



Update on Laboratory
Use in Hematology,
Hematology Therapeutics
and Hemotherapy

» Modality: online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 8h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/us/medicine/postgraduate-diploma-update-laboratory-use-hematology-hematology-therapeutics-hemotherapy

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Certificate





tech 06 | Introduction

Scientific medical advances in the last 10 years have made it easier to change the notion that hematology is confined to mere hematometry, so this teaching program aims to focus the professional development of specialists in the many areas of the specialty (hematologic oncology, genetics, immunotherapy, cardiovascular risks, blood transfusions, bone marrow transplants, anticoagulants, anemias, artificial blood) so that excellent care is provided to hematology patients based on access to the most recent and innovative medical advances.

Different scientific societies around the world that deal with this specialty strive to rapidly incorporate the results of biomedical research into clinical practice, especially the treatment of hematological malignancies (blood cancers), but also iron deficiency and anemias, the administration of direct-acting oral anticoagulants-DOACs, bone marrow transplants and, in the long-term, research focused on obtaining artificial blood, with the ultimate aim of ensuring that healthcare managers include these techniques in the services provided by national healthcare systems as soon as possible.

But perhaps the most promising field of progress seems to be immunotherapy treatments, where many new monoclonal antibodies that inhibit lymphocyte cellular immunotolerance to the tumor are being found. Rituximab, inotuzumab, ozogamicin or blinatumomab are monoclonal antibodies investigated to confront ALL. "With this immunological battery, cell therapy with NK and T cells is being promoted, in which the results with CAR T lymphocytes are being spectacular, especially in children and young people with B-lineage lymphoblastic leukemia who had resisted previous treatments," explains the president of the SEHH, who adds that "I can affirm that treatment with CAR T lymphocytes is promising and its development is guaranteed this year"

This Postgraduate Diploma in Update on Laboratory Use in Hematology, Hematology Therapeutics and Hemotherapy contains the most complete and up-to-date program on the market. The most important features of the program include:

- · Clinical symptoms cases presented by experts in hematology.
- 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.
- Diagnostictherapeutic developments on assessment, diagnosis, and treatment in hematology patients..
- Practical exercises where the self-assessment process can be carried out to improve learning.
- The Iconography of clinical and diagnostic imaging tests.
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course..
- With special emphasis on evidence-based medicine and research methodologies in hematology.
- 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..



This Postgraduate Diploma offers training in simulated environments, which provides an immersive learning experience designed to train for real "life situations"



With the Postgraduate Diploma in Update on Laboratory Use in Hematology, Hematology Therapeutics and Hemotherapy, you have the opportunity to expand your knowledge comfortably and without sacrificing scientific accuracy, in order to incorporate the latest advances in the approach to infectious hematologic into your daily medical practice"

The teaching body is made up of respected and renowned professionals with extensive experience in healthcare, teaching, and research, who have work in many countries where these diseases are prevalent.

