Postgraduate Certificate

Ventilatory Mechanics for Nursing

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Postgraduate Certificate
Ventilatory Mechanics for Nursing

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

Website: **www.techtitute.com/pk/nursing/postgraduate-certificate/ventilatory-mechanics-nursing**

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01

Introduction

Currently, the use of Non-Invasive Mechanical Ventilation has acquired great relevance as a tool to assist individuals suffering from various respiratory conditions. In order to approach its management and adjust its parameters appropriately, it is essential to have updated knowledge about Ventilatory Mechanics, with the purpose of adapting the care to the specific needs of each patient. Consequently, TECH has created this program, which allows the student to investigate the latest scientific evidence on the relationship between ventilation and perfusion or the physiology of mechanical ventilation. All this, in a 100% online mode and without the obligation to give up your daily responsibilities.

You will delve into the updated effects of mechanical ventilation on respiratory physiology thanks to this Postgraduate Certificate"

Ventilatory mechanics plays a key role in accurately identifying abnormal breathing patterns and quickly assessing possible pulmonary complexities in the patient. It also allows adjusting the pressure and flow parameters of NIMV tools, significantly improving the quality of life of people with various respiratory conditions. Consequently, up-to-date knowledge in this field is essential for any nurse who wishes to position themselves at the forefront of care.

For this reason, TECH has developed this program, which will provide the nurse with a complete update in this health field. Through this academic period, you will explore the updated physiology of the respiratory system or the advanced mechanisms to evaluate the patient's response to mechanical ventilation. It will also explore therapeutic strategies to improve the relationship between ventilation and perfusion.

Since the Postgraduate Certificate in Ventilatory Mechanics for Nurses is offered 100% online, the professional will be able to update their knowledge easily and without the need to neglect their daily activities, since they will not be subject to fixed schedules. In addition, you will enjoy didactic materials housed in a virtual library, where you will find specialized readings, explanatory videos or simulations of real cases. In this way, you will enjoy a fully enjoyable and effective learning experience.

This **Postgraduate Certificate in Ventilatory Mechanics for Nursing** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Practical cases presented by specialists in Pulmonology
- 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 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

With this program, you will identify state-of-the-art procedures for ventilation control and pH regulation"

Incorporate the most up-to-date knowledge of Ventilatory Mechanics into your healthcare practice"

Complete your health update process enjoying an innovative learning methodology.

Get up to date in Ventilatory Mechanics through explanatory videos or interactive summaries.

