

# Postgraduate Certificate Ventilatory Parameters in NIMV





## Postgraduate Certificate Ventilatory Parameters in NIMV

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

Website: [www.techtute.com/in/medicine/postgraduate-certificate/ventilatory-parameters-nimv](http://www.techtute.com/in/medicine/postgraduate-certificate/ventilatory-parameters-nimv)

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# 01

# Introduction

Making a detailed adjustment of ventilatory parameters is essential to ensure the effectiveness of NIMV application and preserve the physical well-being of patients with complex respiratory difficulties. Therefore, strategies for optimization are constantly under study and development, requiring physicians to stay up-to-date in this field to avoid falling behind in the evolution of their industry. As a result, TECH has created this program, through which specialists will learn about the latest advances in adjusting pressure, volume, flow,  $T_i/T_{tot}$ , and inspiratory and expiratory flow control. Additionally, they will be updated through a 100% online mode that allows them to balance their studies with their daily tasks.





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*The Postgraduate Certificate in Ventilatory Parameters in NIMV will allow you to explore the latest developments in pressure, volume, flow, and  $T_i/T_{tot}$  adjustment”*



Ventilatory parameters play a crucial role in the application of NIMV, providing valuable information about the interaction between the patient and the ventilator that helps optimize ventilation and ensure the individual's comfort. As a result, recent scientific research has focused on finding cutting-edge techniques for their adjustment, which streamlines the recovery process for patients with different respiratory conditions. Therefore, staying up-to-date in this area is essential for pulmonologists who wish to remain at the professional forefront.

That is why TECH has designed this Postgraduate Certificate, through which the physician will receive an excellent update on Ventilatory Parameters in NIMV. Over 150 hours of intensive study, they will identify the recent recommendations regarding the adjustment of pressure, volume, flow,  $T_i/T_{tot}$ , as well as trigger management. Additionally, they will delve into patient-ventilator synchronization and cutting-edge strategies for addressing alarms.

All of this, using an innovative 100% online methodology that allows the student to complete their update without having to give up their daily personal and professional commitments. Likewise, they will have access to top-notch educational content available in modern formats such as explanatory videos, interactive summaries, or real case simulations. Thanks to this, they will enjoy dynamic and highly effective learning.

This **Postgraduate Certificate in Ventilatory Parameters in NIMV** 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 experts in Non-Invasive Mechanical Ventilation
- ♦ 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, throughout this academic experience, the state-of-the-art mechanisms to carry out the management of alarms in Non-Invasive Mechanical Ventilation"*

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*Do you want to update yourself remotely and without having to give up your daily obligations? This Postgraduate Certificate is designed for you!”*

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Position yourself as a cutting-edge pulmonologist in just 6 weeks and enjoying the best study facilities in the educational environment.*

*Thanks to this program, you will review the latest indications and contraindications of NIMV in Chronic, Acute Hypoxemic and Global Respiratory Failure.*



# 02 Objectives

TECH has designed this Postgraduate Certificate with the aim of facilitating the specialist's update process regarding Ventilatory Parameters in NIMV. In just 6 weeks of study, you will delve into the latest recommendations for their adjustment, as well as methods for selecting the most appropriate interfaces for each patient. This learning will be preserved through the achievement of the following general and specific objectives.







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*Deepen in the recent scientific evidence on Ventilatory Parameters in NIMV thanks to this Postgraduate Certificate”*



## General Objectives

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- Understand the importance and role of Non-Invasive Mechanical Ventilation in the treatment of acute and chronic respiratory pathologies
- Acquire knowledge of the updated indications and contraindications for the use of Non-Invasive Mechanical Ventilation, as well as the different types of devices and ventilation modes
- Develop skills and competencies in monitoring patients with Non-Invasive Mechanical Ventilation, including data interpretation and the detection and prevention of complications
- Explore cutting-edge technologies used in the telemonitoring of patients with Non-Invasive Mechanical Ventilation and the ethical and legal aspects related to its use
- Delve into the key differences in Non-Invasive Mechanical Ventilation in Pediatrics
- Delve your understanding of the ethical aspects related to the management of patients requiring NIV







