

# Postgraduate Certificate

## Hematology from a Clinical Point of View



## Postgraduate Certificate Hematology from a Clinical Point of View

Course Modality: **Online**

Duration: 12 **weeks**

Certificate: **TECH - Technological University**

**6 ECTS Credits**

Teaching Hours: **150 hours.**

Website: [www.techtute.com/medicine/postgraduate-certificate/hematology-clinical-point-view](http://www.techtute.com/medicine/postgraduate-certificate/hematology-clinical-point-view)

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01

# Introduction

The specific knowledge in hematology from the clinical point of view, requires clinical analysis laboratory professionals to be highly qualified and their knowledge to be constantly updated in order to remain competitive and at the forefront in this field of work.

In this complete course we offer you the possibility to achieve your qualification in a simple and very efficient way.

Through the most developed teaching techniques, you will learn the theory and practice of all the advances needed to work in a clinical analysis laboratory at a high level. With a structure and plan that is totally compatible with your personal and professional life.



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*The latest techniques and work systems in Hematology from a Clinical Point of View in a course developed with the most efficient teaching system on the market”*



This intense course provides the clinician with specialized knowledge in the approach to blood pathologies, both oncologic and non-oncologic or benign, with the aim of obtaining the necessary tools to make an adequate differential diagnosis of the different hemopathologies.

The laboratory study with the analysis and peripheral blood smear in addition to other more complex tests, allows a comprehensive and specialized diagnosis of the most relevant hematological diseases.

The field of Hematology deals with the clinical study and diagnosis of the most frequent alterations of red blood cells, white blood cells and platelets, as well as hematological malignancies, leukemias and lymphomas.

A complete review that will also develop specialized knowledge for the study of alterations in the hemostatic system; hemorrhagic pathology and problems of hypercoagulability or thrombosis, in addition to improving skills in hemotherapy and transfusion medicine.

This **Postgraduate Certificate in Hematology from a Clinical Point of View** offers you the advantages of a high-level scientific, teaching, and technological course. These are some of its most notable features:

- ◆ Latest technology in online teaching software.
- ◆ Highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand.
- ◆ Practical cases presented by practising experts.
- ◆ State-of-the-art interactive video systems.
- ◆ Teaching supported by telepractice.
- ◆ Continuous updating and recycling systems.
- ◆ Self-regulating learning: full compatibility with other occupations.
- ◆ Practical exercises for self-evaluation and learning verification.
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums.
- ◆ Communication with the teacher and individual reflection work.
- ◆ Content that is accessible from any fixed or portable device with an Internet connection.
- ◆ Supplementary documentation databases are permanently available, even after the Postgraduate Certificate.



*With this Course you will be able to combine high intensity training with your personal and professional life, achieving your goals in a simple and real way”*

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*A highly skilled course which will allow you to become a highly competent professional in Hematology in a clinical analysis laboratory”*

The teachers of this course are professionals currently working in a modern and accredited Clinical Laboratory, with a very solid training base and up to date knowledge in both scientific and purely technical disciplines.

