

# Postgraduate Certificate Non-Invasive Mechanical Ventilation in Pediatrics for Nursing





## Postgraduate Certificate Non-Invasive Mechanical Ventilation in Pediatrics for Nursing

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

Website: [www.techtute.com/us/nursing/postgraduate-certificate/non-invasive-mechanical-ventilation-pediatrics-nursing](http://www.techtute.com/us/nursing/postgraduate-certificate/non-invasive-mechanical-ventilation-pediatrics-nursing)

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# 01

# Introduction

In recent years, there has been a significant increase in the number of children suffering from chronic respiratory diseases. This phenomenon has driven the constant evolution of NIMV techniques to treat these conditions, as well as the care of young patients who have been subjected to it, in order to improve their quality of life. Therefore, it is essential for nurses to keep up to date in the management of Non-Invasive Mechanical Ventilation in Pediatrics in order to position themselves at the forefront of healthcare. Because of this, TECH has created this program, which will provide the student with the best advances in this clinical field. In addition, you will do it under a 100% online format that will allow you to balance your daily tasks with your studies.







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*Thanks to TECH, you will update your knowledge in Non-Invasive Mechanical Ventilation and delve into the key differences between its application in adults and pediatric patients"*

The implementation of NIMV in pediatric patients has undergone remarkable improvements in recent times thanks to the improvement of the tools used for its administration. In this way, modern interfaces, designed specifically for children, are better adjusted to their needs and provide greater comfort during the assisted ventilation process. In addition, state-of-the-art ventilators are adapted to provide more individualized and effective care, contributing positively to the recovery of the child. Therefore, it is essential for nurses to be up to date on the use of Non-Invasive Mechanical Ventilation in Pediatrics in order to provide state-of-the-art care to their patients.

For this reason, TECH has developed this program, through which the student will obtain the most cutting-edge knowledge on the application of NIMV in children. During 6 weeks of study, students will identify the cutting-edge techniques for the adjustment of Non-Invasive Mechanical Ventilation in Pediatrics or the sophisticated strategies to manage the complications derived from its use.

Since the program will be offered in a 100% online format, students will benefit from a variety of multimedia resources, such as specialized videos and simulations of real cases. Likewise, they will enjoy the teaching content at any time and place, as long as they have a device with an Internet connection.

This **Postgraduate Certificate in Non-Invasive Mechanical Ventilation in Pediatrics for Nursing** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ♦ The development of practical cases presented by specialists in Pulmonology
- ♦ The graphic, schematic, and practical contents which provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out 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



*Identify, through this program, the state-of-the-art procedures to manage complications derived from NIMV in Pediatrics”*

“

*Throughout this program, you will learn the up-to-date techniques to adjust the ventilatory parameters of NIMV in children"*

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 course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Enjoy a study plan designed by the best specialists in the use of NIMV in Pediatrics.*

*Update yourself professionally in a 100% online way and without giving up your daily tasks.*



# 02 Objectives

This program has been developed with the main objective of guaranteeing an update of the nurse in the field of Non-Invasive Mechanical Ventilation in Pediatrics. Through this program, the professional will delve into advanced techniques for monitoring the pediatric patient and the configuration of ventilatory parameters. All this, in only 6 weeks and through the best educational methodology in the market.







“

Thanks to this program, you will learn the state-of-the-art techniques for monitoring pediatric patients undergoing NIMV”



## 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
- ◆ Get to know the most recent indications and contraindications for the use of Non-Invasive Mechanical Ventilation, as well as the different types of devices and modes of ventilation
- ◆ Acquire skills and competences in the monitoring of the patient with Non-Invasive Mechanical Ventilation, including the interpretation of the data obtained and the detection and prevention of complications
- ◆ Learn about the state-of-the-art technologies used in the telemonitoring of patients with Non-Invasive Mechanical Ventilation and the ethical and legal aspects related to their use
- ◆ Delve into the main differences in Non-Invasive Mechanical Ventilation in Pediatrics
- ◆ Delve into the ethical aspects related to the management of patients requiring NIMV





## Specific Objectives

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- ◆ Understand the physiological and anatomical differences between pediatric and adult patients in terms of Non-Invasive Mechanical Ventilation
- ◆ Get to know the indications and contraindications of Non-Invasive Mechanical Ventilation in Pediatrics
- ◆ Correctly adjust Non-Invasive Mechanical Ventilation in Pediatrics according to the individual needs of the patient
- ◆ Delve into the most up-to-date techniques for monitoring and adjustment of Non-Invasive Mechanical Ventilation in Pediatrics
- ◆ Manage the main pediatric respiratory pathologies requiring Non-Invasive Mechanical Ventilation based on the latest scientific evidence



