

# Postgraduate Certificate

## Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery





## Postgraduate Certificate

### Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery

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

Website: [www.techtitute.com/medicina/curso-universitario/procedimientos-optometricos-cirugia-refractiva-corneal-intraocular-cataratas](http://www.techtitute.com/medicina/curso-universitario/procedimientos-optometricos-cirugia-refractiva-corneal-intraocular-cataratas)

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# 01

# Introduction

This program provides optometrists with the necessary knowledge to be part of a refractive surgical team, performing most of the preoperative tests, collaborating in the surgical act, and performing the scheduled postoperative revisions. For this purpose, the two main groups of techniques will be addressed: corneal and intraocular. For each of them, the most modern techniques and the most important and necessary aspects optometrists must know in order to perform their work safely and efficiently will be studied.





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*The latest advances in the area of optical technologies and clinical optometry compiled in a highly efficient Postgraduate Certificate that will optimize your effort with the best results”*

Refractive surgery is increasingly present in the society. Advances in techniques, instrumentation and the extensive clinical experience of the professionals involved have made it a safe and effective option for visual correction. The optometrist, as a specialist in the ocular optical system, is a professional especially qualified to form part of surgical-refractive teams.

For this reason, more and more optometrists are being hired by ophthalmology clinics or hospital ophthalmology departments to perform preoperative tests, give advice and optometric support to the refractive surgeon, and carry out follow-up visits after the operation.

Amblyopias are among the main causes of decreased vision in the general population. These appear as an alteration in the development of vision at an early age, affecting not only visual acuity, but also many visual functions. The importance of detecting amblyopia lies in the fact that, if they are not treated, and the sooner the better, they will continue to affect visual function throughout life.

The Postgraduate Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery covers the main fields of optometrist action, always highly updated and with a first level teaching staff. The syllabus has been designed from the perspective and experience of experts highly specialized in their module, and immersed in the clinical world.

This **Postgraduate Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery** is the most complete and up-to-date scientific program on the market. Its most outstanding features are:

- More than 100 clinical cases presented by experts in the different specialties
- 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
- The latest developments in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery.
- The presentation of hands-on workshops about procedures, diagnostic and therapeutic techniques
- An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- 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.



*Increase your decision-making confidence by updating your knowledge through this Postgraduate Certificate”*

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*This Postgraduate Certificate is the best investment you can make when choosing a refresher program to update your existing knowledge of Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery”*

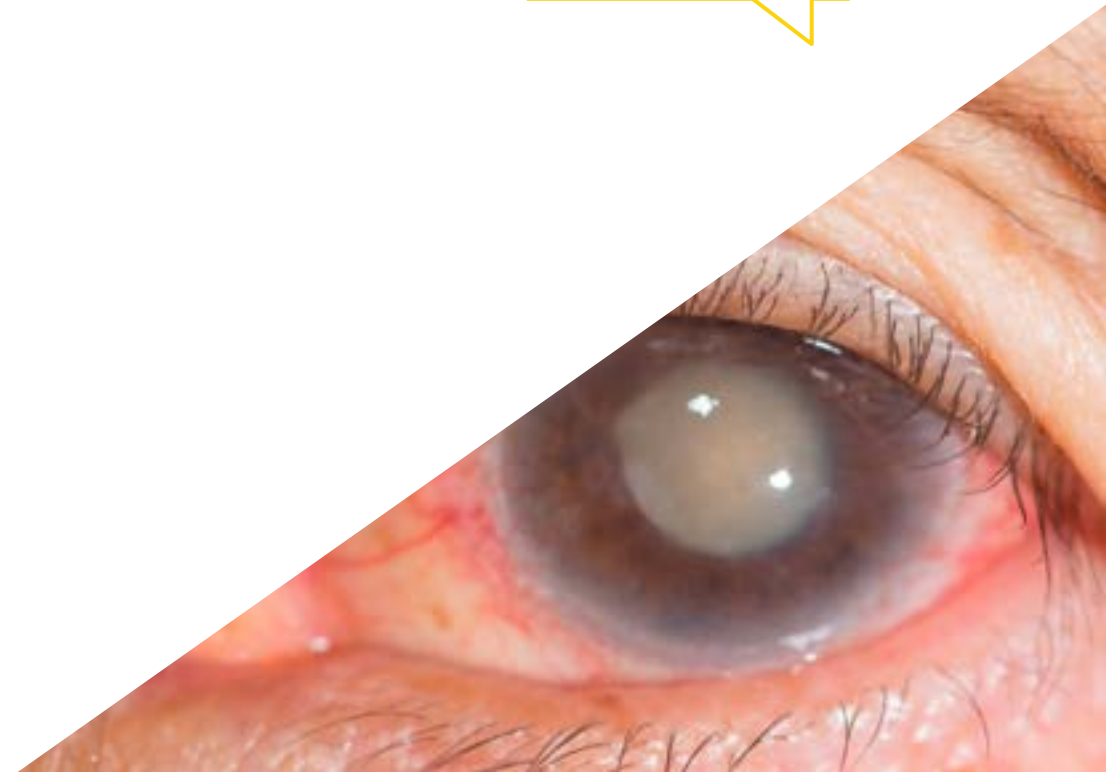
The teaching staff includes professionals from the field of in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery, who bring their experience to this program, as well as renowned specialists from leading societies and prestigious universities.

