

# Postgraduate Certificate

## Endocrine Pathology and Nutrition in Hospital Pediatrics





## Postgraduate Certificate Endocrine Pathology and Nutrition in Hospital Pediatrics

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

Official N° of hours: **150 h.**

Website: [www.techtute.com/medicine/postgraduate-certificate/endocrine-pathology-nutrition-hospital-pediatrics](http://www.techtute.com/medicine/postgraduate-certificate/endocrine-pathology-nutrition-hospital-pediatrics)

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# 01

# Introduction

Since nutrition is one of the key aspects in development, the field of pediatric endocrinology and nutrition is fundamental for every specialist in the field. The advances made in the approach to various nutritional deficiencies, as well as pathologies such as Hypoglycemia or Diabetes Mellitus, mean specialists must regularly update their knowledge in order to continue offering the best professional practice. For this reason, TECH has brought together the latest scientific theses on adrenal insufficiencies, etiopathogenesis in diabetes and new trends in diets. All this in a comfortable and accessible program for any specialist.





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*Update your knowledge by accessing the latest evidence on Diabetes Mellitus, polydipsia-polyuria and adrenal insufficiency”*

New dietary trends such as vegetarian or vegan diets can lead to nutritional deficiencies in children and adolescents if they are not strictly monitored and controlled. At the same time, the monitoring of diabetes and its diagnostic criteria continues to be one of the main fields of research in endocrinology, and in recent years there have been many advances in this regard.

Being aware of this changing reality, TECH has created this Postgraduate Certificate which includes a compendium of theses, research and scientific findings that gather all the essential information specialists need in one place. That is, topics devoted entirely to the diet of healthy children, enteral and parenteral nutrition, new approaches to the patient with suspected inborn error of metabolism and other issues of vital interest.

All this in a complete 100% online course, which does not require physical attendance or adherence to pre-fixed schedules. The entire syllabus is made available to specialists from day one, and can be downloaded from any device with an internet connection. This makes this program an ideal academic opportunity to get up to date in endocrine pathologies and pediatric nutrition without having to sacrifice personal or professional commitments.

This **Postgraduate Certificate in Endocrine Pathology and Nutrition in Hospital Pediatrics** is the most complete and up-to-date scientific program on the market. Its most notable features are:

- ◆ Practical case studies presented by experts in hospital pediatrics
- ◆ The graphic, schematic, and eminently 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
- ◆ Special emphasis on innovative methodologies in the approach to pneumological affections
- ◆ 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



*You will be able to study whenever, wherever and however it suits you, since you will have access to the syllabus 24 hours a day"*

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*Thanks to an effective methodology, you will not have to invest long hours into studying this program to successfully complete it. You will get up to date in a conclusive and efficient way”*

*Incorporate into your daily practice the most innovative treatments and monitoring techniques in Diabetes Mellitus type 1, 2 and MODY*

*Expand and update your knowledge of inborn error of metabolism, with extensive studies on diagnostic procedures and treatments for it*

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide an immersive program designed 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 student will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02 Objectives

The course objective is to provide specialists with a thorough and comprehensive up-to-date program on all the advances made in pediatric endocrinology and nutrition in recent years. To this end, a group of leading specialists in this field has come together to bring a unique, practical and theoretical vision to the program. This makes it an excellent option to fulfill the professional objective of constantly keeping up to date.





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*You will gradually meet all the objectives proposed by TECH, incorporating the progress made into your daily practice, even before the end of the program”*



## General Objectives

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- ◆ Master the latest techniques and knowledge in modern hospital pediatrics
- ◆ Become highly competent in pediatric patient management, ensuring maximum quality and safety during the process
- ◆ Develop exemplary skills to provide high quality care, guaranteeing patient safety based on the latest update of scientific evidence
- ◆ Gain up-to-date knowledge of hospital pediatrics





## Specific Objectives

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- ◆ Delve deeper into nutritional assessment and the most frequent alterations observed during hospital admission, early diagnosis and therapeutic lines
- ◆ Adopt a critical attitude toward new trends in diet and the possible deficiencies they can generate
- ◆ Know when to suspect the presence of a metabolic disease, as well as different clinical pictures, some of which are frequent, such as hypoglycemia, diabetic onset and control using new technologies, polyuria- polydipsia and suspected adrenal insufficiency

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*You will see the high quality of all the teaching material for yourself, which includes a considerable amount of audiovisual support”*

03

# Course Management

TECH has entrusted the creation of this program to the most prominent professionals in the area of pediatric endocrinology and nutrition, so all content is enhanced by the personal experience of our professors. This means students will not only have access to first class scientific and academic material, but also to the reality of the field and the most effective clinical practice used by the professors themselves in their daily work.





