

# Hybrid Master's Degree Neonatal Intensive Care and Neonatal Nursing



## Hybrid Master's Degree Neonatal Intensive Care and Neonatal Nursing

Modality: Hybrid (Online + Clinical Internship)

Duration: 7 months

Certificate: TECH Global University

60 + 5 ECTS Credits

Website: [www.techtute.com/us/nursing/hybrid-master-degree/hybrid-master-degree-neonatal-intensive-care-neonatal-nursing](http://www.techtute.com/us/nursing/hybrid-master-degree/hybrid-master-degree-neonatal-intensive-care-neonatal-nursing)

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# 01

# Introduction

Neonatal Intensive Care and Neonatal Nursing have experienced significant Advances due to medical and technological advances, as well as constant research in the area. Therefore, there is an increasing demand for professionals with expertise in this field, as a thorough understanding of the neonatal stages and the anatomical and physiological characteristics of newborns is required. To meet the current demands of the industry, TECH has launched this exclusive program focused on the highlights of neonatology. Therefore, it covers everything from somatometry and complete physical examination of the newborn, to the structure and organization of a neonatology service and neonatal resuscitation.





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*Thanks to this degree you will master  
the anatomical and physiological  
characteristics of the normal newborn”*

Neonatal Intensive Care requires a specialized level of knowledge and skills due to the fragility and vulnerability of newborns. Neonates have unique anatomical and physiological characteristics and may require specific care to address complex medical conditions. For this reason, nurses play a crucial role in the care and recovery of newborns with critical or high-risk conditions.

Therefore, timely intervention and specialized care can make the difference between life and death, as well as influence the neonate's neurological development and long-term prognosis.

In this regard, there is a growing demand for trained professionals in Neonatal Intensive Care and Neonatal Nursing due to the increasing incidence of critical neonatal conditions and the development of advanced medical technologies. This is why hospitals and neonatal intensive care units are constantly looking for highly trained and competent nurses in this field.

Under this need, TECH launches this Hybrid Master's Degree that has been designed to address the growing need of professionals to deepen in the management of neonatal patients with various pathologies. The program combines an online theoretical phase with high quality multimedia didactic materials, allowing you to train in a flexible and convenient way, requiring only a device with an internet connection. In addition, it offers a hands-on experience at a prestigious center, which represents the highlight of this upgrade.

For this reason, this approach allows nursing professionals to have greater freedom to manage their study time and to reconcile their daily work responsibilities with a unique updating experience. In addition, one of the distinctive aspects of this program is the practical stay of 3 weeks in recognized hospitals. During this period, participants will be able to witness first-hand the advances in the field of Neonatal Intensive Care and Neonatal Nursing. In addition, they will be mentored by a renowned professional expert with a solid track record in this field to provide guidance and support throughout their journey.

This **Hybrid Master's Degree in Neonatal Intensive Care and Neonatal Nursing** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ♦ Development of more than 100 clinical cases presented by nursing professionals with expertise in intensive care Nutrition Therapy for Nursing Neonatal and university professors with extensive experience in the Neonatal patient
- ♦ 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
- ♦ Assessment and monitoring of the neonatal patient requiring intensive care
- ♦ Comprehensive systematized action plans for the main pathologies in the Intensive Care Medicine Unit. Neonatal
- ♦ Presentation of clinical case studies on diagnostic techniques and approach to disorders in the neonatal intensive care patient
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ Practical clinical guides on approaching different pathologies
- ♦ With a special emphasis on evidence-based medicine and research methodologies in Intensive Care Nursing
- ♦ All of this will be complemented by 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
- ♦ Furthermore, you will be able to carry out a clinical internship in one of the best hospital centers



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*Complete a solid and avant-garde theoretical learning with a 3-week hospital internship where, under the guidance of the best professionals, you will enhance your skills in the management of neonatal shock”*

In this proposal for a Hybrid Master's Degree, of a professionalizing nature and hybrid learning modality, the program is aimed at up to date nursing professionals who perform their functions in Neonatology units, and who require a high level of qualification. The content is based on the latest scientific evidence and is organized in a didactic way to integrate theoretical knowledge into nursing practice. The theoretical-practical elements allow professionals to update their knowledge and help them to make the right decisions in patient care.

Thanks to their multimedia content developed with the latest educational technology, they will allow the nursing professional to obtain situated and contextual learning, i.e., a simulated environment that will provide immersive learning programmed to train 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 throughout the program. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*You will master the most up-to-date treatments for the effective management of cardiac disorders and congenital heart disease in neonatology.*

*With TECH's Relearning system you will achieve a dynamic and progressive learning process that you will integrate with an intensive 3-week stay in a prestigious center.*



# 02

## Why Study this Hybrid Master's Degree?

Neonatal Intensive Care and Neonatal Nursing are currently facing several challenges and opportunities. Up to date in this area allows nurses to acquire new skills and solid knowledge of the latest advances in neonatal care. Thanks to this Hybrid Master's Degree, the nurse will be able to offer comprehensive care of higher quality to newborns, ensuring an optimal approach based on best practices. Therefore, this program is distinguished by its up-to-date content and, at the same time, by offering the possibility of combining theoretical learning with a high quality intensive face-to-face stay in renowned medical institutions.







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*You will have access to prestigious hospitals and will be able to intervene in the management of Neonates patients pathologies and disorders”*

### 1. Updating from the Latest Technology Available

Advances in Neonatal Intensive Care and Neonatal Nursing translate into improved stabilization techniques, diagnosis and care for neonates. By keeping up to date with this hands-on training, the nurse will be aware of the most effective and up-to-date protocols for preventing complications and reducing risks in the newborns under his or her care.

### 2. Gaining In-depth Knowledge from the Experience of Top Specialists

Throughout this educational program will, the Nurse will be accompanied at all times by reputable experts. During the theoretical Phase of the program, you will be supported by a of excellent faculty. During the theoretical phase, you will work with a teaching staff of excellence and then, in the practical phase, you will work directly with Communication Management who develop the contents of this program in first level hospitals.

### 3. Entering First-Class Clinical Environments

TECH carries out a meticulous selection process of the centers that will be part of the practical stay integrated in this Hybrid Master. Therefore, these instances will give the professional the opportunity to access renowned clinical environment in the field of Neonatal Intensive Care and Neonatal Nursing. In this way, able to to observe firsthand the dynamics of work in an area that is characterized by its demands, rigor and thoroughness.







#### 4. Combining the Best Theory with State-of-the-Art Practice

Effectively integrating theoretical and practical learning is an arduous task. However, TECH offers those professionals who choose the Hybrid Master's Degree the invaluable opportunity to develop skills in both aspects, as the degree combines online teaching with a 3-week intensive face-to-face stay. During this period, students will be able to apply in a practical way all the knowledge acquired online, thus enhancing their comprehensive training.

#### 5. Expanding the Boundaries of Knowledge

In order to carry out the practical experience in the Hybrid Master's Degree, TECH provides the opportunity to carry it out in prestigious centers of international renown. In this way, the professional will have the opportunity to broaden his or her horizons and update his or her knowledge with leading experts in first-rate hospitals located in different geographical locations.

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*You will have full practical immersion at the center of your choice”*

# 03 Objectives

The numerous studies that have been carried out in the field of neonatology have allowed the development of new strategies for an optimal approach based on best practices. Therefore, the ultimate goal of this program is to make available to the nursing professional the most cutting-edge knowledge related to the most important aspects of this area. Likewise, the different therapeutic measures to treat pain in the newborn will be discussed in depth, as well as the complications, management and prognosis of the premature newborn. All of this is guaranteed by a series of objectives that TECH has set for this degree program.