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 an immersive educational experience designed to prepare students for real-life situations.

This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise throughout the program. For this purpose, the specialist will be assisted by an innovative, interactive video system created by renowned and experienced experts in treating pediatric emergencies.

*We have the best didactic material, an innovative methodology and a 100% online training, which will facilitate your study.*

*All the necessary methodology for non-specialist medical professionals in the field of Clinical Optometry, in a specific and concrete Postgraduate Certificate.*



# 02 Objectives

This Postgraduate Certificate is oriented to achieve an effective update of the physician knowledge in order to provide quality care based on the latest scientific evidence that guarantees patient safety. In this way, the professional will be fully empowered in a in-demand, global and essential field, leading them to excellence in a continuously adapting industry.







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*If you are looking for success in your profession, we can help you achieve it. We offer you the most complete training on Optical Technologies and Clinical Optometry"*



### General Objective

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- Advise patients from their position in the optical centers about the different procedures and their indications.



*Seize the opportunity and take the step to get up to date on the latest developments in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery”*





## Specific Objectives

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- ♦ In-depth understanding of ocular optics and how to act on it to adjust refraction by modifying corneal power
- ♦ In-depth understanding of ocular optics and how to act on it to modify refraction with intraocular lenses
- ♦ Handle the excimer laser and ablation profiles according to the refraction being treated
- ♦ Study the different techniques of corneal refractive surgery
- ♦ Describe the preoperative tests necessary for surgical indication in corneal refractive surgery
- ♦ Manage the role of the optometrist in the preoperative, intraoperative and postoperative process of corneal refractive surgery.
- ♦ Deepen in the postoperative medical treatment in corneal refractive surgery
- ♦ Know in depth the normal evolution and complications in corneal refractive surgery.
- ♦ Study the techniques of intraocular refractive surgery
- ♦ Describe phakic lenses, their indications and necessary preoperative testing
- ♦ Describe lenses for Pseudophakic eyes, their indications and necessary preoperative testing
- ♦ Specialize in the surgical procedure of clear lens and cataract surgery
- ♦ Apply the different formulas for calculating the pseudophakic intraocular lens in normal eyes
- ♦ Delve into the special procedures for calculating the pseudophakic intraocular lens in eyes that have previously undergone corneal refractive surgery
- ♦ Describe the main complications that can occur in intraocular refractive surgery

03

# Course Management

The teaching staff includes leading experts in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery, who bring their work experience to this program. In addition, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.



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*Leading professionals in the field have come together to teach you the latest advances in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery”*

## Management



### Dr. Calvache Anaya, José Antonio

- Optometrist at Clínica Baviera in Palma de Mallorca
- Teacher in courses on Biostatistics, Keratometry and Corneal Topography and Ocular Biometry
- Degree in Optics and Optometry from the University of Alicante
- Doctor in Optometry and Vision Sciences from the University of Valencia
- Master's Degree in Advanced Optometry and Vision Sciences from the University of Valencia
- Postgraduate Diploma in Statistics Applied to Health Sciences UNED
- Postgraduate Certificate in Optics and Optometry from the University of Alicante



# 04

## Structure and Content

The syllabus of this program has been selected by TECH under high standards of academic quality. In it, the physician will find a compendium of rigorous information, addressed to the current and future needs of the field. All this will be supported by a conglomerate of audiovisual resources and practical exercises, so that the student can significantly improve their skills and can redirect them to the labor field.







