

# Postgraduate Certificate

## Refractive Lens Surgery





## Postgraduate Certificate Refractive Lens Surgery

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/medicine/postgraduate-certificate/refractive-lens-surgery](http://www.techtitute.com/us/medicine/postgraduate-certificate/refractive-lens-surgery)



# Index

01

[Introduction](#)

02

[Objectives](#)

p. 4

p. 8

03

[Course Management](#)

04

[Structure and Content](#)

p. 12

p. 16

05

[Methodology](#)

p. 20

06

[Certificate](#)

p. 28

01

# Introduction

Refractive Lens Surgery is a technique increasingly used in ophthalmology to treat vision problems such as cataract and presbyopia. This technique improves patients' quality of life, reduces their dependence on corrective lenses and increases their autonomy and safety in their daily lives. Due to its importance in society, TECH has developed a degree focused on this area, in order to provide complete training from preoperative evaluation to postoperative follow-up. This is based on an innovative pedagogical methodology called Relearning, which allows for dynamic learning adapted to the individual needs of each student. The program is delivered 100% online and offers flexibility in organizing academic resources.

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*Become an expert in Refractive Lens Surgery by taking this Postgraduate Certificate. Where you will learn from the hand of the best specialists in the field and you will deepen anatomy and function of the crystalline lens"*

With the aging of the population, more and more people are in need of an intervention or surgical procedure used to correct the vision of patients with cataracts or presbyopia. This has led to a growing demand for trained professionals in this field. In addition, technological advances in Refractive Lens Surgery have allowed for greater accuracy in outcomes, which has increased the importance of ongoing training in this area.

The complexity of this surgery and the need for specific training make evident the need for a Postgraduate Certificate on this subject, which is proposed and developed by TECH, in which ophthalmology professionals can be updated on the latest advances in technology and surgical techniques in order to offer their patients the best possible care.

The Postgraduate Certificate in Refractive Lens Surgery will provide participants with a solid training in lens anatomy, surgical techniques, patient selection and indication for surgery, intraocular lens calculation, selection of appropriate lenses and surgical complications. Complex and special topics such as high myopia, hyperopia and astigmatism, and how to manage uncooperative patients will also be addressed. The degree will be an excellent opportunity to update the knowledge and skills of ophthalmology professionals.

The program is offered 100% online, combining master classes, workshops and real cases. Participants will have access to state-of-the-art technology to perform intraocular lens calculations and use equipment for crystalline lens surgery. This will allow them to learn from the best practices in the field of refractive lens surgery.

This **Postgraduate Certificate in Refractive Lens Surgery** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by medical experts focused on Refractive Lens Surgery
- ♦ 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



*Learn the surgical techniques and the calculation of intraocular lenses, and discover how to manage complications and complex cases thanks to this Postgraduate Certificate in Refractive Lens Surgery"*

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*The need for specific training in Refractive Lens Surgery is evident, join the TECH Postgraduate Certificate and expand your career opportunities!"*

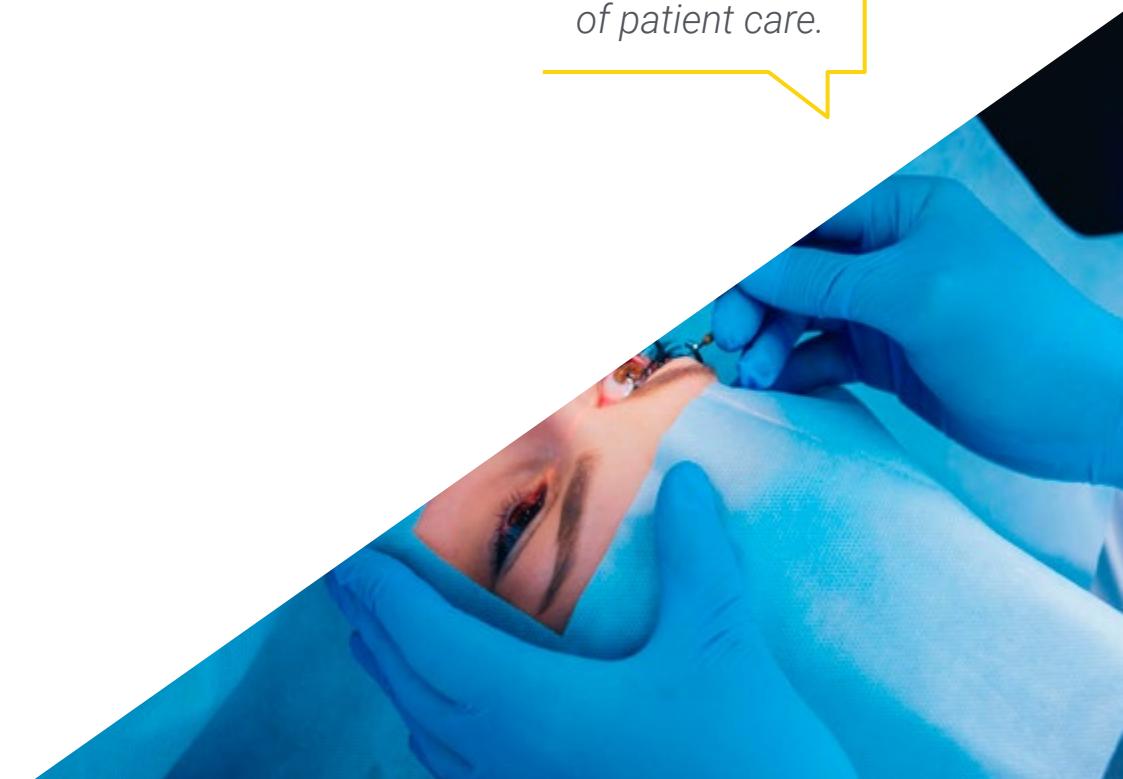
The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.

