

# Postgraduate Certificate

## Hand and Upper Extremity Surgery





## Postgraduate Certificate

### Hand and Upper Extremity Surgery

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

Website: [www.techtute.com/us/medicine/postgraduate-certificate/hand-upper-extremity-surgery](http://www.techtute.com/us/medicine/postgraduate-certificate/hand-upper-extremity-surgery)

# Index

01

Introduction

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*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

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*p. 28*

# 01

# Introduction

Greater understanding of the anatomy and physiology of the Hand and Upper Extremity has led to the development of optimal surgical procedures and more effective rehabilitative methodologies. All this, together with advances in imaging technologies, simulation tools to perfect interventional techniques or tissue engineering. In this sense, the specialized surgeon must be aware of the advances in this field. For this reason, this 100% online program is born, which brings together in just 6 months, the most concise and rigorous content on Hand Surgery, anatomical, physiological and embryological fundamentals. All this, in addition, with innovative multimedia content, accessible 24 hours a day, from any electronic device with an Internet connection.





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*In only 6 weeks you will get an update on the anatomical, embryological and physiological fundamentals of the Hand"*

In recent years, scientific research and technology have made it possible to know the anatomy of the hand with greater accuracy, to perfect conventional and surgical treatments for its approach, as well as the development of new therapeutic alternatives such as gene therapy. A scenario that leads surgeons to maintain a continuous process of updating their knowledge and to train the techniques used in their interventions by means of surgical simulation.

In this sense, it is essential for surgeons to be aware of advances in diagnostic imaging equipment, orthopedic treatments, postoperative rehabilitation or improved anesthesia in operations. This is the program that favors the updating process in Hand and Upper Extremity Surgery.

It is, therefore, a quality Postgraduate Certificate that provides the graduate with the most accurate information and the highest quality content. For this, TECH has assembled an excellent teaching team composed of expert surgeons in Upper Limb with extensive experience in reference hospitals. In this way, the graduate will be up-to-date with the best specialists and through innovative pedagogical tools.

Therefore, through video summaries, high-definition videos in detail, specialized readings and clinical case studies, students will obtain the theoretical and practical update that will lead them to enhance their competencies and skills in their clinical practice.

Undoubtedly, a unique opportunity to take a high level and flexible program Graduates only need a cell phone, tablet or computer with an Internet connection to view the content hosted on the virtual platform at any time of the day. An ideal option to reconcile the most demanding responsibilities with a program at the academic forefront.

This **Postgraduate Certificate in Hand and Upper Extremity Surgery** 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 Upper Limb Surgery, Orthopedic Surgery and Traumatology
- ◆ 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 self-assessment can be used 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



*Thanks to this program you will integrate the most notorious advances in Hand and Upper Extremity Surgery"*

“ *A program that will allow you to be up to date with the advances in orthopedic and rehabilitative treatment in Hand Pathology processes”*

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

The 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 during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Thanks to the Relearning method, you will consolidate the concepts addressed and reduce the hours of study and memorization.*

*Delve into the embryology and genetics of the hand with the most innovative multimedia didactic material.*



# 02 Objectives

This Postgraduate Certificate has been created with the main purpose of offering the specialist the most recent scientific research on the physiological bases, anatomical and embryological foundations of the Hand. All this, throughout 150 teaching hours, with a theoretical-practical perspective and through the most advanced syllabus of the current academic panorama. A unique opportunity for quality updating that only TECH, the largest digital university in the world, offers.







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*Case studies will bring you closer to the rehabilitative treatments available for the management of various Upper Extremity conditions"*



