.5.2. Role of ultrasound
1.7.5.3. Objectives
1.7.6. Surgical Technique
1.7.6.1. Emergency sternotomy
1.7.6.2. Left thoracotomy
1.7.7. Material and monitoring
1.8. Neurogenic shock in trauma
1.8.1. Shock
1.8.2. Memory Clinical differentiation of shock etiology
1.8.2.1. General description of hemorrhagic shock
1.8.3. Classification of spinal cord injury
1.8.3.1. Level
1.8.3.2. Severity of neurological deficit
1.8.3.3. Spinal Cord Syndromes
1.9. Thromboembolic disease in trauma and post-traumatic fat embolism syndrome
1.9.1. Thrombo
1.9.2. Venous Thromboembolic Disease
1.9.2.1. Pathophysiology
1.9.2.2. Prophylaxis and pharmacology
1.9.2.2.1. Onset
1.9.2.2.2. Anticoagulation and posology
1.9.2.3. Mechanical Prophylaxis
1.9.2.4. Diagnosis
1.9.2.5. Treatment of venous thromboembolic disease
1.9.2.6. Prognosis
1.9.3. Fat Embolism Syndrome
1.9.3.1. Pathophysiology
1.9.3.2. Clinical Symptoms
1.9.3.3. Diagnosis
1.9.3.4. Treatment
1.9.3.5. Prevention
1.10. Compartment syndrome and crushing
1.10.1. Compartment Syndrome
1.10.1.1. Definition and localizations
1.10.1.2. Etiology and Clinic
1.10.1.3. Treatment and Prophylaxis

1.10.2. Crush Syndrome
- 1.10.2.1. Introduction
- 1.10.2.2. Pathophysiology
- 1.10.2.3. Evolution
- 1.10.2.4. Clinical Management

The Postgraduate Certificate in Shock Management in Trauma in the ICU will ensure the acquisition of solid fundamentals and their practical application in real situations"

05

Methodology

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

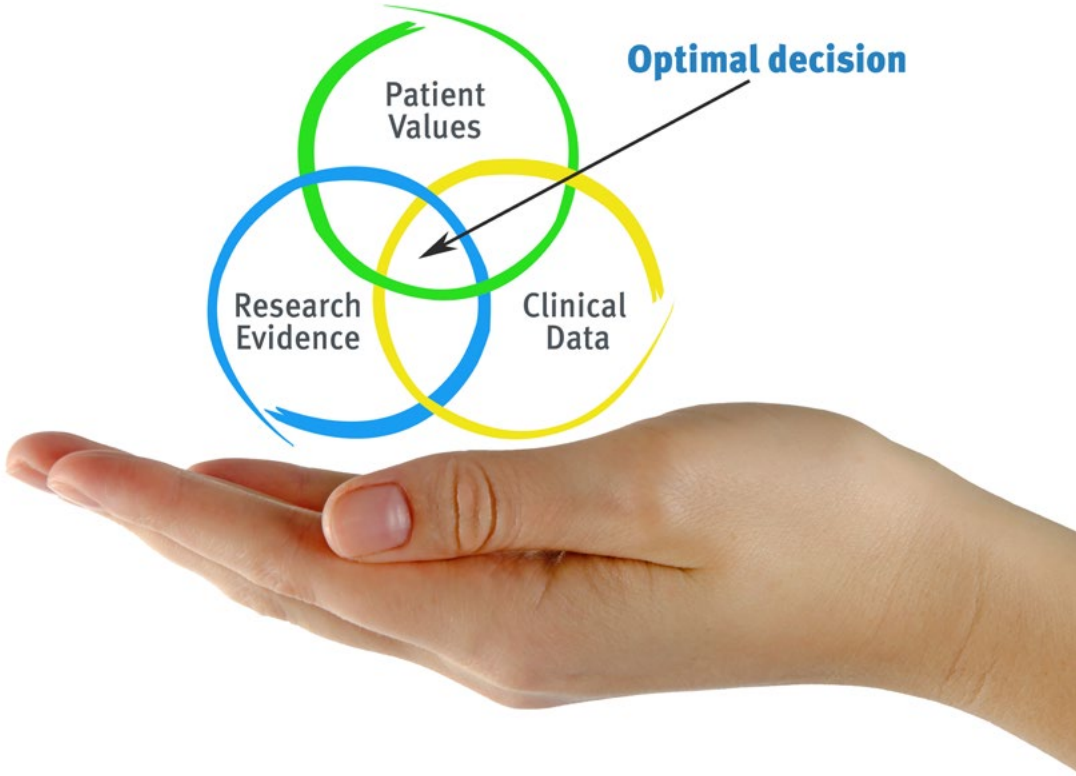
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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

At TECH 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.