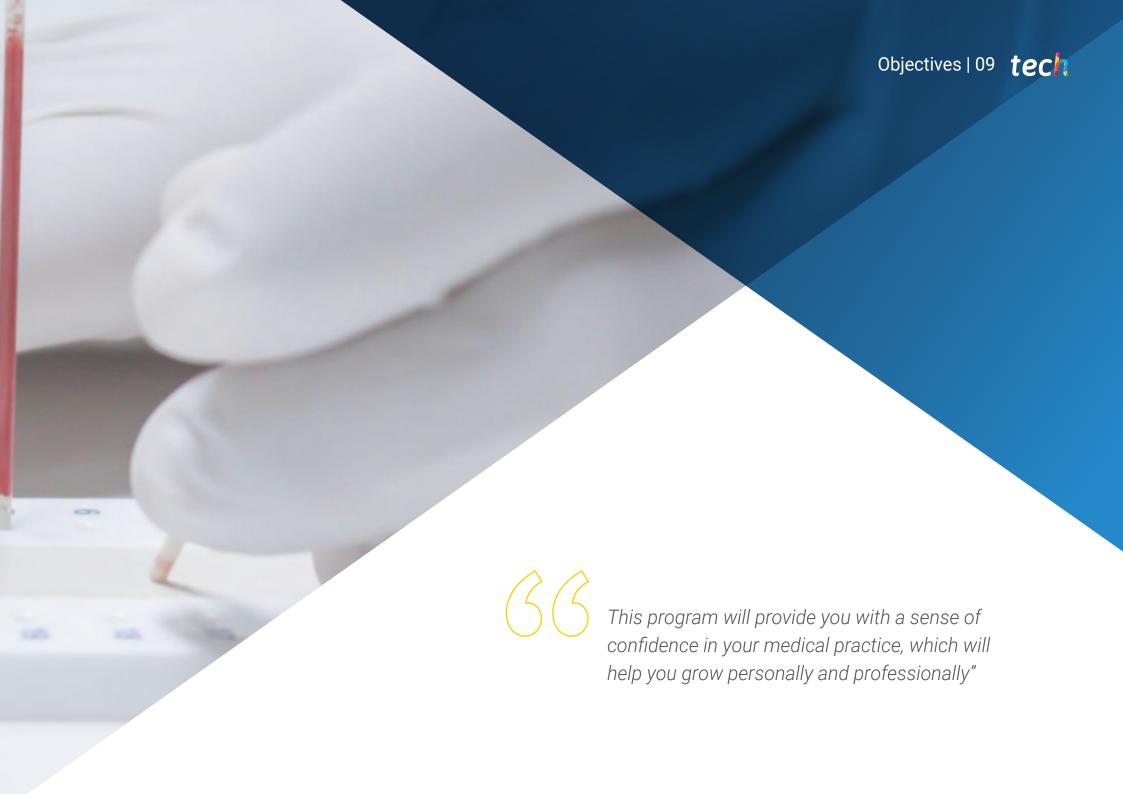
The methodological design of this Postgraduate Diploma, developed by a multidisciplinary team of e-learning experts, integrates the latest advances in educational technology for the creation of numerous multimedia educational tools allow the professional, based primarily on the problem-based learning method, to address real problems in their daily clinical practice, which will allow them to advance by acquiring knowledge and developing skills that will impact their future professional work.

It should be noted in this Postgraduate Diploma that each of the contents generated, as well as the videos, self-evaluations, clinical cases and exams, have been thoroughly reviewed, updated, and integrated by the team of experts that make up the faculty, to ensure that the learning process is orderly and instructive in order to achieve the program's objectives.

It includes clinical cases to bring the program's degree as close as possible to the reality of care in medicine.







tech 10 | Objectives



General Objective

Update the specialist's knowledge through the latest scientific evidence in the
diagnosis and treatment of hematological diseases, in order to develop measures
to prevent, diagnose, treat, and rehabilitate hematological diseases, with a
multidisciplinary and integrative approach that supports medical care with the
highest quality standards for managing and monitoring hematology patients..



Don't miss the opportunity and get up to date on advances in the use of the hematology laboratory, hematology therapeutics and hemotherapy to incorporate them into your daily medical practice"







Specific Objectives

- Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the hematological health/disease process, ensuring proper treatment and the use of all appropriate therapeutic procedures.
- Provide training and practical/theoretical improvement that will ensure a reliable clinical diagnosis supported by the efficient use of diagnostic methods.
- Explain the complex pathophysiologic and etiopathogenic interrelationships in the mechanisms of hematologic disease onset.
- Get up to date in molecular and cellular biology, providing general concepts of modern molecular terminology, essential for future medical practice, both at clinical and diagnostic laboratory levels..
- Get up to date in the aspects of pathological anatomy, biochemistry, immunology, genetics, and molecular biology of hematologic diseases..
- Address, in detail and depth, the most up-to-date scientific evidence on the mechanisms of action, adverse effects, dosage, and use of drugs to treat these diseases.
- Discuss the importance of a comprehensive and integrated care approach among all specialties involved in caring for these patients.
- An in-depth look at the most innovative and developing alternatives offered when caring for these patients.
- Get up to date on the latest concepts of hemotherapy in the use of blood and blood products.







International Guest Director

Dr. Joseph Hai Oved is a pediatric hemato-oncology specialist at Memorial Sloane Kettering Cancer Center, considered one of the best cancer centers in the world. His work focuses on stem cell and bone marrow transplantation, as well as cell therapies, to treat non-cancerous diseases. His work in the field of transplantation to patients with difficult-to-treat immune dysfunctions or inherited immune deficiencies, as well as those with bone marrow failure syndromes, is particularly noteworthy.