*Become an expert in Refractive Lens Surgery! Learn about the anatomy and function of the lens to take your skills to the next level.*

*This Postgraduate Certificate is an excellent opportunity to update in this area and improve the quality of patient care.*



02

# Objectives

This academic program focuses on providing students with a complete knowledge of the anatomy and function of the crystalline lens, as well as an in-depth understanding of the concept of presbyopia and the surgical techniques for its correction. In addition, it deals with the calculation and choice of intraocular lenses, and discusses possible surgical complications and complex cases. All this, with the main objective of training professionals specialized in Refractive Lens Surgery with a solid theoretical and practical training to perform safe and effective interventions, and to address any complications that may arise.



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*Face complex cases with confidence  
thanks to this Postgraduate Certificate in  
Refractive Lens Surgery. Sign up now and  
improve your surgical skills!"*



## General Objectives

- Describe the corneal morphology and function on which much of Refractive Surgery is applied
- Delve into the basic principles of optics, as well as refractive defects and their treatment possibilities
- Investigate the indications and contraindications of Refractive Surgery, as well as the algorithms used for the surgery
- Obtain an update on the studies to be performed on patients in order to correctly assess the indication for surgery
- Describe the processes of preparation for Refractive Surgery
- Deep dive into the different techniques applied on the cornea for the correction of refractive errors
- Identify the surgeries that can be performed on the crystalline lens to eliminate the patients' graduation defects
- Be aware of the different lenses that are used for this surgery without acting on the cornea or lens
- To deepen the relationship between Glaucoma and Refractive Surgery





## Specific Objectives

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- Delve into the anatomy and function of the crystalline lens
- Delve into the concept of presbyopia and why it occurs
- Describe the surgical techniques, as well as the calculation and choice of intraocular lenses
- Learn about surgical complications and complex cases

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*Learn how to calculate intraocular lenses effectively and improve your skills in Refractive Surgery with this academic program”*

03

# Course Management

TECH in its commitment to provide professionals with an elite education, has chosen a highly qualified teaching team to transmit all their knowledge to students within this Postgraduate Certificate in Refractive Lens Surgery. The training is provided by experts in the field with extensive professional experience in hospitals and specialized clinics. This ensures that the program content is up to date and based on the latest scientific research, as well as the most advanced techniques and technologies. In addition, the teaching team allows students to have a more personalized access to information, which contributes to a more complete and rigorous information in the field of Refractive Lens Surgery.



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*Don't miss the opportunity to learn from the best experts in the field and their best practices in Refractive Lens Surgery. Join this 100% online TECH University Course”*

## International Guest Director

Dr. Beeran Meghpara is an internationally renowned ophthalmologist specializing in Cornea, Cataract and Laser Refractive Surgery.