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*You will assimilate the best techniques to address hematological disorders in neonatology with an theoretical and practical approach”*





## General Objective

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- The main objective of the Hybrid Masters' Degree in Neonatal Intensive Care and Neonatal Nursing is to update and train the nursing professional in optimal neonatal care procedures. Through this program, graduates are provided with the necessary knowledge to address the stabilization, nursing diagnosis and care of neonates requiring intensive care, based on current approaches supported by scientific evidence. To achieve this, and once the theoretical part has been passed, the student will have access to a rigorous and academically solid hospital stay, in which professionals will work alongside recognized experts in a hospital center of scientific excellence and technological innovation





## Specific Objectives

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### Module 1. Important Aspects of Neonatology

- ◆ Categorize neonatal stages, as well as neonatal stages by gestational age and neonatal stages by weight at birth
- ◆ Determine the differences which exist in the pediatric age group between a newborn, a child and an adolescent
- ◆ Revise the anatomical and physiological characteristics of a normal newborn
- ◆ Establish the techniques for measuring the somatometry of a newborn, as well as its morphological and physiological characteristics
- ◆ Assess the complete examination, sequence of physical examination and complete physical examination of the newborn, focusing primarily on the head and neck region, trunk region and extremities region
- ◆ Describe the process of a complete neurological examination on a newborn
- ◆ Evaluate the structure and organization of a Neonatology Service, as well as its location, the necessary equipment and materials; and the necessary human resources
- ◆ Acquire up-to-date knowledge of the arrival of a newborn in the neonatal ward, the admission criteria, its objectives and the necessary nursing interventions
- ◆ Incorporate new techniques in the physical examination of a newborn on its arrival in the neonatal ward

### Module 2. Admission of a Newborn in the Neonatal Ward or in the NICU

- ♦ Determine how to structure a neonatal intensive care unit (NICU), as well as the calculation and arrangement of the cribs, the necessary physical space needed, the necessary equipment and materials; and the necessary human resources
- ♦ Identify the profiles and roles of the "nursing team" as well as its operating system: "Primary Nursing"
- ♦ Describe the guidelines for drug administration in neonatology
- ♦ Establish the criteria and objectives for admission of a newborn to the NICU; as well as the necessary nursing interventions
- ♦ Identify and classify the types of neonatal transport, its objectives and its purpose
- ♦ Select the necessary team and equipment to provide appropriate neonatal transport
- ♦ Acquire up-to-date knowledge of the therapeutic measures for treating pain in newborns, as well as how to manage the pain in some of the procedures in the NICU

### Module 3. Neonatal Resuscitation

- ♦ Form a resuscitation team and select the necessary equipment to perform neonatal resuscitation
- ♦ Gain up-to-date knowledge of resuscitation procedures
- ♦ Incorporate the latest information on the recommendations for neonatal resuscitation techniques, acknowledging the neonatal risk factors, as well as general procedures in the lead-up to birth
- ♦ Identify special resuscitation situations as well as the basic principles for a successful resuscitation
- ♦ Describe the possible complications that can arise during neonatal resuscitation

### Module 4. Pharmacology in Neonatology

- ♦ Incorporate the basic principles of newborn sedation, anesthetic drugs and sedative/hypnotics into nursing
- ♦ Incorporate the principles of drug administration in the Neonatal Unit, as well as the use of the different routes: enteral, rectal, intramuscular, subcutaneous and intravenous routes, into nursing practice
- ♦ Differentiate the specific ways of administering drugs, the necessary equipment and its procedure
- ♦ Incorporate the different dosage guidelines applicable to nursing practice
- ♦ Gain up-to-date knowledge of the different drug administration routes and their characteristics
- ♦ Identify excipients used in neonatal formulations
- ♦ Gain up-to-date knowledge of the different therapeutic guidelines applicable to neonatology
- ♦ Classify and describe drug interactions, the different types of interactions that exist and how to prevent the risk of interactions
- ♦ Gain up-to-date knowledge on the use of drugs in neonatology

### Module 5. Principles of Drug Administration and Vascular Access in Neonatology

- ♦ Acquire up-to-date knowledge of the necessary techniques for maintaining the line, removal of the line and the occurrence of possible complications
- ♦ Determine the precautions and contraindications as well as the appearance of possible complications that can occur with each of the specific ways of administering drugs
- ♦ Describe the different techniques to cannulate the umbilical artery or vein in a newborn
- ♦ Assess the contraindications and the complications of umbilical cannulation
- ♦ Gain up-to-date knowledge of the catheter removal procedure, the precautions which should be taken, its contraindications and complications

### Module 6. Premature Child

- ♦ Describe the etiopathogenesis of prematurity
- ♦ Assess the differential diagnosis of premature newborns
- ♦ Incorporate the procedures for the reception of underweight premature newborns in the NICU
- ♦ Describe the clinical features and complications of the premature newborn
- ♦ Determine the different types of pathologies specific to a premature newborn including those relating to respiratory, neurological, ophthalmological, cardiovascular, digestive, immunological, metabolic, hematological and endocrinological pathologies
- ♦ Assess the complications, the management and prognosis of a premature newborn
- ♦ Differentiate the sequelae that could appear, as well as their monitoring
- ♦ Control all aspects of the premature newborn's recovery period, the procedure for discharging them from hospital and their subsequent care
- ♦ Establish rules of conduct, nutrition, necessary pharmacological supplements, as well as neuropsychological and somatometric monitoring, and preventive measures against respiratory infections
- ♦ Acquire up-to-date knowledge of premature newborn vaccination programs

### Module 7. Thermal Management, Pain Control and Sedation of the Newborn

- ♦ Describe thermal management in the newborn, its thermoregulation and the use of a neutral thermal environment
- ♦ Incorporate newborn temperature assessment guidelines into nursing practice
- ♦ Implement hypothermia in a newborn with hypoxic-ischaemic encephalopathy as a neuroprotective measure, as well as the neuroprotective mechanisms of action of hypothermia
- ♦ Differentiate the indications and contraindications of hypothermia
- ♦ Describe the exit criteria once hypothermia has been initiated
- ♦ Assess pain control in a newborn as well as the short and long term consequences of the pain
- ♦ Evaluate the different techniques for measuring pain in a newborn
- ♦ Predict the onset of withdrawal syndrome in the newborn and how to manage it

### Module 8. Water, Electrolyte and Metabolic Disorders of a Newborn

- ♦ Establish the management of fluids and electrolytes in the newborn, to maintain a hydroelectrolytic balance, controlling the insensible loss of water and electrolytes (sodium, potassium, calcium)
- ♦ Control the water balance in neonatal admitted to the intensive care unit
- ♦ Acquire up-to-date knowledge of newborn monitoring procedures
- ♦ Identify which are the main objectives for fluid management in newborns weighing less than 1.500g
- ♦ Establish the procedures for calculating water balance in a critically ill newborn
- ♦ Calculate insensible losses or insensible gains in a newborn with weight gain or weight loss
- ♦ Differentiate between very premature and hyperosmolar state
- ♦ Identify when fluids should be restricted in a very premature newborn
- ♦ Identify when the need for fluids should be increased in a very premature newborn

### Module 9. Newborn Feeding: Breastfeeding/Formula Feeding and Feeding of the Hospitalized Infant

- ♦ Explain what a newborn diet consists of
- ♦ Describe the requirements and feeding objectives of the breastfeeding infant
- ♦ Gain up-to-date knowledge of the process and the benefits of breastfeeding
- ♦ Classify the types of feeding used in the Neonatal Unit and NICU such as enteral nutrition and parenteral nutrition



- ♦ Determine the indications and contraindications of enteral nutrition and parenteral nutrition
- ♦ Acquire up-to-date knowledge of recommendations for the use of both enteral and parenteral nutrition routes of administration
- ♦ Differentiate the components of parenteral nutrition
- ♦ Describe the preparation and administration of parenteral nutrition
- ♦ Gain up-to-date knowledge of the guidelines for the withdrawal of parenteral nutrition

#### **Module 10. Nursing Interventions: Family Care, Perinatal Death and Neonatal Development**

- ♦ Explain family-centred care, as well as the ways to promote and rebuild the family bond
- ♦ Evaluate the importance of family in the neonatal unit and NICU
- ♦ Establish coping strategies for perinatal death, the intervention of professionals if it occurs, the grieving process and the stages
- ♦ Relate the influence of the impact of the NICU environment on newborn development
- ♦ Target neonatal care which is focused on the development, as well as the interventions, regarding the macro- and micro-environment of the newborn
- ♦ Acquire up-to-date knowledge of the nursing staff's own involvement when discharging patients from hospital

#### **Module 11. Medical-Legal Aspects in Neonatology**

- ♦ Describe the Spanish health system, its regulation and its rules
- ♦ Revise the general health law
- ♦ Revise the basic law on patient autonomy
- ♦ Revise the code of ethics and deontology of the medical organization and registered nurse
- ♦ Incorporate debriefing techniques for patients and their relatives
- ♦ Describe the most important aspects of informed consent

- ♦ Assess situations of treatment refusal
- ♦ Analyse the importance of using professional secrecy
- ♦ Revise the organic data protection law (LOPD)
- ♦ Revise the organ donation law
- ♦ Acquire up-to-date knowledge of the most important aspects of neonatal pharmacology, changes in drug response in newborns, pharmacokinetics and pharmacodynamics in neonatology

#### **Module 12. Respiratory Pathophysiology and Respiratory Disorders in Neonatology**

- ♦ Identify the modalities of respiratory assistance
- ♦ Revise the process of lung development, lung embryology and lung anatomy
- ♦ Review the respiratory physiology of a newborn
- ♦ Assess the respiratory problems of a newborn
- ♦ Establish the involvement of nursing staff in treating a newborn with a respiratory disorder
- ♦ Describe the mechanical ventilation and non-invasive ventilation techniques, as well as the nursing care involved in mechanical ventilation and the ventilation modes
- ♦ Incorporate endotracheal intubation and extubation techniques
- ♦ Acquire up-to-date knowledge of the cricothyroidotomy or coniotomy procedures
- ♦ Describe the procedure to perform a tracheotomy