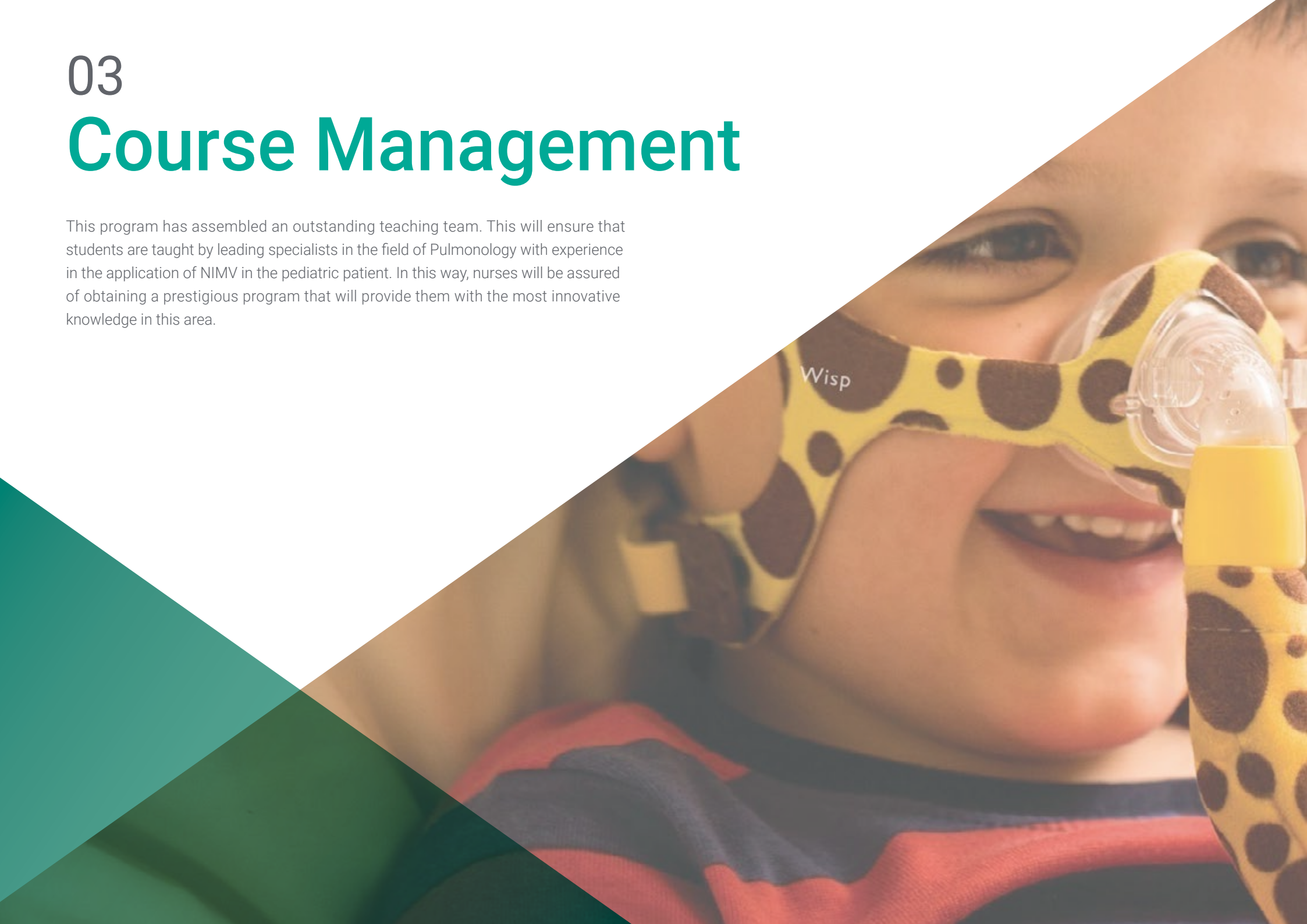
*Incorporate the latest advances in Non-Invasive Mechanical Ventilation in Pediatrics into your healthcare practice in only 180 hours"*



03

# Course Management

This program has assembled an outstanding teaching team. This will ensure that students are taught by leading specialists in the field of Pulmonology with experience in the application of NIMV in the pediatric patient. In this way, nurses will be assured of obtaining a prestigious program that will provide them with the most innovative knowledge in this area.





