

# Postgraduate Certificate

Biomechanical Preparation and  
Obturation of the Root Canal



## Postgraduate Certificate Biomechanical Preparation and Obturation of the Root Canal

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techitute.com/in/dentistry/postgraduate-certificate/biomechanical-preparation-obturation-root-canal](http://www.techitute.com/in/dentistry/postgraduate-certificate/biomechanical-preparation-obturation-root-canal)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

01

# Introduction

The need for this program lies in the importance of a more specific training for professionals due to the enormous volume of theoretical and practical knowledge required for the practice of this dental discipline, especially if we take into account the great demand for training in this area.



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*Improve your knowledge in dental clinic management and direction through this program, where you will find the best teaching material with real case studies. Learn here about the latest advances in clinic management and direction in order to be able to manage quality dental centers"*

The training of professionals who are increasingly committed to the society in which they carry out their work requires a deepening of the knowledge and subjects that comprise the educational background of their degrees.

This online program aims to respond to the needs not only of its students, but also of society, anticipating the future demands of the environment. Change, the result of globalization and the imperatives of a new knowledge-based economy, requires ambitious modernization programs in the field of online training.

This Postgraduate Certificate aims to cover the comprehensive training of dentists in Biomechanical Preparation and Obturation of the Root Canal by providing the necessary skills to prepare them as highly qualified professionals in the field of Endodontics.

This **Postgraduate Certificate in Biomechanical Preparation and Obturation of the Root Canal** contains the most complete and up-to-date scientific program on the market. The most important features of the course are:

- ♦ Clinical cases presented by experts in endodontics. 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 practice.
- ♦ Latest diagnostic and therapeutic information on the procedures for Biomechanical Preparation and Obturation of the Root Canal.
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course.
- ♦ Special emphasis on test-based medicine and research methodologies in Biomechanical Preparation and Obturation of the Root Canal.
- ♦ All this will be complemented by 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



*Each company must decide where and with whom it is playing, what resources it has and what it intends to gain from it"*

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*This Postgraduate Certificate may be the best investment you can make when choosing a refresher program for two reasons: in addition to updating your knowledge in Biomechanical Preparation and Obturation of the Root Canal, you will obtain a Postgraduate Certificate from TECH Technological University"*

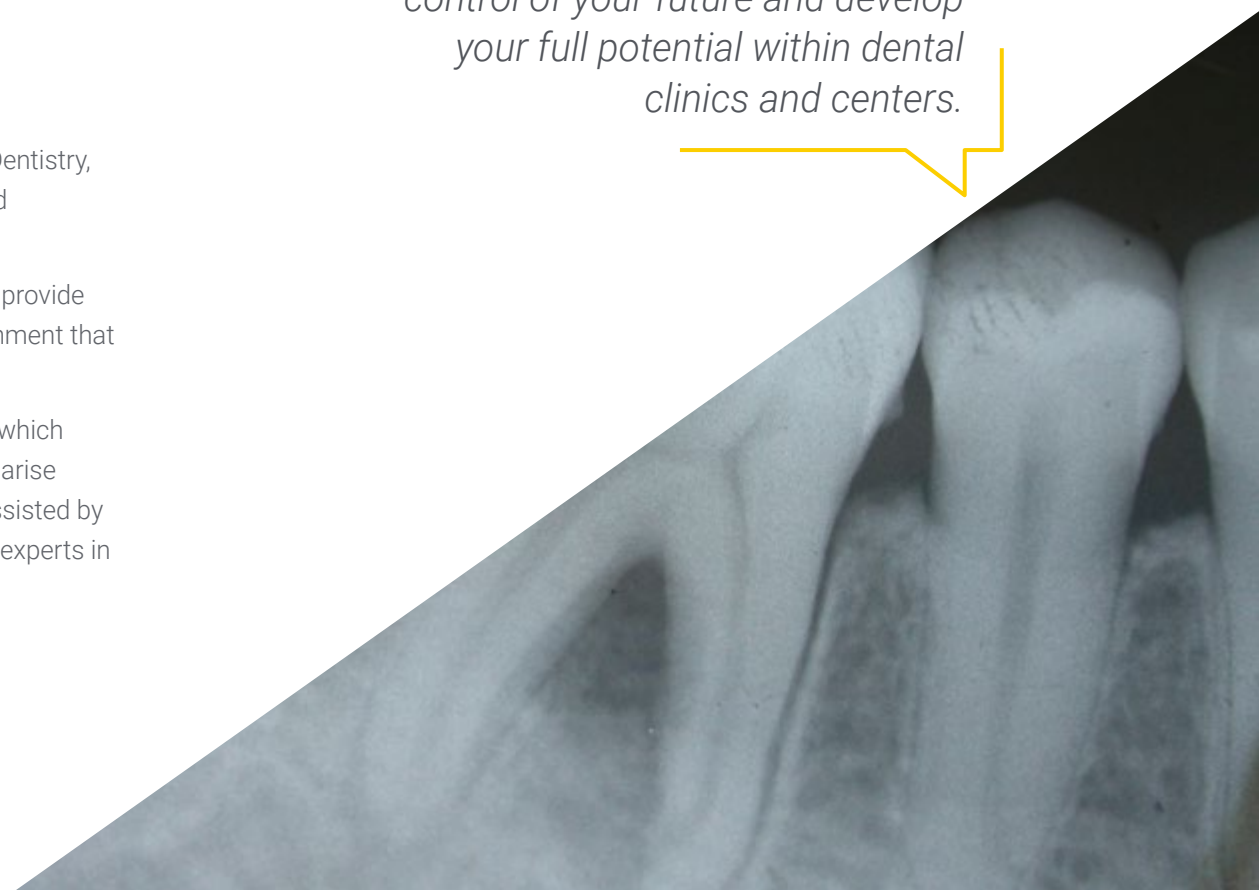
Forming part of the teaching staff is a group of professionals in the world of Dentistry, who bring to this course their work experience, as well as a group of renowned specialists, recognised by esteemed scientific communities.