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

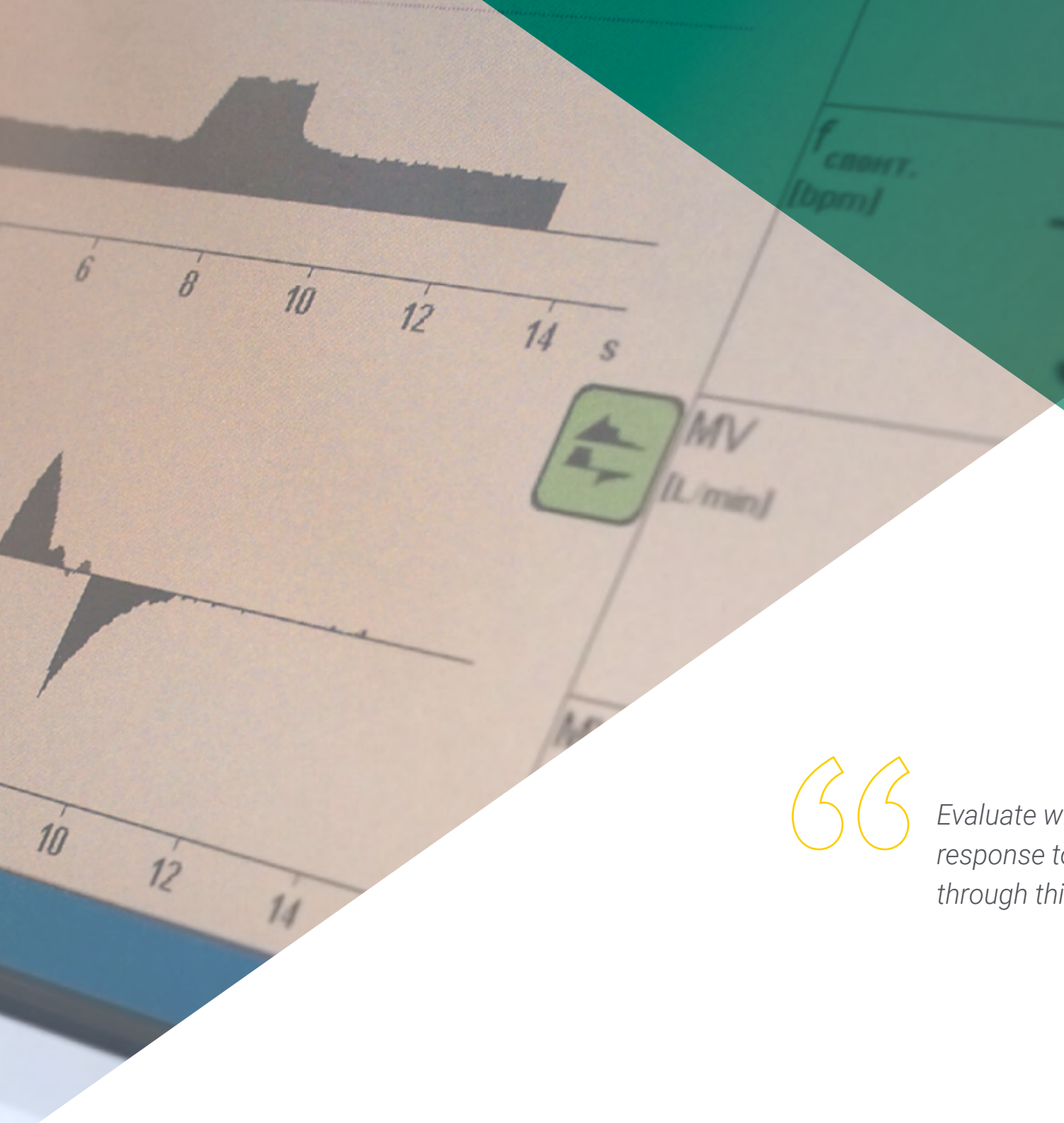
The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

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.

02

Objectives

The main objective of this program is to provide the nurse with the most updated knowledge in the management of Non-Invasive Mechanical Ventilation to effectively care for patients with respiratory diseases. In this way, you will offer state-of-the-art care and contribute to the well-being of people with complex respiratory difficulties, in only 6 weeks and enjoying an innovative educational methodology.



Evaluate with solvency the patient's response to Mechanical Ventilation through this TECH program"

General Objectives

- Understand the importance and role of Non Invasive Mechanical Ventilation in the treatment of acute and chronic respiratory pathologies
- Know the updated 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
- Investigate 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

- Learn in depth the mechanisms of respiratory control and blood pH regulation, as well as the ventilatory responses in situations of Hypoxia, Hypercapnia and Acidosis, and the interaction between the respiratory system and the central nervous system
- Delve into the forces that act on the lungs during ventilation and the relationship between respiratory mechanics and respiratory muscle effort
- Investigate the different lung volumes and capacities, their alterations in respiratory diseases and the interpretation of spirometric values and their limitations
- Understand the concept of compliance and resistance of the respiratory system, including the measurement and the factors that influence it, as well as the alterations in respiratory diseases
- Delve into the ventilation-perfusion relationship, state-of-the-art methods to detect alterations in respiratory diseases and therapeutic strategies to improve this relationship

Position yourself at the forefront of nursing professionals in just 150 Hours of intensive study"

03

Course Management

In order to maintain the outstanding educational quality that characterizes TECH programs, this program has a teaching team made up of recognized experts in the field of Pulmonology. These specialists have extensive skills in Non-Invasive Mechanical Ventilation Management. Therefore, the knowledge acquired by the nurse will be aligned with the most recent advances in this field.