His research is prolific in the hemato-oncology area, seeking new ways to personalize transplantation to achieve a precise cure with minimal side effects. He has studied in depth the effects of the different techniques used to manipulate donated stem cells, extracting or adding specific cells of interest. He has also analyzed how exposure to different conditioning agents (chemotherapies or other drugs used to prepare the body for transplantation) affect outcomes. His work has advanced the identification of biomarkers to more accurately predict transplant outcomes.

Joseph is a member of several national and international groups in bone marrow transplantation, hematology and immunology. He serves on committees of many of these organizations, where they discuss potential future therapies, clinical trials and efforts to further advance the field of pediatric transplantation and cellular therapies worldwide.

All his scientific contribution places him as a reference in his field, receiving several awards. These include two fellowships awarded by the Howard Hughes Medical Institute, one of the largest privately funded organizations for biological and medical research in the United States. He also received a fellowship in immunology from the Weizmann Institute of Science, considered one of the most advanced multidisciplinary research institutions in the world.



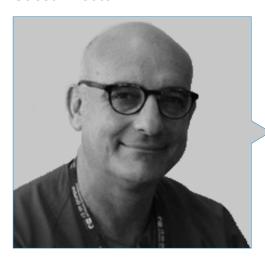
Dr. Hai Oved, Joseph

- Pediatrician specialized in hemato-oncology at the MSK Cancer Center New York
- Member of the Scientific Advisory Board of Emendo Biotherapeutics.
- Managing Partner of New World Health, LLC
- Observer on the board of BioTrace Medical Inc.
- Pediatrician specializing in hemato-oncology at Children's Hospital of Philadelphia
- M.D. from NYU School of Medicine
- Fellowship in pediatric hemato-oncology at Children's Hospital of Philadelphia
- Residency in Pediatrics at New York Presbyterian Weill Cornell Medical College



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Guest Director



Dr. Joaquín Martínez-López

- Head of the Hematology Department at the 12 de Octubre Hospital, Madrid.
- PhD in Medicine from the Complutense University of Madrid.
- Hematology Medical Specialist
- Director of the translational research group and the early clinical trials unit in hematology at 12 de Octubre Hospital.
- 140 publications in international scientific journals.
- President of AltumSequencing.

Professors

Dr. Carreño Gómez-Tarragona, Gonzalo

- Specialist physician at the 12 de Octubre University Hospital.
- Degree in Medicine. Autonomous University of Madrid. 2013.
- TECH Master's Degree in Hematopoietic Transplantation. University of Valencia. 2019
- Cytology Course in Myelodysplasia. Del Mar Hospital. 2017.
- Teaching collaborator for the following subjects: Hematology and Hemotherapy,
 Degree of Medicine (Complutense University of Madrid); and Advances in Vascular
 Function, Degree of Medicine (Autonomous University of Madrid).
- Participation in the Clinical Research Ethics Committee at the 12 de Octubre University Hospital. 2019.
- · Participation in national and international conferences.
- Distinction as Best Scientific Communication. VII National Research Conference for Undergraduate Students in Health Sciences. Complutense University of Madrid. 2013

Dr. Sánchez Pina, José María

- Attending Physician in the area of hospitalization and hematopoietic transplantation.
 Member of the cell therapy group. Since 2017
- Degree in Medicine. University of Alcalá. 2006-2012
- TECH Master's Degree in Hematopoietic Transplantation, 4th edition, University of Valencia
- Resident intern of Hematology and Hemotherapy at 12 de Octubre University Hospital in Madrid. 2013-2017
- Teaching collaborator in the TECH Master's Degree in Translational Medicine. The Complutense University of Madrid; and TECH Master's Degree in Organ and Tissue Transplants. European University of Madrid