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*This teaching staff is made up of experts in NIMV for Pediatrics who have practiced in leading international hospitals”*

## International Guest Director

With a relevant trajectory in the field of Pulmonology and Clinical Research, Dr. Maxime Patout distinguishes himself as an internationally renowned physician and scientist. As such, his involvement and contribution have led him to position himself as Clinical Director in Public Assistance in prestigious hospitals in Paris, standing out for his leadership in the management of Complex Respiratory Diseases. With this, it is worth mentioning his work as Coordinator of the Department of Functional Explorations of Breathing, Exercise and Dyspnea at the famous Hospital de la Pitié-Salpêtrière.

In the field of Clinical Research, Dr. Patout has made valuable contributions in leading areas such as Chronic Obstructive Pulmonary Disease, Lung Cancer and Respiratory Physiology. Accordingly, in his role as a Research Fellow at Guy's and St Thomas' NHS Foundation Trust, he has conducted groundbreaking studies that have expanded and improved the treatment options available to patients.

In this line, his versatility and leadership as a physician give him a vast experience in fields such as Biology, Physiology and Pharmacology of Circulation and Respiration. Therefore, he stands out as a renowned specialist in the Pulmonary and Systemic Diseases unit. In addition, his recognized competence in the Anti-Infectious Chemotherapy unit also places him as an outstanding reference in the field, being a regular advisor to future health professionals.

For all these reasons, his outstanding expertise in the field of Pulmonology has led him to be an active member of prestigious international organizations such as the European Respiratory Society and the French-Language Society of Pneumology, where he continues to contribute to scientific progress. So much so, that he shows an active participation in symposiums that enhance his medical excellence and constant updating in his field.



## Dr. Patout, Maxime

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- Clinical Director in Public Care at the Salpêtrière Hospital, Paris, France
- Clinical Research Fellow at Guy's and St Thomas' NHS Foundation Trust
- Coordinator of the Breathing, Exercise and Dyspnea Functional Examination
- Service at the Pitié-Salpêtrière Hospital
- Doctor of Medicine, University of Rouen
- Master's Degree in Biology, Physiology and Pharmacology of the Circulation and Respiration at the University of Paris
- University Expert in Pulmonary and Systemic Diseases from the University of Lille
- University Expert in Anti-infectious Chemotherapy, University of Rouen
- Medical Specialist in Pulmonology from the University of Rouen
- Member of: European Respiratory Society, French-language Society of Pneumology



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

## Management



### Dr. Landete Rodríguez, Pedro

- ♦ Co-coordinator of the Basic Ventilation Department at La Princesa University Hospital
- ♦ Pulmonologist at La Princesa University Hospital
- ♦ Pulmonologist at Blue Healthcare
- ♦ Researcher in several research groups
- ♦ Professor in undergraduate and postgraduate university studies
- ♦ Author of numerous scientific publications in international journals and participant in several book chapters
- ♦ Speaker at international medical congresses
- ♦ Doctor Cum Laude by the Autonomous University of Madrid

## Professors

### Dr. Bascuas Arribas, Marta

- ♦ Specialist Pediatrician
- ♦ Specialist in Pediatric Pulmonology at the Children's University Hospital Niño Jesús
- ♦ Member of the Mucopolysaccharidosis Committee of the Children's University Hospital Niño Jesús
- ♦ Author of several scientific publications related to her specialty





The image shows a medical ventilator control panel with a tablet displaying patient data and waveforms. The tablet screen is divided into several sections:

- Top Left:** Patient name "Neyün" and DTS logo. Date and time: "lun, jul. 13 2020 18:42:54".
- Top Right:** A bell icon for alerts.
- Center:** Three waveforms: "PRESION [cmH2O]" (orange), "FLUJO [ml]" (green), and "VOLUMEN [ml]" (blue).
- Bottom Left:** A table of vital signs:

21.5	P.plat [cmH2O]
16.5	DP [cmH2O]
22.5	Crs [ml/cmH2O]
9.4	Raw [cmH2O/L/s]
- Bottom Right:** A list of respiratory parameters:

25.2	P.peak [cmH2O]
10.3	P.M [cmH2O]
4.9	PEEP [cmH2O]
400	Vi [ml]
406	Ve [ml]
8.1	V.M [L/min]
29.4	F.M [L/min]
21	FiO2 [%]
20	FR [resp/min]
1: 1.9	I : E
- Far Right:** A control panel with buttons for "CONFIR", "CANCELAR", and "SILENCIAR". It also shows "Modo: VCV" and other settings like "P.peak: 40", "PEEP: 5", "VT: 400", "FR: 20", and "I:E: 1: 2.0".