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*You will be supported at all times by a group of professionals who know the reality of working in the pediatric endocrine field, sharing with you their expertise and the most up-to-date knowledge”*

## Management



### Dr. García Cuartero, Beatriz

- ♦ Chief of the Pediatrics Service and coordinator of the Pediatric Endocrinology and Diabetes Unit Ramón y Cajal University Hospital, Madrid, Spain
- ♦ Specialist Physician in Pediatrics at Severo Ochoa, Leganés University Hospital, Madrid
- ♦ Primary Care Pediatrician, Area 4, Madrid
- ♦ Degree in Medicine and Surgery from the Complutense University of Madrid
- ♦ Specialist Degree in Pediatrics, MIR accreditation at the Infantil Niño Jesús University Hospital, Madrid Specific Training Area: Pediatric Endocrinology
- ♦ PhD from the Autonomous University of Madrid (UAM) Expression of manganese superoxide dismutase, heme oxygenase and nitric oxide synthase enzymes in cultured pancreatic islets with interleukin 1 by in situ hybridization Unanimous Cum Laude Award
- ♦ Associate Professor of Pediatrics, Faculty of Medicine Alcalá de Henares University
- ♦ Social Security Research Fund (FISS) Grant, Steno Diabetes Center, Copenhagen/Hagedorn Research Laboratory Project: Pancreatic beta cell destruction mechanism and free radicals in type 1 diabetes mellitus



## Professors

### Dr. Alkadi Fernández, Khusama

- ◆ Associate Specialist Physician in Pediatrics, Ramón y Cajal University Hospital
- ◆ Associate Specialist Physician in Pediatrics, Puerta De Hierro Hospital
- ◆ Degree in Medicine and Surgery, University of Seville
- ◆ PhD in Medicine. Official Doctoral Program in Medicine, Autonomous University of Madrid
- ◆ Incap Project, Puerta de Hierro, Majadahonda Health Research Institute

### Dr. Stanescu, Sinziana

- ◆ Ramón y Cajal Hospital Area Specialist, Pediatrics Department, Metabolic Diseases Unit
- ◆ Ramón y Cajal Hospital Medical on-call duty in the Pediatric Intensive Care Unit
- ◆ Ramón y Cajal Hospital Area Specialist in Pediatrics
- ◆ Henares University Hospital Medical on-call duty
- ◆ Degree in Medicine, Carol Davila University of Medicine and Pharmacy, Bucharest Degree approved by the Ministry of Education and Science (Government of Spain)
- ◆ Specialized training in Pediatrics via MIR Specialist in Pediatrics and Specialized Areas at Ramón y Cajal University Hospital, Madrid Subspecialty: Pediatric Intensive Care, Metabolic Diseases

# 04

# Structure and Content

The professors have carefully structured the course content in such a way that students can easily study it and consult the topics as much as they need to. Therefore, you will find up to nine topics with their respective subsections that will cover everything from nutritional status assessments in pediatric patients, diets of healthy children and enteral nutrition for polydipsia-polyuria, hypoglycemia or Diabetes Mellitus.







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*You will have the support of video classes recorded by the professors themselves, as well as interactive summaries and work guides that will greatly speed up your study work”*