#### **Module 13. Cardiac Disorders and Congenital Heart Disease in Neonatology**

- ♦ Gain up-to-date knowledge of the cardiac massage technique
- ♦ Identify the differences in the response to a neonatal cardiopulmonary arrest and one in an older pediatric patient
- ♦ Revise the general aspects of the cardiovascular system, embryology and cardiac anatomy
- ♦ Distinguish between the different types of congenital cardiopathies
- ♦ Evaluate the involvement of the nursing professional in treating a newborn with congenital cardiopathy



- ♦ Learn how to create a nursing care plan
- ♦ Gain an understanding of preoperative and postoperative care in cardiac surgery
- ♦ Gain up-to-date knowledge of the nursing procedure for addressing bacterial endocarditis

#### **Module 14. Neonatal Neurological Disorders**

- ♦ Revise the general aspects of neonatal neurology, embryology and the nervous system anatomy
- ♦ Acquire up-to-date knowledge of the intervention procedures in a newborn with neonatal seizures
- ♦ Identify the most common neurological pathologies: neonatal intracranial hemorrhages and hydrocephalus

#### **Module 15. Neonatal Digestive Disorders**

- ♦ Revise the general aspects of neonatal gastroenterology: embryology and the anatomy of the digestive tract
- ♦ Gain up-to-date knowledge of the procedures for handling nasogastric and orogastric tubes
- ♦ Describe the principal signs and symptoms of gastroesophageal reflux
- ♦ Identify the symptoms of esophageal atresia
- ♦ Determine how to treat necrotizing enterocolitis
- ♦ Incorporate Ostomy care techniques into nursing practice

#### **Module 16. Hematologic Disorders in Neonatology**

- ♦ Revise the general aspects of neonatal hematology
- ♦ Describe fetal hydrops
- ♦ Gain up-to-date knowledge of the range analysis of neonatal hyperbilirubinemia parameters
- ♦ Describe other pathologies of neonatal hematology: polycythemia and thrombocytopenia
- ♦ Acquire up-to-date knowledge of the indications of blood transfusion and its by-products in the neonatal period, as well as the technique for transfusion itself

#### **Module 17. Renal Disorders in Neonatology**

- ♦ Revise the general aspects of neonatal nephrology: embryology and anatomy of the renal system
- ♦ Gain up-to-date knowledge of the neonatal bladder catheterization technique
- ♦ Describe nephrological pathology in a newborn
- ♦ Initiate peritoneal dialysis in a newborn

#### **Module 18. Neonatal Shock**

- ♦ Describe the main signs of neonatal shock
- ♦ Differentiate the distinct phases of neonatal shock and the types of shock
- ♦ Identify clinical signs of neonatal shock
- ♦ Gain up-to-date knowledge on how to address neonatal shock, as well as the basics of its treatment
- ♦ Incorporate neonatal shock nursing interventions into nursing practice
- ♦ Explain the algorithm for managing neonatal shock
- ♦ Describe how neonatal sepsis can occur, its etiopathogenesis, etiology, clinical symptoms, diagnosis and treatment

#### **Module 19. Neonatal Preoperative and Postoperative Care**

- ♦ Establish nursing care in neonatal surgery: general preoperative and postoperative care
- ♦ Highlight the most common types of surgery: choanal atresia, esophageal atresia with tracheoesophageal fistula, diaphragmatic hernia, abdominal wall defects, necrotizing enteritis and imperforate anus
- ♦ Determine the nursing involvement required in neonatal preoperative and postoperative care

### Module 20. General Skin Care in Neonatology

- Revise the general aspects of neonatal dermatology; its embryology and histiology
- Establish newborn skin care practices
- Differentiate the transient benign skin lesions: erythema toxicum neonatorum, transient neonatal pustular melanosis, milia, miliaria, neonatal acne, subcutaneous fat necrosis, mongolian or Baltz spot, telangiectatic nevus or maternal nevi
- Identify the most common skin infections in newborns: oral candidiasis (thrush), neonatal cutaneous candidiasis, impetigo neonatorum, staphylococcal scalded skin syndrome and neonatal chickenpox

### Module 21. Other Neonatal Pathologies: Metabolopathies, Chromosomopathies and Neonatal Oncology

- Differentiate the various metabolopathies
- Establish the different criteria for listing a metabolopathy in neonatal screening
- Acquire up-to-date knowledge of screening techniques, as well as the procedure to follow for the heel prick test
- Differentiate the types of screening for the various metabolopathies
- Distinguish the most frequent chromosomopathies
- Deal with neonatal oncology and the different types of tumors typical of the neonatal period: neuroblastoma, Wilms' tumor and teratomas





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*With this Hybrid Master's Degree you will up to date your knowledge in nursing interventions in preoperative and postoperative neonatal care to offer a detailed and adapted service to each patient”*

# 04 Skills

After graduating from this Hybrid Master's Degree in Neonatal Intensive Care and Neonatal Nursing, the nursing professional will have acquired the professional competencies necessary to provide quality care. Through a thorough exploration of cutting-edge technologies and approaches in this area, students will be kept up-to-date on the most relevant protocols currently in place to ensure the well-being of the neonate.





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*Thanks to this unique qualification you will up to date your knowledge in Neonatal Intensive Care and Neonatal Nursing and be able to perform quality care based on the latest scientific evidence”*





## General Skills

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- ◆ Possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- ◆ Know how to apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study
- ◆ Integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- ◆ Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- ◆ Acquire the learning skills that will enable further studying in a largely self-directed or autonomous manner
- ◆ Develop within the profession in terms of working with other health professionals, acquiring skills to work as a team
- ◆ Recognize the need to maintain your professional skills and keep them up to date, with special emphasis on autonomous and continuous learning of new information





## Specific Skills

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- ◆ Develop the capacity for critical analysis and research in your professional field
- ◆ Provide nursing care oriented to satisfying the needs of a newborn with health problems as well as preventing complications, all while guaranteeing safe and quality practice
- ◆ To provide comprehensive nursing care to the newborn from an ethical and legal perspective, with respect, tolerance, non-judgment, with sensitivity to cultural diversity, guaranteeing the right to privacy, confidentiality, information, participation, autonomy and informed consent in decision making; ensuring professional secrecy and quality of records
- ◆ Effectively and efficiently establish the different procedures that are required, select the diagnostic tests and administer the treatments needed for the different health problems in the newborn, taking into account the different levels of care
- ◆ Assess the needs of the newborn and provide comprehensive care during the surgical process, in order to optimize their recovery and to identify, intervene and/or refer them as a result of possible complications
- ◆ Incorporate the use and indication of medical devices and/or medications, evaluating the expected benefits, as well as the risks and/or effects, associated with their administration and consumption in the neonatal nursing care
- ◆ Apply theoretical knowledge in daily practice

# 05

# Course Management

In order to ensure academic excellence and the achievement of the objectives and goals of the nurses, this academic degree has an outstanding team of professionals who have collaborated closely with TECH in the design and development of the curriculum. Therefore, these leading experts in the field of Neonatology and Neonatal Nursing have been carefully selected for their vast experience and up-to-date knowledge in the field. Therefore, the graduate will be able to deepen in the differential diagnosis of the premature newborn or neonatal resuscitation with the most up to date knowledge provided by an elite faculty.





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*You will have a personalized Didactics itinerary guided by reputable experts. Only in TECH”*

## International Guest Director

Dr. Roxana Diehl is a leading neonatologist of international renown, who has held high positions of great responsibility, such as Deputy Director of the Neonatal Intensive Care Unit (NICU) at the Lyon University Hospital in France. Indeed, this expert has been a key player in the field of Neonatology, with a solid academic training and an exemplary professional career, contributing significantly in the clinical field.

Throughout her career, she has held several relevant positions in prestigious institutions. For example, she has served as a Hospital Physician in Neonatology, also at the University Hospital of Lyon, also excelling during her Fellowship in Neonatology, at the Saint-Étienne Nord Hospital, where she has been recognized for her dedication to intensive neonatal care. In addition to this, she has experience as a pediatrician at the Marie Curie Hospital in Bucharest, Romania.

In addition to her clinical practice, Dr. Roxana Diehl has been an influential figure in the development of policies and protocols within the NICU. As a referring physician in the Prenatal Diagnostic Center and a member of the Ethics Committee, she has played a crucial role in making complex medical decisions and promoting ethical standards in neonatal care. Likewise, her commitment to the continuous improvement of medical care has led her to actively participate in innovative projects, including her role as referring physician for the Mobile Neonatal Unit.

Additionally, her academic merits have been equally impressive, having earned multiple university degrees in specialized areas such as Neonatal Developmental Care, Fetal Medicine and Psychoperinatal Care. These academic achievements, coupled with her clinical experience, have established her as an expert in her field, capable of influencing and improving neonatal practices globally.