He has served as Director of Refractive Surgery and member of the Cornea Service at Wills Eye Hospital in Philadelphia, a world leading center in the treatment of eye diseases. Here, this expert has performed all forms of Corneal Transplantation, including Partial Thickness DMEK and DALK. In addition, he has extensive experience with the latest technology in Cataract Surgery, including Femtosecond Laser and Intraocular Lens Implants, which correct Astigmatism and Presbyopia. He also specializes in the use of Bladeless Custom LASIK, Advanced Surface Ablation and Phakic Intraocular Lens Surgery to help patients reduce their dependence on glasses and contact lenses.

In addition, Dr. Beeran Meghpara has excelled as a scholar by publishing numerous articles and presenting his research at local, national and international conferences, contributing to the field of Ophthalmology. Likewise, he has been honored with the prestigious Golden Apple Resident Teaching Award (2019), in recognition of his dedication to teaching residents in Ophthalmology. In addition, he has been selected by his peers as one of Philadelphia magazine's Best Doctors (2021-2024) and Best Doctor by Castle Connolly (2021), a leading research and information resource for patients seeking the best medical care.

In addition to his clinical and academic work, he has served as an ophthalmologist for the Philadelphia Phillies baseball team, underscoring his ability to handle highly complex cases. In this sense, his commitment to technological innovation, as well as his excellence in medical care, continues to raise the standards in ophthalmic practice worldwide.



## Dr. Beeran Meghpara

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- Director of the Department of Refractive Surgery at Wills Eye Hospital, Pennsylvania, United States
- Ophthalmic Surgeon at the Center for Advanced Ophthalmic Care, Delaware
- Fellow in Cornea, Refractive Surgery and External Disease at the University of Colorado
- Resident Ophthalmology Physician at Cullen Eye Institute, Texas
- Intern at St. Joseph's Hospital, New Hampshire
- Doctor of Medicine from the University of Illinois, Chicago
- Graduate of the University of Illinois, Chicago
- Selected for the Alpha Omega Alpha Medical Honor Society
- Awards: Golden Apple Resident Teaching Award (2019), Best Doctor from, Philadelphia Magazine (2021-2024), Best Doctor from Castle Connolly (2021)

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*Thanks to TECH, you will be able to learn with the best professionals in the world”*

## Management



### **Dr. Román Guindo, José Miguel**

- Ophthalmologist at Oftalvist Málaga
- Ophthalmologist at Vissum Madrid
- Ophthalmologist at Dubai International Medical Center
- Medical Director of Vissum Madrid Sur and Vissum Málaga
- Specialist in Ophthalmology at the San Carlos Clinical Hospital
- Doctor in Ophthalmology
- Degree in Medicine and Surgery General: from the Autonomous University of Madrid
- Member of the Spanish Society of Ophthalmology, International Society of Ocular Inflammation, International Society of Ocular Inflammation



### Dr. Alaskar Alani, Hazem

- Ophthalmologist at Oftalvist Málaga
- Surgical Director of Poniente University Hospital
- Head of the Ophthalmology Diseases Department, Poniente Hospital
- Specialist in Ophthalmology at the Puerta De las Nieves University Hospital
- Degree in Medicine and Surgery from the University of Valencia
- Doctor of Medicine and Surgery from the University of Almería
- Master's Degree in Health Management and Planning, European University of Madrid
- Master's Degree in Ophthalmology Medicine from Cardenal Herrera University
- Member of the European Retina Society EURETINA, SEDISA, The Spanish Society of Health Managers, Fellow of the European Board of Ophthalmology, FEBO European Society of Cataract and Refractive Surgery, ESCRS, Spanish Society of Implanto Refractive Surgery SECOIR, Andalusian Society of Ophthalmology SAO, Spanish Society of Retina and Vitreous SERV, Fellow of the European School of Retina, Surgery EVRS

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# Structure and Content

The syllabus of this degree covers a wide range of topics related to the anatomy, physiology and pathology of the lens, as well as surgical techniques and clinical aspects involved in the selection and treatment of patients. The Postgraduate Certificate begins with a review of the anatomy of the adult lens, including the capsule and epithelial cells, the lenticular mass and ciliary muscles and the zonule. It also addresses presbyopia and its various forms of treatment, including laser surgery and cataract surgery. It also discusses the different types of intraocular lenses, the formulas and methods of calculating biometry, and the selection of the right lens for each patient. This is taught 100% online and with the help of dynamic resources that the student can find within the virtual platform.