## Specific Objectives

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- Define and clarify the terminology and basic concepts of NIMV
- Describe the different ventilation modes used in NIMV, including spontaneous, assisted, and controlled modes
- Identify the different types of interfaces used in NIMV, explaining their selection and adjustment
- Explore the various alarms and patient safety measures in NIMV
- Identify suitable patients for NIMV and explain parameter initiation and adjustment strategies based on patient progress



*Through this certificate, you will identify sophisticated strategies for selecting the interface that best suits each patient's needs"*

03

# Course Management

To preserve the excellent educational quality that is characteristic of TECH's programs, specialists who are experts in the field of Pulmonology have been selected to teach this Postgraduate Certificate. Since these professionals, with extensive experience in Non-Invasive Mechanical Ventilation, are responsible for creating the educational resources for this qualification, all the knowledge that the student will acquire will maintain complete applicability in their daily practice.





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*The teaching staff for this qualification is comprised of active experts in Non-Invasive Mechanical Ventilation to provide you with the most cutting-edge knowledge regarding its use”*

## Management



### Dr. Landete Rodríguez, Pedro

- Head of the Intermediate Respiratory Care Unit at Emergencias Enfermera Isabel Zendal Hospital
- Coordinator of the Basic Ventilation Unit at La Princesa University Hospital
- Pulmonologist at La Princesa University Hospital
- Pulmonologist at Blue Healthcare
- Researcher in various research groups
- Professor in undergraduate and postgraduate university studies
- Author of numerous scientific publications in international journals and contributor to several book chapters
- Speaker at international medical congresses
- Doctor Cum Laude from the Autonomous University of Madrid



## Professors

### Dr. Rodríguez Jerez, Francisco

- ◆ Pulmonologist at HUCSC
- ◆ Coordinator of the Intermediate Respiratory Care Unit at the Hospital Universitario Clínico San Cecilio
- ◆ Coordinator of the Non-Invasive Mechanical Ventilation Unit at the Hospital Universitario Central de Asturias
- ◆ Senior Specialist of the Pulmonology Service at the Hospital Universitario Clínico San Cecilio
- ◆ Teacher in undergraduate studies related to Health Sciences
- ◆ Coordinator of the NIMV and IRCU Skills Course at the Hospital Universitario Clínico San Cecilio
- ◆ Member of the Sleep and Ventilation Working Group of the Spanish Society of Pulmonology and Thoracic Surgery
- ◆ Reviewer for the Respiratory Care and BRNreview journals



# 04

## Structure and Content

The syllabus of this Postgraduate Certificate has been designed to ensure the pulmonologist's update regarding the use of Non-Invasive Mechanical Ventilation. They will delve into recent findings on the adjustment of pressure, volume, flow, and  $Ti/T_{tot}$  parameters, through educational content available in a wide range of textual and multimedia formats. In this way, you will have a versatile, solution-oriented, and entirely online study experience.







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*TECH's Relearning method allows you to study and delve into key concepts at your own pace of learning”*

## Module 1. Non-Invasive Mechanical Ventilation and Adjustment of Ventilatory Parameters in Non-Invasive Mechanical Ventilation

- 1.1. NIV
  - 1.1.1. Terminology in NIV
  - 1.1.2. What Each Parameter Used in NIMV Measures
- 1.2. Indications and Contraindications
  - 1.2.1. Indications in Acute Hypoxemic Respiratory Failure
  - 1.2.2. Indications in Acute Global/Hypercapnic Respiratory Failure
  - 1.2.3. Indications in Chronic Respiratory Failure
  - 1.2.4. Other Indications for NIMV
  - 1.2.5. Contraindications for NIMV
- 1.3. Ventilatory Modes
  - 1.3.1. Spontaneous Mode
  - 1.3.2. Assisted Mode
  - 1.3.3. Controlled Mode
- 1.4. Interfaces: Types, Selection, and Adjustment
  - 1.4.1. Face Mask
  - 1.4.2. Nasal Mask
  - 1.4.3. Oral Interface
  - 1.4.4. Oro-Nasal Interface
  - 1.4.5. Helmet
- 1.5. Ventilatory Parameters: Pressure, Volume, Flow, and  $T_i/T_{tot}$ 
  - 1.5.1. Adjustment of Inspiratory and Expiratory Pressure
  - 1.5.2. Adjustment of Respiratory Rate
  - 1.5.3. Adjustment of  $T_i/T_{tot}$
  - 1.5.4. Adjustment of PEEP
  - 1.5.5. Adjustment of  $FiO_2$
- 1.6. Respiratory Cycles and Trigger
  - 1.6.1. Adjustment of Trigger and Ventilator Sensitivity
  - 1.6.2. Adjustment of Tidal Volume and Inspiratory Time
  - 1.6.3. Adjustment of Inspiratory and Expiratory Flow