## Dr. Diehl, Roxana

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- Deputy Director of Neonatal Intensive Care, Lyon University Hospital, France
- Hospital Physician in Neonatology, NICU, Lyon University Hospital, France
- Fellowship in Neonatology at the Hôpital Saint-Étienne Nord, France
- Pediatrician at Marie Curie Hospital in Bucharest, Romania }
- University Degree in Neonatal Developmental Care from the University of Lyon
- University Degree in Fetal Medicine, University of Lyon, France
- University Degree in Psychoperinatal Care, University of Montpellier, France
- University Degree in Neonatology from the University of Saint-Étienne
- Residency in Pediatrics from the University of Saint-Étienne

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

## Management



### Dr. López Ruiz, María Amparo

- Doctor of Pediatric medicine
- Area Supervisor in Castilla y León Health Department (SACYL)
- Erasmus Coordinator for Medicine at the University CEU Cardenal Herrera
- University Professor of Nursing, Medicine and Pharmacy, specifically in the areas of: Pediatric Emergencies, Neonatal Nursing, Intensive Care, First Aid, Cardiopulmonary Resuscitation and Emergency Situations, and Advanced Aesthetic and Laser Techniques
- Coordinator of Medicine in Erasmus Internships for Medicine and at CEU Cardenal Herrera University
- Personal Tutor for international students of Medicine at CEU Cardenal Herrera University
- Entrepreneurship Tutor for Medicine at CEU Cardenal Herrera University
- NESTLÉ Award for Best Oral Communication, XXIV National Congress of the Spanish Society of Pediatrics
- Extrahospitalaria y Atención Primaria, held in Murcia, for the work: *Analysis of the use of Analgesic-Antipyretics in pediatric patients attending an emergency department*"
- Doctor *Cum Laude* in Medicine with honors by the University CEU Cardenal Herrera with the Thesis: *Analysis of Medication in Pediatric Population Who Attend the Emergency Department*
- Degree in Medicine and Surgery from the University of Valencia
- Expert in Neonatology: Premature Newborn Care

## Professors

### Dr. López Peña, Rafael

- ♦ Pediatrician and Neonatology Specialist
- ♦ Pediatrician and Specialist in Pediatric Intensive Care Unit and Neonatal Intensive Care Unit
- ♦ Specialist in Pediatrics at the Polytechnic and University Hospital La Fe
- ♦ Doctor of Medicine *Cum Laude* from the University of Valencia
- ♦ Degree in Medicine and Surgery from the University of Valencia
- ♦ Expert in Neonatology

### Dr. Rojas Otero, Lucila

- ♦ Specialist Pediatrician
- ♦ Pediatrician and Specialist in Pediatric Intensive Care (UCIP) Unit and Neonatal Intensive Care Unit(UCIN)
- ♦ Specialist in Pediatric aging medicine consultations at the Vithas Valencia 9 de Octubre Hospital
- ♦ Degree in Medicine and Surgery from the University of Zaragoza
- ♦ Expert in Neonatology

### Dr. Sanahuja Santafé, Maria Amparo

- ♦ Specialist in Pharmacology
- ♦ Expert researcher in Cell Biology
- ♦ Doctorate Coordinator
- ♦ Assistant Professor in the Department from Pharmacy at the Faculty of Health Sciences of the CEU Cardenal Herrera University
- ♦ Co-author of several publications and of the work *Potencial Medicinal de nuestras plantas. Resources of the past, present and future*, winner of the RÖEL award by the Valencian Medical Institute
- ♦ Doctor of Pharmacy

### Dr. Moreno Royo, Lucrecia

- ♦ Researcher and professor
- ♦ Professor of Pharmacology at CEU Cardenal Herrera University
- ♦ Honorary Member of the Valencian Medical Institute
- ♦ British Medical Journal Case Reports Reviewer
- ♦ PhD in Pharmacy from the University of Valencia
- ♦ Degree in Pharmacy from the University of Valencia
- ♦ Assessment: 21st Sandalio Miguel-María Aparicio Prize, awarded by the Domus Cultural Institution Foundation, 1st Prize in the Distribution section for the Neuroprotected Cities project, by the Go Health Awards, Prize of the Royal Academy of Medicine and Surgery of Valencia
- ♦ Member of the Scientific Committee From: Young Pharmaceutical Care Spain, *Ars Pharmaceutica*, Community Pharmacists, Pharmaceutical Care

### Dr. Silvestre Castelló, Dolores

- ♦ Specialist Degree in Nutrition, Dietetics and Diet Therapy
- ♦ Associate Professor of Nutrition and Bromatology at CEU Cardenal Herrera University
- ♦ Regular collaborator of the Escuela Valenciana para la Salud, as a teacher in the postgraduate courses of Nutrition
- ♦ Doctor of Chemical Sciences from the University of Valencia
- ♦ Diploma in Food Technology Spanish National Research Council (Consejo Superior Investigaciones Científicas)
- ♦ Postgraduate in Nutrition, Dietetics and Diet Therapy, University of Navarra

### Ms. Iranzo Cobo del Prado, Rosana

- ♦ Nurse of the Pediatric Home Department at the University and Polytechnic Hospital La Fe , Spain Valencia
- ♦ Teacher of the Degree in Nursing at the CEU Cardenal Herrera University
- ♦ Graduate in Nursing

**Dr. Bendala Tufanisco, Elena**

- ♦ Retina and Diabetes Researcher
- ♦ Teacher of Biomedical Sciences of the Faculty of Health Sciences at CEU Cardenal Herrera University
- ♦ Physician at the University of Kansas Medical Center
- ♦ Researcher at the Valencian Foundation for Advanced Studies
- ♦ Researcher's Degree in Critical Care at Rey Juan Carlos I University
- ♦ Degree in Medicine and Surgery from the University of Valencia
- ♦ Degree in Biology from the University of Valencia
- ♦ Doctor of Biochemistry and Molecular Biology *Cum Laude* from the University of Valencia

**Ms. Roldán del Amo, Adela**

- ♦ Specialist in Pediatric Nursing
- ♦ Pediatric Nurse in the Pediatric Hospitalization Unit at Vithas Nisa 9 de Octubre Hospital
- ♦ University Professor in the areas of Neonatal Nursing and Neonatal Intensive Care, First Aid, Cardiopulmonary Resuscitation and Emergency Situations
- ♦ University Diploma in Nursing at the University School of Nursing "Nuestra Señora de los Desamparados in Valencia

**Mr. Ribes Roldán, Sandra**

- ♦ Nurse
- ♦ Nurse at the 9 de Octubre Vithas Valencia Hospital
- ♦ Teacher in program related to Nurses Science
- ♦ Graduate in Nursing

**Ms. Alfaro Ramírez, Concepción**

- ♦ Specialist in Pediatric Nursing
- ♦ Nursing Supervisor for Pediatric Services at Vithas Valencia 9 Hospital in Octubre
- ♦ University Professor in the "Diploma in Neonatal Nursing and Neonatal Intensive Care" at the CEU Cardenal Herrera University
- ♦ Lecturer in Child Nutrition Course at Fundación Hospitales Nisa
- ♦ Diploma in Nursing from the University Catholic of Valencia

**Dr. Julve Chover, Natalia**

- ♦ Specialist in Pediatric Neurology
- ♦ Head of the Pediatrics, Neuropediatrics and Neonatal and Pediatric Intensive Care Units at IMED Valencia Hospital
- ♦ Physician attached to the Pediatrics Service and Pediatric Intensive Care Unit in Neonates at Vithas Nisa Hospital
- ♦ Doctor of Medicine *Cum Laude* from the University of Valencia
- ♦ Degree in Medicine and Surgery from the University of Valencia
- ♦ Specialist in Child Neurology
- ♦ Expert in Neonatology

**Dr. Navarro Marí, Rosa María**

- ♦ Specialist in Pediatrics at Hospital Vithas 9 de Octubre and Hospital Vithas Valencia Consuelo
- ♦ Physician attached to the Pediatrics Service and Pediatric Intensive Care La Unit in Neonates at Vithas Nisa Hospital
- ♦ Degree in Medicine and Surgery from the University of Valencia
- ♦ Expert in Neonatology
- ♦ Diploma of Medical Puericulturist by the Departmental School of Puericulture. Valencia
- ♦ Degree of Medical Specialist in Pediatrics and its Specific Areas by the Ministry of Education and Science
- ♦ Pediatric and neonatal CPR instructor by the Spanish Group of Pediatric and Neonatal CPR
- ♦ University Expert in Neonatology from the Catholic University of Valencia
- ♦ Member of Spanish Society of Neonatology (SENEO)

**Ms. Dobón García, Ana María**

- ♦ Lawyer with expertise in Health Law and Family Law
- ♦ Professional lawyer in professional practice in Valencia
- ♦ Legal mediator in several offices in Valencia
- ♦ Degree in Law from the University of Valencia

**Ms. Juan Hidalgo, Alicia**

- ♦ Clinical Psychologist in Private Practice
- ♦ Teacher in university studies on Psychology
- ♦ Degree in Psychology from the University of Valencia

**Mr. Martínez Dolz, Jesús**

- ♦ Neonatal and Pediatric Intensive Care Nurse Practitioner
- ♦ Nurse Pediatrics at the Polytechnic and University Hospital La Fe
- ♦ Pediatric Nurse at Hospital Nisa 9
- ♦ Pediatric Nurse at Virgen del Consuelo Hospital
- ♦ Diploma Pediatric Nurse in Hospital Clínico Universitario de Valencia
- ♦ Degree in Nursing from the University of Valencia



# 06

## Educational Plan

The curriculum that makes up this program has been developed by experts in Neonatal Intensive Care under the revolutionary methodology that distinguishes TECH, the Relearning. Consisting of the reiteration of fundamental concepts throughout the program, the contents are presented in different audiovisual supports, facilitating the integration of the information and reducing the hours of study necessary to successfully complete the program. All this under a completely online methodology that allows training without time or geographical restrictions.



