Postgraduate Diploma
Blood Components and Therapeutic Apheresis

tech technological university

tech technological university

Postgraduate Diploma

Blood Components and Therapeutic Apheresis

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

Website: www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-blood-components-therapeutic-apheresis

Index

01

Introduction

This program covers blood donation in its entirety, from the promotion of the donation to the moment when the donor completes the donation, and it passes to the processing phase. In this sense, it is essential to know the donor selection criteria to ensure the safety of the subsequent transfusion, whose blood components must have optimal quality levels. On the other hand, the student will learn about apheresis procedures, an infrequent, moderately invasive procedure performed by the hematology service. The clinical indications of apheresis for the collection of hematopoietic progenitors, plasma exchange and altruistic donation of the different blood components that can be performed by apheresis will also be developed, in addition to assessing the indications in other specialties in which this procedure is gaining relevance.

Ensuring that the blood components to be transfused have optimal quality levels becomes the fundamental objective of blood processing and one of your strengths after completing this program"

The physician specialized in hematology is also, in the country, a specialist in hemotherapy, a discipline to which traditionally less time is devoted in academic preparation, both in universities and in subsequent specialization. When talking about hemotherapy, donation is the starting point, and only a solid foundation at this early stage will result in its success. Therefore, this program will cover whole blood donation, from the promotion of donation to the moment when the donor completes the donation, and the donation moves to the processing phase.

Thus, it is essential to place special emphasis on donor selection criteria, on knowing which situations, whether pathological or not, exclude a candidate for donation, in order to guarantee the safety of the entire transfusion chain, from the donor to the recipient.

After donation, it is necessary to process the donation in order, on the one hand, to achieve maximum utilization of the components and, on the other hand, to guarantee, as far as possible, the safety of the transfusion. Thus, ensuring that the blood components to be transfused have optimal quality levels becomes the fundamental objective of blood processing.

Likewise, it is essential to be aware of the different possibilities that arise before the clinician who indicates the transfusion. Therefore, the knowledge of the modifications that can be applied to the components, in order to adapt them to the possible receivers, is one of the central points of this Postgraduate Diploma.

On the other hand, apheresis procedures are infrequent techniques, but they should be thoroughly known by physicians. This is a moderately invasive procedure performed by the hematology department, sometimes also by the nephrology department, but many specialties can benefit from it. This program goes in depth into the realization, what this therapy consists of and its different modalities, also reviewing its side effects and possible complications.

Thus, the clinical indications of this procedure in hematology will be developed more specifically, apheresis for the collection of hematopoietic progenitors, plasma exchange and altruistic donation of the different blood components that can be performed by apheresis, in addition to assessing the indications in other specialties in which this procedure is gaining relevance, such as renal and neurological pathologies.

This **Postgraduate Diploma in Blood Components and Therapeutic Apheresis** contains the most complete and up-to-date scientific program on the market.
The most important features include:

- The development of case studies presented by experts in Transfusion Medicine and Patient Blood Management, specialized in Therapeutic Apheresis
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- Practical exercises where self-assessment can be used to improve learning
- With a special emphasis on evidence-based medicine and research methodologies in the field of transfusion medicine
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any device with an Internet connection

You will learn in depth about apheresis procedures and their different modalities, reviewing their side effects and possible complications together with experts in the sector"

Thanks to this Postgraduate Diploma, you can specialize comfortably where, when and how you want simply through a device with internet access"

You will perfectly understand the process of blood donation and blood components according to the current legislative framework in Spain.

You will learn the alternatives to allogeneic blood transfusion as outlined in the Seville Document, with special interest in self-donation.

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

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

02

Objectives

The purpose of this Postgraduate Diploma program is for the student to achieve the proposed objectives, in order to broaden their knowledge in Transfusion Medicine and blood components, delving into therapeutic apheresis through learning and development of the different skills necessary for a good medical practice. To this end, a team of medical professionals have poured their knowledge and experience into the elaboration of the points of this curriculum, which will drive the professional from a complete perspective of the process that follows blood donation in its entirety, with full preparation for the achievement of their professional goal, guiding them towards excellence in their daily medical work.