## General Objectives

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- ◆ Update knowledge in the different medical and basic specialties surrounding hand pathology
- ◆ Determine the types of wound healing, sutures and skin grafts to specify the treatment of less complex wounds; escalating to the management of complex wounds
- ◆ Analyze the basic anatomy of the wrist and hand to provide a starting point from which to recognize injuries that may occur after trauma or injury of any kind
- ◆ Structure the bony and ligamentous anatomy of metacarpals and phalanges of the hand
- ◆ Analyze different surgical approaches to the hand
- ◆ Compile current arthroscopic treatment methods
- ◆ Establish general criteria for the anatomy and pathophysiology of osteoarthritis in the various joints of the wrist and hand
- ◆ Analyze in detail the anatomy of the flexor and extensor tendons of the hand, as well as the detailed development of their vascularization and the biology of tendon healing
- ◆ Homogenize knowledge and skills in the pathology of the peripheral nerve of the upper limb and brachial plexus
- ◆ Update diagnostic and therapeutic knowledge based on the fundamental principles of nerve and brachial plexus injuries
- ◆ Guide the different therapeutic options (conservative and surgical) as well as the appropriate time to perform them
- ◆ Examine the different surgical techniques used in the treatment of the different pathologies of the pediatric upper limb
- ◆ Delve into the anatomical and pathophysiological knowledge of Dupuytren's disease through physical examination and accurate use of the classification of the disease, to determine the appropriate timing of surgical treatment
- ◆ Analyze the surgical techniques available in primary and relapsed Dupuytren's disease and the sequelae of previous treatments
- ◆ Show the advantages of ultrasound for daily practice in Traumatology
- ◆ Explore occupational hand-wrist injuries
- ◆ Develop the latest technological advances in Hand Surgery



*The teaching materials of this program, elaborated by these specialists, have contents that are completely applicable to your professional experiences”*



## Specific Objectives

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- ◆ Place chronologically the current state of hand surgery after a historical review
- ◆ Analyze the physiological bases necessary for the study of hand pathology
- ◆ Define the imaging techniques available for the study of hand pathology, develop each of them and specify their indications
- ◆ Review the anesthetic techniques used during hand surgery
- ◆ Delve into the advantages, disadvantages and risks of each of them and understand the indication of one or the other
- ◆ Delve into orthopedic and rehabilitative treatment in hand pathology processes, as well as non-surgical treatments, and their importance in the postoperative period
- ◆ Develop the concepts of hand surgery research, analyzing the different types of clinical studies and levels of scientific evidence

03

# Course Management

One of the elements that distinguishes this program is the excellent teaching team that TECH has assembled. In this way, students taking this program will have at their disposal a syllabus prepared and elaborated by excellent surgeons specialized in Upper Limb, Orthopedic Surgery and Radiology. In this way, they will be aware of the advances in the improvement of diagnostic and therapeutic techniques in Hand Surgery through authentic experts.





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*Specialists in Hand Surgery and  
Microsurgery have developed  
this advanced, world-class  
program for surgeons”*

## Management



### Dr. Ríos García, Beatriz

- Medical Specialist in Orthopedic Surgery and Traumatology in the Hand and Microsurgery Unit at the Monographic Hospital of Orthopedic Surgery and Traumatology ASEPEYO
- Medical Specialist in Orthopedic Surgery and Traumatology (Dr. Rayo and Amaya Team) at the Hospital San Francisco de Asís
- Resident Tutor at the Hospital ASEPEYO
- Medical Specialist in Hand Surgery (Dr. de Haro Team) at the San Rafael Hospital
- Teacher of Knee, Shoulder, Osteosynthesis, Locomotor System and Ultrasound Pathology Courses
- Degree in Medicine and Surgery from the Complutense University of Madrid
- Member of: Spanish Society of Orthopedic Surgery and Traumatology, Spanish Society of Orthopedic Surgery and Traumatology, Spanish Society of Hand Surgery and Microsurgery



### Dr. Valdazo Rojo, María

- Traumatology and Orthopedic Surgery Service at the Hospital Universitario San Francisco de Asís
- Traumatology and Orthopedic Surgery Area Specialist at the Hospital Fundación Jiménez Díaz
- Specialist in Traumatology and Orthopedic Surgery at the Albacete University Hospital Complex
- Professor of Medicine at the Universidad Alfonso X el Sabio, Madrid
- Professor of Medicine at the Autonomous University of Madrid
- Professor of Medicine at the University of Albacete
- PhD in Medicine and Surgery from the Complutense University of Madrid
- Graduated from the Universidad Autónoma de Madrid

## Professors

### Dr. Felices Farias, José Manuel

- ◆ Assistant Specialist in Radiodiagnosis at Hospital Universitario Virgen de la Arrixaca, Murcia, Spain
- ◆ Head of Residents at the Virgen de la Arrixaca University Hospital
- ◆ Associate Professor of Radiodiagnosis in the Degrees in Medicine and Dentistry at the Catholic University San Antonio of Murcia
- ◆ Honorary Collaborating Professor of the Department of Dermatology, Stomatology, Radiology and Physical Medicine of the Faculty of Medicine of the University of Murcia
- ◆ Doctor of Medicine, University of Murcia
- ◆ Master in Applied Clinical Anatomy, University of Murcia
- ◆ Degree in Medicine from the University of Murcia

