



Postgraduate Diploma

Intermediate Respiratory Care Units (IRCU)

» Modality:online

» Duration: 6 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

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06 Certificate

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After the appearance of COVID-19, IRCUs have undergone a noticeable evolution to improve the treatment of respiratory complications. In recent years, they have incorporated cutting-edge technologies that allow continuous monitoring and respiratory assistance to patients in complex clinical situations, ensuring their well-being and recovery. Therefore, specialists must be familiar with the advances in this medical field to optimize their professional updates. Consequently, TECH has designed this program, through which the student will delve into state-of-theart software for patient monitoring or the updated techniques of non-invasive respiratory support used in IRCUs. All of this is delivered through a 100% online methodology without the constraints of rigid schedules.



tech 06 | Introduction

During the most challenging phase of the COVID-19 pandemic, health professionals and specialists in Intermediate Respiratory Care Units played a crucial role in treating complex pulmonary conditions and minimizing the side effects on patients. This circumstance has led to the continuous development of these areas, equipping them with cutting-edge tools to assess and manage these diseases with the utmost rigor, preserving the patients' quality of life. For this reason, pulmonologists working in Intermediate Respiratory Care Units must stay constantly updated to avoid falling behind in the evolution of these units.

Given this situation, TECH has chosen to create this certificate, which offers physicians a cutting-edge understanding of how Intermediate Respiratory Care Units operate. Over 6 months of intensive study, participants will identify the advantages and disadvantages of the new technologies available in Intermediate Respiratory Care Units or delve into the updated pharmacological treatments applied in these areas. Similarly, they will dissect each of the cutting-edge techniques of non-invasive respiratory support and explore modern procedures to address cases of patients who do not respond to Non-Invasive Mechanical Ventilation.

Since this degree is developed through a 100% online methodology, the specialist will have the possibility to make his own study schedules in order to enjoy an effective learning process. Furthermore, this Postgraduate Diploma is taught by experts who have worked in top-level Intermediate Respiratory Care Units and who create the didactic materials for the program. Therefore, the content enjoyed by the students will preserve complete professional applicability.

This **Postgraduate Diploma in Intermediate Respiratory Care Units (IRCU)** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Practical cases presented by experts 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 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



Study this Postgraduate Diploma and be able to analyze the advantages and disadvantages of each of the new technologies adopted in Intermediate Respiratory Care Units"



Identifies updated procedures to address cases of patients who do not respond to Non-Invasive Mechanical Ventilation in LICUs"

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.

Study comfortably through formats such as simulation of real cases or explanatory video.

Get updated by specialists who actively work in stateof-the-art Intermediate Respiratory Care Units.







tech 10 | Objectives



General Objectives

- 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



Learn about the innovative noninvasive respiratory support techniques used in the IRCU during this academic itinerary"





Module 1. Intermediate Respiratory Care Units (IRCU)

- Analyze the role of IRCUs in the care and treatment of critically ill patients
- Gain in-depth knowledge of IRCU structure and design, coordination and collaboration mechanisms between different services
- Identify types of equipment and technologies available in IRCUs, along with their advantages and disadvantages
- Recognize the latest trends and advances in technology used in IRCUs
- Deepen understanding of prognostic scales used in NIV
- Explore respiratory, cardiovascular, neurological, gastrointestinal, dermatological, and psychological complications in NIV and learn about updated protocols for managing them

Module 2. Non-Invasive Respiratory Support Techniques

- Understand the principles and mechanics of continuous positive pressure in the airway, positive pressure in the airway, pressure support ventilation, volume-controlled ventilation, and high-flow nasal cannula (HFNC)
- Identify the indications for using each of these ventilation modalities and know how to adjust the necessary parameters
- Compare different ventilation modalities to choose the most suitable one for each patient
- Gain in-depth knowledge of the utility of high-frequency ventilation and other innovative ventilation modes

Module 3. Beyond Non-Invasive Ventilation in an IRCU Highly Specialized Concepts

- Describe the criteria for performing tracheostomy in patients with prolonged invasive mechanical ventilation
- Identify cutting-edge techniques used in weaning from invasive mechanical ventilation through tracheostomy
- Analyze the utility of non-invasive respiratory support in the removal of orotracheal intubation
- Delve into the identification of abnormal respiratory patterns, monitoring of the effectiveness of respiratory support, and the interpretation of respiratory complications associated with NIV
- Understand the objectives and benefits of respiratory physiotherapy in IRCUs
- Deepen your knowledge of inotropes, vasodilators, and the management of hypotension with fluid therapy





