

# Postgraduate Certificate Pharmacology in Assisted Reproductive Nursing





## Postgraduate Certificate Pharmacology in Assisted Reproductive Nursing

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

Website: [www.techtute.com/in/nursing/postgraduate-certificate/pharmacology-assisted-reproductive-nursing](http://www.techtute.com/in/nursing/postgraduate-certificate/pharmacology-assisted-reproductive-nursing)

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01

# Introduction

The study of female infertility in Assisted Reproduction Units sets in motion the care activity in many fields: from the psychological, which will be applied in dealing with the patients from their first arrival at the clinic, to the more practical in the protocols and techniques that are developed. The nursing professional in this context requires a very complete Preparation in order to be able to competently work in any Assisted Reproduction Unit.

This Postgraduate Certificate will provide you with the qualifications you need to compete among the best in today's job market.





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*A highly qualified Postgraduate Certificate that prepares the nursing professional to act with safety and solvency in the Study of Male Infertility"*

The main objective of this Postgraduate Certificate is to prepare nurses in the field of male infertility. This specialization is extremely necessary, since the nursing staff is involved in many of the processes carried out in the Assisted Reproduction Units, such as the performance of seminograms, the analysis and processing of samples, seminal freezing, seminal lavage or even managing the male donor bank.

In order to prepare our students in the most complete way possible, we begin by explaining how the initial study of the patient is performed in consultation, also covering the complementary explorations that may arise, depending on the patient, as well as the genetic studies that can be performed.

Other approaches that will be developed in the Postgraduate Certificate are the basic aspects of the seminogram, an essential technique in seminal diagnosis. Once this technique is clear, the analysis and processing of samples for the different assisted reproduction techniques will be explained in detail, to continue with other widely used techniques, semen freezing and semen washing for HIV, Hepatitis B and Hepatitis C seropositive males.

We will explain in detail what semen donation is and how it works, three of the most widely used complementary sperm selection techniques, MACS, IMSI and hyaluronic acid based selection.

Finally, the nursing staff will be educated in the use of antioxidants, a topic that is currently on the rise and which will be very necessary in practice.

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

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practising experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by telepractice
- ◆ Continuous updating and recycling systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-evaluation and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection
- ◆ Complementary documentation banks permanently available, even after the Postgraduate Certificate



*With this Postgraduate Certificate you will be able to combine a high intensity specialization with your professional and personal life, achieving your goals in a simple and real way"*

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*Acquire the necessary skills to work in the Study of Male Infertility in Assisted Reproduction, with the solvency of a high-level professional"*

Our teaching staff is made up of professionals from different fields related to this specialty. In this way we ensure that we deliver the educational update we are aiming for. A multidisciplinary team of professionals prepared and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but, above all, will put at the service of the Postgraduate Certificate the practical knowledge derived from their own experience: one of the differential qualities of this specialization.

This mastery of the subject matter is complemented by the effectiveness of the methodological design of this Postgraduate Certificate in Pharmacology in Assisted Reproduction for Nursing. Developed by a multidisciplinary team of Postgraduate Diplomas, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your education.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, we will use telepractice learning: with the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*The learning of this Postgraduate Certificate is developed through the most advanced teaching methods in online teaching to guarantee that your effort will have the best possible results.*

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: "Learning from an expert".*



# 02 Objectives

The objective of this specialization is to provide nursing professionals with the knowledge and skills necessary to perform their activity in the field of Assisted Reproduction. Through a work approach that is totally adaptable to the student, this Postgraduate Certificate will progressively lead him or her to acquire the competencies that will propel him or her to a much higher professional level.







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*Become one of the most sought-after professionals of the moment, with this Postgraduate Certificate in Pharmacology in Assisted Reproductive Nursing”*