This program is directed and taught by experts in Ventilatory Mechanics who have extensive hospital experience behind them"

Management

Dr. Landete Rodríguez, Pedro

- Head of the Intermediate Respiratory Care Unit of the Hospital Emergencias Nurse Isabel Zendal
- Co-coordinator of the Basic Ventilation Unit of the Hospital Universitario de La Princesa
- Pulmonologist at the Hospital Universitario de La Princesa
- Pulmonologist at Blue Healthcare
- Researcher in several research groups
- Professor in undergraduate and postgraduate university studies
- Author of scientific numerous publications International journals and participation in book chapters
- Speaker at international medical congresses
- Doctorate *Cum Laude* by the Autonomous University of Madrid

Professors

Dr. Corral Blanco, Marta

- Pulmonology Specialist and researcher
- Pulmonologist at 12 de Octubre University Hospital
- Author of numerous scientific articles and book chapters
- Speaker at numerous Pulmonology Congresses
- Course on Integral Care of Chronic Obstructive Pulmonary Disease from the Complutense University of Madrid

Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

04

Structure and Content

The curriculum of this program has been rigorously designed to provide the nurse with the most advanced and up-to-date knowledge in the field of Ventilatory Mechanics. Each of the Postgraduate Certificate topics has a wide range of multimedia materials such as interactive summaries, videos or practical exercises. In addition, thanks to the 100% online mode, you will be able to study from anywhere and at any time, just by having a device with an Internet connection.

With the Relearning method you will learn complex concepts with less effort and more performance"

Module 1. Ventilatory Mechanics

1.1. Anatomy and Physiology of the Respiratory System
- 1.1.1. Structure and Function of the Lungs and their Relation to the Ribcage
- 1.1.2. Mechanics of Pulmonary Ventilation
- 1.1.3. Gas Exchange at the Alveolar Level

1.2. Ventilation Control and Ph Regulation
- 1.2.1. Mechanisms of Respiratory Control (Chemoreceptors, Baroreceptors, etc.)
- 1.2.2. Regulation of Blood pH and its Relation to Ventilation
- 1.2.3. Ventilatory Responses in Situations of Hypoxia, Hypercapnia, and Acidosis
- 1.2.4. Interaction between the Respiratory System and the Central Nervous System

1.3. Transpulmonary Pressure and Respiratory Mechanics
- 1.3.1. Forces Acting on the Lungs during Ventilation (Atmospheric Pressure, Intrapleural Pressure, etc.)
- 1.3.2. Mechanisms of Protection of the Lungs against Overdistension and Collapse
- 1.3.3. Mechanics of Respiration in Pathological Situations (Emphysema, Pulmonary Fibrosis, etc.)
- 1.3.4. Relationship between Respiratory Mechanics and Respiratory Muscular Effort

1.4. Flow Volume, Minute Volume and Vital Capacity
- 1.4.1. Definition and Measurement of Different Lung Volumes and Capacities
- 1.4.2. Alterations of Lung Volumes and Capacities in Respiratory Diseases
- 1.4.3. Interpretation of Spirometric Values and their Limitations

1.5. *Compliance* and Resistance of the Respiratory System
- 1.5.1. Concept
- 1.5.2. Measurement
- 1.5.3. Influencing Factors
- 1.5.4. Abnormalities in Respiratory Diseases

1.6. Types of Breathing (Spontaneous, Assisted and Controlled)
- 1.6.1. Definition and Characteristics of the Different Types of Breathing
- 1.6.2. Evaluation of the Patient's Response to Mechanical Ventilation

1.7. Ventilation-Perfusion Ratio
- 1.7.1. Definition and Physiology of the Ventilation-Perfusion Ratio
- 1.7.2. Alterations of the Ventilation-Perfusion Ratio in Respiratory Diseases
- 1.7.3. Evaluation Methods of the Ventilation-Perfusion Ratio
- 1.7.4. Therapeutic Strategies to Improve the Ventilation-Perfusion Ratio

1.8. Oxygenation and Gas Transport
- 1.8.1. Alterations in Oxygenation and Gas Transport in Respiratory Diseases
- 1.8.2. Assessment of Oxygenation and Gas Transport in Clinical Practice
- 1.8.3. Treatment of Hypoxemia and Hypercapnia in Respiratory Patients
- 1.8.4. Complications of Hypoxemia and Hypercapnia Treatment

1.9. Effects of Mechanical Ventilation on Respiratory Physiology
- 1.9.1. Physiology of Mechanical Ventilation

1.10. Changes in Ventilatory Mechanics during Non-Invasive Mechanical Ventilation
- 1.10.1. Pulmonary Lesions Associated with Mechanical Ventilation
- 1.10.2. Optimization of Mechanical Ventilation to Improve Respiratory Physiology

Acquire a first-class, dynamic and decisive update, through multimedia formats that are highly varied among themselves"

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.

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.

