

# Postgraduate Certificate

## Voice Anatomy, Physiology and Biomechanics



## Postgraduate Certificate Voice Anatomy, Physiology and Biomechanics

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

Website: [www.techtute.com/in/education/postgraduate-certificate/voice-anatomy-physiology-biomechanics](http://www.techtute.com/in/education/postgraduate-certificate/voice-anatomy-physiology-biomechanics)

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01

# Introduction

Knowing the anatomy, physiology and mechanics of the voice is a skill that the teaching professionals can apply in a very interesting way to their work. This Postgraduate Certificate is an advanced collection of the latest developments in this area, which will lead to an in-depth knowledge of the different contexts in which the voice requires prior treatment, support or curative or palliative intervention.





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*A program created to give teaching professionals a tool to work on the basic instrument of their work, the voice, providing them with the answers they need in this field"*

Teaching professionals require knowledge and management of their vocal apparatus, since its use is indispensable for their work.

In this sense, it is also important to know the multifactorial nature of the voice and its disorders. The changes that occur in the human voice over time are related, among other factors, to the maturation and development of the phonorespiratory system, as well as to its deterioration.

Another type of change is due to sex-related differences. There are also changes in the voice that are due to professional use and structural and functional alterations that may or may not be associated with other pathologies. All of this is evident in both normal and pathological voice.

For all these reasons, knowledge about the use of one's own voice, programs for the prevention of disorders and Voice Therapy applied to the use in different contexts, are crucial elements for the health, well-being and development of any speaker.

This type of academic education increases professionals' ability to succeed, which results in better practice and performance that will have a direct impact on their professional work, both in the teaching field and in the field of professional communication.

This program offers a very broad view of voice disorders and physiology, with examples of successful cases. It includes all the necessary and basic techniques for the preparation and re-education of the voice, taking into account the professions that use it as their main working tool, providing tools, experiences and advances in this field, which have also been guaranteed by the teaching staff of the Postgraduate Certificate, as they all work in this field. Professionals will learn based on professional experience, as well as evidence-based pedagogy, which makes student training more effective and accurate.

This **Postgraduate Certificate in Voice Anatomy, Physiology and Biomechanics** contains the most complete and up-to-date educational program on the market. The most important features include:

- ♦ Development of more than 75 practical cases presented by courses in functional and pathological assessment of the voice
- ♦ 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
- ♦ New developments in the use of functional and pathological assessment of the voice
- ♦ It contains practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Algorithm-based interactive learning system for decision-making in the situations that are presented to the student
- ♦ With special emphasis on evidence-based methodologies in functional and pathological voice assessment
- ♦ All this will be complemented with theoretical lessons, questions to the expert, discussion forums on controversial issues and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an internet connection



*Learn everything you need for the development and care of your voice as a working instrument through this comprehensive, high-quality program"*

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*A high-quality specialization that will allow you to become a highly competent professional"*

The teaching staff includes professionals belonging to the field of functional and pathological voice assessment who contribute their work experience to this program, as well as recognized specialists belonging to leading societies and prestigious universities.

Thanks to its multimedia content developed with the latest educational technology, they will allow the professionals a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to train 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 arise throughout the Postgraduate Certificate. For this purpose, professionals will be assisted by an innovative, interactive video system created by renowned and experienced professionals in the field of speech therapy with extensive teaching experience.

*A program created and directed by active professionals who are experts in this field of work, which makes this Postgraduate Certificate a unique opportunity for professional growth.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, with a high educational impact.*



# 02

# Objectives

The Postgraduate Certificate offers in detail the most relevant advances in the specialty from an eminently practical point of view, in an era in which the accreditation of knowledge plays a fundamental role.

The objective of this Postgraduate Diploma is to provide professionals with the knowledge and skills required to perform their activity using the most advanced protocols and techniques of the moment.