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 training program to train in real situations.

The design of this program is based on problem-based learning, by means of which the dentist must try to solve the different professional practice situations that arise throughout the Postgraduate Certificate course. For this reason, you will be assisted by an innovative, interactive video system created by renowned and experienced experts in the field of radiology with extensive teaching experience.

*The Postgraduate Certificate provides training in simulated environments, which provides immersive learning designed to train professionals for real situations.*

*We give you the opportunity to take control of your future and develop your full potential within dental clinics and centers.*



# 02

# Objectives

The principal objective of the program is the development of both theoretical and practical learning, so that the professional can master, in a practical and rigorous way, the study of Biomechanical Preparation and Obturation of the Root Canal.







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*This refresher program will generate a sense of confidence when practising dentistry which will help you grow both personally and professionally”*



## General Objectives

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- ♦ Update the theoretical and practical knowledge of the dentist in the different areas of Endodontics and Apical Microsurgery, through evidence-based dentistry.
- ♦ Promote work strategies based on a multidisciplinary approach to the patient who is a candidate for endodontic treatment or apical surgery.
- ♦ Encourage the acquisition of technical skills and abilities, through a powerful audiovisual system, and the possibility of development through online simulation workshops and/or specific training.
- ♦ Train the professional to reach levels of excellence based on the attentive observation of the patient and their circumstances, extraction of the appropriate clinical and exploratory data, elaboration of a diagnostic process and therapeutic plan that will lead them to offer the patient the best possible option in that situation. To this end, it will be essential to immerse yourself in the continuous study of the bibliography, acquiring solid foundations and a habit of periodically reviewing the evolution of your knowledge with a critical attitude and ability to discriminate.





## Specific Objectives

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- ◆ Describe the biological principles of Endodontics.
- ◆ Perform a correct clinical history in endodontics, taking into account the risk diseases as well as the various radiological techniques available to us to make a correct diagnosis.
- ◆ Know how to differentiate the different treatment options for open apex tooth.
- ◆ Perform the procedure for insulation by means of a rubber dam.
- ◆ Explain the anatomy and location of root canals.
- ◆ Solve possible operative accidents in Endodontics.
- ◆ Define the different types of root resorptions.
- ◆ Describe dental trauma in emergency situations.
- ◆ Explain the indications for endodontic surgery.
- ◆ Correctly prepare the surgical field in apical surgery as well as master the sterilization.



*Make the most of the opportunity and take the step to get up to date on the latest developments in Biomechanical Preparation and Obturation of the Root Canal"*

03

# Course Management

This program includes highly regarded health professionals in the field of Endodontics in its teaching staff, who bring the experience of their work to this training.

In addition, renowned specialists, members of prestigious national and international scientific communities, are involved in designing and preparing the program.