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:

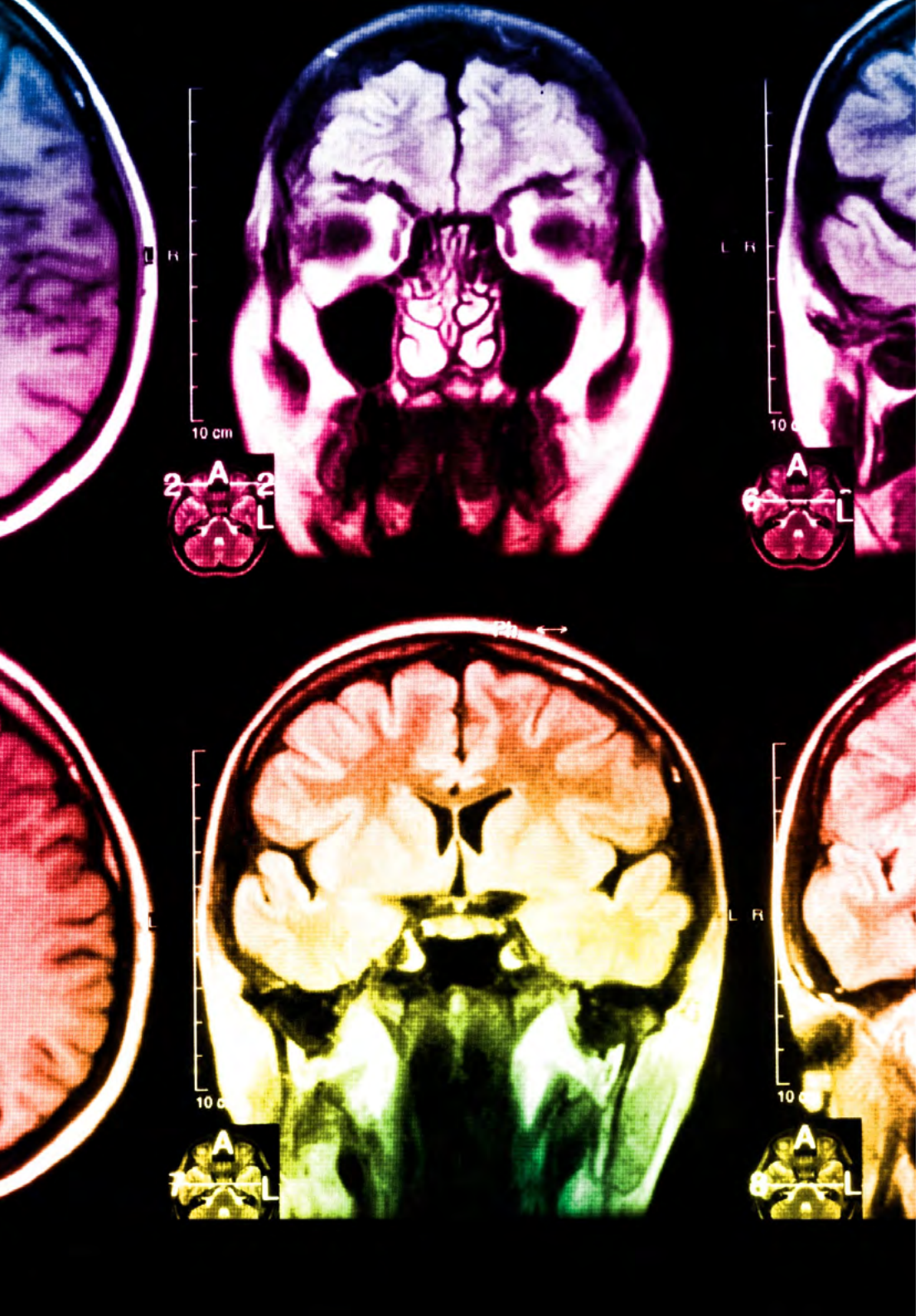
1. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into 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.