You will control the entire donation process, from donor selection and the transfusion request process to the development of pre-transfusion compatibility tests"

General Objectives

- Know everything about the process of blood donation and blood components
- Understand hemovigilance as a transversal process involving the entire transfusion chain, from donor to patient

Specific Objectives

Module 1. Blood Donation, Self-Donation and Pre-Transfusion Testing

- Understand the process of blood, and blood components, donation, framing it in the context of current legislation.
- Address the donation process specifically, delving into the donor selection process, and the transfusion request process, including the development of pre-transfusion compatibility testing
- Address the issue of alternatives to allogeneic blood transfusion raised in the Seville Document with special interest in self-donation. The concept of donation promotion will also be developed, understood as a necessary process to match donation and transfusion, and thus obtain a correct management of resources.

Module 2. Processing of Blood Components

- Delve into blood components, from their procurement to the quality criteria that must be observed in their production
- Learn in detail about each of the products, the modifications that can be made to them, such as irradiation, cryopreservation and pathogen inactivation techniques
- Ensure the labeling of products according to the standards of the International Society of Blood Transfusion (ISBT), which must be respected in order to allow the exchange of components between countries when necessary

Module 3. Therapeutic Apheresis

- Know the apheresis technique, its purpose and usefulness in clinical practice, with its different clinical indications Learn to perform the procedure or at least know which patients can benefit from this procedure taking into account side effects and complications
- Be familiar with the legislation and quality standards that apply to this type of procedure

You will learn from the best professionals about the apheresis technique, its purpose and usefulness in clinical practice"

03

Course Management

In its maxim of offering an elite education for all, TECH counts on renowned professionals so that the medical professional acquires a solid knowledge in blood components and therapeutic apheresis, guided by experts in the field. Therefore, this program has a team of highly qualified teachers, whose extensive experience in this medical field contributes to the quality of the program, thus providing the student with the best tools for the development of their skills during the course. In this way, the professional has the guarantees he/she demands to specialize with the best and boost his/her academic career towards a specialized sector that is essential for medical practice.

Learn everything you need to know about therapeutic apheresis from experts in hematology and hemotherapy in this TECH program"

International Guest Director

Dr. Aaron Tobian is one of the great international references in the area of blood transfusion, being director of Transfusion Medicine at the Johns Hopkins Hospital. He is also Associate Director of Medical Affairs in the Pathology Area of the same clinical center.

In the academic field, Dr. Tobian has published more than 250 scientific articles related to Transfusion Medicine in the most prestigious journals, as a result of his global studies on diseases such as HIV.

In this sense, he also develops an important work as a member of several editorial boards. In addition, he is associate editor of the Journal of Clinical Apheresis, as well as being the editor-in-chief and founder of the Transfusion News portal, a reference in the dissemination of news on Transfusion Medicine.

All this, together with his teaching work, which he develops in prestigious centers, being professor of Pathology, Oncology and Epidemiology at the Johns Hopkins University School of Medicine and the Bloomberg School of Public Health.

Dr. Tobian, Aaron

- Director of Transfusion Medicine at The Johns Hopkins Hospital
- Associate Director of Clinical Affairs, Pathology Area, Johns Hopkins Hospital
- M.D. from Case Western Reserve University
- M.D., Case Western Reserve University
- Professor of Pathology, Medicine, Oncology and Epidemiology at The Johns Hopkins University School of Medicine
- Associate Editor of the Journal of Clinical Apheresis
- Editor-in-Chief and founding member of the website Transfusion News
- Editorial member of the journal Transfusion

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

Management

Dr. Alcaraz Rubio, Jesús

- Head of the Hematology Department at the 12 de Octubre Hospital (Madrid)
- Head of the Hematology Department at Mesa del Castillo Hospital, in Murcia
- Head of the Oncohematological Day Unit Hospital Viamed in Alcantarilla, Murcia
- Emergency Specialist at the Rafael Méndez Hospital, in Lorca, Murcia
- Head of the Hematology Department at the Hospital Virgen de la Caridad in Cartagena
- Member of Sermo's Medical Advisory Board
- Associate Professor of Emergency and Clinical Simulation at the Universidad Católica San Antonio in Murcia.
- Degree in Medicine and Surgery from the University of Murcia
- Specialty in Hematology Hemotherapy