# 04

## Structure and Content

The syllabus of this program allows the nurse to delve into the most relevant and up-to-date aspects of Non-Invasive Mechanical Ventilation in Pediatrics. The educational materials available throughout this Postgraduate Certificate are presented in different multimedia formats, such as interactive summaries and specialized readings. Thanks to these resources and its 100% online teaching methodology, the student will receive a personalized and effective update.







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*With TECH's Relearning method, you will reduce study hours and strengthen your long-term understanding of new knowledge"*

## Module 1. Non-Invasive Mechanical Ventilation in Pediatrics

- 1.1. Monitoring of the Patient's Vital Signs
  - 1.1.1. Pulmonary Physiology in the Pediatric Patient
  - 1.1.2. Main Differences in the Management of the Pediatric Airway
  - 1.1.3. Common Respiratory Pathologies in Pediatrics requiring NIMV
  - 1.1.4. Management of Patient Collaboration in Pediatric NIMV
- 1.2. Indications and Contraindications for Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.2.1. Indications for NIMV in Pediatrics
  - 1.2.2. Absolute Contraindications for NIMV in Pediatrics
  - 1.2.3. Relative Contraindications for NIMV in Pediatrics
- 1.3. Equipment and Modes of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.3.1. Modes of NIMV in Pediatrics
  - 1.3.2. Ventilatory Support Equipment in Pediatrics
  - 1.3.3. Accessories and Circuits for Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.3.4. Monitoring and Adjustment of Ventilation in Pediatrics
- 1.4. Adjustment of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.4.1. Adjustment of the Support and PEEP Pressures
  - 1.4.2. Air Flow Adjustment
  - 1.4.3. Adjustment of Respiratory Rate
  - 1.4.4. Inspiratory Time Setting
- 1.5. Monitoring and Setting of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.5.1. Clinical Assessment
  - 1.5.2. Assessment of Arterial Blood Gas Analysis
  - 1.5.3. Pulse Oximetry Assessment
  - 1.5.4. Capnography Assessment
- 1.6. Non-Invasive Mechanical Ventilation in Pediatric Respiratory Pathologies
  - 1.6.1. Prematurity
  - 1.6.2. Bronchiolitis
  - 1.6.3. Cystic fibrosis
  - 1.6.4. Bronchopulmonary Dysplasia
  - 1.6.5. Neonatal Respiratory Insufficiency
  - 1.6.6. Tracheostomy
  - 1.6.7. Neuromuscular Diseases
  - 1.6.8. Disconnections for Orotracheal Intubation







- 1.7. Interfaces in Pediatric Patient NIMV
  - 1.7.1. Nasal Mask
  - 1.7.2. Oronasal Mask
  - 1.7.3. Facial Mask
  - 1.7.4. Helmet
  - 1.7.5. Special Considerations in the use of NIMV Interfaces in Pediatrics
- 1.8. Complications of Non-Invasive Mechanical Ventilation in Pediatrics
  - 1.8.1. Pneumothorax
  - 1.8.2. Hypotension
  - 1.8.3. Hypoxemia
  - 1.8.4. Desaturation during Removal of the Support
- 1.9. Home NIMV in Pediatrics
  - 1.9.1. Indications for Home NIMV
  - 1.9.2. Selection of Suitable Patients
  - 1.9.3. Training of Caregivers
  - 1.9.4. Home Monitoring
- 1.10. Techniques for Withdrawal of NIMV in Pediatrics
  - 1.10.1. Gradual Withdrawal of NIMV
  - 1.10.2. Assessment of Tolerance to NIMV Withdrawal
  - 1.10.3. Use of Oxygen Therapy After NIMV Withdrawal
  - 1.10.4. Assessment of the Patient After NIMV Withdrawal

“ Take this program and enjoy the most up-to-date educational content available in innovative multimedia formats to optimize your studies”

# 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 Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses 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 has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.



*The nurse 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 175,000 nurses with unprecedented success in all specialities regardless of practical workload. 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 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.



### Nursing Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, 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 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 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 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 on-Invasive Mechanical Ventilation in Pediatrics for Nursing 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 Non-Invasive Mechanical Ventilation in Pediatrics for Nursing** 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 Non-Invasive Mechanical Ventilation in Pediatrics for Nursing**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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





**Postgraduate Certificate**  
Non-Invasive Mechanical  
Ventilation in Pediatrics  
for Nursing

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

# Postgraduate Certificate

## Non-Invasive Mechanical Ventilation in Pediatrics for Nursing