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:

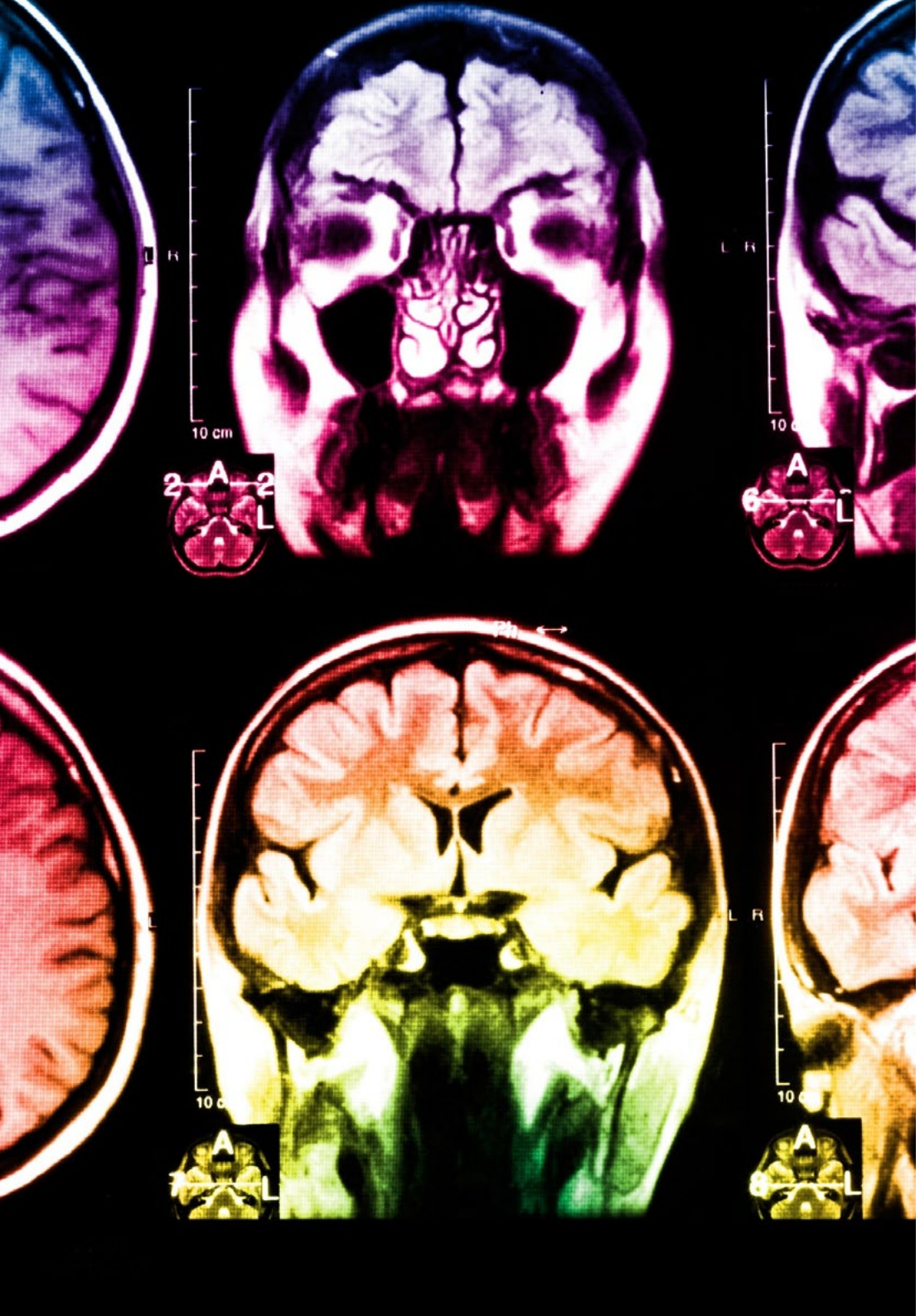
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.