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Management



Dr. Landete Rodríguez, Pedro

- Head of the Intermediate Respiratory Care Unit at the Emergencias Enfermera Isabel Zendal Hospital. Specialist in Orthopedic Surgery and Traumatology (Dr. Rayo and Amaya Team) at the San Francisco de Asís Hospital
- Co-coordinator of the Basic Ventilation Unit at the University Hospital La Princesa. Specialist in Hand Surgery (Dr. de Haro Team) at the San Rafael Hospital
- Pulmonologist at the University Hospital La Princesa. Graduated in Medicine and Surgery from the Complutense University of Madrid. Pulmonologist at Blue Healthcare
- 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



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Professors

Dr. González, Elizabeth

- Specialist in Pulmonology
- Head of Ward at the Hospital Universitario Clínico San Carlos, Respiratory Intermediate Care Unit, and the Ventilation Consultation for Chronic Patients
- Specialist in Pulmonology at the University Hospital of Getafe
- FEA of Pulmonology at the Hospital Universitario Clínico San Carlos
- Teacher in university studies

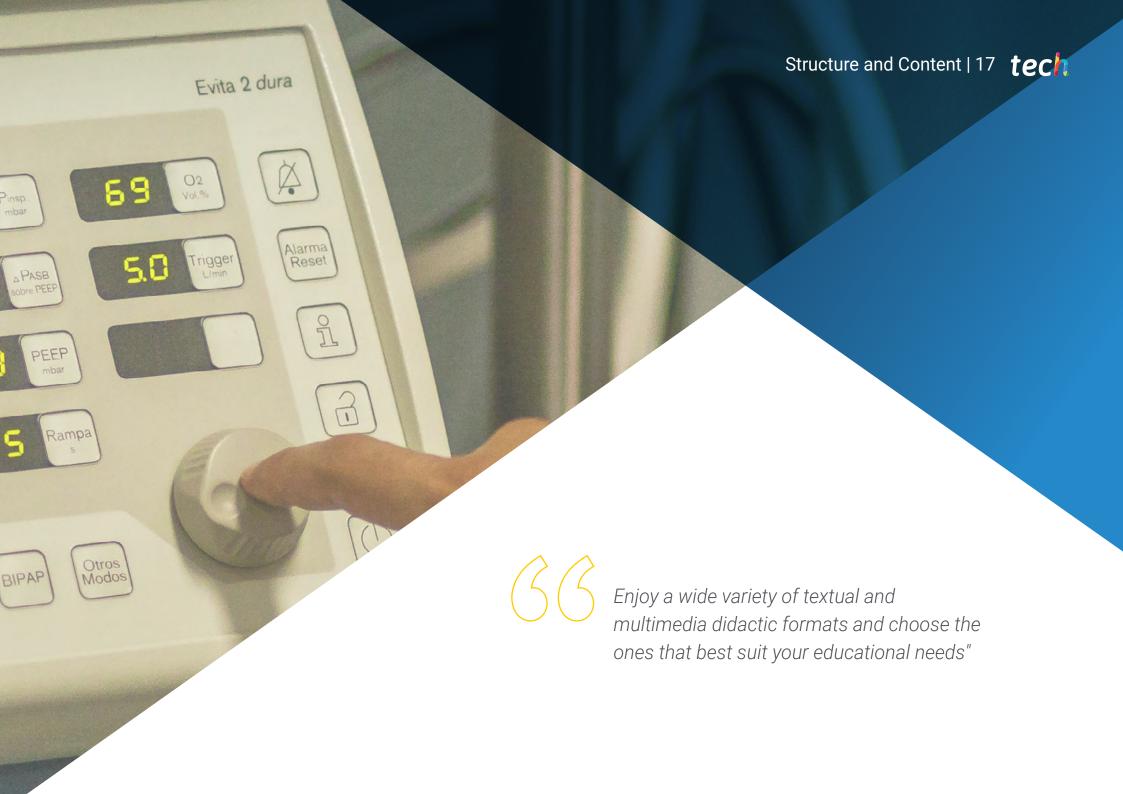
Dr. Ferrer Espinos, Santos

- Pulmonologist
- Member of the Emerging Non-Invasive Mechanical Ventilation and Respiratory Care Group of SEPAR
- Master's Degree in Biomedical Research from the University of Valencia

