Postgraduate Diploma

Infertility in Assisted Reproductive Nursing

tech technological university

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Postgraduate Diploma
Infertility in Assisted Reproductive Nursing

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

Website: **www.techtitute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-infertility-assisted-reproductive-nursing**

Index

01 Introduction — p. 4

02 Objectives — p. 8

03 Course Management — p. 12

04 Structure and Content — p. 16

05 Methodology — p. 26

06 Certificate — p. 34

01

Introduction

Mastering all aspects of infertility in the field of Assisted Reproduction is essential to work in an area where communication and interdisciplinary collaboration is fundamental. Nurses working in AR will gain or update the most advanced knowledge in male and female infertility and the latest developments in immunology and reproductive genetics with this complete specialization.

A multidisciplinary approach based on the experience of different areas of work in assisted reproduction that will allow you to grow in your profession in the most effective way available in the teaching market.

Get up to date on Infertility nursing and become qualified to work in the best Assisted Reproduction units"

This Postgraduate Diploma will take the student through several key aspects of Assisted Reproduction: anatomy of human reproduction, neuroendocrinology of reproduction, ovogenesis and spermatogenesis and other fundamental aspects.

Throughout the Postgraduate Diploma the student will approach the study of infertility in women from the most basic aspects. Through clinical history, the nursing student will begin by identifying the most important factors involved in it and will learn about the most relevant and frequent pathologies that affect women with infertility and will learn how to perform all the tests and protocols corresponding to their activity.

This program will also explore the field of male infertility, with a broad and specific tour through all aspects of these disorders. This specialization is extremely necessary since nurses are involved in many of the processes related to infertility. The nursing staff may be in charge of performing seminograms, sample analysis and processing, semen freezing, seminal cleaning or even managing the male donor bank.

Another aspect of study of this Postgraduate Diploma is the relationship between genetics and immunology and assisted reproduction. The importance of karyotyping in assisted reproduction consultation will also be discussed.

We will review more complex and novel techniques, such as CGH arrays, which are used in preimplantation genetic diagnosis. The key concepts of immunology will also be reviewed, and we will talk about the ever-changing immune system of women and the cell populations that compose it in order to develop the possible problems that can appear when there are autoimmune or alloimmune factors that compromise fertility. The main treatments that can be carried out in these cases will also be discussed. Finally, two specific cases will be discussed, endometriosis and Chlamydia trachomatis infection, which are closely related to inflammation and the immune system.

This **Postgraduate Diploma in Infertility 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
- Supplementary documentation databases that are permanently available, even after the program

With this Postgraduate Diploma 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"

A very specific specialization that will update you on the latest advances in the field of Assisted Reproductive Nursing, with the solvency of a high-quality professional".

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, TECH ensures that it delivers the educational update objective it is aiming for. A multidisciplinary team of professionals specialized and experienced in different environments, who will develop the theoretical knowledge efficiently, but, above all, will put at the service of the program 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 program in Assisted Reproduction in Nursing. Developed by a multidisciplinary team of Postgraduate Diplomas, it integrates the latest advances in educational technology. In 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 training.

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, TECH will use telepractice: with the help of an innovative interactive video system, and Learning from an Expert, the student will be able to acquire the knowledge as if he/she were facing the very cases being studied. A concept that will allow students to integrate and memorize what they have learnt in a more realistic and permanent way.

This Postgraduate Diploma is supported by the best educational platform and the best online resources to guarantee that your efforts will have the best possible results.

Our innovative telepractice concept will give you the opportunity to learn through an immersive experience: "Learning from an Expert". A system of recognized effectiveness for the integration of knowledge.

02

Objectives

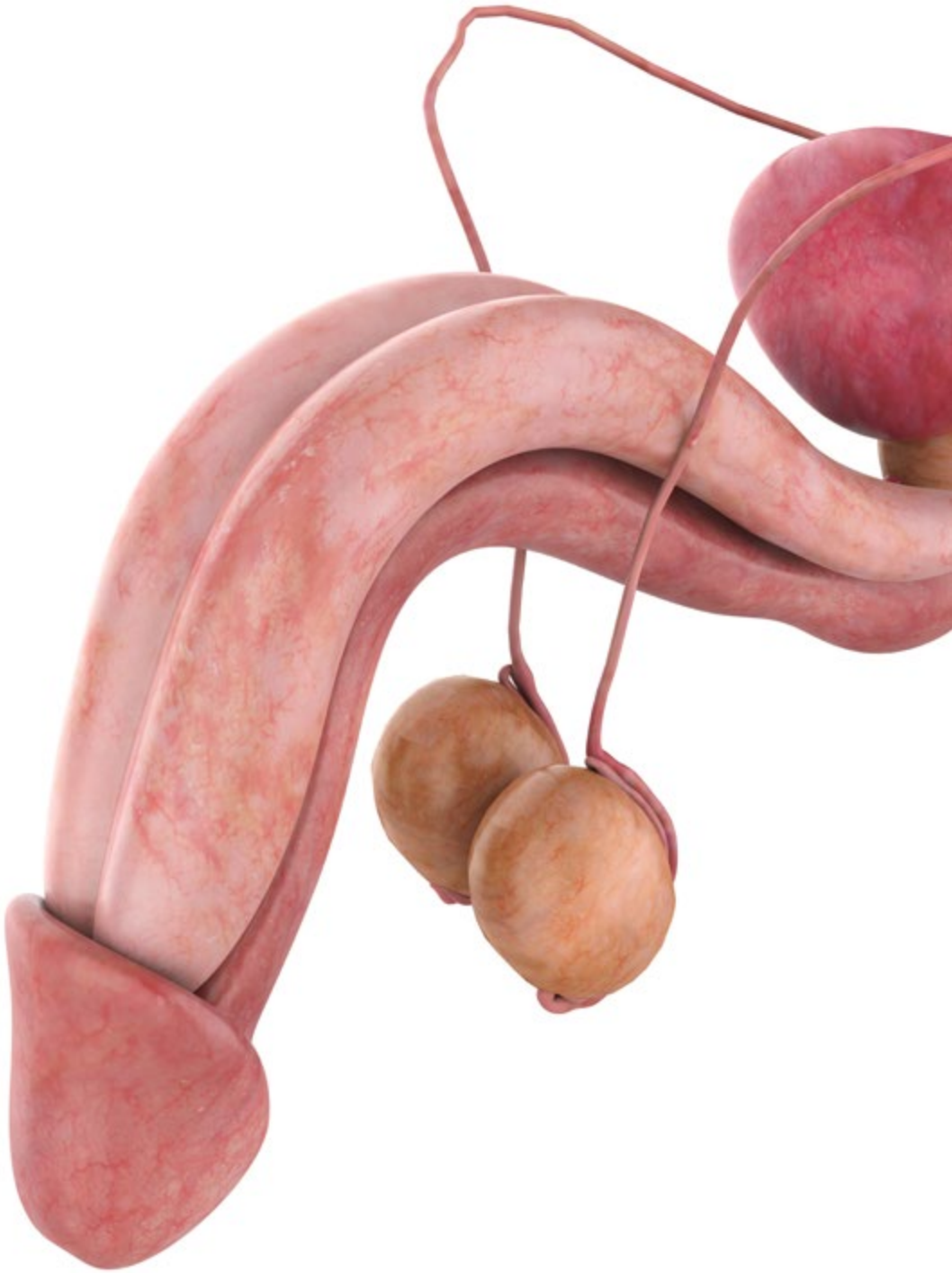
The objective of this program is to provide nursing professionals with the knowledge and skills necessary to perform their activity in the area of Assisted Reproduction. Through a work approach that is totally adaptable to the student, this Postgraduate Diploma will progressively lead the student to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