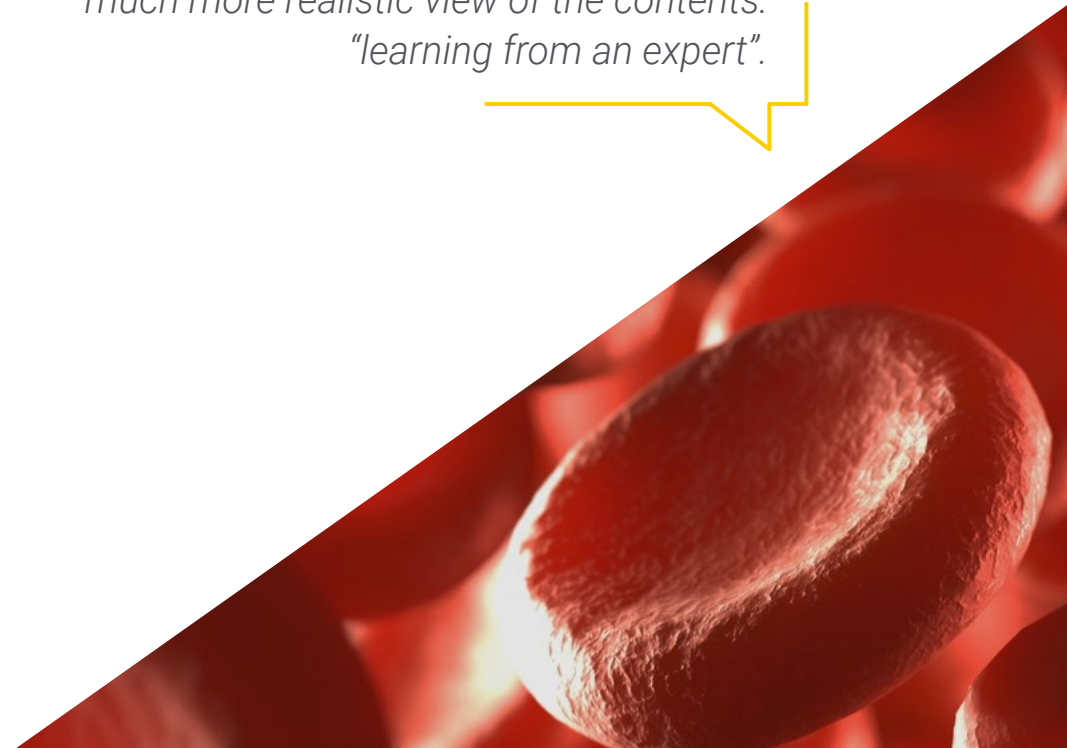
In this way, we ensure that we provide you with the training update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will cover the theoretical knowledge in an efficient way, but, above all, will put the practical knowledge derived from their own experience at the service of the course: one of the differential qualities of this course.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Certificate in Hematology from a Clinical Point of View. Developed by a multidisciplinary team of experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, we will use telepractice: with the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*The learning in this Postgraduate Certificate is developed through the most performed didactic methods in online teaching to guarantee that your efforts produce the best results possible.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: “learning from an expert”.*



# 02 Objectives

The objective of this training is to offer professionals who work in clinical analysis laboratories, the necessary knowledge and skills to perform their duties using the most advanced protocols and techniques of the moment. Through a study plan totally adapted to the student, this Postgraduate Certificate will progressively allow you to acquire the skills that will push you towards a much higher professional level.







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*Learn from the best and study the techniques and work procedures of Clinical Analysis to be able to work in the best laboratories in the field”*



## General Objectives

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- ◆ Identify the main hematological alterations in analytical tests.
- ◆ Propose the essential complimentary examinations for the clinical approach in patients with a hematological diseases.
- ◆ Correlate laboratory findings with clinical entities.
- ◆ Establish differential diagnosis of the main blood dyscrasias.





## Specific Objectives by Modules

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### Module 1

- ◆ Determine the quantitative and qualitative alterations of the different blood cells.
- ◆ Deepen understanding of peripheral blood smears of red blood series alterations.
- ◆ Identify white blood cell abnormalities and their main causes.
- ◆ Present the most frequent platelet disorders.
- ◆ Propose a differential diagnosis of myelodysplastic and myeloproliferative syndromes.
- ◆ Analyze the complementary tests for the initial evaluation of acute leukemias.
- ◆ Establish a differential diagnosis of the main acute and chronic lymphoid neoplasms.
- ◆ Identify the various coagulation pathologies.
- ◆ Establish appropriate guidelines for transfusion procedures.



*A boost to your CV that will give you the competitiveness of the best prepared professionals in the labor market"*

03

# Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.