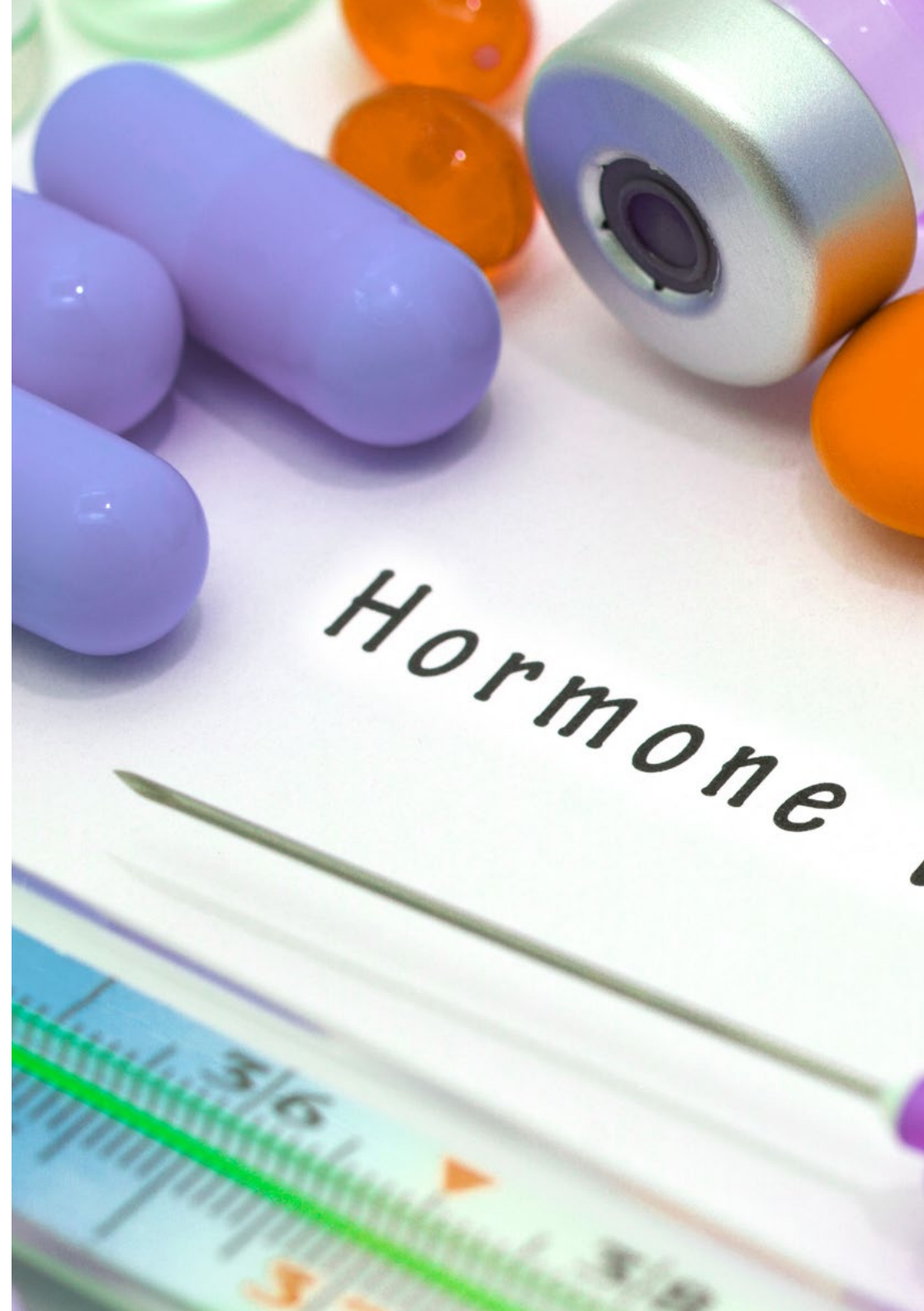
### General objectives

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- ◆ Broaden specific knowledge of each of the fields of work in assisted reproduction
- ◆ Enable students to be interdependent and problem solvers
- ◆ Facilitate good performance of nursing professionals in order to provide the best care throughout the process

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*A boost to your professional profile that will give you the competitiveness of the best prepared professionals in the labor market”*





## Specific objectives

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- ◆ Know what the initial study of the male consists of in consultation as well as the complementary explorations or genetic studies that may be requested
- ◆ Understand the importance of good semen handling practices
- ◆ Be able to perform a complete seminogram of the male
- ◆ Be able to process samples for assisted reproduction techniques
- ◆ Understand what sperm freezing consists of and be able to perform it without complications
- ◆ Be able to perform semen washings for HIV, Hepatitis B and Hepatitis C seropositive males, as well as to understand the importance of semen washings and good management, and to know when to recommend them in consultation
- ◆ Know the basics of semen donation, both at the consultation and laboratory level
- ◆ Learn about three of the most widely used sperm selection techniques currently in use, magnetically labeled cell sorting (MACS), intracytoplasmic injection of morphologically selected spermatozoa (IMSI) and selection based on hyaluronic acid binding, and therefore know when to recommend them in consultation
- ◆ Know the basics of antioxidant therapy and how to discern which antioxidants have proven efficacy and which do not

therapy

03

# Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.