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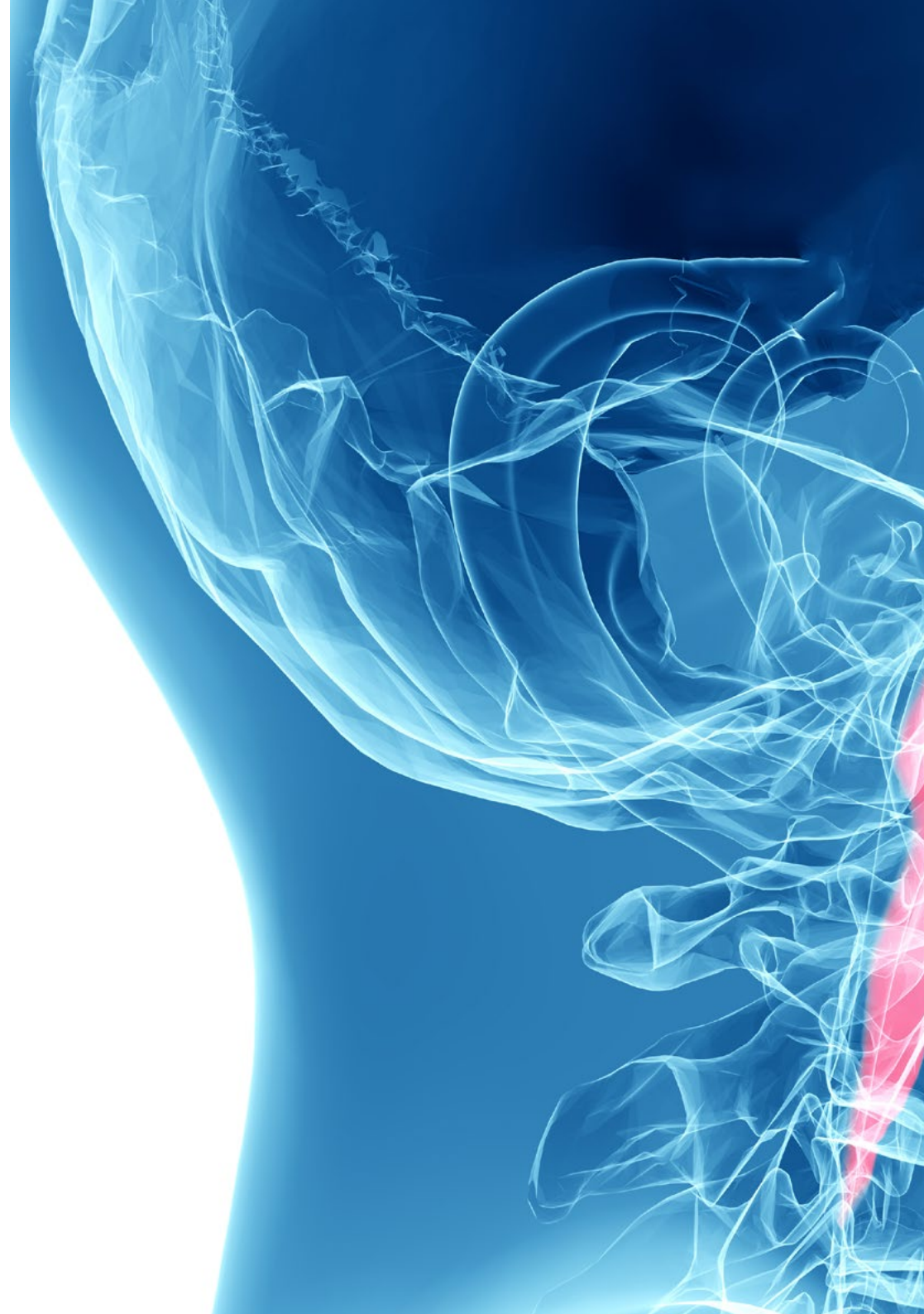
*The objectives of this program have been designed to ensure that students learn in a stimulating and fast way, incorporating what they have learned in an immediate and practical way”*



## General Objectives

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- ♦ Learn the specific anatomical and functional aspects of the phonatory system as a basis for the rehabilitation of voice disorders and for voice work with voice professionals
- ♦ Gain in-depth knowledge of the most current diagnostic and treatment techniques
- ♦ Delve into the knowledge and analysis of the results obtained in objective voice assessments
- ♦ Learn how to implement a correct and complete assessment of vocal function in daily clinical practice
- ♦ Gain knowledge about the most important features of the voice and learn to listen to different types of voices in order to know which aspects are altered to guide clinical practice
- ♦ Analyze the different possible voice disorders and achieve scientific rigor in treatments
- ♦ Learn about different approaches to the treatment of vocal pathologies
- ♦ Raise awareness of the need for vocal care
- ♦ Teach voice therapy work focused on different voice professionals.
- ♦ Learn the importance of multidisciplinary work in some voice pathologies
- ♦ View the voice as a global ability of the person and not as an exclusive act of the phonatory system
- ♦ Solve real practical cases with current therapeutic approaches based on scientific evidence