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*An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed”*



Management



**Montserrat Cano Armenteros**

- Bachelor's Degree in Biology. University of Alicante.
- Master's Degree in Clinical Trials University of Seville.
- Official Professional Master's Degree in Primary Care Research by the Miguel Hernández University of Alicante for the Doctorate Recognition from the University of Chicago, USA Outstanding.
- Certificate of Pedagogical Aptitude ( CAP ) University of Alicante.

## Professors

### **Dr. Carmona Talavera, Diego**

- ◆ Degree in Biochemistry from the University of Córdoba(2014)
- ◆ Specialist in Clinical Analysis (2020)
- ◆ Master's Degree on the Theoretical Basis and Laboratory Procedures of Assisted Reproduction from the University of Valencia (2019) Postgraduate Diploma in Medical Genetics and Genomics from the San Antonio Catholic University of Murcia (2020)
- ◆ Specialist Diploma in Health Services Management from the University of Seville (2019)
- ◆ Cytology, Histology and Embryology Professor at GoBIR Academy (2019)
- ◆ Site Coordinator at GoFIR Academy in Valencia (since 2019)
- ◆ Professor of Biochemistry, Molecular Biology and Genetics at GoFIR Academy (since the 2017 academic year)
- ◆ Clinical Analysis Specialist, Head of the Laboratory of the Vithas Valencia Consuelo Hospital (July - November 2020)
- ◆ Member of the AEFA New Specialists Commission (since July 2020)
- ◆ Resident member of the National Commission of Clinical Analysis (since May 2018)
- ◆ Resident Internal Biochemist of Clinical Analysis at the UH. Dr. Peset de Valencia (2016-2020).
- ◆ MECD Collaboration Grant in the Department of Biochemistry and Molecular
- ◆ Biology at the University of Cordoba (2013-2014)



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# Structure and Content

The contents of this Postgraduate Certificate course have been developed by the different experts on this course, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success.



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*Acquire the ability to compete among the best clinical analysis professionals with this comprehensive course that will give you a boost in your profession"*

## Module 1. Hematology

- 1.1. Introduction to the Hematopoietic System and Study Techniques
  - 1.1.1. Classification of Blood Cells and Hematopoiesis
  - 1.1.2. Hemacytometry and Blood Smear Study
  - 1.1.3. Bone Marrow Study
  - 1.1.4. Role of Immunophenotyping in the Diagnosis of Hematological Diseases
  - 1.1.5. Cytogenetics and Molecular Biology in Hematologic Diagnosis
- 1.2. Diagnosis of Erythrocyte Disorders Anemias, Erythrocytosis, Hemoglobinopathies and Thalassemias
  - 1.2.1. Classification of the Types of Anaemia
    - 1.2.1.1. Etiopathogenic Classification
    - 1.2.1.2. Classification According to VCM
      - 1.2.1.2.1. Microcytic Anemia
      - 1.2.1.2.2. Normocytic Anemia
      - 1.2.1.2.3. Macrocytic Anemia
  - 1.2.2. Erythrocytosis Differential Diagnosis.
    - 1.2.2.1. Primary Erythrocytosis
    - 1.2.2.1. Secondary Erythrocytosis
  - 1.2.3. Hemoglobinopathies and Thalassemias
    - 1.2.3.1. Classification
    - 1.2.3.2. Laboratory Diagnosis
- 1.3. Quantitative Alterations of the White Series
  - 1.3.1. Neutrophils: Neutropenia and Neutrophilia
  - 1.3.2. Lymphocytes: Lymphopenia and Lymphocytosis
- 1.4. Diagnosis of Platelet Disorders
  - 1.4.1. Morphologic Alterations: Thrombocytopathies
  - 1.4.2. Thrombocytopenia Diagnostic Approximation