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*Learn about the latest advances in  
Biomechanical Preparation and Obturation of  
the Root Canal from leading professionals”*

## Management



### Dr. Fabra Campos, Hipólito

- ◆ Degree in Medicine and Surgery.
- ◆ Degree in Stomatology from the School of Stomatology at the Complutense University of Madrid.
- ◆ PhD in Medicine from the Complutense University of Madrid.
- ◆ Honorary Member of the Iltre Official College of Dentists and Stomatologists of La Rioja.
- ◆ Rodriguez Carvajal Award for the best case published in the journal of the Spanish Association of Endodontics 1992.
- ◆ Winner of the II Certamen de Actividades Científicas Odonto-Estomatológicas Ciudad de Córdoba 1997.
- ◆ Pedro Ruíz de Temiño Malo Award for the best original article published in the Revista Española de Endodoncia 1998.
- ◆ Award for the best communication in video format XXVI National Congress of AEDE 2005.
- ◆ Founding member of the Spanish Society of Endodontics.
- ◆ Active member of the American and European Society of Endodontics, the Academy of Dental Materials and full Specialist member of the Spanish Society of Periodontology.
- ◆ Active Member of the Spanish Section of the Pierre Fauchard Academy.
- ◆ More than 150 lectures and courses on Endodontics and Dental Surgery given in Spain, Portugal, Argentina, Ecuador and Brazil.
- ◆ Co-author of the New Etymological Medical Dictionary of Dentistry 2008.
- ◆ More than 75 scientific articles published in several Spanish journals, as well as in The Journal of Endodontics, The International Endodontic Journal, The Endodontics & Dental Traumatology, The Quintessence International and The Endodontic Practice.



### **Dr. Baroni Cañizares, Luís**

- ♦ Degree in Dentistry from the European University of Madrid.
- ♦ Official Master's Degree in Advanced Endodontics.
- ♦ Full Member of the Spanish Association of Endodontics (AEDE).
- ♦ Master's Degree teacher in Endodontics at the University of Zaragoza, Spain.
- ♦ Exclusive dedication in Endodontics at Dr. Ruiz de Gopegui Clinic.
- ♦ Lecturer in different courses and congresses in the area of Endodontics.