Become one of the most sought-after professionals today, with this Postgraduate Diploma in Infertility in Assisted Reproductive Nursing"

General objectives

- Broaden specific knowledge of each of the areas 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

A boost to your professional profile that will give you the competitiveness of the best-educated professionals in the workforce"



Specific objectives

Module 1. Anatomy and Physiology of Reproduction

- Update knowledge on the anatomy of the female and male genitalia to lay the foundations of reproduction
- Expand knowledge of neurophysiology and its relationship to ovogenesis and spermatogenesis
- Introduce nurses to a more biological approach to gametogenesis, emphasizing the importance of meiosis and gamete quality
- Understand the process of fertilization and the first steps of embryonic development in order to introduce nurses to the world of embryology
- Analyze the effect of advanced maternal and paternal age on human reproduction

Module 2. Study of Infertility in Women

- Know the importance of anamnesis to identify toxic habits, stress, sexual problems and hereditary antecedents related to infertility in women
- Understand the basic initial study of infertility to explain it to the patient in clear and simple terms
- Know the complementary tests to examine women in consultation depending on the specific alterations of each patient to individualize them according to the altered factors present
- Know the most frequent disorders in women with infertility

Module 3. Study of Male Infertility

- Understand the initial examination of males in consultation and the complementary explorations or genetic studies that may be requested
- Understand the importance of good semen handling practices
- Perform a complete seminogram of the male
- Process samples for Assisted Reproduction techniques
- Understand what sperm freezing consists of and be able to perform it without complications
- 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 thus 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

Module 4. Genetics and Immunology of Reproduction

- Reinforce basic genetic concepts
- Know the karyotype and its uses
- Broaden knowledge of molecular genetics
- Understand the origin and etiology of genetic factors influencing human fertility
- Discover the different preimplantation genetic diagnosis tests
- Discuss the most current topics in genetics such as nuclear transfer or epigenetics
- Master the immunological factors affecting Assisted Reproduction
- Distinguish the different origins of immunological problems in reproduction and possible treatments

03

Course Management

Within the concept of total quality of our program, we are proud to put at your disposal a Teaching Staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.

An impressive teaching staff, educated by professionals from different areas of expertise, will be your teachers during this 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. Martín, Alba

- Embryologist at Clínicas EVA, Madrid
- Degree in Biology from the Complutense University of Madrid, specializing in NEUROBIOLOGY and BIOSANITARY
- Master's Degree in Mammalian Reproductive Biology and Technology at the University of Murcia, Spain
- Postgraduate and professional development program with modular structure in Health Law and Biomedicine Universidad Nacional de Educación a Distancia (National University of Distance Education)
- Online Postgraduate Certificate entitled "Epigenetic Control of Gene Expression" given by the University of Melbourne

Ms. Aldama, Perla

- Gynecologist specialized in Assisted Reproduction Egg bank. Eva Fertility Clinics
- Medical Surgeon School of Medicine UNAM. Mexico City
- Master's Degree in Human Reproduction Universidad Complutense de Madrid Spanish Fertility Society Madrid, Spain

04

Structure and Content

The contents of this Postgraduate Diploma have been developed by the different experts of this program, 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.