## Module 1. Endocrine System, Metabolism and Nutrition in Pediatrics

- 1.1. Nutritional Status Assessment
  - 1.1.1. Nutritional Status Assessment
  - 1.1.2. Medical History, Nutritional Anamnesis and Physical Examination
  - 1.1.3. Body Composition Evaluation: Anthropometry, Weight / Height Ratio Indexes: Body Composition
  - 1.1.4. Nutritional Screening
- 1.2. Healthy Children Diet
  - 1.2.1. Breastfeeding
  - 1.2.2. Artificial Breastfeeding
  - 1.2.3. Healthy Children Diversification
- 1.3. Enteral and Parenteral Nutrition
  - 1.3.1. Detecting Patients in Need of Nutritional Support
  - 1.3.2. Requirement Calculations
  - 1.3.3. Choosing Artificial Nutrition Options
  - 1.3.4. Enteral Nutrition
    - 1.3.4.1. Access Routes
    - 1.3.4.2. Enteral Nutrition Formulas used in Pediatrics
    - 1.3.4.3. Monitoring and Complications
  - 1.3.5. Parenteral Nutrition
    - 1.3.5.1. Access Routes
    - 1.3.5.2. Monitoring and Complications
  - 1.3.6. Refeeding Syndrome
- 1.4. Deficiencies caused by New Forms Nutrition: New Diet Trends
  - 1.4.1. Types of Vegetarian Diets
  - 1.4.2. Macro- and Micro-Nutrients at Risk in Vegetarian Diets
  - 1.4.3. Vegetarian or Vegan Diet Recommendations according to Age
  - 1.4.4. Dietary Mistakes in Infants: Vegetable Drinks
  - 1.4.5. Information Sources
- 1.5. Approaching Patients with Suspected Inborn Errors of Metabolism (IEM)
  - 1.5.1. Inborn Errors of Metabolism (IEM)
  - 1.5.2. Clinical Approach
    - 1.5.2.1. IEM: Acute Presentation in the Neonatal Period and in Children <1 Year of Age
    - 1.5.2.2. IEM: Recurrent Seizures
    - 1.5.2.3. IEM: Chronic or Progressive Clinical Course
  - 1.5.3. Diagnostic Procedures
  - 1.5.4. Treatment
    - 1.5.4.1. Emergency Treatment
    - 1.5.4.2. Pharmacological Treatments and Cofactors
    - 1.5.4.3. Nutrition
    - 1.5.4.4. Others (Extrarenal Depuration Techniques, Transplantation, etc.)
- 1.6. Hypoglycemia
  - 1.6.1. Hypoglycemia
  - 1.6.2. Directed Initial Evaluation: Anamnesis, Physical Examination
  - 1.6.3. Complementary Examinations during Hypoglycemia Episodes
  - 1.6.4. Differential Diagnosis
  - 1.6.5. Treatment
- 1.7. Polydipsia-Polyuria
  - 1.7.1. Polyuria in Pediatric Patients: Normal Diuresis by Age Group
  - 1.7.2. Etiopathogenesis
    - 1.7.2.1. Aqueous Diuresis: Osmotic Diuresis
    - 1.7.2.2. Osmotic Diuresis: Most Common Causes
  - 1.7.3. Clinical Practice for Polyuric States
  - 1.7.4. Diagnosis
    - 1.7.4.1. Anamnesis and Physical Examination
    - 1.7.4.2. Complementary Tests: Water Restriction Test or Miller's Test Indications Limitations Arginine Vasopressin (AVP) and Copeptin Imaging and Other Tests
  - 1.7.5. Treatment: Side Effects and Precautions
  - 1.7.6. Current Lines of Research

- 1.8. Diabetes Mellitus
  - 1.8.1. Introduction
  - 1.8.2. Epidemiology
  - 1.8.3. Etiopathogenesis
    - 1.8.3.1. Type 1 Diabetes (T1D)
    - 1.8.3.2. Type 2 Diabetes (T2D)
    - 1.8.3.3. Monogenic Diabetes: Type Maturity Onset Diabetes of the Young (MODY) Diabetes Neonatal Diabetes
    - 1.8.3.4. Cystic Fibrosis (CF) Related Diabetes
    - 1.8.3.5. Other Specific Types
  - 1.8.4. Diagnostic Criteria
  - 1.8.5. Clinical Presentation of T1D and Action
    - 1.8.5.1. Diabetic Ketoacidosis
    - 1.8.5.2. Hyperglycemia with / without Ketosis
    - 1.8.5.3. Hyperglycemia in Asymptomatic Patients
  - 1.8.6. T1D Treatment and Monitoring
    - 1.8.6.1. Glycemic Targets
    - 1.8.6.2. Diabetes Education
    - 1.8.6.3. Insulin Therapy
    - 1.8.6.4. Feeding
    - 1.8.6.5. Physical Exercise
    - 1.8.6.6. Glycemic Monitoring
    - 1.8.6.7. Screening for Acute and Chronic Complications
  - 1.8.7. T2D Treatment and Monitoring
  - 1.8.8. MODY Treatment and Monitoring
  - 1.8.9. Other Types of Diabetes
- 1.9. Adrenal Insufficiency
  - 1.9.1. Adrenal Insufficiency
  - 1.9.2. Etiological Classification
    - 1.9.2.1. Primary or Adrenal
    - 1.9.2.2. Secondary-Tertiary or Hypothalamo-Pituitary
  - 1.9.3. Clinical Manifestations
    - 1.9.3.1. Acute Adrenal Gland Failure: Severity Criteria
    - 1.9.3.2. Chronic Adrenal Gland Insufficiency
  - 1.9.4. Diagnosis
    - 1.9.4.1. Adrenal Crisis: Lab Findings
    - 1.9.4.2. Hypocortisolism: Suspicion of Adrenal Insufficiency Analytical Determinations
      - 1.9.4.2.1. Initial Complementary Tests: Cortisol and Plasma Corticotropin (ACTH) Reference Values
      - 1.9.4.2.2. Stimulus Hormone Tests: ACTH Test, Insulin Hypoglycemia Test, Other Tests
      - 1.9.4.2.3. Second Level Complementary Tests: Imaging, Microbiology, Pathological Anatomy, Immunology and Genetic Tests
  - 1.9.5. Differential Diagnosis for Hypocortisolism: Relevant Entities
    - 1.9.5.1. Primary Forms
    - 1.9.5.2. Secondary and Tertiary Forms
  - 1.9.6. Treatment
    - 1.9.6.1. Adrenal Crisis
    - 1.9.6.2. Replacement Therapy
    - 1.9.6.3. Adrenal Crisis Management and Prevention
    - 1.9.6.4. Chronic Corticosteroid Therapy Withdrawal
    - 1.9.6.5. Pre- and Post-Operative Management
    - 1.9.6.6. Patient and Family Education