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*Through this Postgraduate Certificate in Refractive Lens Surgery you will acquire all the necessary skills and abilities to perform as a true professional in the area”*

## Module 1. Refractive Lens Surgery

- 1.1. Anatomy of the lens
  - 1.1.1. Histological/ adult lens anatomy
  - 1.1.2. Capsule and epithelial cells of the crystalline lens
  - 1.1.3. Lenticular mass
  - 1.1.4. Ciliary muscles and zonula
- 1.2. Accommodation
  - 1.2.1. Mechanisms
  - 1.2.2. Schacar's theory
  - 1.2.3. Hemlhotz theory
  - 1.2.4. New Theories
- 1.3. Presbyopia
  - 1.3.1. Aging of the crystalline lens
  - 1.3.2. Ciliary muscle atrophy
  - 1.3.3. Medical Treatment
  - 1.3.4. Surgical Management
- 1.4. Surgical techniques for the correction of Presbyopia
  - 1.4.1. Presbyopic lasik
  - 1.4.2. Monovision with lasik
  - 1.4.3. Cataract Surgery
  - 1.4.4. Clear lens surgery
- 1.5. Patient selection and indication for surgery
  - 1.5.1. Age of the Patient
  - 1.5.2. Crystalline State
  - 1.5.3. Ametropia and Presbyopia
  - 1.5.4. Emmetropic patient and Presbyopia
- 1.6. Calculation of intraocular lenses: Biometrics
  - 1.6.1. Formulas for calculation
  - 1.6.2. Bio-Meters
  - 1.6.3. Surveying and surveyors
  - 1.6.4. Tear film status





- 1.7. Selecting the right lens
  - 1.7.1. Diffractive lenses
  - 1.7.2. Refractive lenses
  - 1.7.3. Accommodative lenses and EDOF
  - 1.7.4. Patient expectations and needs
- 1.8. Surgical technique of the crystalline lens
  - 1.8.1 Anesthesia
  - 1.8.2 Surgical preparation
  - 1.8.3 Phacoemulsification
  - 1.8.4 Femtosecond surgery
- 1.9. Surgical complications
  - 1.9.1 Capsular rupture
  - 1.9.2 Corneal edema
  - 1.9.3 Endophthalmitis
  - 1.9.4 Residual defect/refractive surprise
- 1.10. Complex and special cases
  - 1.10.1 High Myopia
  - 1.10.2 High Farsightedness
  - 1.10.3 High Astigmatism
  - 1.10.4 Uncooperative patients

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*With this program you will be able to train with a high level expert group to develop the competencies you need in your professional practice in Refractive Lens Surgery”*

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# 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. Gérvás, 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

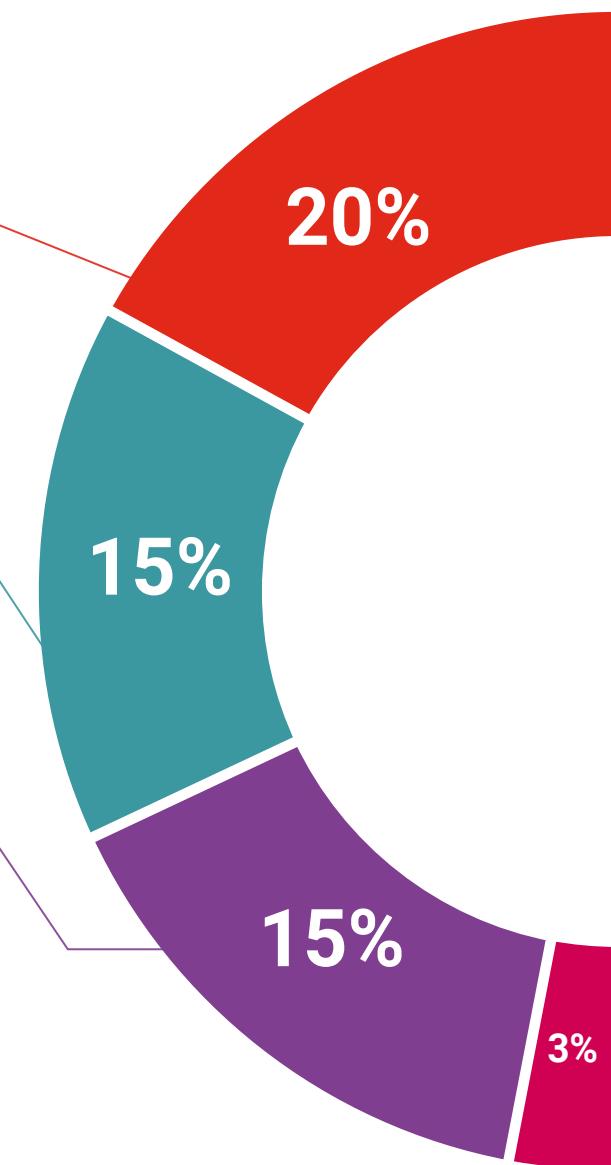
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