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

Module 1. Anatomy and Physiology of Reproduction

1.1 Anatomy of the Female Reproductive Organs
- 1.1.1. Introduction
- 1.1.2. External Female Genitalia
  - 1.1.2.1. Vulva
  - 1.1.2.2. Mons Pubis
  - 1.1.2.3. Labia Majora
  - 1.1.2.4. Labia Minora
  - 1.1.2.5. Vaginal Vestibule
  - 1.1.2.6. Clitoris
  - 1.1.2.7. Vestibular Bulbs
- 1.1.3. Internal Female Genitalia
  - 1.1.3.1. Vagina.
  - 1.1.3.2. Uterus
  - 1.1.3.3. Fallopian Tube
  - 1.1.3.4. Ovaries

1.2. Endocrinology of the Female Reproductive System
- 1.2.1. Introduction
- 1.2.2. The Hypothalamus
  - 1.2.2.1. GnRH
- 1.2.3. Pituitary Gland
  - 1.2.3.1. FSH and LH
- 1.2.4. Steroid Hormones
  - 1.2.4.1. Introduction
  - 1.2.4.2. Synthesis
  - 1.2.4.3. Action Mechanism
  - 1.2.4.4. Estrogen
  - 1.2.4.5. Androgens
  - 1.2.4.6. Progestogens
- 1.2.5. External Modulation: Endorphins and Melatonin
- 1.2.6. GnRH Pulses: Brain-Ovarian Relationship
- 1.2.7. GnRH Agonists and Antagonists

1.3. Menstrual Cycle
- 1.3.1. Menstrual Cycle
- 1.3.2. Biochemical Indicators of the Menstrual Cycle
  - 1.3.2.1. Hormones in Basal State
  - 1.3.2.2. Ovulation
  - 1.3.2.3. Evaluation of Ovarian Reserve. Antimüllerian Hormone
- 1.3.3. Ultrasound Indicators of the Menstrual Cycle
  - 1.3.3.1. Follicle Count
  - 1.3.3.2. Endometrial Ultrasound
- 1.3.4. End of the Reproductive Age
  - 1.3.4.1. Premenopause
  - 1.3.4.2. Menopause
  - 1.3.4.3. Post-menopause

1.4. Ovogenesis (Folliculogenesis and Ovulation)
- 1.4.1. Meiosis. From the Oogonia to the MII Oocyte
- 1.4.2. Types of Follicles and their Relation to Ovogenesis: Follicular Dynamics
- 1.4.3. Ovarian Recruitment and Ovulation
- 1.4.4. Oocyte MII: Markers of Oocyte Quality
- 1.4.5. In Vitro Oocyte Maturation

1.5. Anatomy of the Male Reproductive Organs
- 1.5.1. External Male Genitalia
  - 1.5.1.1. Testicles
  - 1.5.1.2. Penis
  - 1.5.1.3. Epididymis
  - 1.5.1.4. Vas Deferens
- 1.5.2. Internal Male Genitalia
  - 1.5.2.1. Seminal Vesicles
  - 1.5.2.2. Ejaculatory Duct
  - 1.5.2.3. Prostate
  - 1.5.2.4. Urethra
  - 1.5.2.5. Bulbourethral Glands

1.6. Endocrinology of the Male Reproductive System
- 1.6.1. Testicular Function Regulation
- 1.6.2. Androgen Biosynthesis
- 1.6.3. Inhibins and Activins
- 1.6.4. Prolactin
- 1.6.5. Prostaglandins
- 1.6.6. Estrogens
- 1.6.7. Other Factors

1.7. Spermatogenesis
- 1.7.1. Meiosis
- 1.7.2. Differences between Ovogenesis and Spermatogenesis
- 1.7.3. The Seminiferous Tubule
  - 1.7.3.1. Hormones Involved
  - 1.7.3.2. Cell Types
- 1.7.4. The Blood-Tissue Barrier
- 1.7.5. Endocrine and Paracrine Control

1.8. Fertilization
- 1.8.1. Gamete Transport
- 1.8.2. Gametic Maturation
- 1.8.3. Gamete Interaction

1.9. Embryonic Development
- 1.9.1. Zygote Formation
- 1.9.2. First Divisions
- 1.9.3. Blastocyst Formation and Implantation
- 1.9.4. Gastrulation: Formation of Mesoderm
  - 1.9.4.1. Notochord Formation
  - 1.9.4.2. Establishment of Body Axes
  - 1.9.4.3. Setting Cellular Destinations
  - 1.9.4.4. Trophoblast Growth
- 1.9.5. Embryonic Period or Organogenesis Period
  - 1.9.5.1. Ectoderm
  - 1.9.5.2. Mesoderm
  - 1.9.5.3. Endoderm

1.10. Effect of Age on the Male and Female Reproductive System
- 1.10.1. Female Reproductive System
- 1.10.2. Male Reproductive system

Module 2. Study of Infertility in Women

2.1. Initial Study
- 2.1.1. Introduction
- 2.1.2. Basis of the Study by Factors
- 2.1.3. Medical History
- 2.1.4. Physical Exploration
- 2.1.5. Basic Infertility Studies
- 2.1.6. Complementary Studies According to Altered Factor

2.2. Ovarian Factor
- 2.2.1. Age
  - 2.2.1.1. Age and Ovarian Reserve
  - 2.2.1.2. Early Ovarian Failure
  - 2.2.1.3. Studies to Assess Ovarian Reserve
    - 2.2.1.3.1. AMH
    - 2.2.1.3.2. RFA
    - 2.2.1.3.3. Other Hormones
- 2.2.2. Anovulation
  - 2.2.2.1. What is Anovulation?
  - 2.2.2.2. Clinical Manifestations
  - 2.2.2.3. Importance of the Luteal Phase
  - 2.2.2.4. Causes
    - 2.2.2.4.1. Polycystic Ovarian Syndrome
    - 2.2.2.4.2. Most Frequent Hormonal Disorders
    - 2.2.2.4.3. Other Causes
  - 2.2.2.5. Studies to Assess Ovulation
    - 2.2.2.5.1. Gynecological Hormonal Profile
    - 2.2.2.5.2. Other Hormones
      - 2.2.2.5.2.1. Thyroid Hormones
      - 2.2.2.5.2.2. Prolactin
      - 2.2.2.4.2.3. Androgens
    - 2.2.2.5.3. Luteal Phase Progesterone