### Dr. Fernández Rodríguez, Tomás

- ◆ Ultrasound Specialist at the Hospital San Francisco de Asís
- ◆ Outpatient Emergency Physician at the SAR de Mejorada del Campo
- ◆ Teacher collaborator at the University Camilo José Cela in programs of the faculties of Nursing and Physiotherapy
- ◆ Member of the Working Group on Ultrasound SEMERGEN

### Dr. Sánchez López, Amalia

- ◆ Coordinator of the Rehabilitation Service of the Hospital San Francisco de Asís
- ◆ Madrid Rehabilitation Physician at Hospital Quirón de Talavera de la Reina
- ◆ Specialist in Physical Medicine and Rehabilitation at the Jiménez Díaz Foundation Hospital.
- ◆ Degree in Medicine from the University of Salamanca Academic Formation

### Dr. Aragonés Maza, Paloma

- ◆ Specialist in Orthopedic and Trauma Surgery
- ◆ Specialist in Orthopedic Surgery and Traumatology at the University Hospital Santa Cristina
- ◆ Specialist in Orthopedic Surgery and Traumatology at the Santa Clotilde Hospital
- ◆ Specialist in Orthopedic Surgery and Traumatology at Hospital Universitario Getafe
- ◆ PhD in Medicine and Surgery from the Complutense University of Madrid
- ◆ Associate Professor Complutense University of Madrid
- ◆ Professor at Alfonso X El Sabio private university
- ◆ Teacher in multiple courses and postgraduate training for doctors, technicians and other health professions
- ◆ Member of: Spanish Anatomical Society and of the European Association of Clinical Anatomy, Spanish Society of Orthopedic Surgery and Reviewer and Associate editor of the European Journal of Anatomy



*Make the most of this opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

# 04

## Structure and Content

In order to promote the process of updating the knowledge of professional surgeons, TECH has designed a syllabus that responds to their real needs of updating in Hand and Upper Extremity Surgery. Therefore, in this academic itinerary, the graduate will have at his disposal quality pedagogical tools and a *Relearning* method, which will lead him to advance naturally through the syllabus, consolidating in a simple way the concepts addressed.