Course Management | 17 tech

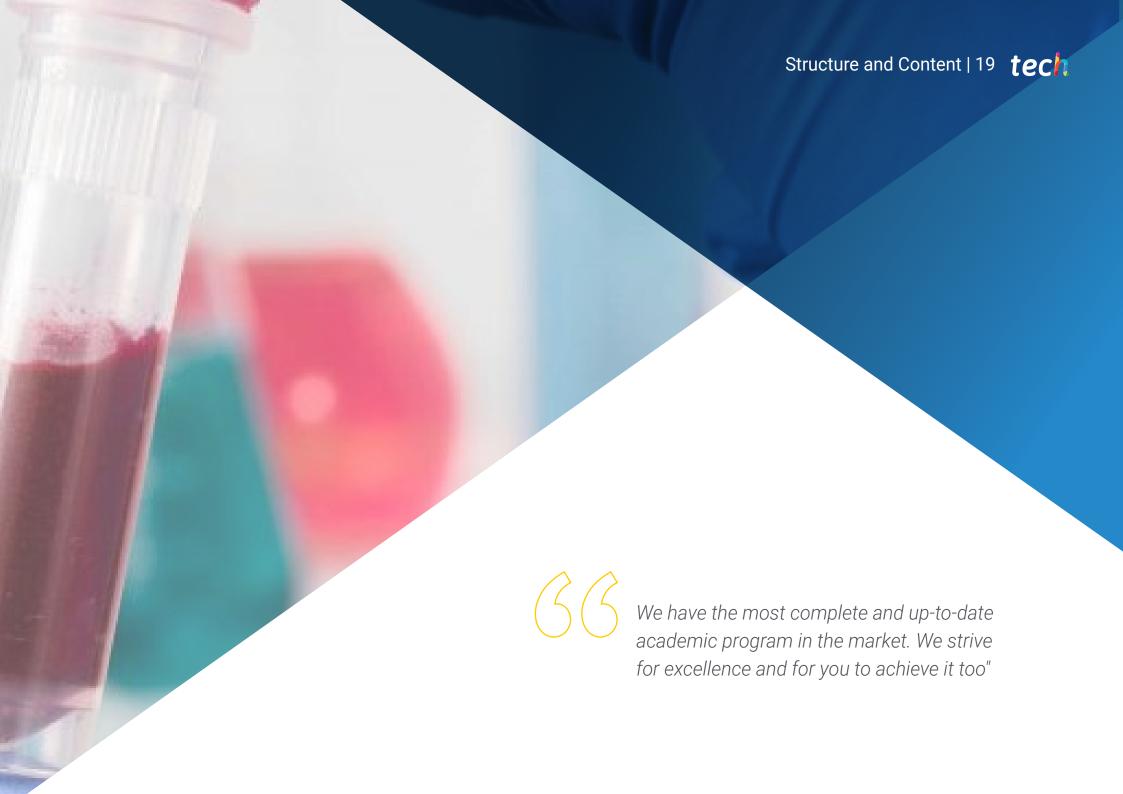
Dr. Rodríguez Rodríguez, Mario

- Specialist in Thrombophilia and Hemostasis consultation and in basic and special coagulation laboratory at the 12 de Octubre University Hospital. Since June 2017
- Graduate in Medicine and Surgery from the Complutense University of Madrid. Class of 2006 - 2012
- Hematology on-call duty as an attending physician (FEA). Since June 2017.
- Resident Medical Intern in Hematology and Hemotherapy at the 12 de Octubre University Hospital (21/05/2013 21/05/2017)
- Participation in quality work for ENAC accreditation in the coagulation laboratory at the 12 de Octubre University Hospital
- Usability study/evaluation of the cobas t711 coagulometer, Roche Diagnostics
- Participation in the following publications: "Evaluation of The MD Anderson Tumor Score for Diffuse Large B-cell Lymphomain the Rituximab Era", "Clinical course and risk factors for mortality from COVID-19 inpatients with haematological malignancies" and "Thrombosis and antiphospholipid antibodies in patients with SARS-COV-2 infection (COVID-19)", among others

Dr. Paciello Coronel, María Liz

- Specialist in Hematology and Hemotherapy. 12 de Octubre University Hospital. Since 2008
- Graduate in Medicine and Surgery. National University of Asunción, Paraguay
- Collaborator in clinical trials as principal investigator and sub-investigator





tech 20 | Structure and Content

Module 1. Recent Discoveries in Hematopoiesis, Cytogenetics, and Immunophenotyping in Hematology