Professors

Dr. Sánchez López, Juana María

- Nurse of the Anesthesia and Resuscitation Unit of Hospital Rafael Méndez
- Degree in Nursing from the University of Murcia
- Master in Public Health
- Master's Degree in Occupational Risk Prevention

Dra. Rodríguez Lavado, Paula

- Maximum Health Responsible at the Virgen del Carmen Residence
- Specialist in the Internal Medicine Service and Family Medicine Consultation in the Quirónsalud Hospital of Murcia
- Medical Director of the IHS Centro Los Dolores Multipurpose Center
- Manager and Coordinator in various health areas at Offshore Special Services
- Specialist in the COVID Service of Residences of the Murcian Health Service
- Master in Nutrition and Health from the Open University of Catalonia
- Master's Degree in Occupational Risk Prevention from the Francisco University from Vitoria

Our teaching team will provide you with all their knowledge so that you are up to date with the latest information on the subject"

04

Structure and Content

The structure of the contents of this Postgraduate Diploma has been designed based on the requirements of hematology focused on the knowledge of Blood Components and Therapeutic Apheresis, so that the professional delves deeper into the procedure that follows the blood donation and expands his knowledge in this medical field. For this reason, the teachers of this program have developed a syllabus whose content provides a broad overview of everything involved in the blood transfusion procedure, from donation and pre-transfusion testing to the processing of blood components to knowledge of therapeutic apheresis techniques. All in all, the student will acquire the skills to develop professionally in this area of hematology and hemotherapy, thanks to a complete and quality program.

You will master the technical requirements and minimum conditions of hemodonation in transfusion centers and services with precision and professionalism"

Module 1. Blood Donation, Self-Donation and Pre-Transfusion Testing

1.1. Donation of Blood and Blood Components
- 1.1.1. Technical Requirements and Minimum Conditions for Hemodonation and Transfusion Centers and Transfusion Services
- 1.1.2. The Principle of Altruism
- 1.1.3. Data Protection and Confidentiality

1.2. The Whole Blood and Component Donation Process
- 1.2.1. Donor Selection
- 1.2.2. Donor Recognition and Donation Verification
- 1.2.3. Donation of Components by Apheresis

1.3. Adverse Effects of Donation
- 1.3.1. Incidents Related to Whole Blood Donation and Apheresis
- 1.3.2. Effects Related to the Administration of Citrate

1.4. The Analysis of Blood Donation
- 1.4.1. Immunohematological and Complementary Analysis
- 1.4.2. Microbiological Analysis

1.5. Prescription and Administration of Blood and Blood Components
- 1.5.1. Guide to the Transfusion of Blood Components and Plasma Derivatives of the Spanish Society of Blood Transfusion, 5th edition.
- 1.5.2. Request for Transfusion and Pre-Transfusion Samples

1.6. Pre-Transfusion Testing
- 1.6.1. Plate, Tube and Gel Techniques

1.7. Alternatives to Allogeneic Blood Transfusion
- 1.7.1. Autotransfusion: Autologous Donation and Autologous Transfusion
- 1.7.2. Exclusion Criteria for Autologous Donations
- 1.7.3. The Utility of Autotransfusion

1.8. Directed Blood Component Donation
- 1.8.1. Indications for Directed Donation

1.9. Encouraging Donation

1.10. Hemovigilance
- 1.10.1. The Spanish Hemovigilance System and Neighboring Countries
- 1.10.2. Incidents Related to the Donation and Processing of Blood Components
- 1.10.3. Transfusion-Related Incidents
- 1.10.4. The Look Back

Module 2. Processing of Blood Components

2.1. Obtaining Blood Components by Whole Blood Fractionation
- 2.1.1. Fractionation of Whole Blood and Apheresis Procedures
- 2.1.2. Anticoagulant and Preservative Solutions
- 2.1.3. Leukodepletion of Blood Components
- 2.1.4. Cryoprecipitate

2.2. Apheresis Procedures in Blood Component Donation
- 2.2.1. Mono and Multicomponent Apheresis
- 2.2.2. Apheresis Machines

2.3. Quality Requirements for Blood and Blood Components
- 2.3.1. The Transfusion Accreditation Committee's Hemotherapy Standards