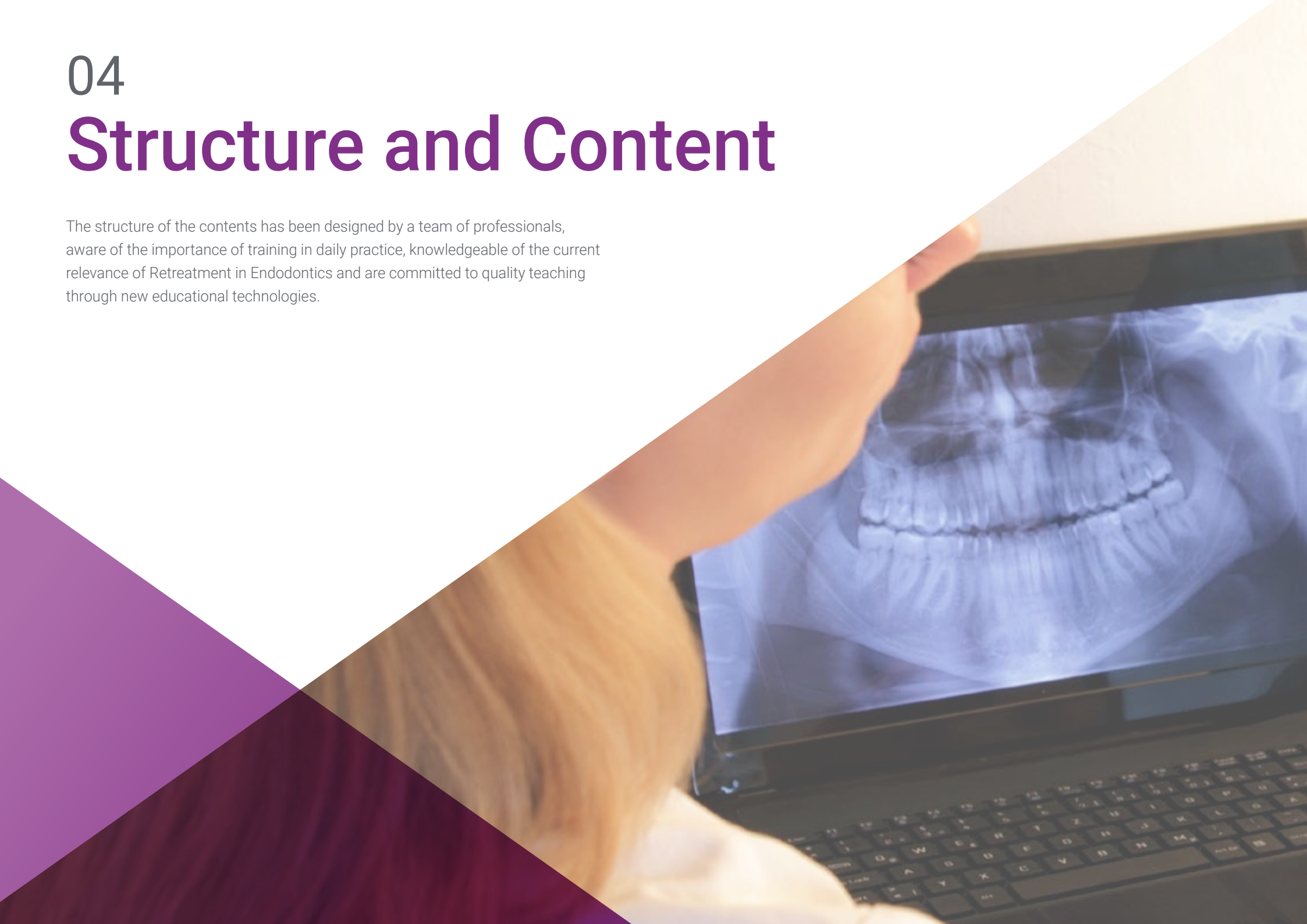
### **Dr. García Rielo, Manuel Miguel**

- ♦ Degree in Dentistry from the University of Santiago de Compostela.
- ♦ International Master's Degree in Advanced Endodontics.
- ♦ Master's Degree in Implantology, Periodontics and Oral Surgery.
- ♦ Diploma of Advanced Studies.
- ♦ USC Clinical Tutor Professor in the Dental Pathology and Therapeutics Teaching Unit.
- ♦ Collaborating professor of the International Professional Master's Degree in Advanced Endodontics at the USC School of Dentistry.
- ♦ Author of several articles in national and international journals.
- ♦ Lecturer and author of two books in preparation courses for competitive examinations.
- ♦ National research awards granted by the Spanish Society of Conservative Dentistry (SEOC).
- ♦ Member of different scientific societies: SEPES, SEPA, SEOC, SEGER and SEMO.

# 04

# Structure and Content

The structure of the contents has been designed by a team of professionals, aware of the importance of training in daily practice, knowledgeable of the current relevance of Retreatment in Endodontics and are committed to quality teaching through new educational technologies.





A hand is pointing at a dental X-ray displayed on a computer monitor. The X-ray shows the teeth and jawbone. The background is a purple and white geometric design.

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*This Postgraduate Certificate in Biomechanical Preparation and Obturation of the Root Canal contains the most complete and up-to-date scientific program on the market”*

## Module 1. Current Protocol in Canal Irrigation

- 1.1. Treatment Considerations on Irrigation in Vital and Necrotic Teeth (the Biofilm Concept)
  - 1.1.1. Biopulpectomy Concept and Fundamental Principles
  - 1.1.2. Necropulpectomy Concept and Fundamental Principles
- 1.2. Considerations on Irrigating Substances
  - 1.2.1. Objectives of Irrigation
  - 1.2.2. Fundamentals to Follow with Irrigants
  - 1.2.3. Physical and Chemical Properties of Irrigants
- 1.3. Irrigation Solutions and Irrigation Methods
  - 1.3.1. Sodium Hypochlorite, Chlorhexidine and Others
  - 1.3.2. Simple Irrigation, with Aspiration, with Vibration or with Cavitation
- 1.4. Removing the Smear Layer and Performing the Apical Permeabilization (PATENCY)
  - 1.4.1. Methods of Removing the Smear Layer When and Why
  - 1.4.2. Methods of Permeabilizing When and Why