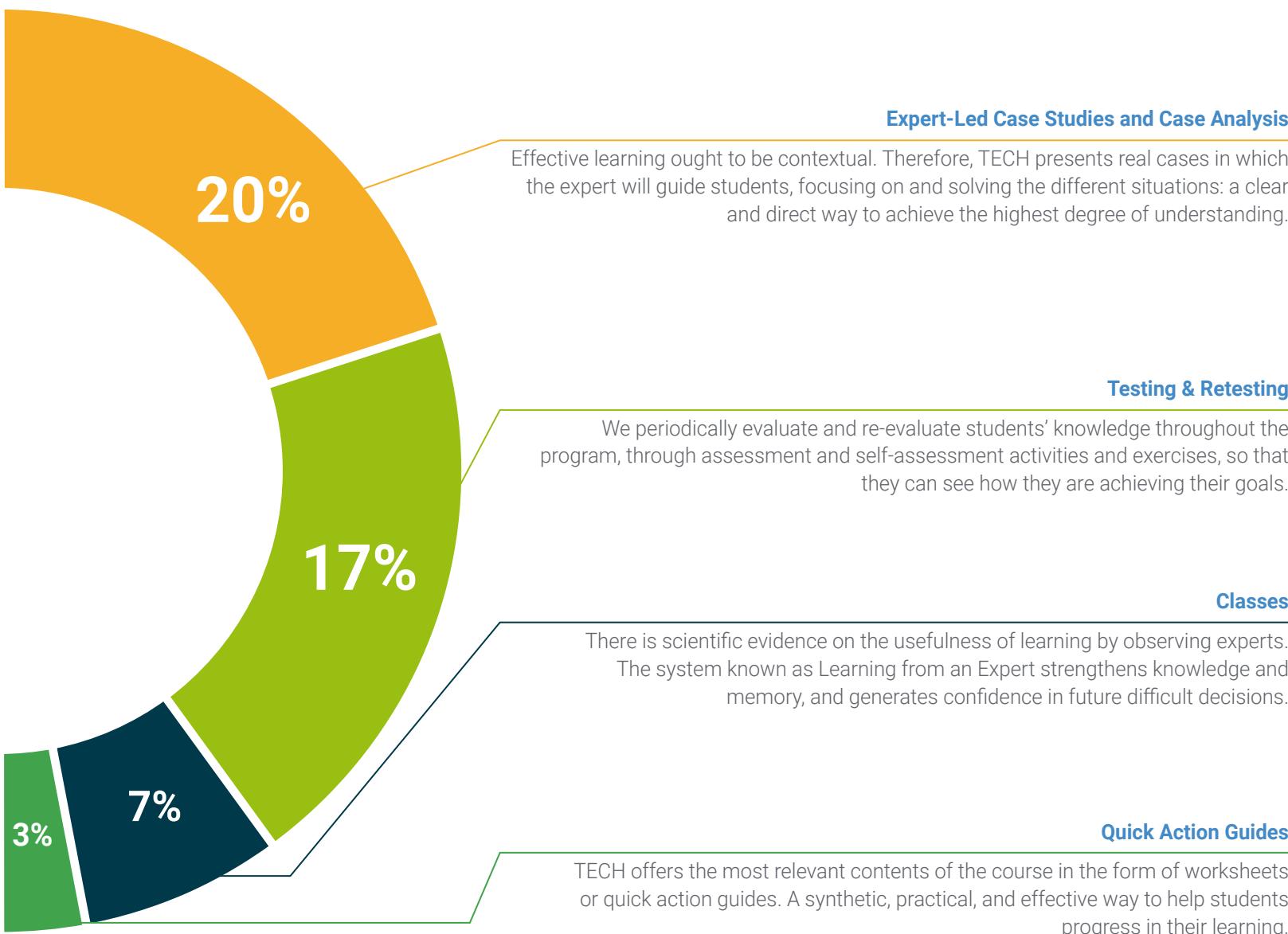
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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.





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# Certificate

The Postgraduate Certificate in Refractive Lens Surgery guarantees students, in addition to the most rigorous 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 Refractive Lens 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 Refractive Lens Surgery**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.



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## Refractive Lens Surgery