2.4. Whole Blood and Red Blood Cell Concentrates
- 2.4.1. Indications for Whole Blood and Red Blood Cell Concentrate
- 2.4.2. Modifications of Red Blood Cell Components: Washing, Aliquoting, Irradiation and Inactivation of Pathogens

2.5. Therapeutic Platelet Units
- 2.5.1. Indications for Platelet Transfusion
- 2.5.2. Modifications of Platelet Components: Washing, Aliquoting, Irradiation and Inactivation of Pathogens, Reconstituted Whole Blood

2.6. Plasma as a Blood Component
- 2.6.1. Transfusion and Industrial Use
- 2.6.2. The Production of Plasma Derivatives
- 2.6.3. The Case of Hyperimmune Plasma and its Use in the SARS-CoV-2 Pandemic

2.7. Cryopreservation of Blood Components
- 2.7.1. Cryopreservation Techniques Applied to Blood Components
- 2.7.2. The Use of Cryopreserved Blood Components

2.8. Irradiation of Blood Components
- 2.8.1. Sources Used for Irradiation
- 2.8.2. Blood Components that Can Be Irradiated
- 2.8.3. Indications for Irradiated Blood Components

2.9. Pathogen Inactivation Techniques in Blood Components
- 2.9.1. Utility of Blood Components

2.10. Labeling of Blood Components

Module 3. Therapeutic Apheresis

3.1. Apheresis Techniques
- 3.1.1. Techniques and Types of Replacement
- 3.1.2. Apheresis in Pediatrics

3.2. Complications and adverse effects
- 3.2.1. Complications Related to the Technique
- 3.2.2. Adverse Effects Related to the Anticoagulant Used and Venous Accesses
- 3.2.3. Adverse Effects Related to the Replenishment Volume

3.3. General Apheresis Procedure
- 3.3.1. Types of Venous Access

3.4. Patient Assessment for Apheresis
- 3.4.1. Donor/Patient Assessment
- 3.4.2. Informed Consent

3.5. Therapeutic Apheresis in Hematology: Progenitor Transplantation
- 3.5.1. Apheresis for Hematopoietic Progenitor Donation, for Autologous and Allogeneic Transplantation
- 3.5.2. Donor Lymphocyte Apheresis

3.6. Therapeutic Apheresis in Hematology: Plasma Exchange
- 3.6.1. Thrombotic Thrombocytopenic Purpura

3.7. Therapeutic Apheresis in Hematology: Other Situations
- 3.7.1. Erythroapheresis
- 3.7.2. Leukoapheresis
- 3.7.3. Platelet Apheresis