- 1.1. Current Role of Hematopoietic Multipotent Cell, Progenitor Cells, Growth Factors, and Cytokines.
 - 1.1.1. Hematopoietic Stem Cells: Characteristics and Functions.
 - 1.1.2. Progenitor Cells.
 - 1.1.3. Hematopoietic Growth Factors.
 - 1.1.4. Cytokines.
- 1.2. Biopathology of Granulopoiesis and Monocytopoiesis:
 - 1.2.1. Biopathology of Granulopoiesis.
 - 1.2.2. Biopathology of Monocytopoiesis.
- 1.3. Advances in the Structure and Function of Lymphoid Tissue:
 - 1.3.1 Structure of the Lymphoid Tissue.
 - 1.3.2 Types of Lymphoid Tissue.
 - 1.3.3 Function of Lymphoid Tissue.
- 1.4. Immune System Current Events. Development, Regulation, and Activation of B and T Cells:
 - 1.4.1. Development and Regulation of the Innate Immune System.
 - 1.4.2. Development and Regulation of the Adaptive Immune System.
 - 1.4.3. Immune System Functions.
 - 1.4.4. Immunosuppression.
- 1.5. Differentiation Antigens: Latest Findings.
 - 1.5.1. Types of Differentiation Antigens.
 - 1.5.2. Physiology.
 - 1.5.3. Diagnostic Utilities.
- 1.6. New Developments in Megakaryopoiesis and Thrombopoiesis:
 - 1.6.1. Biology of Megakaryopoiesis.
 - 1.6.2. Biology of Thrombopoiesis
- 1.7. Cell Cultures and Cytokines Update:
 - 1.7.1. Types of Cell Cultures.
 - 1.7.2. Cell Culture Biology.
 - 1.7.3. Cell Culture Uses.
 - 1.7.4. Cytokines and their Role in Cell Differentiation.





Structure and Content | 21 tech

Module 2. Update on the Importance of the Laboratory in Hematology and Hemotherapy

- 2.1. Development of Specialized Laboratory Techniques in Recent Years:
 - 2.1.1. Handling of Autoanalyzers.
 - 1.2.2. Cytomorphology of Peripheral Blood.
 - 1.2.3. Bone Marrow Cytomorphology Cytochemical Techniques Bone marrow Aspiration, Medulogram.
- 2.2. Diagnostic Techniques of Anemic Syndrome: Recent Advances.
 - 2.2.1. Hemoglobin and Hematocrit.
 - 2.2.2. Peripheral Lamina.
 - 2.2.3. Reticulocyte Count.
 - 2.2.4. Hemolysis Tests.
 - 2.2.5. Other Tests for Studying Anemias.
- 2.3. Flow Cytometry in the Diagnosis of Hematologic Diseases.
 - 2.3.1. Fundamentals and Methodology of the Cytometry Technique.
 - 2.3.2. Usefulness in the Diagnosis of Hematologic Diseases.
- 2.4. Basic Cytogenetic and Molecular Biology Techniques:
 - 2.4.1. Principles of Cytogenetics.
 - 2.4.2. Cytogenetics and Genetic Rearrangements in Hematologic Diseases.
 - 2.4.3. Cytogenetic Techniques.
 - 2.4.4. Principles and Techniques of Molecular Biology in Hematology.
- 2.5. New Techniques of Hemostasis and Thrombosis:
 - 2.5.1. Tests that Measure the Functioning of Primary Hemostasis.
 - 2.5.2. Tests that Measure the Functioning of Secondary Hemostasis.
 - 2.5.3. Evidence of Physiological Inhibitors of Coagulation.
- 2.6. Immunohematology Techniques: Present and Future
 - 2.6.1. Basis and Methodology of Immunohematology Techniques.
 - 2.6.2. Usefulness for Diagnosing Hematologic Diseases.

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- 2.7. Therapeutic Apheresis Techniques: Current Developments.
 - 2.7.1. Plasmapheresis.
 - 2.7.2. Leukoapheresis.
 - 2.7.3. Erythroapheresis
 - 2.7.4. Thrombocytopheresis.
- 2.8. Current Techniques for the Procurement, Manipulation and Preservation of Hematopoietic Progenitor Cells.
 - 2.8.1. Progenitor Cell Donor Selection.
 - 2.8.2. Progenitor Mobilization in Autologous and Healthy Donor.
 - 2.8.3. Apheresis of Hemopoietic Progenitors in Autologous and Allogeneic Transplantation.
 - 2.8.4. Bone Marrow Extraction by Surgical Procedure.
 - 2.8.5. Lymphocyte Collection: Procedure, Indications, Complications.
 - 2.8.6. Product Suitability Tests: Minimum Cellularity, Viability, Microbiological Studies.
 - 2.8.7. Progenitor Infusion: Procedure and Complications.