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*This Postgraduate Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery will help you keep up to date in order to provide comprehensive quality care to patients”*

## Module 1. Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery

- 1.1. Physical Basis of Refractive Change in the Corneal Plane
  - 1.1.1. Solution of the Theoretical Eye
    - 1.1.1.1. Theoretical Emmeropic Eye
    - 1.1.1.2. Theoretical Emmeropic Eye
  - 1.1.2. Change in Refraction as a Function of Change in ACD
  - 1.1.3. Change in Refraction as a Function of Change in Corneal Power
- 1.2. Corneal Refractive Surgery Techniques
  - 1.2.1. Corneal Anatomy and Physiology
  - 1.2.2. Optical Foundation
  - 1.2.3. LASIK
  - 1.2.4. PRK
  - 1.2.5. LASEK
  - 1.2.6. SMILE
  - 1.2.7. PRESBILASIK
  - 1.2.8. Retreatments
- 1.3. Types of Laser
  - 1.3.1. The Excimer Laser
  - 1.3.2. Ablation Profiles
  - 1.3.3. Optometrist in the Laser Refractive Surgery Operating Room
  - 1.3.4. Surgery Scheduling and Safety Protocols
  - 1.3.5. Creation of a Nomogram
- 1.4. Preoperative Testing for Corneal Refractive Surgery
  - 1.4.1. Corneal Topography and Tomography
    - 1.4.1.1. Normal Corneal Topography
    - 1.4.1.2. Corneal Astigmatism vs. Refractive: Application of Javal's Rule
    - 1.4.1.3. Pathological Topographies
    - 1.4.1.4. Suspicious Topographies



- 1.4.2. Pachymetry
  - 1.4.2.1. Normal Values, Limits and Fine Pachymetries
  - 1.4.2.2. Limitations of Surgery Due to Pachymetry
- 1.4.3. Refraction:
  - 1.4.3.1. Visual Acuity
  - 1.4.3.2. Subjective Refraction vs. Objective Refraction
  - 1.4.3.3. Cycloplegic Refraction
  - 1.4.3.4. Surgical Indication
- 1.4.4. Test Verification
  - 1.4.4.1. Preoperative Briefing
- 1.5. Postoperative Period and Complications in Corneal Refractive Surgery
  - 1.5.1. Intra-Operative
    - 1.5.1.1. Correction of Programming Errors by Vectors of Dioptric Powers
    - 1.5.1.2. Incomplete Lenticule
    - 1.5.1.3. Complete Lenticule
    - 1.5.1.4. Loss of Epithelium
  - 1.5.2. Post-Operatives
    - 1.5.2.1. Flap Dislocation
    - 1.5.2.2. Keratitis Sicca
    - 1.5.2.3. Infections
    - 1.5.2.4. Epithelial Growth at the Interphase
    - 1.5.2.5. Interphase Fluid Syndrome
    - 1.5.2.6. Cortico-Dependent Increase in Intraocular Pressure
    - 1.5.2.7. Toxic Anterior Segment Syndrome (TASS)
    - 1.5.2.8. Loss of Visual Quality
- 1.6. Physical Basis of Refractive Change Induced by Intraocular Lenses
  - 1.6.1. Solution of the Theoretical Eye
    - 1.6.1.1. Phakic Lenses
    - 1.6.1.2. Pseudophakic Lenses in Clear Lens and Cataracts
- 1.7. Preoperative Testing for Intraocular Surgery
  - 1.7.1. Phakic Lenses
  - 1.7.2. Lens Surgery
- 1.8. Ocular Biometry and Intraocular Lens Calculation
  - 1.8.1. Calculation Formula for Pseudophakic Intraocular Lenses
  - 1.8.2. Calculation Formula for Phakic Intraocular Lenses
  - 1.8.3. Ultrasonic and Optical Ocular Biometry
  - 1.8.4. Intraocular Lens Power Calculation Formulas
  - 1.8.5. Calculation in Eyes Undergoing Corneal Laser Refractive
    - 1.8.5.1. Haigis Method
    - 1.8.5.2. Shammas' Method
    - 1.8.5.3. Barrett True-K
- 1.9. Types of Intraocular Lens
  - 1.9.1. Monofocal
  - 1.9.2. Multifocal
  - 1.9.3. O-rings
  - 1.9.4. Accommodating
- 1.10. Postoperative Period and Complications in Intraocular Refractive Surgery
  - 1.10.1. Intra-Operative
  - 1.10.2. Early Preoperatives
  - 1.10.3. Late Preoperatives

# 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 assess 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

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*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 prepared with unprecedented success in all clinical specialties regardless of surgical load. Our educational 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 adapted in 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 assess and re-assess 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 Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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

This program will allow you to obtain your **Postgraduate Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

**Title: Postgraduate Certificate in Optometric Procedures in Corneal, Intraocular and Cataract Refractive Surgery**

ECTS: 6

Official N° of Hours: 150 h.



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