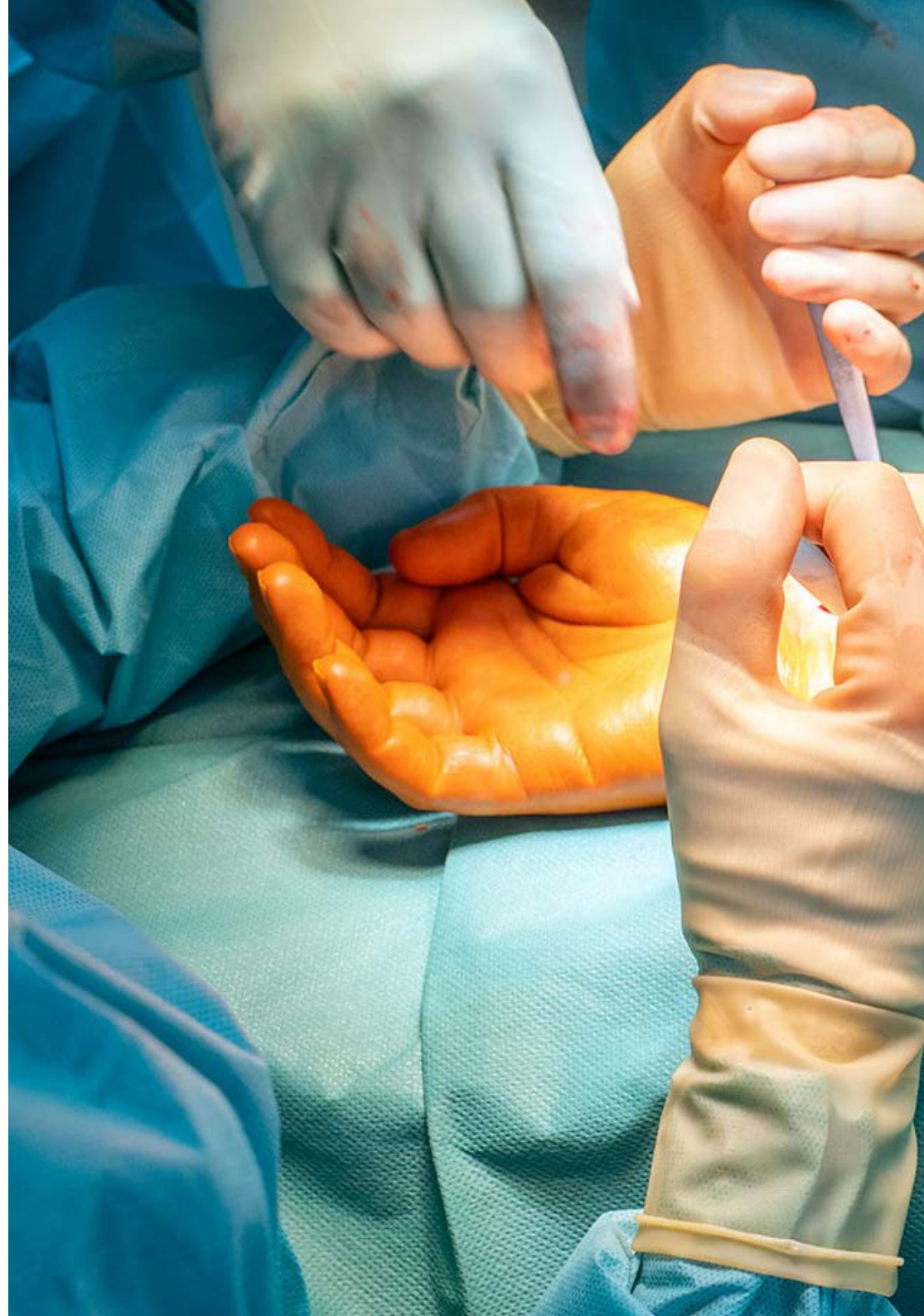


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*A syllabus with the most advanced curriculum in Hand and Upper Extremity Surgery, accessible 24 hours a day, 7 days a week"*

**Module 1.** Basic sciences applied to hand and upper extremity surgery.  
Methodology. Rehabilitation

- 1.1. History of Hand Surgery. Progress in the XXI century
  - 1.1.1. From Ancient Times to the Modern Age
  - 1.1.2. Contemporary Age. Discovery and changes
  - 1.1.3. From 1950 to the present day. Progress in the XXI Century
- 1.2. Biology and physiology in relation to hand surgery. Tissue healing
  - 1.2.1. Classification and clinical classification of hand wounds
  - 1.2.2. Physiology: healing and epithelialization
  - 1.2.3. Scar pathology
- 1.3. Embryology and genetics in hand surgery. Malformations
  - 1.3.1. Early stages of development of the upper extremity. Genes involved
  - 1.3.2. Growth and rotation of the outlines. Fragmentation process
  - 1.3.3. Formation of the skeleton, musculature and appendicular joints
  - 1.3.4. Vascularization and innervation of the developing limbs
  - 1.3.5. Classification of congenital malformations of the upper extremity
- 1.4. Anatomy I in Hand Surgery. Functions and Biomechanics
  - 1.4.1. Topography
  - 1.4.2. Skin and fibrous skeleton
  - 1.4.3. Bone and ligamentous skeleton
  - 1.4.4. Functions and biomechanics
- 1.5. Anatomy II in Hand Surgery. Approaches
  - 1.5.1. Musculature
  - 1.5.2. Vascularization
  - 1.5.3. Sensory innervation
  - 1.5.4. Main approaches in hand surgery
- 1.6. Ultrasound applied to hand surgery
  - 1.6.1. Objectives
  - 1.6.2. Basic principles of ultrasound
  - 1.6.3. Ultrasound diagnostic pathology in wrist and hand
    - 1.6.3.1. Dorsal side
    - 1.6.3.1. volar side
  - 1.6.4. Bone and Joint Pathology