## 1.5. Myeloproliferative and Myelodysplastic Syndromes

### 1.5.1. Laboratory Findings and Complementary Examinations

#### 1.5.1.1. Hemogram and Peripheral Blood Smear

#### 1.5.1.2. Bone Marrow Study

##### 1.5.1.2.1. Bone Marrow Morphology

##### 1.5.1.2.2. Flow Cytometry

##### 1.5.1.2.3. Cytogenetics

##### 1.5.1.2.4. Molecular Biology

### 1.5.2. Diagnosis Classification Differential Diagnosis

## 1.6. Monoclonal Gammopathies Multiple Myeloma

### 1.6.1. Study of Monoclonal Gammopathies

#### 1.6.1.1. Bone Marrow Morphology

#### 1.6.1.2. Study of the Monoclonal Component

#### 1.6.1.3. Other Laboratory Studies

### 1.6.2. Classification of Monoclonal Gammopathies Differential Diagnosis.

#### 1.6.2.1. Monoclonal Gammopathy of Uncertain Significance and Quiescent Myeloma

#### 1.6.2.2. Multiple Myeloma

##### 1.6.2.2.1. Diagnostic Criteria

#### 1.6.2.3. Amyloidosis

#### 1.6.2.4. Waldenström's Macroglobulinemia

## 1.7. Differential Diagnosis of Acute Leukemia

### 1.7.1. Acute Myeloid Leukemia Polymphocytic Leukemia

#### 1.7.1.1. Laboratory Findings and Complementary Examinations

#### 1.7.1.2. Hemogram and Peripheral Blood Smear

#### 1.7.1.3. Bone Marrow Study

##### 1.7.1.3.1. Bone Marrow Morphology

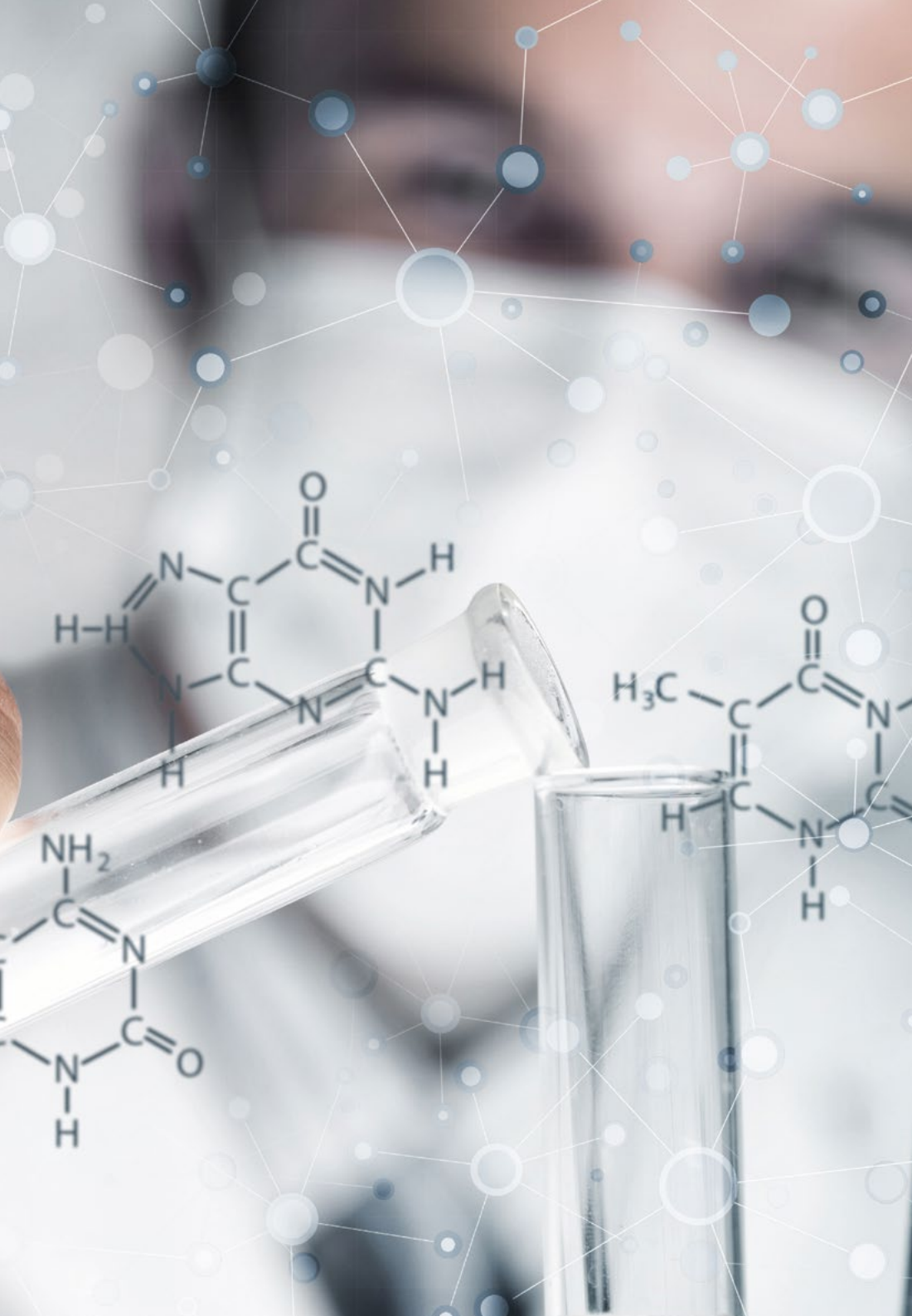
##### 1.7.1.3.2. Flow Cytometry

##### 1.7.1.3.3. Cytogenetics

##### 1.7.1.3.4. Molecular Biology

#### 1.7.1.4. Diagnosis Classification

- 1.7.2. Acute Lymphoid Leukemia
  - 1.7.2.1. Laboratory Findings and Complementary Examinations
  - 1.7.2.2. Hemogram and Peripheral Blood Smear
  - 1.7.2.3. Bone Marrow Study
    - 1.7.1.2.1. Bone Marrow Morphology
    - 1.7.1.2.2. Flow Cytometry
    - 1.7.1.2.3. Cytogenetics
    - 1.7.1.2.4. Molecular Biology
  - 1.7.2.4. Diagnosis Classification