“

*Optimize your study time with the Relearning methodology that TECH offers you in this Hybrid Master's Degree and apply your knowledge in a first class practical stay”*

## Module 1. Important Aspects of Neonatology

- 1.1. Differences between Newborn, Child and Adolescent
- 1.2. Neonatal Stages
  - 1.2.1. Neonatal Stages at Gestational Age
  - 1.2.2. Neonatal Stages for Birthweight
  - 1.2.3. Premature Newborns
  - 1.2.4. Post-Term Newborn
- 1.3. Anatomical and Physiological Characteristics of the Normal Newborn
  - 1.3.1. Newborn Somatometry
  - 1.3.2. Morphological Characteristics
  - 1.3.3. Physiological Characteristics
- 1.4. Complete Physical Examination of the Newborn
  - 1.4.1. Physical Examination Process
  - 1.4.2. General Observation
  - 1.4.3. Head and Neck Region
  - 1.4.4. Torso Region
  - 1.4.5. Limb Region
  - 1.4.6. Neurological Examination
- 1.5. Structure and Organisation of the Neonatal Service
  - 1.5.1. Location of the Neonatology Service
  - 1.5.2. Equipment and Materials
  - 1.5.3. Human resources
  - 1.5.4. Concept of Neonatal Intensive Care Unit (NICU)
    - 1.5.4.1. Calculation and Layout of Cribs
    - 1.5.4.2. Physical Space in a Neonatal Intensive Care Unit
    - 1.5.4.3. Equipment and Material in a Neonatal Intensive Care Unit
    - 1.5.4.4. Human resources in a Neonatal Intensive Care Unit
    - 1.5.4.5. Profiles and Roles: "Nursing Team"
    - 1.5.4.6. Operating System "Primary Nursing"

## Module 2. Admission of a Newborn in the Neonatal Ward or in the NICU

- 2.1. Arrival of the Newborn (NB) in the Neonatal
  - 2.1.1. Admission Criteria
  - 2.1.2. Admission Objectives
  - 2.1.3. Nursing Interventions
  - 2.1.4. Physical Examination of the Newborn
- 2.2. Arrival of the Newborn (NB) in the NICU
  - 2.2.1. Admission Criteria
  - 2.2.2. Admission Objectives
  - 2.2.3. Nursing Interventions
  - 2.2.4. Physical Examination of the Newborn
- 2.3. Neonatal Transport
  - 2.3.1. Transfer of the Pregnant Woman
  - 2.3.2. Neonatal Transfer
  - 2.3.3. Neonatal Transport Team
  - 2.3.4. Neonatal Transport Equipment

## Module 3. Neonatal Resuscitation

- 3.1. Neonatal Resuscitation
  - 3.1.1. Cardiovascular Risk Factors
  - 3.1.2. General Procedures in the Moments Prior to Delivery
- 3.2. Resuscitation Team
- 3.3. Neonatal Resuscitation Equipment
- 3.4. Resuscitation Procedures
- 3.5. Respiratory Assistance Methods
- 3.6. Cardiac Massage
- 3.7. Administration of Medication: Drugs and Fluids
- 3.8. Neonatal Cardiorespiratory Arrest Care
- 3.9. Special Situations for Resuscitation
- 3.10. Basic Principals for a Successful Resuscitation and Possible Complications that Could Arise During the Resuscitation

## Module 4. Pharmacology in Neonatology

- 4.1. General Aspects of Neonatal Pharmacology
- 4.2. Modifications in the Reaction of Drugs in Newborns
- 4.3. Pharmacokinetics in Neonatology
  - 4.3.1. Absorption of Drugs
  - 4.3.2. Distribution of Drugs
  - 4.3.3. Binding of Drug to Plasma Proteins According to Development
  - 4.3.4. Metabolism or Biotransformation of Drugs in the Child
  - 4.3.5. Excretion of Drugs in Neonatology
- 4.4. Pharmacodynamics in Neonatology
- 4.5. Dosage Guidelines
  - 4.5.1. Excipients Used in Neonatal Formulations
  - 4.5.2. Therapeutic Guidelines
- 4.6. Drug Interactions
  - 4.6.1. Types of Pharmacological Interactions
  - 4.6.2. Interaction Risk Prevention
- 4.7. Use of Drugs in Neonatology

## Module 5. Principles of Drug Administration and Vascular Access in Neonatology

- 5.1. Principles of Drug Administration in the NICU
  - 5.1.1. Enteral Route
  - 5.1.2. Rectal Route
  - 5.1.3. Intramuscular Route
  - 5.1.4. Subcutaneous Route
  - 5.1.5. Intravenous Route
- 5.2. Specific Ways to Administer Drugs I: Rapid Intravenous Route
- 5.3. Specific Ways to Administer Drugs II: Intravenous Route with a Specific Infusion
- 5.4. Specific Ways to Administer Drugs III: Continuous Intravenous Route

- 5.5. Specific Ways to Administer Drugs IV: Peripheral Venous Route
  - 5.5.1. Necessary Equipment
  - 5.5.2. Procedure
  - 5.5.3. Maintaining the Line
  - 5.5.4. Removing the Line
  - 5.5.5. Possible Complications that Could Arise
- 5.6. Specific Ways of Administering Drugs V: Percutaneous Venous Route
  - 5.6.1. Indications
  - 5.6.2. Necessary Equipment
  - 5.6.3. Procedure
  - 5.6.4. Precautions
  - 5.6.5. Contraindications
  - 5.6.6. Complications
- 5.7. Specific Ways to Administer Drugs VI: Cannulation of the Umbilical Artery and Vein
  - 5.7.1. Indications
  - 5.7.2. Necessary Equipment
  - 5.7.3. Preparation
  - 5.7.4. Common Procedure for the Umbilical Artery and Umbilical Vein
  - 5.7.5. Contraindications
  - 5.7.6. Complications
- 5.8. Specific Ways to Administer Drugs VII: Cannulation of the Peripheral Artery
  - 5.8.1. Indications
  - 5.8.2. Necessary Equipment
  - 5.8.3. Procedure
  - 5.8.4. Extraction of a Catheter
  - 5.8.5. Precautions
  - 5.8.6. Contraindications
  - 5.8.7. Complications



## Module 6. Premature Child

- 6.1. Etiopathogenesis of Prematurity
- 6.2. Differential Diagnosis of Premature Newborns
- 6.3. Arrival of an Underweight Premature Newborn
- 6.4. Clinical Features and Complications of a Premature Newborn
  - 6.4.1. Respiratory Pathology
  - 6.4.2. Neurological Pathology
  - 6.4.3. Ophthalmologic Pathology
  - 6.4.4. Cardiovascular Pathology
  - 6.4.5. Digestive Pathology
  - 6.4.6. Immunological Pathology
  - 6.4.7. Metabolic Pathology
  - 6.4.8. Hematologic Pathology
  - 6.4.9. Endocrinologic pathology
  - 6.4.10. Complications
- 6.5. Care Procedure and Prognosis of a Premature Newborn
  - 6.5.1. Sequelae and Follow-up Monitoring
- 6.6. Aspects to be Monitored During the Recovery Period, Discharge and Post Care
  - 6.6.1. Hospital Discharge
  - 6.6.2. Rules of Conduct
  - 6.6.3. Feeding
  - 6.6.4. Pharmacological Supplements
  - 6.6.5. Neuropsychological and Somatometric Monitoring
  - 6.6.6. Prevention of Respiratory Infections
  - 6.6.7. Vaccinations for Premature Newborns