- 1.7. Magnetic Resonance Imaging applied to hand surgery. Nuclear Medicine
  - 1.7.1. Wrist and hand radiography
  - 1.7.2. CT in Hand Surgery. Diagnostic Applications
  - 1.7.3. MRI in Hand Surgery
- 1.8. Anesthesiology applied to Hand Surgery. Walant Technique
  - 1.8.1. Walant. Preparation
  - 1.8.2. Use of the Walant in Hand Surgery
  - 1.8.3. The Yes and No to the Walant
- 1.9. Rehabilitation: orthoses and basic principles in hand rehabilitation
  - 1.9.1. Principles of Rehabilitation in Hand Surgery. Evaluation and therapeutic approach
  - 1.9.2. Treatments with physiotherapy, electrotherapy and occupational therapy
  - 1.9.3. Orthoses
- 1.10. Clinical Research in Hand Surgery: Study Population, Clinical Designs, Instruments and Measurements, and Data Analysis
  - 1.10.1. Types of Clinical Studies
  - 1.10.2. Design errors in clinical studies
  - 1.10.3. Level of evidence
  - 1.10.4. Diagnostic test statistics



*Get in a short time a complete up-to-date update of the imaging tests currently used for the study and diagnosis of Hand 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.





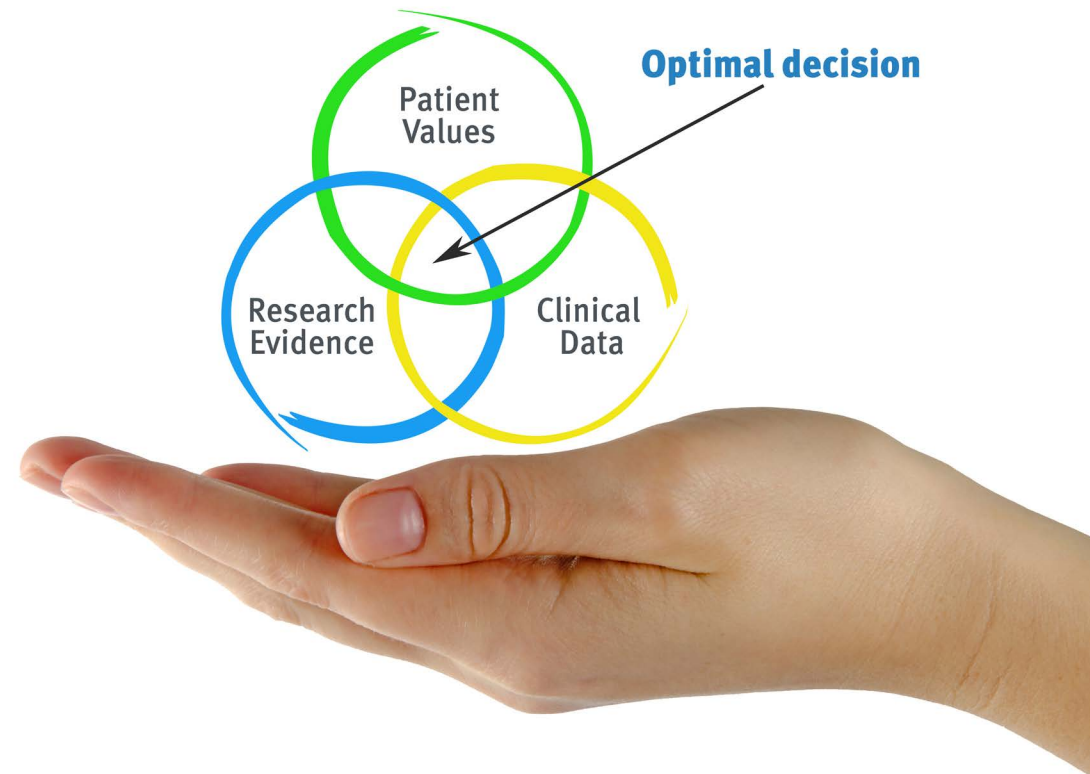
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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.

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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 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 Diploma in Hand and Upper Extremity Surgery guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



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

This **Postgraduate Diploma in Hand and Upper Extremity Surgery** 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 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 Certificate in Hand and Upper Extremity Surgery**

Official N° of hours: **150 h.**



\*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.

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

**tech** technological  
university

## Postgraduate Certificate

Hand and Upper  
Extremity Surgery

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
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## Hand and Upper Extremity Surgery