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*An impressive teaching staff, made up of professionals from different fields of expertise, will be your teachers during your specialization: a unique occasion not to be missed"*

## Management



### Ms. Agra Bao, Vanesa

- Operating room supervisor at EVA FERTILITY-DORSIA
- Degree in Nursing University of La Coruña
- Postgraduate Diploma in Legal Nursing. UNED
- Official Master's Degree in Occupational Risk Prevention. USP-CEU
- Master's Degree in Physical Activity and Health. Miguel de Cervantes University
- Instructor of Basic Life Support and DESA. SEMICYUC
- Postgraduate Diploma in Surgical Anesthesiology for Nursing. CEU Cardenal Herrera University
- Biosafety and Occupational Risk Prevention in Microbiology Laboratories. SEM
- The male in Assisted Reproduction EVA FERTILITY CLINICS
- Biosafety Laboratories and Research Animal Facilities with Biocontainment Level 3. SEGLA
- Nursing action in traumatic emergencies, poisoning and other urgent situations. DAE



### Ms. Boyano Rodríguez, Beatriz

- Embryologist at Clínicas EVA, Madrid
- Postgraduate Diploma in Clinical Genetics, Universidad de Alcalá de Henares, Madrid
- Master's Degree in Assisted Human Reproduction Biotechnology, IVI and University of Valencia
- Postgraduate in Medical Genetics, University of Valencia, Spain
- Degree in Biology, Universidad de Salamanca
- Member of the Association for the Study of Reproductive Biology
- Member of the Spanish Association of Human Genetics

## Professors

### Ms. Fernández Rubio, Marta

- ◆ Operating Room Nurse. Dorsia Clinics
- ◆ Diploma in Nursing. San Pablo CEU University
- ◆ Professional Master's Degree in Emergency and Intrahospital Critical Care. San Pablo CEU University
- ◆ More than 30 FUNDEN Postgraduate Certificate courses in nursing care
- ◆ Postgraduate Certificate in chronic wounds. Madrid Hospital
- ◆ Postgraduate Certificate in Umbilical Cord Stem Cells and Regenerative Medicine. Madrid Hospital

### Ms. Fernández, Sara

- ◆ ICU, Hospitalization and Dialysis Ward. General surgery, specialties, internal medicine, oncology and Medical Surgical Day Hospital. HM Norte Sanchinarro
- ◆ Degree in Nursing. San Pablo CEU University
- ◆ Expert in the care of adult patients in life-threatening situations. CODEM
- ◆ Postgraduate Certificate in chronic wounds. Madrid Hospital
- ◆ Nursing guidance for emergency use of intravenous pharmaceutical products. LOGGOS
- ◆ More than twenty FUNDEN Postgraduate Certificate courses in nursing care



# 04

# Structure and Content

The contents of taught have been developed by the different experts on this course, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success.





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*A specialization created and directed by professional experts in Assisted Reproduction that make this Postgraduate Certificate a unique opportunity for professional growth"*

## Module 1. Pharmacology in Assisted Reproduction

- 1.1. Initial Study
  - 1.1.1. Objectives
  - 1.1.2. When Should It Be Done?
  - 1.1.3. Minimum Evaluation
  - 1.1.4. Optimal Evaluation
  - 1.1.5. Medical History
  - 1.1.6. Physical Exploration
- 1.2. Complementary Evaluations
  - 1.2.1. Sperm Function Tests
  - 1.2.2. Hormonal Determinations
  - 1.2.3. Ultrasonography and Scrotal Doppler Ultrasonography
  - 1.2.4. Transrectal Ultrasound
  - 1.2.5. Bacteriological Study of Semen
  - 1.2.6. Post-Orgasm Urinalysis
- 1.3. Genetic Studies
  - 1.3.1. Karyotype
  - 1.3.2. Yq Microdeletions
  - 1.3.3. CFTR Mutations
  - 1.3.4. Meiotic Chromosome Studies
  - 1.3.5. FISH of Spermatozoa
- 1.4. Seminogram
  - 1.4.1. Basic Considerations
  - 1.4.2. Proper Sample Handling
  - 1.4.3. Sample Collection
    - 1.4.3.1. Preparation
    - 1.4.3.2. Collection for Diagnosis
    - 1.4.3.3. Collection for Use in Assisted Reproduction
    - 1.4.3.4. Collection for Microbiological Analysis
    - 1.4.3.5. Home Collection
    - 1.4.3.6. Collection with Preservative
  - 1.4.4. Initial Macroscopic Examination
    - 1.4.4.1. Liquefaction
    - 1.4.4.2. Viscosity
    - 1.4.4.3. Appearance
    - 1.4.4.4. Volume
    - 1.4.4.5. PH
  - 1.4.5. Initial Microscopic Examination
    - 1.4.5.1. How to Get a Representative Sample
    - 1.4.5.2. Sample Quantity
    - 1.4.5.3. Aggregation
    - 1.4.5.4. Agglutination
    - 1.4.5.5. Presence of Cellular Elements Other than Spermatozoa
  - 1.4.6. Motility
  - 1.4.7. Vitality
  - 1.4.8. Concentration
  - 1.4.9. Counting of Cells Other than Sperm Cells
  - 1.4.10. Sperm Morphology
  - 1.4.11. Presence of Leukocytes in Semen
  - 1.4.12. Antispermatozoa Antibodies Test
  - 1.4.13. Automated Analysis
- 1.5. Analysis and Processing of Samples for Assisted Reproduction Techniques (ART)
  - 1.5.1. Washing
  - 1.5.2. Swim-up
  - 1.5.3. Density Gradients
- 1.6. Sperm Freezing
  - 1.6.1. Indications
  - 1.6.2. Cryoprotectors
  - 1.6.3. Semen Freezing Techniques
  - 1.6.4. Storage Containers