## Specific Objectives

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- ♦ Learn about the phylogenetic origin of the phonatory system
- ♦ Learn about the evolutionary development of the human larynx
- ♦ Learn the main muscles and the functioning of the respiratory system
- ♦ Learn about the main anatomical structures that make up the larynx and how they function
- ♦ Learn the histology of the vocal cords
- ♦ Analyze the vibratory cycle of the vocal cords
- ♦ Analyze the different structures and cavities that form the vocal tract
- ♦ Study the different theories that have given answers to how voice is produced
- ♦ Study the characteristics of phonatory physiology and its main components
- ♦ Gain in-depth knowledge of the different exploratory tests used in the morphofunctional exploration of the larynx
- ♦ Learn about the instruments needed to perform a morphofunctional assessment of the phonatory system



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

03

# Course Management

Within the concept of total quality of the Postgraduate Certificate, TECH is proud to offer students a teaching staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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

## Guest Director



### Mr. Gavilán, Javier

- ♦ Head of Service and Professor of Otorhinolaryngology at La Paz University Uospital Madrid
- ♦ 350 articles in international scientific journals
- ♦ Recipient of the Honor Award from the American Academy of Otolaryngology-HNS
- ♦ Member of more than 25 Scientific Societies

## Co-Direction



### Ms. Martín Bielsa, Laura

- ♦ Speech therapist and teacher
- ♦ Expert in voice pathology
- ♦ Director of Multidisciplinary Center Dime Más
- ♦ CFP *Estill Voice Training*
- ♦ Extensively trained in different methods of vocal rehabilitation
- ♦ Dean of the Professional Association of Speech-Language Pathologists of Aragon



## Professors

### Ms. Ogén Morado, Carolina

- ♦ ENT Service at La Paz university hospital. Madrid
- ♦ Postgraduate course in rehabilitation and improvement of the professional speaking and singing voice Institute of Human Sciences-University of Alcalá de Henares Madrid
- ♦ Postgraduate course in voice pathology Institute of Human Sciences-University of Alcalá de Henares Madrid
- ♦ Graduate in Teaching, specializing in Hearing and Language, University of La Coruña
- ♦ Postgraduate course in Hearing and Language Disorders at the University of La Coruña
- ♦ Diploma in Speech Therapy from the University of La Coruña

### Dr. García-López, Isabel

- ♦ PhD in Medicine and Surgery from the Autonomous University of Madrid.
- ♦ Medical Specialist in Otorhinolaryngology with specific training and dedication to Voice Pathology
- ♦ General Vice-Secretary of the Spanish Society of Otorhinolaryngology and Head and Neck Surgery
- ♦ Lecturer in the postgraduate course on Voice Disorders at the Ramon Llul University of Barcelona
- ♦ Professor of the Master's Degree in Voice Disorders at the Catholic University of Murcia
- ♦ Member of the main scientific societies in the world related to voice: Voice Foundation, Collegium Medicorum Theatri, European Society of Laryngology, International Association of Phonosurgery and Spanish Society of Otorhinolaryngology and Head and Neck Surgery
- ♦ Otorhinolaryngology Department, La Paz hospital, Madrid