Dr. Ávalos Pérez-Urrutia, Elena

- Pulmonologist and Researcher
- Specialist in Pulmonology at the Hospital Universitario de La Princesa
- Researcher specializing in sleep-related respiratory disorders and non-invasive mechanical ventilation
- Collaborating instructor in undergraduate medical studies
- Master's Degree in Medicine, Complutense University of Madrid





tech 18 | Structure and Content

Module 1. Intermediate Respiratory Care Units (IRCU)

- 1.1. Fundamentals and Objectives of the IRCUs
 - 1.1.1. Evolution Over Time
 - 1.1.2. Importance and Benefits
 - 1.1.3. Role of IRCUs in Public Health Management
- 1.2. Features and Organization of IRCUs
 - 1.2.1. Structure and Design
 - 1.2.2. Mechanisms of Coordination and Collaboration Among Various Services
 - 1.2.3. Development of Personalized Care Plans for Each Patient
 - 1.2.4. Assessment and Monitoring of Treatment Outcomes
- 1.3. Equipment and Technology in IRCUs
 - 1.3.1. Types of Equipment and Technologies Available in IRCUs
 - 1.3.2 Advantages and Disadvantages of Different Available Technologies
 - 1.3.3. New Trends and Advances in Technology Used in IRCUs
- 1.4. Healthcare Personnel in IRCUs: Functions and Competencies
 - 1.4.1. Professional Profile and Training Requirements for Health Professionals Working in IRCUs
 - 1.4.2. Competencies and Responsibilities of Various Members of Health Personnel
 - 1.4.3. Teamwork and Coordination Among Different Health Professionals in the IRCUs
 - 1.4.4. Continuing Education and Professional Development of Healthcare Personnel in IRCUs
- 1.5. Indications and Criteria in IRCUs
 - 1.5.1. Criteria for Patient Selection for Admission to IRCUs
 - 1.5.2. Admission Process and Assessment of Patient's Health Status
- 1.6. Monitoring and Follow-Up of Patients in IRCUs
 - 1.6.1. Capnography
 - 1.6.2. Continuous Pulse Oximetry
 - 1.6.3. Respiratory Software
- 1.7. Success and Failure Criteria in NIV
 - 1.7.1. Prognosis Scales
 - 1.7.2. Factors Influencing the Success or Failure of NIV
 - 1.7.3. Early Identification of NIV Failures

- 1.8. Complications and Their Management in NIV
 - 1.8.1. Respiratory Complications
 - 1.8.2. Cardiovascular Complications
 - 1.8.3. Neurological Complications
 - 1.8.4. Gastrointestinal Complications
 - 1.8.5. Dermatological Complications
 - 1.8.6. Psychological Complications
- 1.9. Pharmacological Treatments in IRCUs
 - 1.9.1. Nutrition and Nutritional Support
 - 1.9.2. Sedation and Analgesia in Patients with NIV
 - 1.9.3. Other Medications in IRCUs
- 1.10. Discharge Criteria and Patient Follow-Up After Their Stay in IRCUs
 - 1.10.1. Assessment of Patient's Clinical Stability Before IRCU Discharge
 - 1.10.2. Discharge Planning and Patient Follow-Up
 - 1.10.3. Discharge Criteria for NIV
 - 1.10.4. Outpatient Follow-Up After IRCU Discharge
 - 1.10.5. Assessment of Quality of Life After IRCU Stay

Module 2. Non-Invasive Respiratory Support Techniques

- 2.1. Assessment of the Required Ventilatory Support Level
 - 2.1.1. Assessment of Clinical Indication
 - 2.1.2. Interpretation of Arterial Blood Gas
 - 2.1.3. Assessment of Respiratory Mechanics
 - 2.1.4. Determination of the Required Ventilatory Support Level
 - 2.1.5. Changing Ventilatory Modality
- 2.2. Continuous Positive Airway Pressure (CPAP)
 - 2.2.1. CPAP principles and mechanics
 - 2.2.2. Indications for the use of CPAP
 - 2.2.3. Adjustment of CPAP parameters
 - 2.2.4. Monitoring and Management of CPAP Complications
 - 2.2.5. Comparison of CPAP with Other Ventilatory Modalities