- 1.7. Semen Washing for HIV, Hepatitis B and Hepatitis C Seropositive Males
  - 1.7.1. Hepatitis B
  - 1.7.2. HIV
  - 1.7.3. Hepatitis C
  - 1.7.4. General Considerations
- 1.8. Sperm Donation
  - 1.8.1. General Aspects
  - 1.8.2. Indications
  - 1.8.3. Sperm Donor Considerations
  - 1.8.4. Recommended Tests
  - 1.8.5. Anonymity
  - 1.8.6. Choosing the Right Donor
  - 1.8.7. Risk
  - 1.8.8. Cessation of Donation
- 1.9. Complementary Sperm Selection Techniques
  - 1.9.1. MACS (Magnetically Marked Cell Sorting)
    - 1.9.1.1. Biological Basis of the Technique
    - 1.9.1.2. Indications
    - 1.9.1.3. Advantages and Disadvantages
  - 1.9.2. IMSI (Intracytoplasmic Injection of Morphologically Selected Spermatozoa)
    - 1.9.2.1. Procedure
    - 1.9.2.2. Indications
    - 1.9.2.3. Advantages and Disadvantages
  - 1.9.3. Selection Based on Binding to Hyaluronic Acid
    - 1.9.3.1. Procedure
    - 1.9.3.2. Indications
    - 1.9.3.3. Advantages and Disadvantages
- 1.10. Oral Therapy Use of Antioxidants
  - 1.10.1. Antioxidant Concept
  - 1.10.2. Reactive Oxygen Species (ROS)
  - 1.10.3. Factors Leading to Increased ROS in Semen
  - 1.10.4. Damage Caused by Increased ROS in Spermatozoa
  - 1.10.5. Antioxidant System in Semen
    - 1.10.5.1. Enzymatic Antioxidants
    - 1.10.5.2. Superoxide Dismutase
    - 1.10.5.3. Catalase
    - 1.10.5.4. Nitric Oxide Synthase
    - 1.10.5.5. Glutathione S-Transferase
    - 1.10.5.6. Peroxiredoxin
    - 1.10.5.7. Thioredoxins
    - 1.10.5.8. Glutathione Peroxidase
  - 1.10.6. Exogenous Supplementation
    - 1.10.6.1. Omega 3 Fatty Acids
    - 1.10.6.2. Vitamin C
    - 1.10.6.3. Coenzyme Q10
    - 1.10.6.4. L-Carnitine
    - 1.10.6.5. Vitamin E
    - 1.10.6.6. Selenium
    - 1.10.6.7. Zinc
    - 1.10.6.8. Folic Acid
    - 1.10.6.9. L-Arginine
  - 1.10.7. Conclusions



*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life”*

# 05 Methodology

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

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





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

## At TECH Nursing School we use the Case Method

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

*With TECH, nurses can experience a learning methodology that is shaking the foundations of traditional universities around the world.*



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

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

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

1. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

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

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



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



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

With this methodology we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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

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

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



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



### Study Material

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

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



### Nursing Techniques and Procedures on Video

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



### Interactive Summaries

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

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



### Additional Reading

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





### Expert-Led Case Studies and Case Analysis

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



### Testing & Retesting

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



### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



### Quick Action Guides

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



06

# Certificate

The Postgraduate Certificate in Pharmacology in Assisted Reproductive Nursing guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Pharmacology in Assisted Reproductive Nursing** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Certificate in Pharmacology in Assisted Reproductive Nursing**

Official N° of hours: **150 h.**



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

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



**Postgraduate Certificate**  
Pharmacology in  
Assisted Reproductive  
Nursing

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

Official N° of hours: **150 h.**

# Postgraduate Certificate Pharmacology in Assisted Reproductive Nursing