3.8. Therapeutic Apheresis in Solid Organ Rejection
- 3.8.1. Indications for Solid Organ Transplants

3.9. Therapeutic Apheresis in Neurological Pathology:
- 3.9.1. Indications in Neurological Pathology

3.10. Therapeutic Apheresis in Renal Pathology
- 3.10.1. Indications in Neurological Pathology

05

Methodology

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

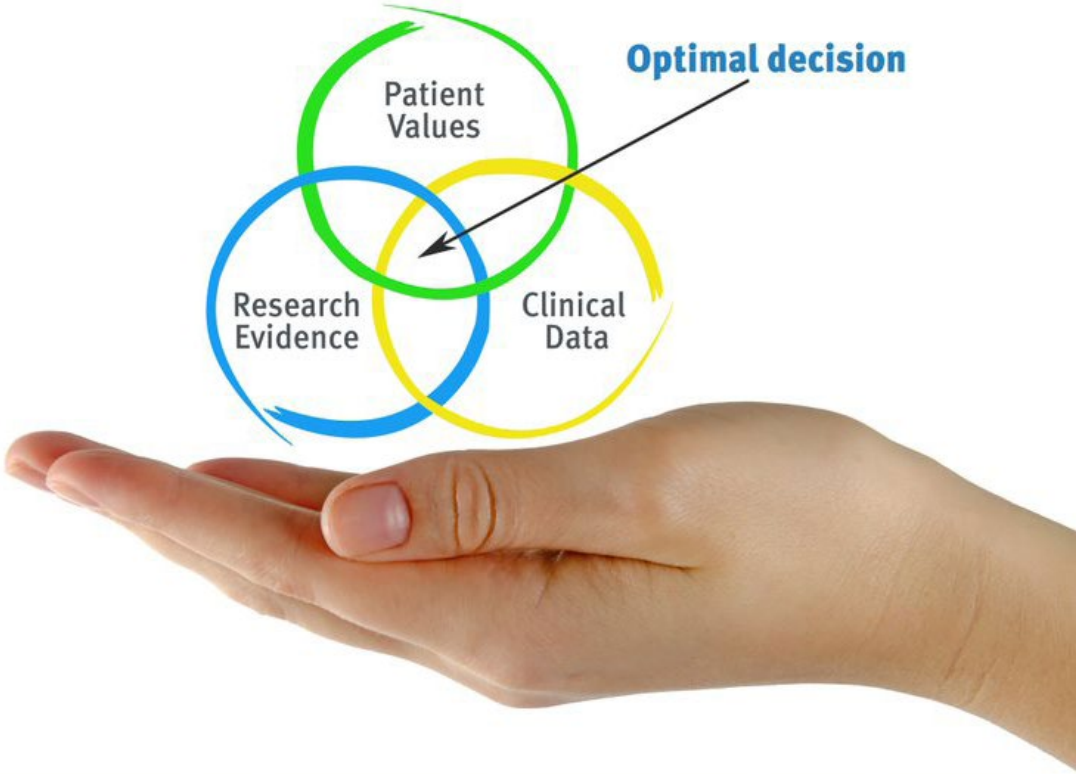
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

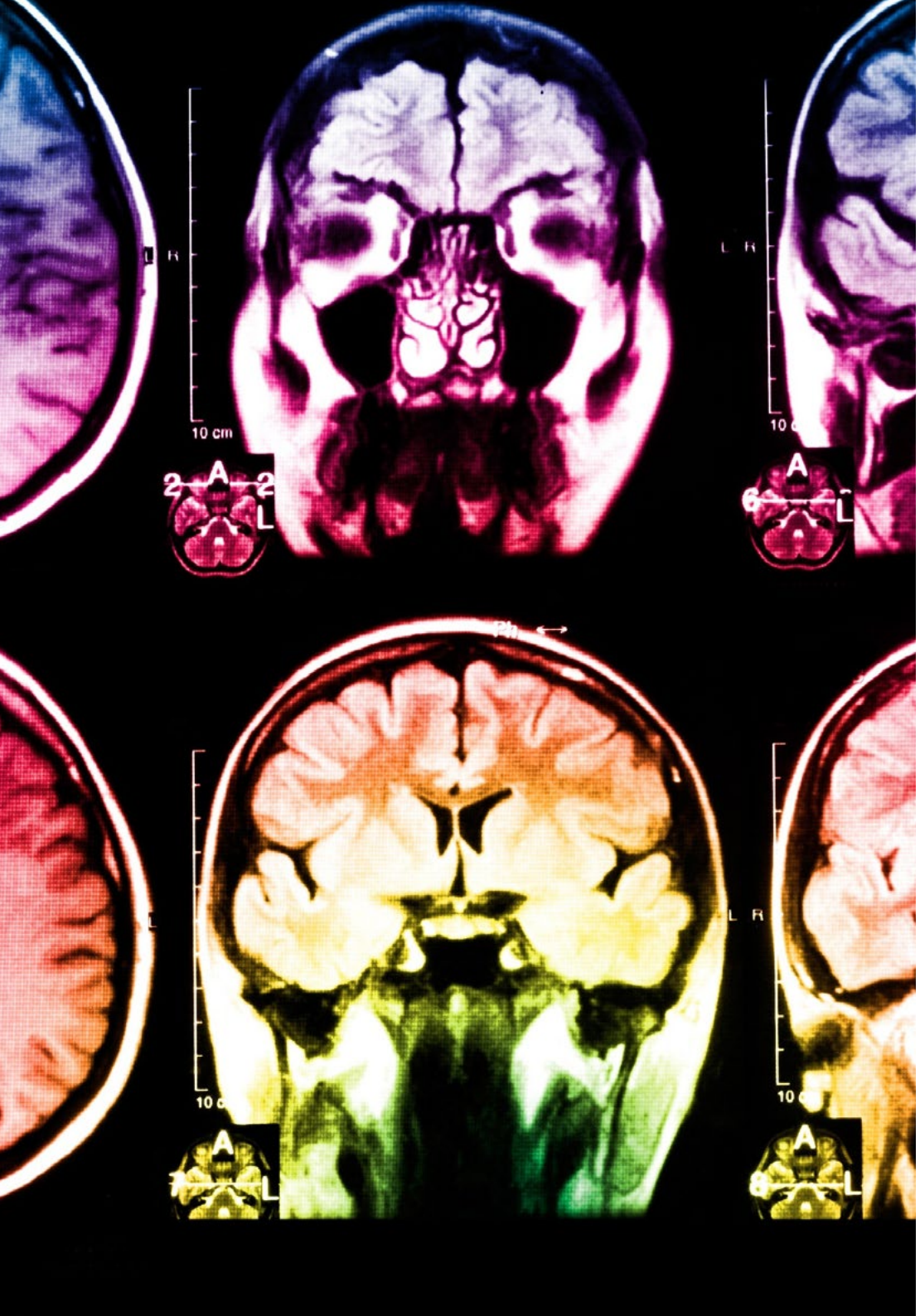
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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