2.3. Uterine and Tubal Factor
- 2.3.1. Uterus
  - 2.3.1.1. Uterus and Endometrium
  - 2.3.1.2. Müllerian Malformations
  - 2.3.1.3. Myomas and Polyps
  - 2.3.1.4. Asherman's Syndrome
  - 2.3.1.5. Uterine Factor and Implantation Failure
  - 2.3.1.6. Uterine Factor and Recurrent Abortion
- 2.3.2. Fallopian Tubes
  - 2.3.2.1. Tubal Obstruction
    - 2.3.2.1.1. Pathology
    - 2.3.2.1.2. Surgical
    - 2.3.2.1.3. Endometriosis
    - 2.3.2.1.4. Others
- 2.3.3. Studies
  - 2.3.3.1. 2D and 3D Ultrasound Echography
  - 2.3.3.2. Hysteroscopy and Others
    - 2.3.3.2.1. Hysteroscopy
    - 2.3.3.2.2. Hysterosalpingography
    - 2.3.3.2.3. Hysterosonography
    - 2.3.3.2.4. Hysterolaparoscopy
    - 2.3.3.2.5. MRI

2.4. Infectious Factor
- 2.4.1. Infections and Infertility
- 2.4.2. Most Frequent Infections
- 2.4.3. Pelvic Inflammatory Disease
- 2.4.4. Hydrosalpinx

2.4.5. Studies
2.4.5.1. Crops and Specialty Crops
2.4.5.2. PCR and Others
2.5. Genetic Factor
2.5.1. Genetics Today
2.5.2. Most Frequent Genetics Disorders
2.5.2.1. Turner Syndrome
2.5.2.2. Fragile X Syndrome
2.5.2.3. Hereditary Thrombophilias
2.5.2.4. Other Mutations
2.5.3. Screening Studies
2.6. Immunological Factor
2.6.1. Immune System and Fertility
2.6.2. Main Disorders
2.6.2.1. Antiphospholipid Antibody Syndrome
2.6.2.2. Systemic Lupus Erythematosus (SLE)
2.6.2.3. Others
2.6.3. Key Immunological Tests
2.7. Endometriosis
2.7.1. Endometriosis Today
2.7.2. Implications in Fertility
2.7.3. The Patient with Endometriosis
2.7.4. Clinical and Laboratory Study
2.8. Implantation Failure and Recurrent Abortion
2.8.1. Failure of Implantation
2.8.1.1. Definition
2.8.1.2. Main Causes
2.8.1.3. Study
2.8.2. Recurrent Abortion
2.8.2.1. Definition
2.8.2.2. Main Causes
2.8.2.3. Study
2.9. Special considerations
2.9.1. Cervical Factor
2.9.1.1. Importance of Cervical Physiology
2.9.2. Postcoital Test
2.9.2.1. Sexology
2.9.2.2. Vaginismus
2.9.3. Psychological Causes
2.9.4. Infertility of Unknown Origin
2.9.4.1. Definition
2.9.4.2. What Should Be Done?
2.9.5. Integral Approach
2.10. Conclusions

Module 3. Study of Male Infertility

3.1. Initial Study
3.1.1. Objectives
3.1.2. When Should it be Done?
3.1.3. Minimum Evaluation
3.1.4. Optimal Evaluation
3.1.5. Medical History
3.1.6. Physical Exploration
3.2. Complementary Explorations
3.2.1. Sperm Function Tests
3.2.2. Hormonal Determinations
3.2.3. Ultrasonography and Scrotal Doppler Ultrasonography
3.2.4. Transrectal Ultrasound
3.2.5. Bacteriological Study of Semen
3.2.6. Post-Orgasm Urinalysis
3.3. Genetic Studies
3.3.1. Karyotype
3.3.2. Microdeletions Yq
3.3.3. CFTR Mutations
3.3.4. Meiotic Chromosome Studies
3.3.5. FISH of Spermatozoa

3.4. Seminogram
- 3.4.1. Basic Considerations
- 3.4.2. Proper Sample Handling
- 3.4.3. Sample Collection
  - 3.4.3.1. Preparation
  - 3.4.3.2. Collection for Diagnosis
  - 3.4.3.3. Collection for Use in Assisted Reproduction
  - 3.4.3.4. Collection for Microbiological Analysis
  - 3.4.3.5. Home Collection
  - 3.4.3.6. Collection with Preservative
- 3.4.4. Initial Macroscopic Examination
  - 3.4.4.1. Liquefaction
  - 3.4.4.2. Viscosity
  - 3.4.4.3. Appearance
  - 3.4.4.4. Volume
  - 3.4.4.5. PH
- 3.4.5. Initial Microscopic Examination
  - 3.4.5.1. How to Get a Representative Sample?
  - 3.4.5.2. Sample Quantity
  - 3.4.5.3. Aggregation
  - 3.4.5.4. Agglutination
  - 3.4.5.5. Presence of Cellular Elements Other than Spermatozoa
- 3.4.6. Motility
- 3.4.7. Vitality
- 3.4.8. Concentration
- 3.4.9. Counting of Cells Other than Sperm Cells
- 3.4.10. Sperm Morphology
- 3.4.11. Presence of Leukocytes in Semen
- 3.4.12. Antispermatozoa Antibodies Test
- 3.4.13. Automated Analysis

3.5. Analysis and Processing of Samples for Assisted Reproduction Techniques (ART)
- 3.5.1. Washing
- 3.5.2. Swim-up
- 3.5.3. Density Gradients