## Module 7. Thermal Management, Pain Control and Sedation of the Newborn

- 7.1. Thermal Management in a Newborn
  - 7.1.1. Introduction of Thermoregulation
  - 7.1.2. Neutral Thermal Environment
  - 7.1.3. First Hours of Life
  - 7.1.4. Effects of Thermal Environment on a Newborn
  - 7.1.5. Guidelines for Assessing the Temperature of a Newborn
  - 7.1.6. Hypothermia in a Newborn with Hypoxic-ischemic Encephalopathy as a Neuroprotective
    - 7.1.6.1. Mechanisms of Action for Hypothermia
    - 7.1.6.2. Neuroprotection with Cerebral Hypothermia After Hypoxic-ischemic Occurs
    - 7.1.6.3. Indications of Hypothermia
    - 7.1.6.4. Contraindications of Hypothermia
    - 7.1.6.5. Exit Criteria Once Hypothermia has Begun
- 7.2. Pain Management in a Newborn
  - 7.2.1. Physiology of Pain in a Newborn
  - 7.2.2. Short and Long-Term Consequences of Pain
  - 7.2.3. Measurement of Pain in a Newborn
  - 7.2.4. Treatment of Pain in a Newborn
  - 7.2.5. Pain Management in Some Common Procedures in the NICU
- 7.3. Sedation of a Newborn
  - 7.3.1. Anesthetic Drugs
  - 7.3.2. Hypnotic/ Sedative Drugs
  - 7.3.3. Withdrawal Syndrome in a Newborn

## Module 8. Water, Electrolyte and Metabolic Disorders of a Newborn

- 8.1. Fluids and Electrolytes in a Newborn
  - 8.1.1. Hydroelectrolyte Balance
  - 8.1.2. Imperceptible Water Losses
  - 8.1.3. Electrolytes
    - 8.1.3.1. Sodium (Na)
    - 8.1.3.2. Potassium (K)
    - 8.1.3.3. Calcium (Ca)
  - 8.1.4. Glucose
- 8.2. Water Balance in Neonatal Admitted to the ICU
  - 8.2.1. Patient Monitoring
  - 8.2.2. Adequate Water Balance
  - 8.2.3. Objectives for the Management of Fluids in Newborns Weighing Less Than 1.500g
  - 8.2.4. Different Stages during the Management of Fluids in Newborns Weighing Less Than 1.500g
  - 8.2.5. Alternative Ways of Calculating Water Balance in a Critically Ill
    - 8.2.5.1. Calculation of Insensible Losses (IL) or Insensible Gains (IG)
    - 8.2.5.2. Calculation of Insensible Losses (IL) with Weight Gain
    - 8.2.5.3. Calculation of Insensible Losses (IL) with Weight Loss
- 8.3. Very Premature Newborns and Hyperosmolar State
  - 8.3.1. When Should Fluids be Restricted in a Very Premature Newborn?
  - 8.3.2. When Should the Need for Fluids be Increased in a Very Premature Newborn?

## Module 9. Newborn Feeding: Breastfeeding/Formula Feeding and Feeding of the Hospitalized Infant

- 9.1. General Aspects of a Newborn's diet
- 9.2. Requirements and Feeding Objectives of the Breastfeeding Infant
- 9.3. Breastfeeding
- 9.4. Enteral Nutrition
  - 9.4.1. Indications for Enteral Feeding
  - 9.4.2. Contraindications for Enteral Feeding
  - 9.4.3. Enteral Feeding Methods

- 9.5. Parenteral Nutrition
  - 9.5.1. Indications for Parenteral Feeding
  - 9.5.2. Contraindications for Parenteral Feeding
  - 9.5.3. Vein Administration Routes
  - 9.5.4. Recommendations for the Monitoring of Administration Routes
  - 9.5.5. Components of Parenteral Nutrition
  - 9.5.6. Preparation and Administration of Parenteral Nutrition
  - 9.5.7. Controls
  - 9.5.8. Complications
  - 9.5.9. Withdrawal of Parenteral Nutrition

## Module 10. Nursing Interventions: Family Care, Perinatal Death and Neonatal Development

- 10.1. Family-Centred Care: Ways to Promote and Rebuild Family
- 10.2. The Family in the Neonatal Unit and NICU Setting
- 10.3. Nursing Interventions in the Neonatal Unit and NICU Setting
- 10.4. Perinatal Death: the Pain and the Grieving Process
- 10.5. The Intervention of Professionals in the NICU in Perinatal Death
- 10.6. Impact of the NICU Environment on Development
- 10.7. Neonatal Care Focused on Development
- 10.8. Interventions on the Macroenvironment of the Newborn
- 10.9. Interventions on the Microenvironment of the Newborn
- 10.10. Involvement of Nurses in Hospital Discharge

## Module 11. Medical-Legal Aspects in Neonatology

- 11.1. Code of Ethics and Deontology
- 11.2. Keeping the Patient Informed
- 11.3. Informed Consent
- 11.4. Refusal of Treatment
- 11.5. Professional Secrecy
- 11.6. Organic Data Protection Law (LOPD)
- 11.7. Organ Donation

## Module 12. Respiratory Pathophysiology and Respiratory Disorders in Neonatology

- 12.1. Pulmonary Development
  - 12.1.1. Pulmonary Embryology
  - 12.1.2. Review of Pulmonary Anatomy
- 12.2. Respiratory Physiology
- 12.3. Newborn Respiratory Problems
- 12.4. Involvement of Nursing Staff in Treating a Newborn with a Respiratory Disorder
- 12.5. Mechanical Ventilation
  - 12.5.1. Nursing Care in Mechanical Ventilation
  - 12.5.2. Forms of Ventilation
    - 12.5.2.1. Non-Invasive Ventilation (NIV)
    - 12.5.2.2. Invasive Ventilation
- 12.6. Types of Materials for Administering Oxygen
- 12.7. Endotracheal Intubation and Extubation
  - 12.7.1. Endotracheal Intubation
  - 12.7.2. Extubation Process
- 12.8. Cricothyroidotomy or Coniotomy
- 12.9. Tracheotomy

## Module 13. Cardiac Disorders and Congenital Heart Disease in Neonatology

- 13.1. General Aspects of the Cardiovascular System
  - 13.1.1. Cardiac Embryology
  - 13.1.2. Reminder of Cardiac Anatomy
- 13.2. Syndromic Classification of Congenital Heart Disease
  - 13.2.1. Cyanotic Congenital Heart Disease
  - 13.2.2. Congenital Heart Disease Without Cyanosis
  - 13.2.3. Congenital Heart Disease Leading to Cardiogenic Shock

- 13.3. "Getting to Know" Congenital Heart Disease
  - 13.3.1. Transposition of the Main Arteries
  - 13.3.2. Isolated Ventricular Inversion or Corrected Transposition of the Main Arteries
  - 13.3.3. Tetralogy of Fallot
  - 13.3.4. Hypoplastic Left Heart Syndrome
  - 13.3.5. Infradiaphragmatic Total Pulmonary Venous Drainage
  - 13.3.6. Interruption of the Aortic Arch
  - 13.3.7. Aortic Coarctation
  - 13.3.8. Aortic Stenosis
  - 13.3.9. Pulmonary Stenosis
  - 13.3.10. Ebstein Disease
  - 13.3.11. Complex Heart Disease with Heart Failure Without Pulmonary Stenosis
  - 13.3.12. Congenital Heart Diseases with Left-Right Short Circuits
- 13.4. Nursing Care in Neonatal Heart Disease
  - 13.4.1. Evaluation and Interventions of the Nursing Staff in Treating a Patient with Congenital Heart Disease
  - 13.4.2. Nursing Care Plans
- 13.5. Preoperative and Postoperative Cardiac Surgery
  - 13.5.1. Preoperative Care
  - 13.5.2. Postoperative Care
  - 13.5.3. Bacterial Endocarditis

## Module 14. Neonatal Neurological Disorders

- 14.1. General Aspects of Neonatal Neurology
  - 14.1.1. Embryology of the Nervous System
  - 14.1.2. Basic Notions of the Nervous System Anatomy
- 14.2. Neonatal Neurological Examination
- 14.3. Neonatal Seizures
- 14.4. Neonatal Intracranial Hemorrhages
- 14.5. Hydrocephalus
- 14.6. Cerebral Hypothermia
- 14.7. Hypoxic-Ischemic Encephalopathy

## Module 15. Neonatal Digestive Disorders

- 15.1. General Aspects of Neonatal Gastroenterology
  - 15.1.1. Embryology of the Digestive System
  - 15.1.2. Reminder of the Anatomy of the Digestive System
- 15.2. Procedures for Handling Nasogastric and Orogastric Tubes
- 15.3. Gastroesophageal Reflux
- 15.4. Esophageal Atresia
- 15.5. Necrotizing Enterocolitis
- 15.6. Ostomy Care