- 1.7. Patient-Ventilator Synchronization
  - 1.7.1. Trigger Delay
  - 1.7.2. Auto-Trigger
  - 1.7.3. Ineffective Inspiratory Efforts
  - 1.7.4. Inspiratory Time Mismatch Between Patient and Ventilator
  - 1.7.5. Double Trigger
- 1.8. Alarms and Patient Safety
  - 1.8.1. Types of Alarms
  - 1.8.2. Alarm Management
  - 1.8.3. Patient Security
  - 1.8.4. Evaluation of NIMV Effectiveness
- 1.9. Patient Selection and Initiation Strategies
  - 1.9.1. Patient Profile
  - 1.9.2. Initial Parameters for Acute Patients on NIMV
  - 1.9.3. Initial Parameters for Chronic Patients
  - 1.9.4. Parameter Adjustment Based on Progress
- 1.10. Evaluation of Patient Tolerance and Adaptation to Non-Invasive Mechanical Ventilation
  - 1.10.1. Criteria for a Good Clinical Response
  - 1.10.2. Criteria for a Poor Clinical Response
  - 1.10.3. Adjustments to Improve Tolerance
  - 1.10.4. Tips for Enhancing Adaptation



*Enroll in this program to obtain the most updated knowledge on Ventilatory Parameters in NIMV"*



05

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.







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

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.





## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

*Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

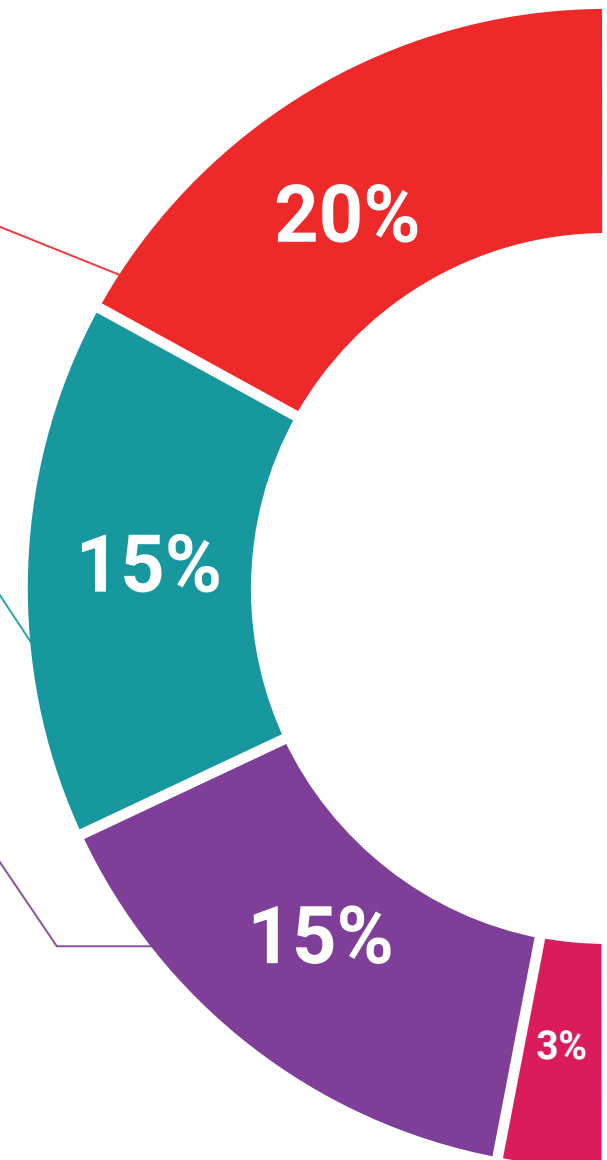
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.







#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

The Ventilatory Parameters in NIMV 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 Ventilatory Parameters in NIMV** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate 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 Ventilatory Parameters in NIMV**

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.



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