3.6. Sperm Freezing
- 3.6.1. Indications
- 3.6.2. Cryoprotection
- 3.6.3. Semen Freezing Techniques
- 3.6.4. Storage Containers

3.7. Semen Washing for HIV, Hepatitis B and Hepatitis C Seropositive Males
- 3.7.1. Hepatitis B
- 3.7.2. HIV
- 3.7.3. Hepatitis C
- 3.7.4. General Considerations

3.8. Sperm Donation
- 3.8.1. General Aspects
- 3.8.2. Indications
- 3.8.3. Sperm Donor Considerations
- 3.8.4. Recommended Tests
- 3.8.5. Anonymity
- 3.8.6. Choosing the Right Donor
- 3.8.7. Risks
- 3.8.8. Cessation of Donation

3.9. Complementary Sperm Selection Techniques
- 3.9.1. MACS (Magnetically Marked Cell Sorting)
  - 3.9.1.1. Biological Basis of the Technique
  - 3.9.1.2. Indications
  - 3.9.1.3. Advantages and Disadvantages
- 3.9.2. IMSI (Intracytoplasmic Injection of Morphologically Selected Spermatozoa)
  - 3.9.2.1. Procedure
  - 3.9.2.2. Indications
  - 3.9.2.3. Advantages and Disadvantages

3.9.3. Selection Based on Binding to Hyaluronic Acid
3.9.3.1. Procedure
3.9.3.2. Indications
3.9.3.3. Advantages and Disadvantages
3.10. Oral Therapy Use of Antioxidants
3.10.1. Antioxidant Concept
3.10.2. Reactive Oxygen Species (ROS)
3.10.3. Factors Leading to Increased ROS in Semen
3.10.4. Damage Caused by Increased ROS in Spermatozoa
3.10.5. Antioxidant System in Semen
3.10.5.1. Enzymatic Antioxidants
3.10.5.2. Superoxide Dismutase
3.10.5.3. Catalase
3.10.5.4. Nitric Oxide Synthase
3.10.5.5. Glutathione S-Transferase
3.10.5.6. Peroxiredoxin
3.10.5.7. Thioredoxins
3.10.5.8. Glutathione Peroxidase
3.10.6. Exogenous Supplementation
3.10.6.1. Omega 3 Fatty Acids
3.10.6.2. Vitamin C
3.10.6.3. Coenzyme Q10
3.10.6.4. L-Carnitine
3.10.6.5. Vitamin E
3.10.6.6. Selenium
3.10.6.7. Zinc
3.10.6.8. Folic Acid
3.10.6.9. L-Arginine
3.10.7. Conclusions

Module 4. Genetics and Immunology of Reproduction

4.1. Basic Cytogenetics: The Importance of Karyotyping
- 4.1.1. DNA and its Structure
  - 4.1.1.1. Genes
  - 4.1.1.2. Chromosomes
- 4.1.2. The Karyotype
- 4.1.3. Uses of Karyotyping: Prenatal Diagnosis
  - 4.1.3.1. Amniocentesis
  - 4.1.3.2. Chorionic Villus Biopsy
  - 4.1.3.3. Abortion Analysis
  - 4.1.3.4. Meiosis Studies

4.2. The New Era of Diagnostics: Molecular Cytogenetics and Massive Sequencing
- 4.2.1. FISH
- 4.2.2. CGH Arrays
- 4.2.3. Massive Sequencing

4.3. Origin and Etiology of Chromosomal Abnormalities
- 4.3.1. Introduction
- 4.3.2. Classification According to Origin
  - 4.3.2.1. Numeric
  - 4.3.2.2. Structural
  - 4.3.2.3. Mosaicism
- 4.3.3. Classification According to Etiology
  - 4.3.3.1. Autosomal
  - 4.3.3.2. Sexual
  - 4.3.3.3. Polyploidy and Haploidy

4.4. Genetic Disorders in the Infertile Couple
- 4.4.1. Genetic Disorders in Women
  - 4.4.1.1. Hypothalamic Origin
  - 4.4.1.2. Pituitary Origin
  - 4.4.1.3. Ovarian Origin
    - 4.4.1.3.1. Chromosomal Alterations
      - 4.4.1.3.1.1. Total Deletion of the X Chromosome: Turner's Syndrome
      - 4.4.1.3.1.2. Partial Deletion of the X Chromosome
      - 4.4.1.3.1.3. X Chromosome Translocations and Autosomes
      - 4.4.1.3.1.4. Others
  - 4.4.1.4. Monogenic Alterations
    - 4.4.1.4.1. X-Fragile
  - 4.4.1.5. Hereditary Thrombophilias
- 4.4.2. Genetic Disorders in Men
  - 4.4.2.1. Numerical Alterations: Klineffelter's Syndrome
  - 4.4.2.2. Robertsonian Translocations
  - 4.4.2.3. CFTR Mutation
  - 4.4.2.4. Microdeletions in the Y Chromosome

4.5. Preimplantation Genetic Diagnosis (PGT): Preimplantation Genetic Testing)
- 4.5.1. Introduction
- 4.5.2. Embryo Biopsy
- 4.5.3. Indications
- 4.5.4. Genetic Diagnosis for Monogenic Diseases (PGT-M)
  - 4.5.4.1. Carrier Studies
- 4.5.5. Genetic Diagnosis for Structural Abnormalities
  - 4.5.5.1. Numerical (Aneuploidies; PGT-A)
  - 4.5.5.2. Structural (PGT-SR)
- 4.5.6. Combined Genetic Diagnosis
- 4.5.7. Limitations
- 4.5.8. Mosaic Embryos as a Special Case
- 4.5.9. Non-Invasive Pre-implantational Genetic Diagnosis