*You will be able to access practical exercises based on real clinical cases, where you will contextualize all the theory acquired throughout the program”*

05

# Methodology

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

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





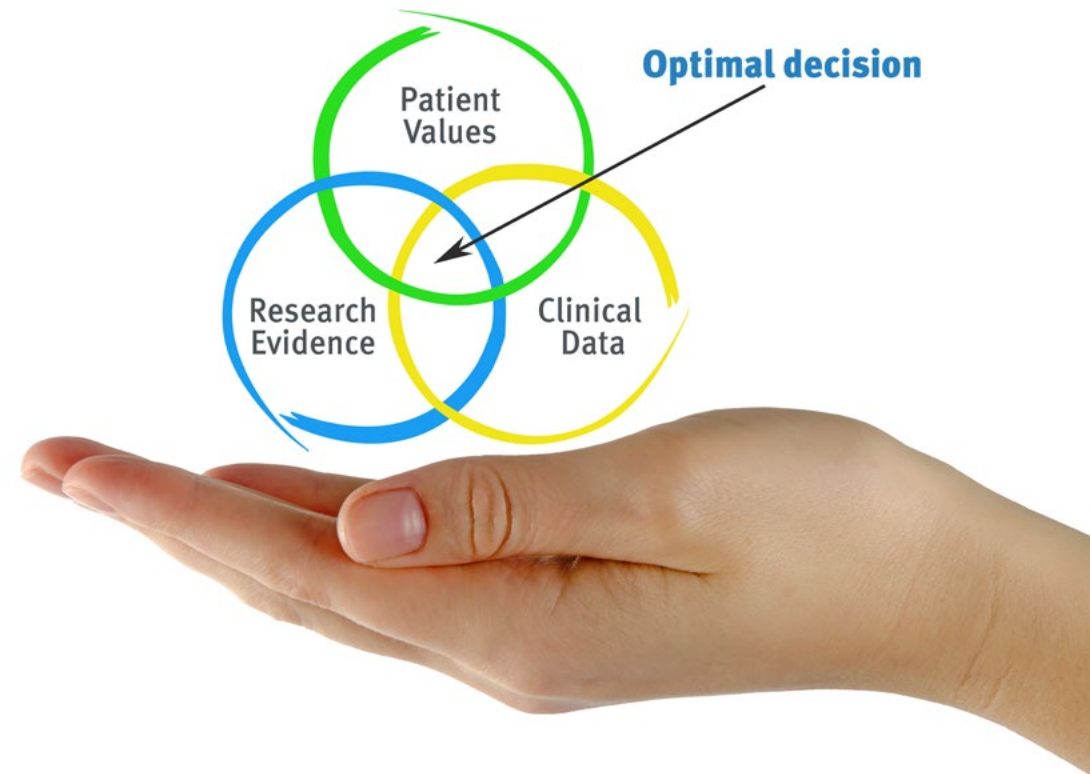
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

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

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



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

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

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

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



## Relearning Methodology

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

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

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





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

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

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

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

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



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



#### Study Material

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

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



#### Surgical Techniques and Procedures on Video

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



#### Interactive Summaries

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

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



#### Additional Reading

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





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

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



# 06 Certificate

The Postgraduate Certificate in Endocrine Pathology and Nutrition in Hospital Pediatrics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this program and receive your diploma without travel or laborious paperwork”*

This **Postgraduate Certificate in Endocrine Pathology and Nutrition in Hospital Pediatrics** contains the most complete and up-to-date program on the market.

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

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

Title: **Postgraduate Certificate in Endocrine Pathology and Nutrition in Hospital Pediatrics**

Official N° of hours: **150 h.**



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

health future  
confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
online training  
development languages  
virtual classroom



**Postgraduate Certificate**  
Endocrine Pathology  
and Nutrition in Hospital  
Pediatrics

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

**Postgraduate Certificate**  
Endocrine Pathology and Nutrition  
in Hospital Pediatrics