**Dr. Bernáldez Millán, Ricardo**

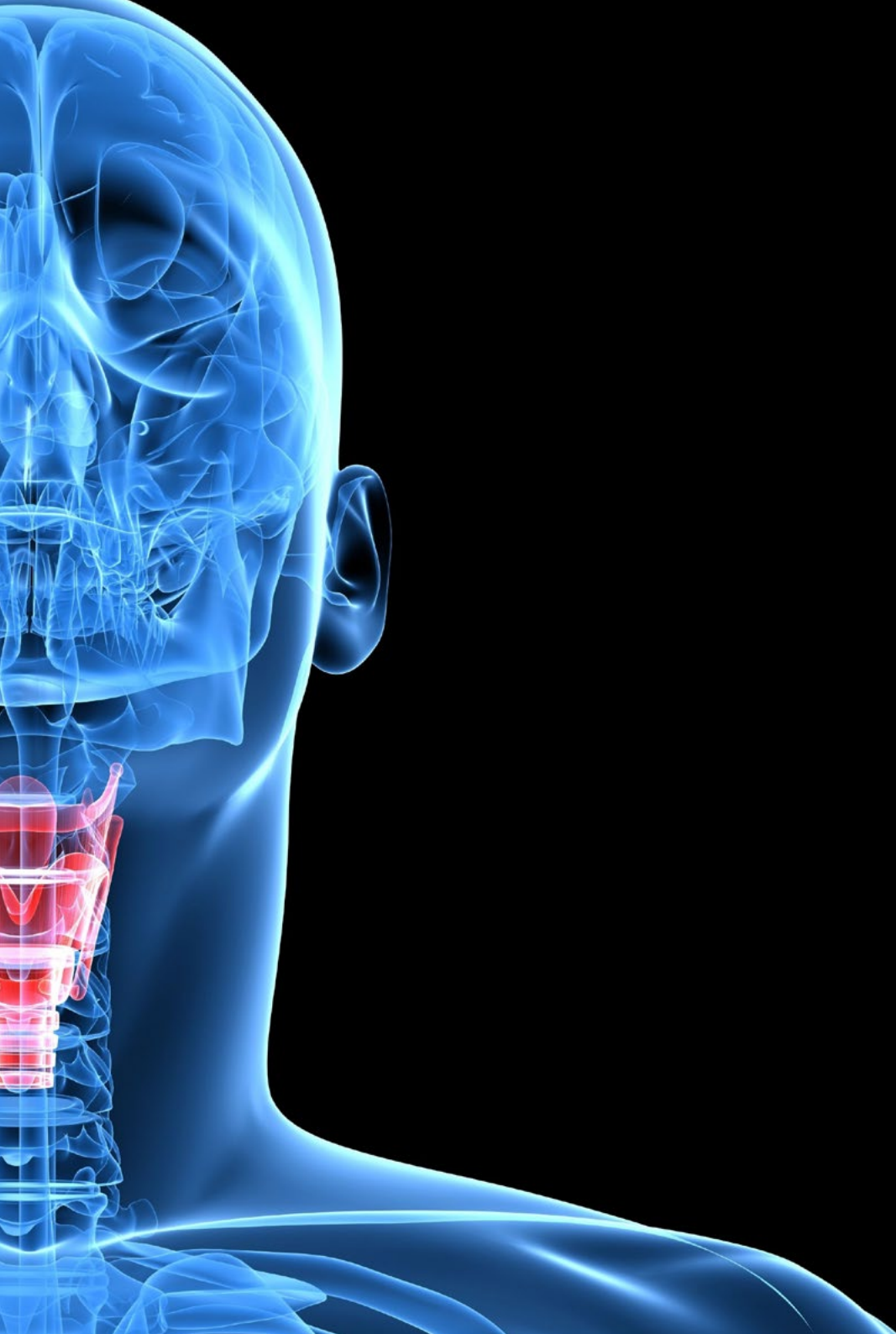
- ♦ ENT Assistant in the specialty of Otorhinolaryngology at La Paz university hospital, La Paz
- ♦ PhD in Medicine and Surgery from the Autonomous University Madrid
- ♦ Teaching collaborator for the subject of Otorhinolaryngology at the Faculty of Medicine of the UAM
- ♦ More than 30 ENT-related publications in scientific journals
- ♦ Author of 15 book chapters on Otolaryngology
- ♦ Specialized in Head and Neck Surgery

**Dr. Rivera Schmitz, Teresa**

- ♦ Head and Neck Department of La Paz university hospital. Madrid
- ♦ Specialized in Laryngology
- ♦ Degree in Medicine and Surgery
- ♦ She studied at the Autonomous University of Madrid and completed her residency at the Unversiy Hospital Complex of Vigo
- ♦ Fellowship at the Bradford Royal Infirmary Hospital in the United Kingdom, in the field of Otology
- ♦ She has published several articles as author or co-author and has participated in some book chapters and papers in recent years In addition, she has participated in lectures and courses as a speaker in the field of voice and dysphagia