Module 3. New Developments in the General Treatment of Hematologic Diseases

- 3.1. Antineoplastic Agents
 - 3.1.1. Groups.
 - 3.1.2. Mechanisms of Action.
 - 3.1.3. Pharmacodynamics.
 - 3.1.4. Pharmacokinetics.
 - 3.1.5. Dosage and Presentation.
 - 3.1.6. Adverse Effects.
- 3.2. Treatment of Infections in Hematology Patients:
 - 3.2.1. Febrile Neutropenic Patients.
 - 3.2.2. Most Frequent Infections in Hematology Patients.
 - 3.2.3. Most Frequently Used Antibiotic Treatments.

- 3.3. Hematopoietic Progenitor Cell Transplantation:
 - 3.3.1. General Concepts
 - 3.3.2. Indications
 - 3.3.3. Results and Impact.
- 3.4. Methods and Indications for Cell Therapy:
 - 3.4.1. General Concepts
 - 3.4.2. Types of Cell Therapy.
 - 3.4.3. Indications
 - 3.4.4. Results and Impact.
- 3.5. Principles of Gene Therapy:
 - 3.5.1. General Concepts
 - 3.5.2. Indications
 - 3.5.3. Results and Future Impact.
- 8.6. Monoclonal Antibodies in Hematological Malignancies.
 - 3.6.1. General Principles
 - 3.6.2. Indications
 - 3.6.3. Impact of Use.
- 3.7. Innovative CAR-T Cell Treatment of Hematological Malignancies.
 - 3.7.1. General Principles
 - 3.7.2. Indications
 - 3.7.3. Impact of Use.
- 3.8. Palliative Care for Hematology Patients:
 - 3.8.1. General Concepts
 - 3.8.2. Treatment of the Main Symptoms in Oncohematology Patients.
 - 3.8.3. Palliative Care in the End-Stage Patient and End-of-Life Care.

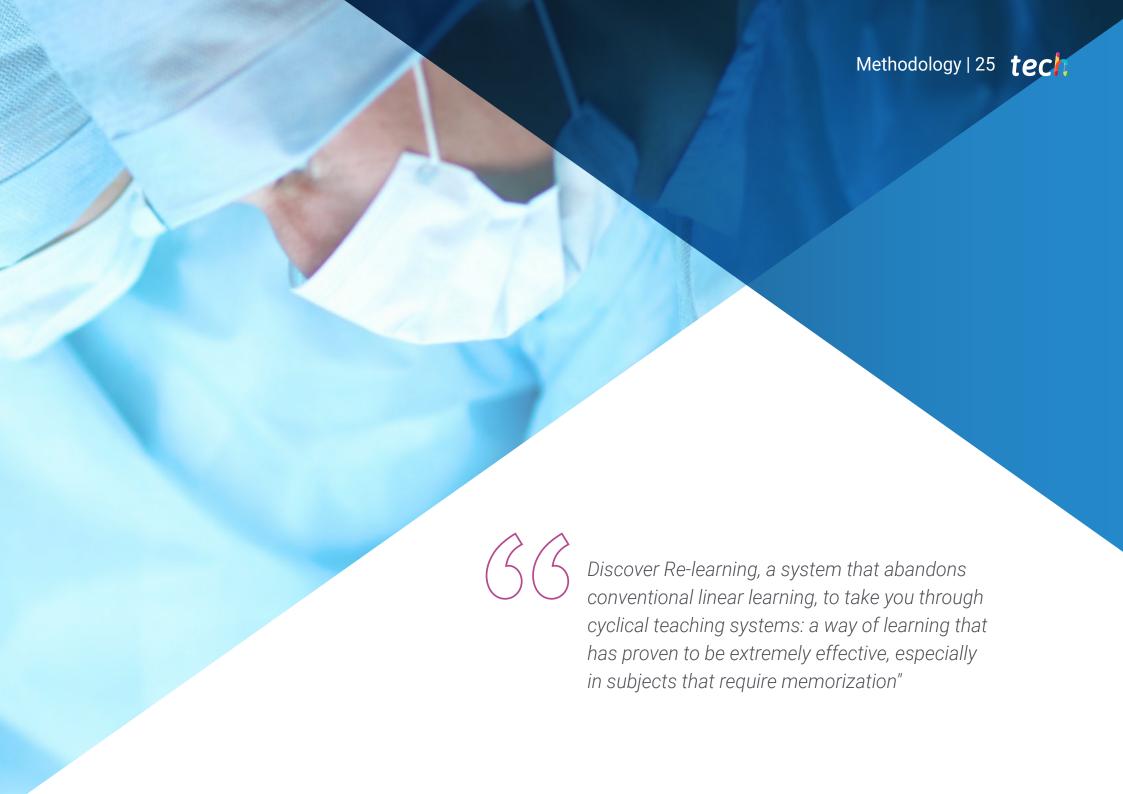
Module 4. Update on Transfusion Medicine and Hematopoietic Cell Transplantation