- 1. 8. Mature B- and T-Lymphoid Neoplasms
  - 1.8.1. Chronic Lymphoproliferative Syndromes B. Chronic Lymphocytic Leukemia
    - 1.8.1.1. Laboratory Studies and Differential Diagnosis
      - 1.8.1.1.1. Chronic Lymphocytic Leukemia
      - 1.8.1.1.2. Tricholeukemia
      - 1.8.1.1.3. Splenic Marginal Zone Lymphoma
      - 1.8.1.1.4. Prolymphocytic Leukemia
      - 1.8.1.1.5. Granular Lymphocyte Leukemia
  - 1.8.2. Non-Hodgkin's Lymphomas
    - 1.8.2.1. Initial Study and Diagnosis
    - 1.8.2.2. Classification of Lymphoid Neoplasms
      - 1.8.2.2.1. Follicular Lymphoma
      - 1.8.2.2.2. Mantle Cell Lymphoma
      - 1.8.2.2.3. Diffuse Large B-Cell Lymphoma.
      - 1.8.2.2.4. MALT Lymphoma
      - 1.8.2.2.5. Burkitt's Lymphoma
      - 1.8.2.2.6. Peripheral T Lymphomas
      - 1.8.2.2.7. Cutaneous Lymphomas
      - 1.8.2.2.8. Others
- 1.8.3. Hodgkin's Lymphomas
  - 1.8.3.1. Complementary Tests
  - 1.8.3.2. Histological Classification
- 1.9. Diagnosis of Coagulation Disorders
  - 1.9.1. Study of Hemorrhagic Diatheses
    - 1.9.1.1. Initial Tests
    - 1.9.1.2. Specific Studies
  - 1.9.2. Congenital Coagulation Alterations
    - 1.9.2.1. Hemophilia A and B
    - 1.9.2.2. Von Willebrand Disease
    - 1.9.2.3. Other Congenital Coagulopathies
  - 1.9.3. Acquired Coagulation Alterations
  - 1.9.4. Thrombosis and Thrombophilia Antiphospholipid Syndrome
  - 1.9.5. Monitoring of Antocoagulant Therapy
- 1.10. Introduction to Hemotherapy
  - 1.10.1. Blood Groups
  - 1.10.2. Blood Components
  - 1.10.3. Recommendations for the Use of Blood Derivatives
  - 1.10.4. Most Common Transfusional Reactions



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*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.