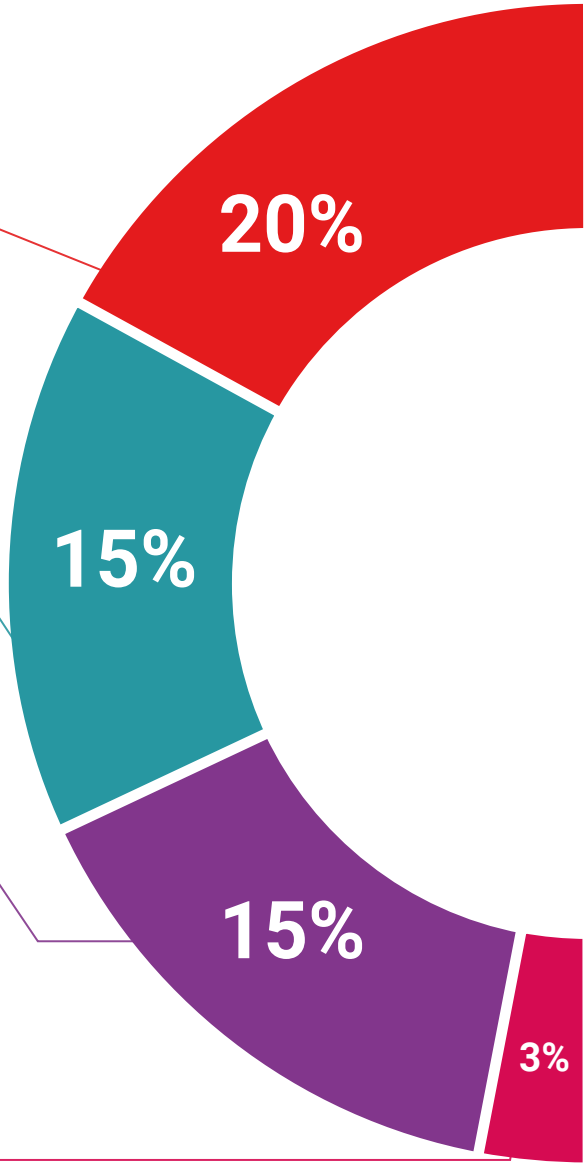
Interactive Summaries

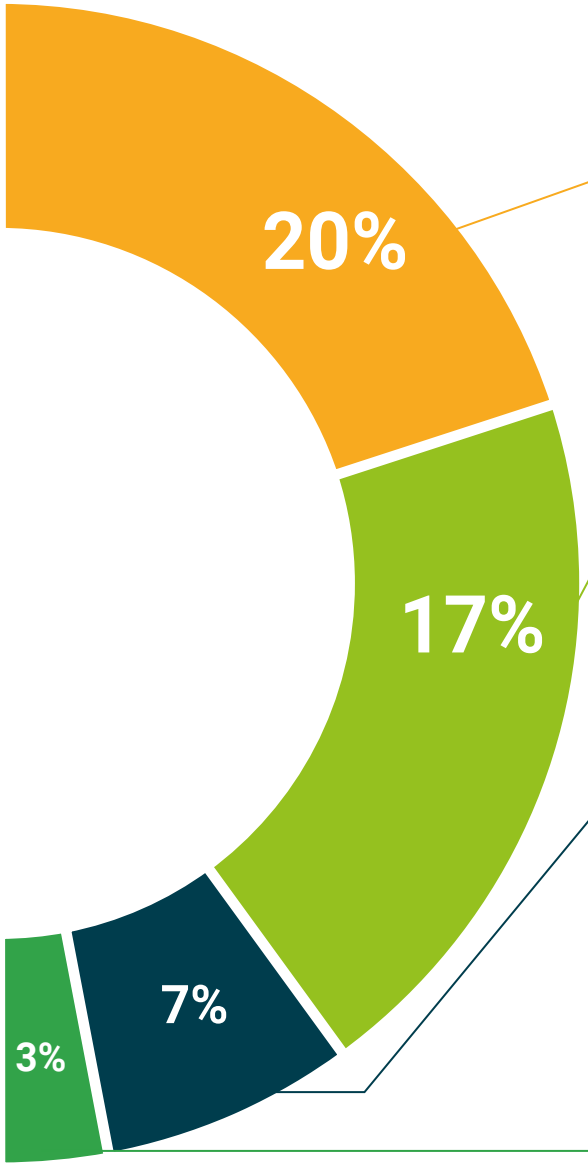
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Ventilatory Mechanics for Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.c

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

This **Postgraduate Certificate in Ventilatory Mechanics for Nursing** 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 Mechanics for Nursing**

Official Nº of Hours: **150 h.**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Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Ventilatory Mechanics for Nursing

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.

Unique TECH Code: AFWORD23S techtitute.com/certificates

*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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