Structure and Content | 19 tech

- 2.3. Positive Airway Pressure (BiPAP)
 - 2.3.1. Principles and Mechanics of BiPAP
 - 2.3.2. Indications for BiPAP Use
 - 2.3.3. Adjusting BiPAP Parameters
 - 2.3.4. Monitoring and Management of BiPAP Complications
 - 2.3.5. Comparison of BiPAP with Other Ventilatory Modalities
- 2.4. Pressure Support Ventilation
 - 2.4.1. Conventional (PSV)
 - 2.4.2. Proportional (PPSV)
 - 2.4.3. Adaptive (ASV)
 - 2.4.4. Intelligent Adaptive (iVAPS)
- 2.5. Volume-Controlled Ventilation
 - 2.5.1. Principles and Mechanics of Volume NIV
 - 2.5.2. Indications for Volume NIV Use
 - 2.5.3. Adjusting Volume Mode Parameters
 - 2.5.4. Monitoring and Management of Complications in Volume Mode
 - 2.5.5. Comparison of Volume Mode with Other Ventilatory Modalities
- 2.6. High-Flow Nasal Cannula (HFNC)
 - 2.6.1. Principles and Mechanics of HFNC
 - 2.6.2. Indications for HFNC Use
 - 2.6.3. Adjusting HFNC Parameters
 - 2.6.4. Monitoring and Management of HFNC Complications
 - 2.6.5. Comparison of HFNC with Other Ventilatory Modalities
- 2.7. Combined Ventilation (Positive Pressure (CPAP/BiPAP) + HFNC)
 - 2.7.1. Principles and Mechanics of Combined Therapy
 - 2.7.2. Indications for Combined Therapy Use
 - 2.7.3. Starting Combined Therapy, Simultaneously or Staggered
 - 2.7.4. Adjusting Parameters for Combined Therapy
 - 2.7.5. Monitoring and Management of Complications in Combined Therapy
 - 2.7.6. Comparison of Combined Therapy with Other Ventilatory Modalities
- 2.8. High-Frequency Ventilation
 - 2.8.1. Indications for High-Frequency NIV Use
 - 2.8.2. Adjusting Parameters
 - 2.8.3. Utility in Acute Patients

- 2.8.4. Utility in Chronic Patients
- 2.8.5. Monitoring and Management of Complications
- 2.8.6. Comparison with Other Ventilatory Modalities
- 2.9. Others Ventilatory Modes
 - 2.9.1. Pressure Support Ventilation with Mandatory Flow Control (MFC)
 - 2.9.2. High-Velocity Nasal Cannula Ventilation
 - 2.9.3. Other Innovative Ventilatory Modes
- 2.10. Humidification and Temperature Adjustment in NIV
 - 2.10.1. Importance of Adequate Humidification and Temperature in NIV
 - 2.10.2. Types of Humidification Systems in NIV
 - 2.10.3. Indications for Adding a Humidifier in Acute Patients
 - 2.10.4. Indications for Humidifier Use in Chronic Patients
 - 2.10.5. Methods for Monitoring Humidification in NIV
 - 2.10.6. Temperature Adjustment in NIV
 - 2.10.7. Monitoring and Management of Complications Related to Humidification and Temperature in NIV

Module 3. Beyond Non-Invasive Ventilation in an IRCU Highly Specialized Concepts

- 3.1. Ventilator Weaning with Tracheostomy in an Intermediate Respiratory Care Unit
 - 3.1.1. Criteria for Performing Tracheostomy in Patients with Prolonged IMV
 - 3.1.2. Patient Preparation for Weaning from IMV
 - 3.1.3. Weaning Techniques from IMV via Tracheostomy
 - 3.1.4. Assessment of Tolerance during Weaning from IMV via Tracheostomy
 - 3.1.5. Management of Complications during Weaning
- 1.2. Tracheostomy Management in the Intermediate Respiratory Care Unit
 - 3.2.1. Selecting the Appropriate Tracheostomy Technique for the Patient
 - 3.2.2. Initial Tracheostomy Care in the Intermediate Respiratory Care Unit
 - 3.2.3. Tracheostomy Tube Replacement and Maintenance
 - 3.2.4. Monitoring Complications
 - 3.2.5. Assessing the Appropriate Time of Tracheostomy Removal
 - 3.2.6. Decannulation Protocol