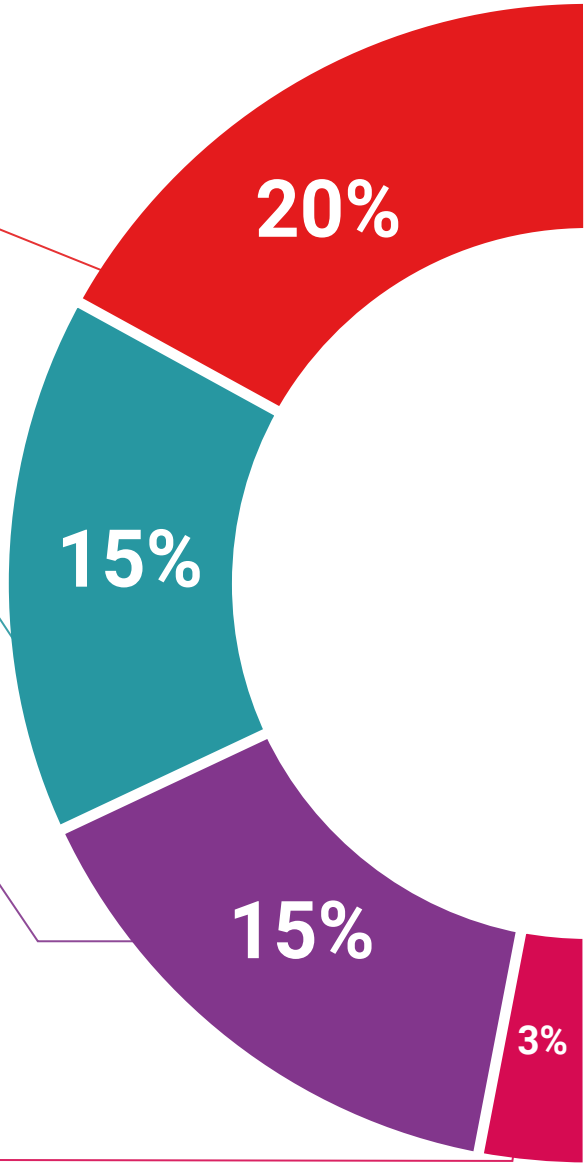
Interactive Summaries

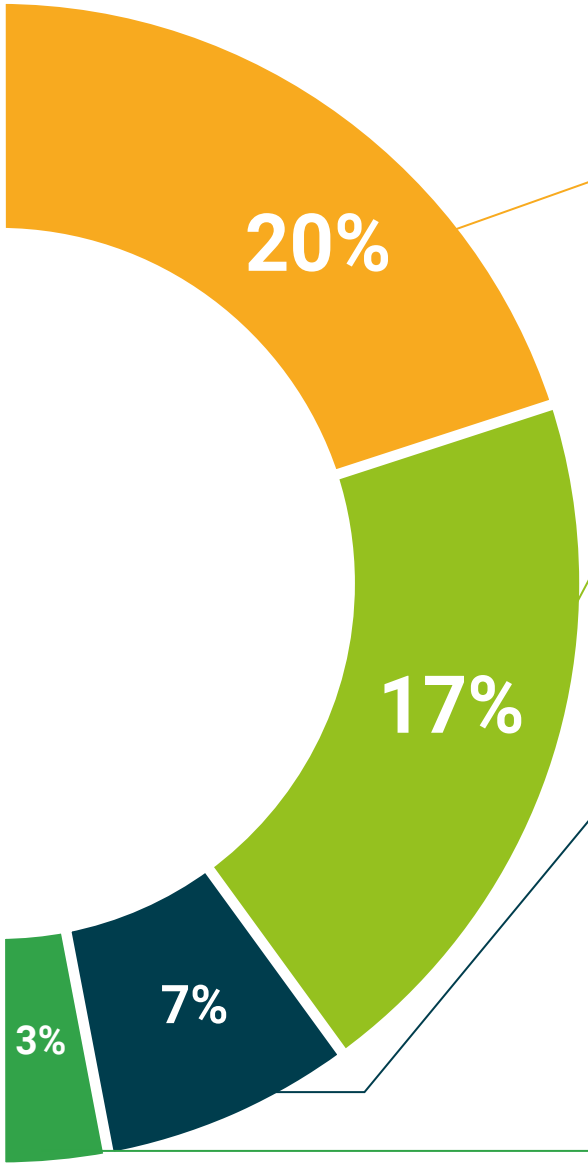
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Shock Management in Trauma in the ICU guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this program and receive your university certification without traveling or complex paperwork"

This **Postgraduate Certificate in Shock Management in Trauma in the ICU** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery*.

The diploma 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 professional career evaluation committees.

Title: **Postgraduate Certificate in Shock Management in Trauma in the ICU**

Official Nº of Hours: **150 h.**


tech technological university

Awards the following

DIPLOMA

to

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

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Shock Management in Trauma in the ICU

This is a qualification awarded by this University, 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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