- 4.1. Red Blood Cell Immunology:
 - 4.1.1. General Concepts
 - 4.1.2. Blood Groups
 - 4.1.3. Allorecognition/Alloresponse in Transfusion
- 4.2. Immunology of Leukocytes, Platelets, and Plasma Components:
 - 4.2.1. General Concepts
 - 4.2.2. Leukocyte Immunology
 - 4.2.3. Immunology of Platelets and Plasma Components
- 4.3. Hemolytic Disease in Fetuses and Newborns:
 - 4.3.1. Definition.
 - 4.3.2. Epidemiology.
 - 4.3.3. Clinical Manifestations
 - 4.3.4. Diagnosis
 - 4.3.5. Treatment
- 4.4. Collection, Study, and Preservation of Blood and Blood Components:
 - 4.4.1. Methods of Obtaining Blood and Blood Derivatives
 - 4.4.2. Preservation of Blood and Blood derivatives
 - 4.4.3. Care During Transport
- 4.5. Indications, Efficacy, and Complications of Transfusion of Blood Blood Components and Blood Derivatives:
 - 4.5.1. General Principles
 - 4.5.2. Indications
 - 4.5.3. Contraindications
 - 4.5.4. Complications

- 4.6. Autotransfusion
 - 4.6.1. General Principles
 - 4.6.2. Indications
 - 4.6.3. Contraindications
 - 4.6.4. Complications
- 4.7. Cell and Plasma Apheresis:
 - 4.7.1. General Principles
 - 4.7.2. Types of Apheresis
 - 4.7.3. Indications
 - 4.7.4. Contraindications
- 4.8. Legislation Pertaining to Transfusion Medicine:
 - 4.8.1. Ethical Aspects in Transfusion Medicine
 - 4.8.2. Legal Aspects in Transfusion Medicine







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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 abundant 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:

- 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.



Methodology | 29 tech

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 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.



Latest Techniques and Procedures on Video

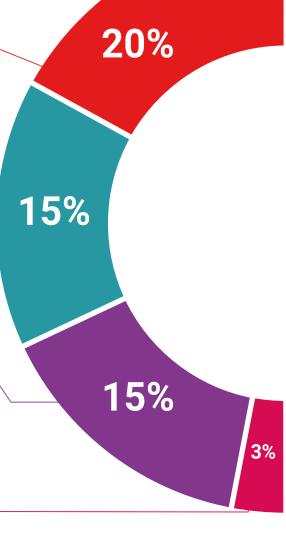
We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

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

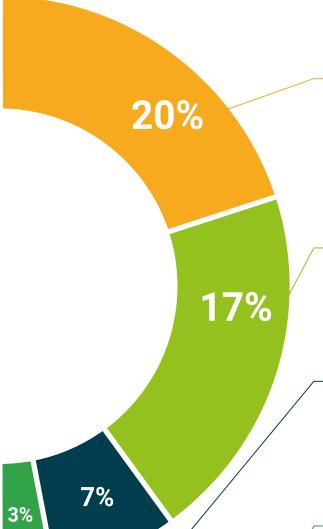
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story"





Additional Reading

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



Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



Testing & Re-testing

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 future difficult 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.





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This Postgraduate Diploma in Update on Laboratory Use in Hematology, Hematology Therapeutics and Hemotherapy contains the most complete up-to-date program on the market.

After the student has passed the evaluations, he/she will receive by mail with acknowledgment of receipt his/her corresponding University Postgraduate Diploma issued by **TECH Technological University**.

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 Update on Laboratory Use in Hematology, Hematology Therapeutics and Hemotherapy

Official Number of Hours: 500



^{*}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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Postgraduate Diploma

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- » Dedication: 8h/week
- » Schedule: at your own pace
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Postgraduate Diploma

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