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- 3.3. Utilizing Non-Invasive Respiratory Support in the disconnection of orotracheal intubation
 - 3.3.1. Selection of patients who are candidates for disconnection
 - 3.3.2. Techniques for disconnection of orotracheal intubation
 - 3.3.3. Evaluation of tolerance to noninvasive respiratory support during disconnection
 - 3.3.4. Monitoring and management of complications during disconnection
 - 3.3.5. Evaluation of the success of noninvasive respiratory support in the disconnection of orotracheal intubation and patient follow-up
- 3.4. Secretion Management and Cough Assistance
 - 3.4.1. Indications
 - 3.4.2. How to measure it
 - 3.4.3. Different devices
 - 3.4.4. Pressure configuration
 - 3.4.5. How to use it
- 3.5. NIV and polygraphy, indications and interpretation
 - 3.5.1. Indications for polygraphy in the NIV patient
 - 3.5.2. Interpretation of polygraphy results in patients with NIV
 - 3.5.3. Identification of abnormal respiratory patterns on polygraph during the use of NIV
 - 3.5.4. Monitoring the efficacy of respiratory support during polygraphy
 - 3.5.5. Interpretation of respiratory complications associated with NIV on polygraphy
- 3.6. Physiotherapy in an IRCU
 - 3.6.1. Objectives and benefits of respiratory physiotherapy in the IRCU
 - 3.6.2. Respiratory physiotherapy techniques used in the IRCU
 - 3.6.3. Physiotherapy in the prevention and treatment of respiratory complications in the IRCU
 - 3.6.4. Assessment and follow-up of patient progress with respiratory physiotherapy in the IRCU
 - 3.6.5. Multidisciplinary collaboration in the implementation of respiratory physiotherapy in the IRCLI
- 3.7. Management of shock and other frequently used drugs in IRCU
 - 3.7.1. Types of shock and its management in the IRCU
 - 3.7.2. Indications and dosage of vasopressors in the management of shock in the IRCU
 - 3.7.3. Use of inotropics and vasodilators in the management of shock in the IRCU
 - 3.7.4. Management of hypotension in the IRCU with fluid therapy
 - 3.7.5. Monitoring hemodynamic and patient response to drugs used in the management of shock in IRCU





Structure and Content | 21 tech

- 3.8. Swallowing Disorders Evaluation
 - 3.8.1. Prolonged Orotracheal Intubation
 - 3.8.2. Tracheostomy
 - 3.8.3. Ineffective Swallowing
- 3.9. Nutritional study in patients with prolonged admission to the IRCU
 - 3.9.1. Nutritional and metabolic assessment in patients in the IRCU
 - 3.9.2. Evaluating Nutritional Status and Energy Needs
 - 3.9.3. Nutritional strategies for patients with prolonged admission to the IRCU
 - 3.9.4. Monitoring of nutritional support and necessary adjustments in IRCU patients
 - 3.9.5. Prevention and management of nutritional complications in patients with prolonged admission to the IRCU
- 3.10. Management of Unstable Patients
 - 3.10.1. Management of Rapid Atrial Fibrillation
 - 3.10.2. Management of Supraventricular Tachycardia
 - 3.10.3. Management of Cardiopulmonary Arrest
 - 3.10.4. Orotracheal Intubation
 - 3.10.5. Sedation in NIV



Enroll in this Postgraduate Diploma and update your knowledge without the need to make uncomfortable daily commutes to a study center"





tech 24 | Methodology

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.



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:

- 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.



Methodology | 27 tech

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.

tech 28 | Methodology

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.









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This **Postgraduate Diploma in Intermediate Respiratory Care Units (IRCU)** contains the most complete and up-to-date scientific program on the market.

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

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

Title: Postgraduate Diploma in Intermediate Respiratory Care Units (IRCU)
Official N° of Hours: **450 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.

health confidence people information tutors guarantee accreditation teaching institutions technology learning



Postgraduate Diploma

Intermediate Respiratory Care Units (IRCU)

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