**Ms. Pozo García, Susana**

- ♦ Physiotherapist
- ♦ Director of the Fisyos Center in Andorra
- ♦ Specialist in Osteopathy Extensive training and clinical experience in myofascial induction, dry needling and lymphatic drainage
- ♦ Internship tutor at the Health Sciences University School of Zaragoza

**Mr. Fernández Peñarroya, Raúl**

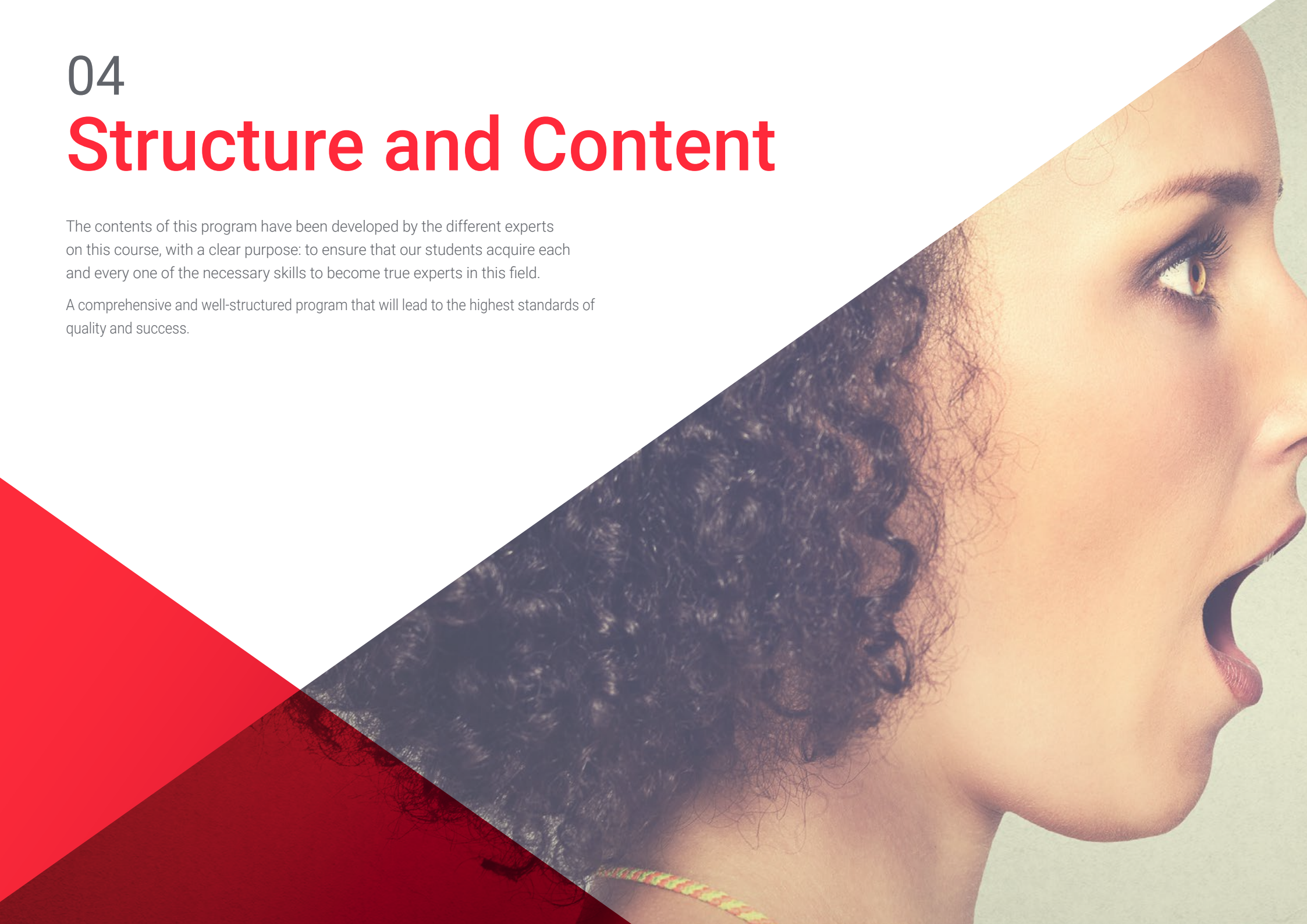
- ♦ Director of the Fisyos center in Andorra
- ♦ Physiotherapist with extensive training in Rehabilitation
- ♦ Manual therapy, fascial treatment and dry needling
- ♦ Research activity on aspects of physiotherapy treatment in Parkinson's disease