## Module 16. Hematologic Disorders in Neonatology

- 16.1. General Aspects of Hematology
- 16.2. Neonatal Anemia
- 16.3. Fetal Hydrops
- 16.4. Neonatal Hiperbilirubinemia
- 16.5. Polycythemia
- 16.6. Thrombocytopenia
- 16.7. Blood Transfusion and Blood By-Products in the Neonatal Period

## Module 17. Renal Disorders in Neonatology

- 17.1. General Aspects of Neonatal Nephrology
  - 17.1.1. Embryology of the Renal System
  - 17.1.2. Review of the Anatomy of the Renal System
- 17.2. Nephrological Pathology in a Newborn
  - 17.2.1. Neonatal Bladder Catheterization
- 17.3. Urine Infection in a Newborn
- 17.4. Peritoneal Dialysis in a Newborn

## Module 18. Neonatal Shock

- 18.1. Introduction to Neonatal Shock
- 18.2. Phases of Neonatal Shock
- 18.3. Types of Shock
- 18.4. Clinical Signs of Neonatal Shock
- 18.5. How to Address Neonatal Shock
- 18.6. Basis of Treatment for Neonatal Shock
- 18.7. Nurse Interventions for Neonatal Shock
  - 18.7.1. Algorithm for Managing Neonatal Shock
- 18.8. Neonatal Sepsis and Septic Shock
  - 18.8.1. Introduction to Neonatal Sepsis
  - 18.8.2. Etiopathogenesis
  - 18.8.3. Etiology
  - 18.8.4. Clinical Symptoms
  - 18.8.5. Diagnosis
  - 18.8.6. Treatment

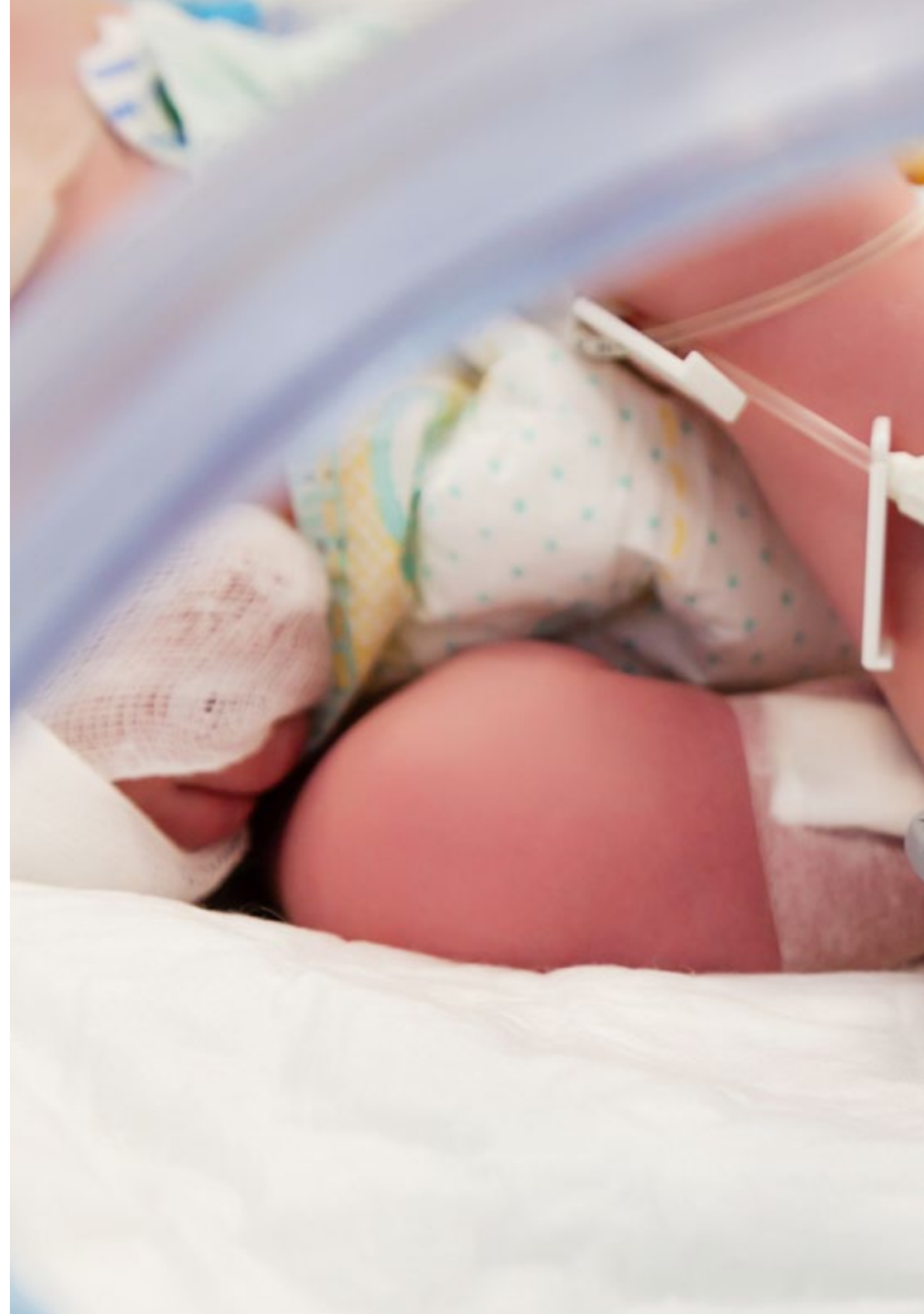
## Module 19. Neonatal Preoperative and Postoperative Care

- 19.1. Nursing Care in Neonatal Surgery
  - 19.1.1. General Preoperative Care
  - 19.1.2. General Postoperative Care
- 19.2. Most Common Surgical Procedures
  - 19.2.1. Choanal Atresia
  - 19.2.2. Esophageal Atresia with Tracheoesophageal Fistula
  - 19.2.3. Diaphragmatic Hernia
  - 19.2.4. Abdominal Wall Defects
  - 19.2.5. Necrotizing Enteritis
  - 19.2.6. Imperforate Anus
- 19.3. Nursing Involvement in Neonatal Preoperative and Postoperative Care



## Module 20. General Skin Care in Neonatology

- 20.1. General Aspects of Neonatal Dermatology
  - 20.1.1. Embryological Recall
  - 20.1.2. Histologic Recall
- 20.2. Newborn Skin Care Practices
- 20.3. Transient Benign Skin Lesions
  - 20.3.1. Erythema Toxicum Neonatorum
  - 20.3.2. Melanosis Pustular Neonatal Transitoria
  - 20.3.3. Milia
  - 20.3.4. Miliaria
  - 20.3.5. Neonatal acne
  - 20.3.6. Subcutaneous Fat Necrosis
  - 20.3.7. Dermal Melanocytosis
  - 20.3.8. Telangiectatic Nevus or Maternal Nevi
  - 20.3.9. Harlequin Coloring
- 20.4. Infections in a Newborn
  - 20.4.1. Oral Candidiasis (Thrush)
  - 20.4.2. Neonatal Cutaneous Candidiasis
  - 20.4.3. Neonatal Impetigo
  - 20.4.4. Staphylococcal Scalded Skin Syndrome
  - 20.4.5. Neonatal Chickenpox



**Module 21. Other Neonatal Pathologies: Metabolopathies, Chromosomopathies and Neonatal Oncology**

- 21.1. Metabolopathies
  - 21.1.1. Criteria for Listing a Metabolopathy in Neonatal Screening
  - 21.1.2. Screening Techniques: Procedure for the Heel Prick Test
  - 21.1.3. Different Types of Screening for the Various Metabolopathies
- 21.2. Most Common Chromosomopathies
  - 21.2.1. Aneuploidies
    - 21.2.1.1. Trisomy 21 (Down Syndrome)
    - 21.2.1.2. Trisomy 18 (Edwards Syndrome)
    - 21.2.1.3. Trisomy 13 (Patau's Syndrome)
    - 21.2.1.4. Turner Syndrome (45XO) or Monosomy X
    - 21.2.1.5. Klinefelter Syndrome (47XXY)
  - 21.2.2. Major Structural Changes
  - 21.2.3. Study of Chromosomal Alterations
- 21.3. Neonatal Oncology
  - 21.3.1. Neuroblastoma
  - 21.3.2. Wilms Tumor
  - 21.3.3. Teratomas

“

*A prestigious teaching team and the most effective methodology are combined with the most cutting-edge content in the digital academic landscape”*

07

# Clinical Internship

Throughout this Hybrid Master's Degree, nurses will have the opportunity to perform internships in recognized centers specialized in Neonatal Intensive Care and Neonatal Nursing. In this environment, graduates will put into practice the skills acquired during the initial theoretical phase of the program. In addition, they will work with real patients and under the close supervision of renowned experts. Therefore, the academic process will take place over 3 intensive weeks in which students will be immersed in an immersive and unique face-to-face experience thanks to an elite degree.