4.6. Babies with Three Genetic Progenitors, Nuclear Transfer in Mitochondrial Diseases
- 4.6.1. Mitochondrial DNA
- 4.6.2. Mitochondrial Diseases
- 4.6.3. Donor Cytoplasmic Transfer

4.7. Epigenetics
- 4.7.1. General Concepts
- 4.7.2. Epigenetic Modifications
- 4.7.3. Genetic Imprinting

4.8. Genetic Studies in Donors
- 4.8.1. Recommendations
- 4.8.2. Carrier Matching
- 4.8.3. Carrier Panels

4.9. The Immunological Factor in Assisted Reproduction
- 4.9.1. General Aspects
- 4.9.2. The Immune System in Women in Constant Change
- 4.9.3. Immune Cell Population in the Female Reproductive System
  - 4.9.3.1. Regulation of T-lymphocyte Populations
  - 4.9.3.2. Cytokines
  - 4.9.3.3. Female Hormones
- 4.9.4. Infertility of Autoimmune Origin
  - 4.9.4.1. Antiphospholipid Syndrome
  - 4.9.4.2. Antithyroid Antibodies
  - 4.9.4.3. Anti -Nuclear Antibodies
  - 4.9.4.4. Anti-Ovarian and Anti-FSH Antibodies
  - 4.9.4.5. Anti-Sperm Antibodies
- 4.9.5. Infertility of Alloimmune Origin, the Contribution of the Fetus
  - 4.9.5.1. The Embryo as Antigen
  - 4.9.5.2. Implantation Failure of Euploid Embryos
    - 4.9.5.2.1. NK Cells
    - 4.9.5.2.2. T-Helpers
    - 4.9.5.2.3. Autoantibodies
- 4.9.6. The Role of Sperm and Spermatozoa
  - 4.9.6.1. T-Lymphocyte Regulation
  - 4.9.6.2. Seminal Fluid and Dendritic Cells
  - 4.9.6.3. Clinical Relevance

4.10. Immunotherapy and Special Situations
- 4.10.1. Introduction
- 4.10.2. Aspirin and Heparin
- 4.10.3. Corticosteroids
- 4.10.4. Antibiotic Therapy
- 4.10.5. Colony Growth Factors
- 4.10.6. Intravenous Fat Emulsions
- 4.10.7. Intravenous Immunoglobulins
- 4.10.8. Adalimumab
- 4.10.9. Peripheral Mononuclear Cells
- 4.10.10. Seminal Plasma
- 4.10.11. Antibody-Free Semen Preparations
- 4.10.12. Tacrolimus
- 4.10.13. Risks and benefits
- 4.10.14. Conclusions
- 4.10.15. Special Situations: Endometriosis
- 4.10.16. Special Situations - Chlamydia Trachomatis Infection

A very complete teaching program, structured in complete and specific teaching units, in a learning process that is totally 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.**

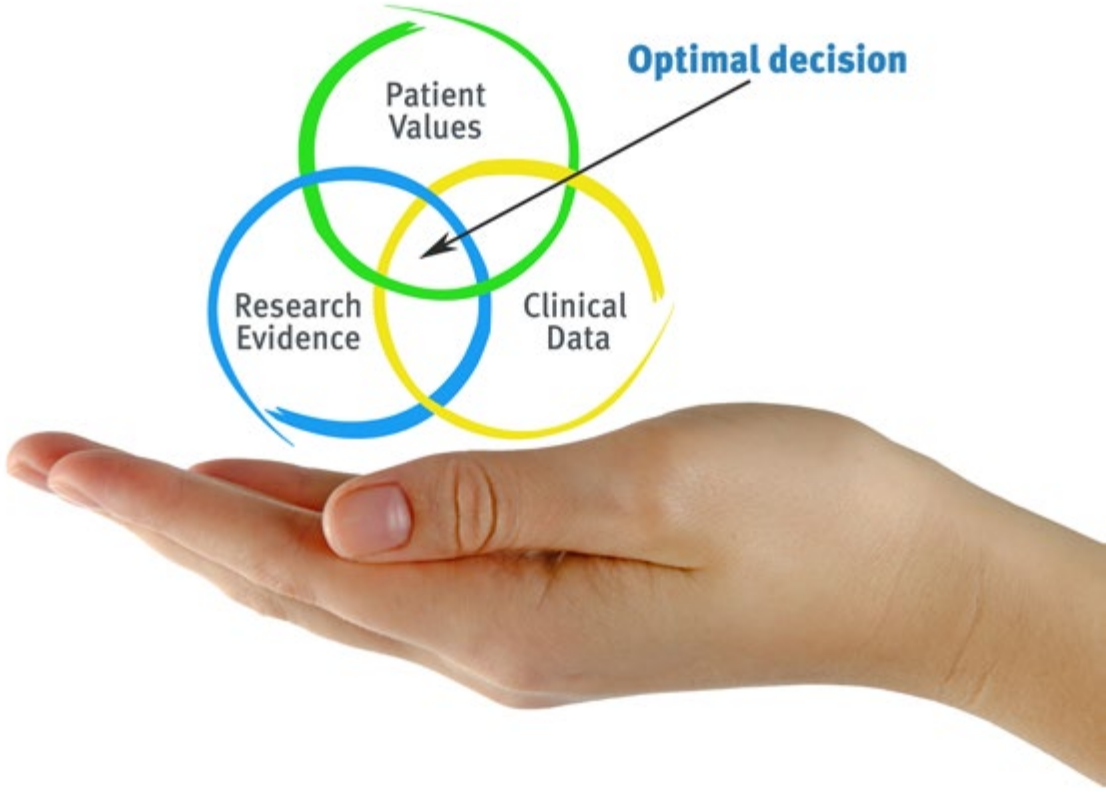
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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