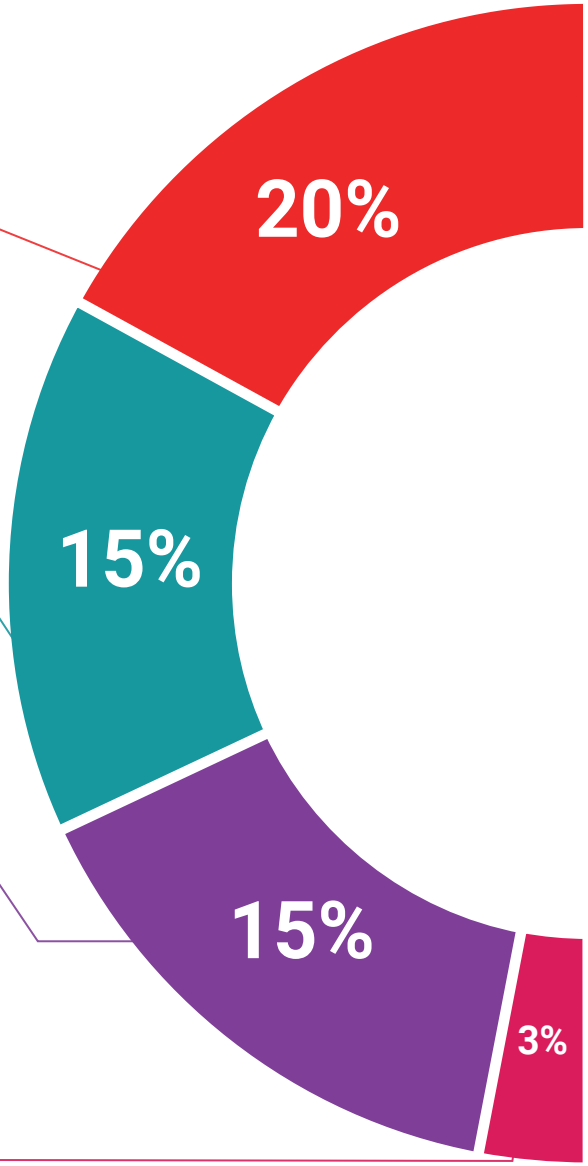
Interactive Summaries

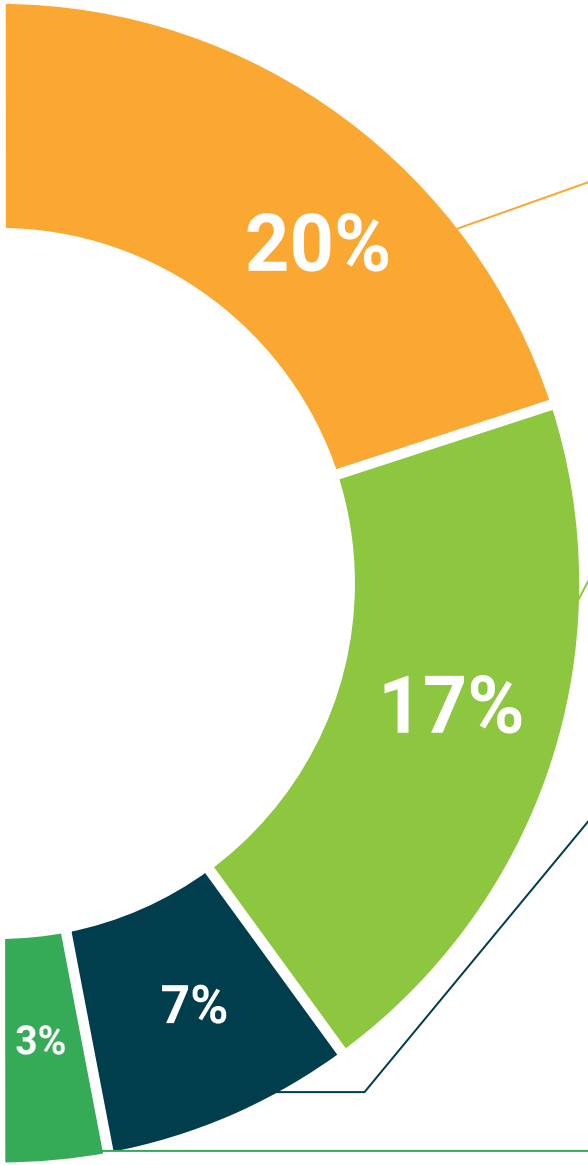
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

This Postgraduate Diploma in Blood Components and Therapeutic Apheresis guarantees, in addition to the most rigorous and up-to-date qualification, access to a Postgraduate Diploma issued by TECH Technological University.

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

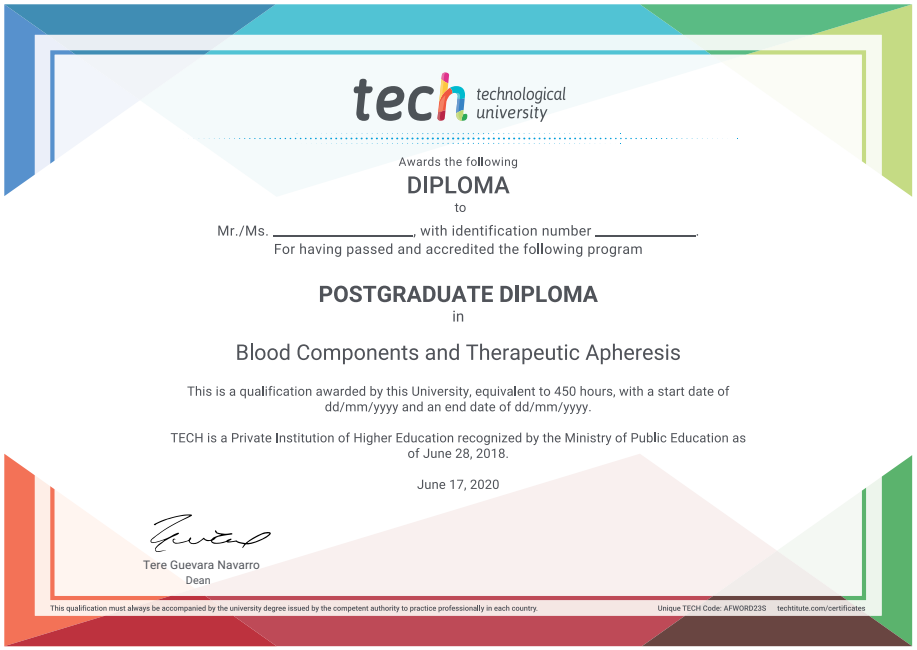
This **Postgraduate Diploma in Blood Components and Therapeutic Apheresis** contains the most complete and up-to-date scientific program on the market.

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 Blood Components and Therapeutic Apheresis**

Official N° of Hours: **450 h.**


tech technological university

Awards the following

DIPLOMA

to

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

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Blood Components and Therapeutic Apheresis

This is a qualification awarded by this University, equivalent to 450 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.

tech technological university

Postgraduate Diploma

Blood Components and Therapeutic Apheresis

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

Postgraduate Diploma
Blood Components and Therapeutic Apheresis

tech technological university