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*You will have at your fingertips the most innovative technologies for the diagnosis and treatment of neonates”*



The practical training of this academic degree in Neonatal Intensive Care and Neonatal Nursing consists of a practical stay in a renowned center. Throughout 3 weeks, from Monday to Friday and with 8-hour working days, the nurse will be able to apply all the knowledge acquired alongside an associate specialist. In this way, you will be able to see real patients under the support and supervision of a team of reference professionals with whom you will be able to apply the most innovative diagnostic procedures.

In this Practical Training proposal, the main objective is to provide a dynamic and immersive experience to develop new skills and put into practice everything learned in the first theoretical part. For this reason, and thanks to an eminently practical training, the activities are aimed at the development and improvement of the professional's skills for an optimal praxis.

This is a great opportunity to enhance the nurse's skills by working in a real environment, where the use of the latest diagnostic technologies will be part of their learning.

The practical education will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to

learn and learning to do), with the accompaniment and guidance of teachers and other fellow trainees that facilitate teamwork and multidisciplinary integration as transversal competencies for Current Neonatal Intensive The Care and nursing practice Neonatal Analysis(learning to be and learning to relate).

The procedures described below will form the basis of the practical part of the internship, and their implementation is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:



*You will do your internship in a hospital center of the highest level, with the latest technology and the best professionals who will accompany you in a unique practical and immersive experience"*

Module	Practical Activity
Neonatology	Examine the newborn to determine its condition according to gestational age and weight
	Perform the Complete Physical Examination of the Newborn
	To determine the use of physical space, equipment, material and nursing staff in the Neonatal Intensive Care Unit (NICU)
	Reception of a newborn in the neonatal ward
	Plan and carry out a Neonatal Transfer
Neonatal Resuscitation	Conduct simulations of planning and application of neonatal resuscitation techniques
	Discuss the specificities of pharmacokinetics and pharmacodynamics, as well as drug to drug interactions and dosing regimens in the neonate
	Practice enteral and rectal management techniques
	Practice intramuscular, subcutaneous and intravenous route management techniques, including specific forms of administration, necessary equipment, procedure and maintenance of the different routes
Care of the premature infant and newborn	Evaluate nursing interventions in airway management in the neonate and take corresponding actions
	Elaborate the nursing care plan for the neonate with congenital heart disease
	Simulate the care of a neonate with seizures
	Perform nasogastric and orogastric tube management techniques
	Handling the peritoneal dialysis catheter
	Apply the algorithm from managing neonatal shock
	Perform preoperative and postoperative care in a neonate with a surgical condition

Module	Practical Activity
Nursing Interventions in Neonatology	Family-Centred provide high: Ways to Promote and strengthen Family
	Perform Nursing Interventions in the Neonatal Unit and NICU Setting
	Addressing bereavement and the stages of the perinatal death process
	To develop skills to intervene in cases of perinatal death in the NICU
	Evaluate the Impact of the NICU Environment on Development in Neonates
	Implement Neonatal Care Focused on Development
	Perform interventions in the macroenvironment and microenvironment of the neonate
	Perform Involvement of Nurses in Hospital Discharge
Disorders in Neonatology	Apply airway management techniques in the neonate and perform corresponding nursing actions
	Evaluate nursing interventions in the neonate with congenital heart disease and develop a care plan and develop a care plan for the newborn with congenital
	Simulate the care of a neonate with seizures
	Perform nasogastric and orogastric tube management techniques
	Handling the peritoneal dialysis catheter
	Apply the algorithm from managing neonatal shock
	Perform preoperative and postoperative care in a neonate with a surgical condition

## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



## General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

**1. TUTOR:** During the Hybrid Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

**2. DURATION:** The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

**3. ABSENCE:** If the students does not show up on the start date of the Hybrid Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** Professionals who pass the Hybrid Master's Degree will receive a certificate accrediting their stay at the center.

**5. EMPLOYMENT RELATIONSHIP:** the Hybrid Master's Degree shall not constitute an employment relationship of any kind.

**6. PRIOR EDUCATION:** Some centers may require a certificate of prior education for the Hybrid Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

**7. DOES NOT INCLUDE:** The Hybrid Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.



# 08

## Where Can I Do the Clinical Internship?

In its commitment to academic quality, TECH has selected a large number of hospital centers for the nurse to develop the first level skills acquired in the initial theoretical part of the program. For this reason, the degree includes internships in renowned hospitals, where the graduate will have the opportunity to complement their academic training and address various practical issues in Neonatology. All this in a period of 3 weeks in which you will expand your knowledge by facing real cases for an optimal professional development.



A city skyline at sunset, with buildings illuminated and a colorful sky transitioning from orange to blue. The image is split diagonally into three sections: a dark blue top-right section, a teal bottom-right section, and a white bottom-left section.

“

*TECH offers you the opportunity to do your internship in prestigious hospitals with the most advanced technology on the market”*





The student will be able to complete the practical part of this Hybrid Master's Degree at the following centers:



Nursing

### Hospital Maternidad HM Belén

Country: Spain  
City: La Coruña

Address: R. Filantropía, 3, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Update in Assisted Reproduction
- Hospitals and Health Services Management



Nursing

### Hospital HM Nou Delfos

Country: Spain  
City: Barcelona

Address: Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Aesthetic Medicine
- Clinical Nutrition in Medicine



Nursing

### Hospital HM Madrid

Country: Spain  
City: Madrid

Address: Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Anaesthesiology and Resuscitation



Nursing

### Hospital HM Montepríncipe

Country: Spain  
City: Madrid

Address: Av. de Montepríncipe, 25, 28660, Boadilla del Monte, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Aesthetic Medicine



Nursing

### Hospital HM Torrelodones

Country: Spain  
City: Madrid

Address: Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Nursing

### Hospital HM Sanchinarro

Country: Spain  
City: Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Anaesthesiology and Resuscitation
- Palliative Care



Nurses

### Hospital HM Puerta del Sur

Country: Spain  
City: Madrid

Address: Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

**Related internship programs:**

- Palliative Care
- Clinical Ophthalmology



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*Enroll now and advance in your field of work with a comprehensive program that will allow you to put into practice everything you have learned”*



09

# 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.





# 10 Certificate

This Hybrid Master's Degree in Neonatal Intensive Care and Neonatal Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Master's Degree diploma 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 **Hybrid Master's Degree diploma in Neonatal Intensive Care and Neonatal 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.

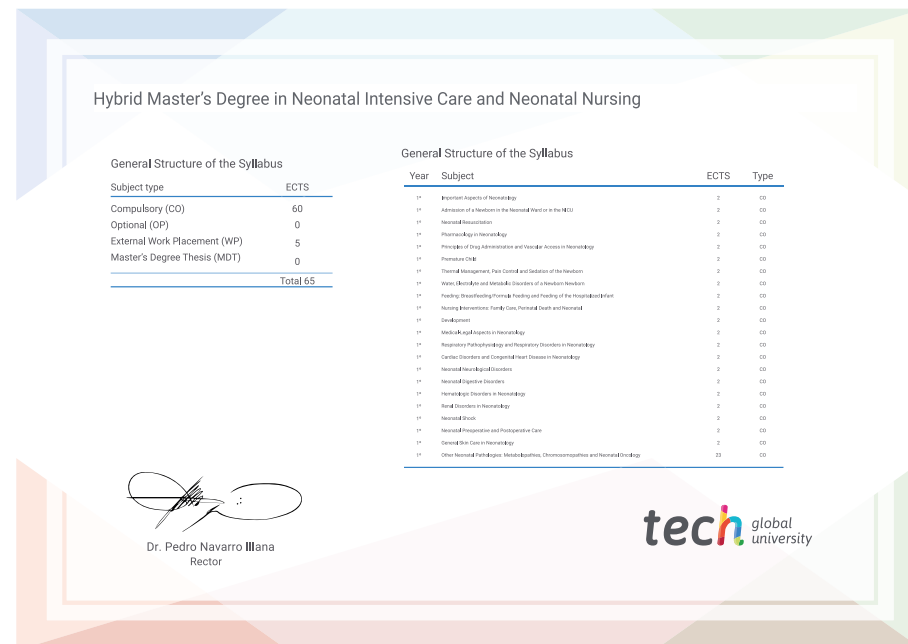
Title: **Hybrid Master's Degree in Neonatal Intensive Care and Neonatal Nursing**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Recognition: **60 + 5 ECTS Credits**



\*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.



**Hybrid Master's Degree**  
Neonatal Intensive Care  
and Neonatal Nursing

Modality: Hybrid (Online + Clinical Internship)

Duration: 7 months

Certificate: TECH Global University

60 + 5 ECTS Credits

**Hybrid Master's Degree**  
Neonatal Intensive Care  
and Neonatal Nursing