04

# Structure and Content

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

A comprehensive and well-structured program that will lead to the highest standards of quality and success.





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*This Postgraduate Certificate in Voice Anatomy, Physiology and Biomechanics contains the most complete and up-to-date program on the market”*

**Module 1. Anatomical, Physiological and Biomechanical Fundamentals of the Voice**

- 1.1. Laryngeal Phylogeny and Embryology
  - 1.1.1. Laryngeal Phylogeny
  - 1.1.2. Laryngeal Embryology
- 1.2. Basic Concepts of Physiology
  - 1.2.1. Muscle Tissue
  - 1.2.2. Types of Muscle Fibers
- 1.3. Respiratory System Structures
  - 1.3.1. Chest
  - 1.3.2. Airways
- 1.4. Respiratory System Musculature
  - 1.4.1. Inspiratory Muscles
  - 1.4.2. Expiratory Muscles
- 1.5. Physiology of the Respiratory System
  - 1.5.1. Respiratory System Function
  - 1.5.2. Lung Capacities and Volumes
  - 1.5.3. Lung Nervous System
  - 1.5.4. Resting Breathing vs. Breathing in Phonation
- 1.6. Laryngeal Anatomy and Physiology
  - 1.6.1. Laryngeal Skeleton
  - 1.6.2. Laryngeal Cartilages
  - 1.6.3. Ligaments and Membranes
  - 1.6.4. Joints
  - 1.6.5. Musculature
  - 1.6.6. Vascularization
  - 1.6.7. Laryngeal Innervation
  - 1.6.8. Lymphatic System
- 1.7. Structure and Function of the Vocal Cords
  - 1.7.1. Histology of the Vocal Cords
  - 1.7.2. Biomechanical Properties of the Vocal Cords
  - 1.7.3. Phases of the Vibration Cycle
  - 1.7.4. Fundamental Frequency



- 1.8. Anatomy and Physiology of the Vocal Tract
  - 1.8.1. Nasal Cavity
  - 1.8.2. Oral Cavity
  - 1.8.3. Laryngeal Cavity
  - 1.8.4. Linear and Non-Linear Source and Filter Theory
- 1.9. Voice Production Theory
  - 1.9.1. Historical Recap
  - 1.9.2. Ewald's Primitive Myoelastic Theory
  - 1.9.3. Husson's Neurochronoxic Theory
  - 1.9.4. Completed Mucocondulatory Theory and Aerodynamic Theory
  - 1.9.5. Neurooscillatory Theory
  - 1.9.6. Oscillo-Impedial Theory
  - 1.9.7. Mass-Spring Models
- 1.10. The Physiology of Phonation
  - 1.10.1. Neurological Control of Phonation
  - 1.10.2. Pressure
  - 1.10.3. Thresholds
  - 1.10.4. Beginnings and Endings of the Vibration Cycle
  - 1.10.5. Laryngeal Adjustments for Phonation



*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"*

05

# Methodology

This training program offers 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 Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

*With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.*



*It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.*



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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. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
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.

Our University is the first in the world to combine case studies 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.



*Educators 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 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 we have trained more than 85,000 educators with unprecedented success in all specialties. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*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 our 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 specialist educators who teach the course, specifically for the course, so that the teaching content is really 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.



#### Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, 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

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 multimedia content presentation training Exclusive system 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 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 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 Voice Anatomy, Physiology and Biomechanics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 Certificate in Voice Anatomy, Physiology and Biomechanics** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the **Postgraduate Certificate**, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Voice Anatomy, Physiology and Biomechanics**  
Official N° of Hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate 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  
development languages  
virtual classroom



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