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*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 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.

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*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.*



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 specifically for the course by the specialists who teach 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.



06

# Certificate

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.



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*Include in your training a Postgraduate Certificate in Hematology from a Clinical Point of View: a highly qualified added value for any medical professional"*

This **Postgraduate Certificate in Hematology from a Clinical Point of View** contains the most complete and up-to-date scientific program on the market.

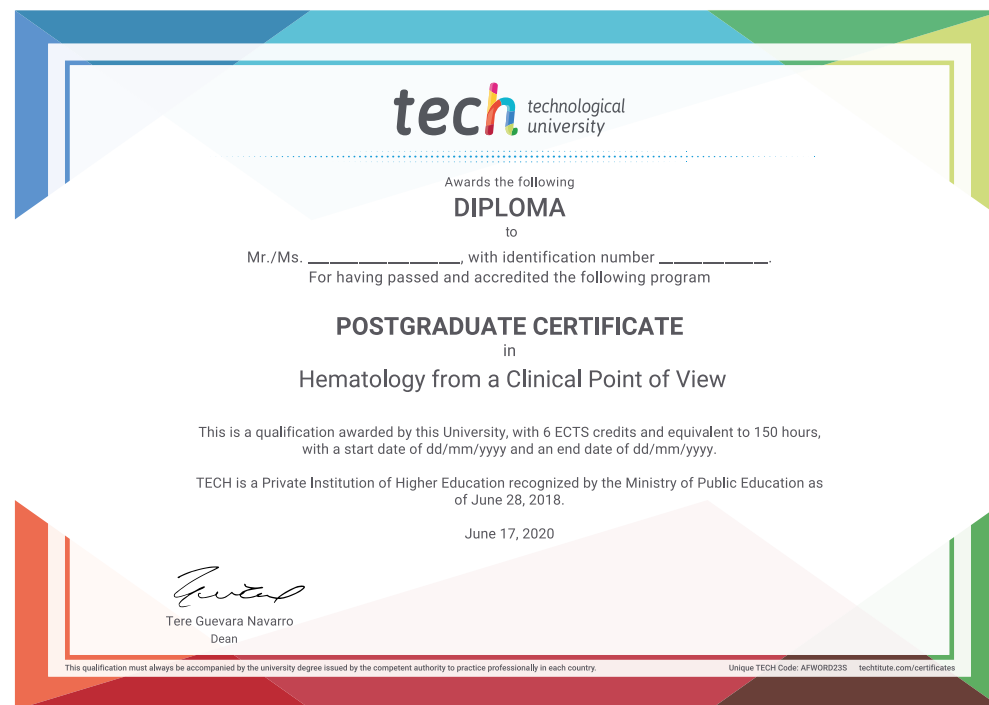
After students have passed the assessments, they will receive by certified mail their **Postgraduate Certificate** issued by **TECH - Technological University**.

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 career evaluation committees.

Title: **Postgraduate Certificate in Hematology from a Clinical Point of View**

6 ECTS Credits

Official Number of Hours: **150**





health future  
confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom

**tech** technological  
university

**Postgraduate  
Certificate**  
Hematology from a  
Clinical Point of View

Course Modality: **Online**

Duration: **12 weeks**

Certificate: **TECH - Technological  
University**

**6 ECTS Credits**

Teaching Hours: **150 hours.**

**Postgraduate Certificate**  
Hematology from a  
Clinical Point of View

HbA1c - Test