## Module 2. Biomechanical Preparation of the Root Canal

- 2.1. New Concepts in the Design of Nickel Titanium (NiTi)
  - 2.1.1. Superelasticity and Shape Memory
  - 2.1.2. Morphological Characteristics of NiTi Rotary Instruments
  - 2.1.3. Rotary Files Manual
- 2.2. Protocols for Manual Canal Preparation
  - 2.2.1. Manual with Pulsation and Traction Maneuvers Only
  - 2.2.2. Manual Associated with the Use of Gates Burs
  - 2.2.3. Manual Associated with the Use of Batt Burs
  - 2.2.4. Manual Associated with Ultrasounds
  - 2.2.5. Manual Associated with Titanium Files
- 2.3. Protocols for Manual and Mechanical Canal Preparation
  - 2.3.1. Standardization Rules Dr. Hipólito Fabra
  - 2.3.2. Characteristics of Rotary Systems
  - 2.3.3. Manual Technique Associated with Mechanics
    - 2.3.3.1. Initial Canal Permeabilization
    - 2.3.3.2. Ductometry
    - 2.3.3.3. Oval or Laminated Ducts
  - 2.3.4. Work Systematics



- 2.4. Protocols in Mechanical Canal Preparation
  - 2.4.1. Mechanical Technique for Canal Preparation
  - 2.4.2. Motors: Types and Characteristics
  - 2.4.3. Handling of Ducts according to their Difficulty
  - 2.4.4. Clinical Criteria for Canal Instrumentation
- 2.5. Causes and Prevention in Rotary Instruments Breakage
  - 2.5.1. Causes of Instrument Breakage
    - 2.5.1.1. Clinical Causes
    - 2.5.1.2. Metallographic Causes
  - 2.5.2. Prevention of Instrument Breakage
  - 2.5.3. Mandatory Standards
- 3.5. Materials and Techniques of Obturation with Thermoplasticized Gutta-Percha (Vertical Condensation with Hot Gutta-Percha)
  - 3.5.1. Obturation Systems
- 3.6. Canal Obturation With Thermafil® and/or Guttacore® Hot Gutta Percha Systems
- 3.7. Apical Sealing as the Objective of Treatment. Periapical Healing
- 3.8. Postoperative Pain Management and Final Patient Information

### Module 3. Root Canal System Sealing

- 3.1. One or More Sessions in Endodontics
  - 3.1.1. Compilation of the Surgical Procedure
  - 3.1.2. Requirements That Must Be Met in Order to Perform Endodontics in One Session
  - 3.1.3. Drying and Dentin Preparation Prior to Sealing
- 3.2. Canal Sealing Materials
  - 3.2.1. Gutta-Percha Tips
  - 3.2.2. Classic Sealing Cements
  - 3.2.3. Sealing Biocements
- 3.3. Technique of Obturation with Gutta-Percha Tips (Lateral Condensation) 1st Part: General Considerations
  - 3.3.1. Gutta-Percha Tips and Ergonomics in the Technique
  - 3.3.2. Types of Spacers and Calipers
  - 3.3.3. Placing Sealing Cement
  - 3.3.4. Work Systematics
- 3.4. Technique of Obturation with Gutta-Percha Tips (Lateral Condensation). 2nd Part: Specific Considerations
  - 3.4.1. Specifications on the Lateral Condensation Technique
  - 3.4.2. Combined Technique of Lateral and Vertical Condensation with Heat
  - 3.4.3. Apical Sealing with Lateral Condensation
  - 3.4.4. Management of Occlusion after Endodontics



*A unique, key, and decisive experience to boost your professional development”*

05

# Methodology

This training provides you with a different way of learning. Our methodology follows a cyclical learning process: 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 clinical 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. Dentists 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. Gervas, 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 the dentist'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 grasp concepts, but also develop their mental capacity by means of exercises to evaluate real situations and apply 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 student 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 115,000 students 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 training, 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.



### Surgical Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current dental 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 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

The Postgraduate Certificate in Biomechanical Preparation and Obturation of the Root Canal guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate qualification issued by TECH Technological University.





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*Receive your university degree  
without having to travel"*

This **Postgraduate Certificate in Biomechanical Preparation and Obturation of the Root Canal** 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 specify the qualification obtained through the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Biomechanical Preparation and Obturation of the Root Canal**

Official Number of Hours: **325 h.**





## Postgraduate Certificate Biomechanical Preparation and Obturation of the Root Canal

- » Modality: online
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# Postgraduate Certificate

## Biomechanical Preparation and Obturation of the Root Canal