At TECH Nursing School we use the Case Method

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

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



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

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

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

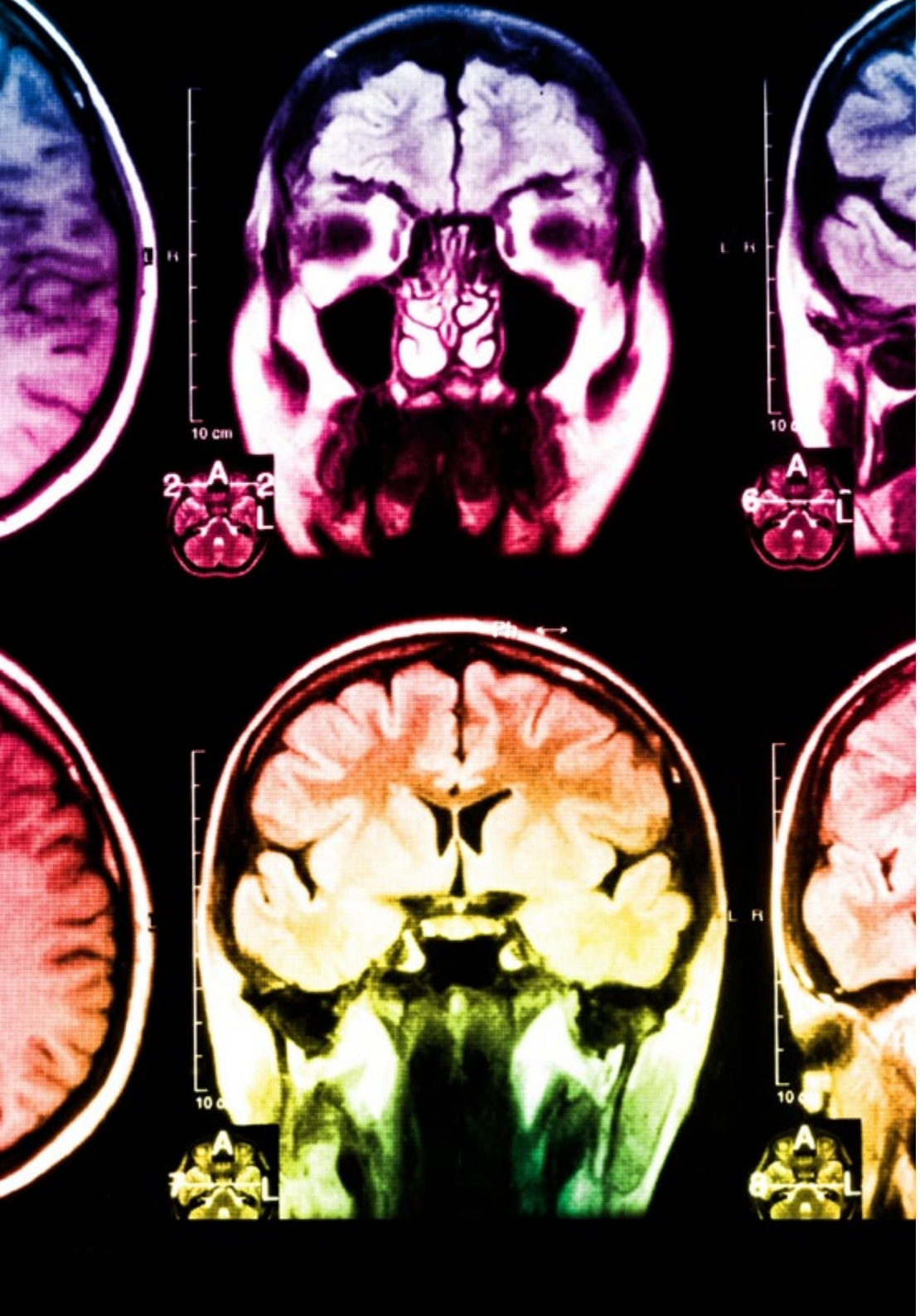
1. Nurses who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the nursing professional to better integrate knowledge acquisition into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

Relearning Methodology

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

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

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



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

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

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

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

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

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

Study Material

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

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

Nursing Techniques and Procedures on Video

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

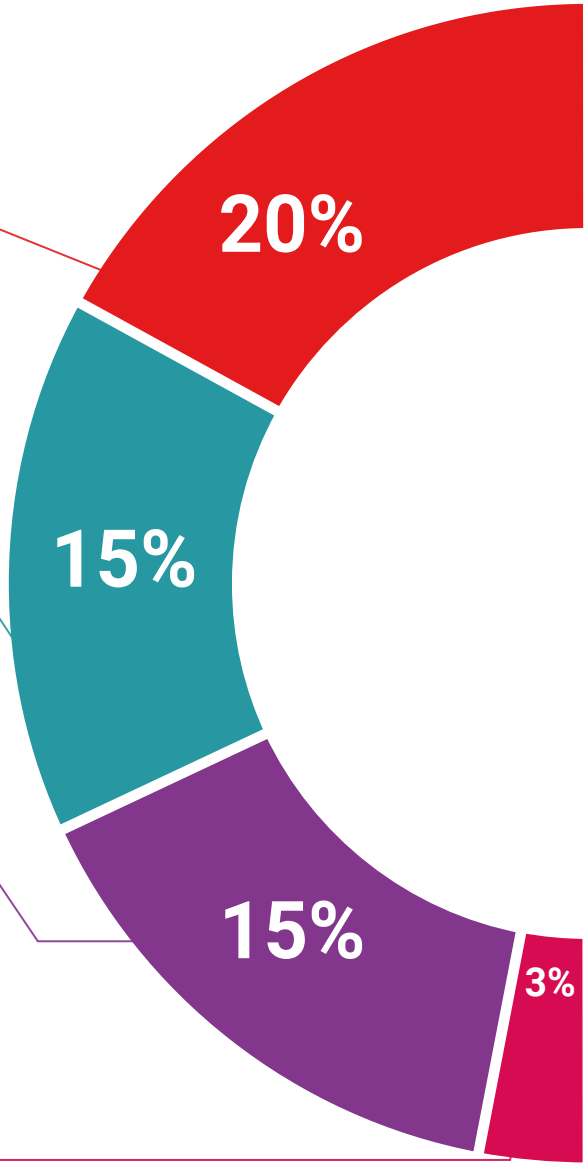
Interactive Summaries

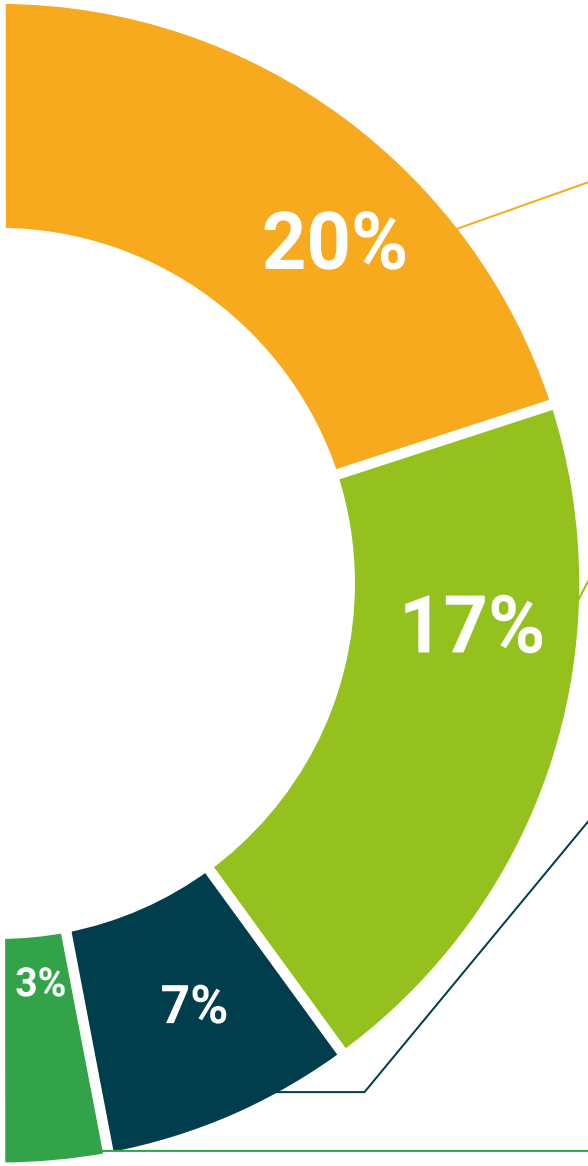
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

Additional Reading

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





Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

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

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

Quick Action Guides

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

06

Certificate

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

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

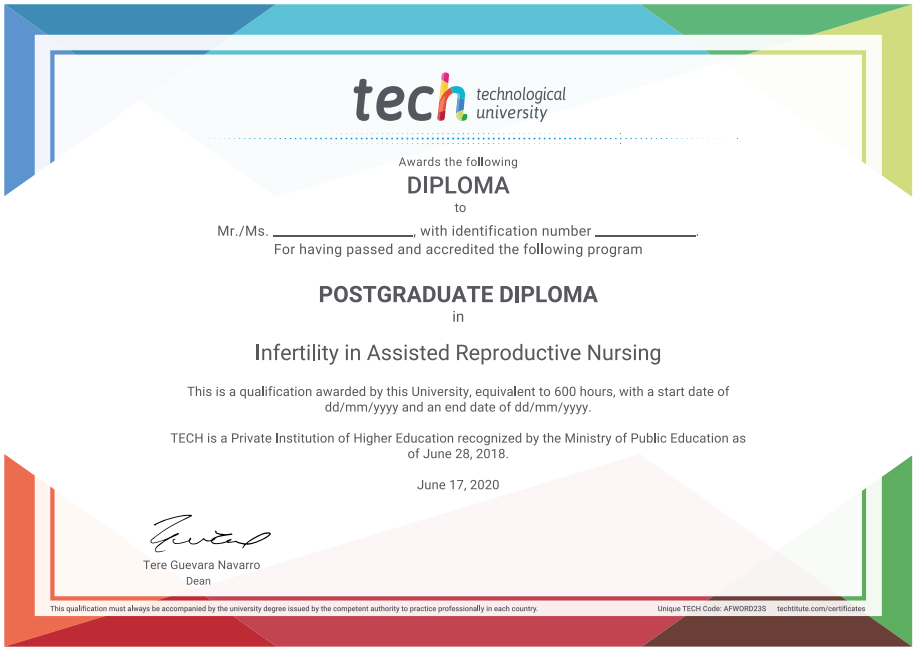
This **Postgraduate Diploma in Infertility in Assisted Reproductive Nursing** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Diploma in Infertility in Assisted Reproductive Nursing**

Official Nº of hours: **600 h.**


tech technological university

Awards the following

DIPLOMA

to

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

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Infertility in Assisted Reproductive Nursing

This is a qualification awarded by this University, equivalent to 600 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

June 17, 2020

Tere Guevara Navarro

Dean

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

Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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Postgraduate Diploma
Infertility in Assisted Reproductive Nursing

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

Postgraduate Diploma

Infertility in Assisted Reproductive Nursing

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