# Postgraduate Certificate

**Breast Cancer** 





## Postgraduate Certificate

### **Breast Cancer**

» Modality: online

» Duration: 2 months

» Certificate: TECH Technological University

» Dedication: 16h/week

» Schedule: at your own pace

» Exams: online

Website: www.techtitute.com/pk/medicine/postgraduate-certificate/breast-cancer

# Index

p. 28

Certificate





### tech 06 | Introduction

Due to the proliferation of this oncological pathology in the population and the appearance of breast cancer at increasingly younger ages, it is necessary to provide physicians with the medical knowledge, skills and abilities that will allow them to carry out their work in this area of oncological pathology, which is the leading cause of death in women.

This course in Breast Cancer gives you the opportunity to specialize in the treatment of cancer in women, in order to become an excellent professional in the treatment of diseases specific to the female gender.

The training will allow you to develop the competencies, skills and abilities that are conducive to the performance of the profession, generating greater added value to your professional performance.

This online course is developed by medical professionals who have extensive experience in this pathology, and who provide students with their knowledge, experience and practical cases that give this course the quality training it deserves.

This **Postgraduate Certificate in Breast Cancer includes** the most complete and upto-date scientific program on the market. The most important features of the program include:

- Development of more than 75 case studies presented by experts in Breast Cancer.
- 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.
- Latest news on breast cancer
- It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- Special emphasis on innovative methodologies in Breast Cancer.
- 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.





This Professional course may be the best investment you can make in the selection of an up to date course for two reasons: in addition to bringing your knowledge in Breast Cancer up to date, you will obtain a degree a course by the leading educational institution in Spain, TECH Technological University"

The teaching staff includes education professionals, who bring their experience to this training program, as well as renowned specialists belonging to leading societies and prestigious universities.

The multimedia content developed with the latest educational technology will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training program to train in real situations.

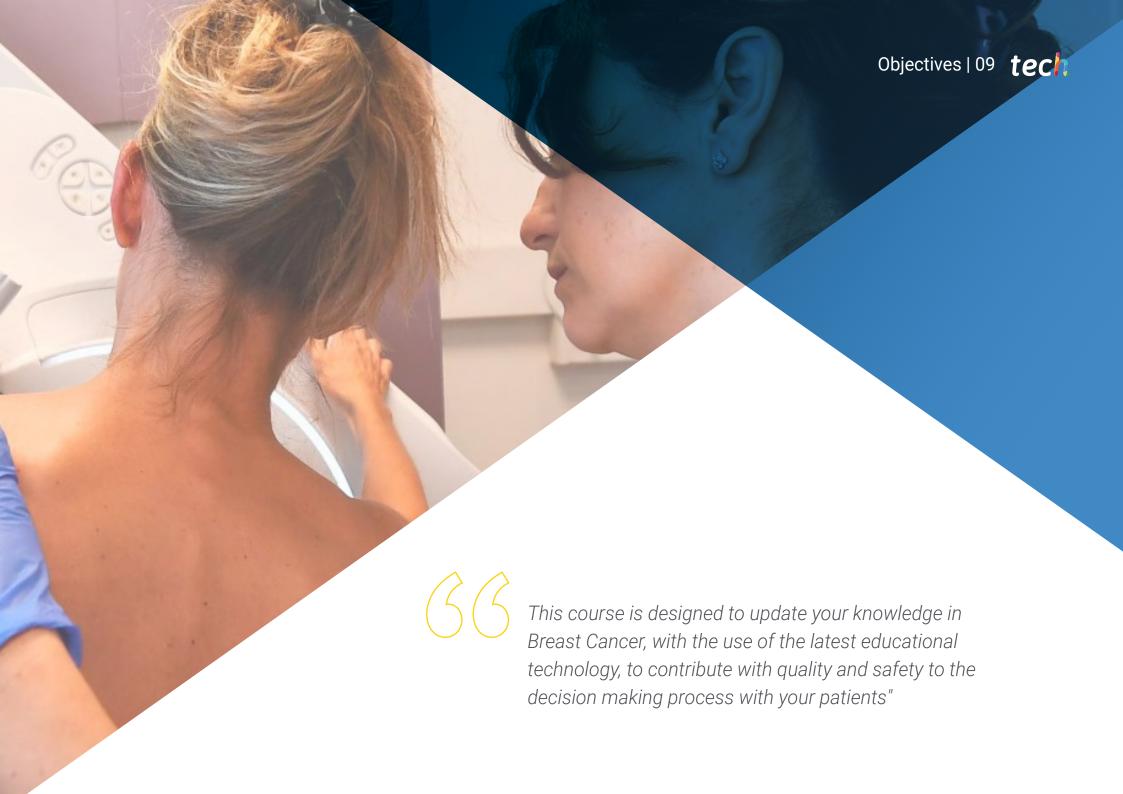
This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, the professional will be assisted by an innovative interactive video system developed by renowned experts in the field of of Breast Cancer and with great medical experience.

Increase your confidence in decision making by updating your knowledge through this course.

Take the opportunity to learn about the latest advances in Breast Cancer, and improve the training of your students.







### tech 10 | Objectives



### **General Objective**

• The main goal of this training in breast cancer is to provide the professional with a basic knowledge of breast cancer, as well as the most advanced treatments and advances that are saving the lives of women affected by this disease.



### **Specific Objectives**

- Recognize the characteristics of malignant neoplasms, their classification according a their histogenesis, as well as aspects related to their biological behavior.
- Acquire up-to-date knowledge on cancer epidemiological data worldwide.
- Learn about screening methods in at-risk populations to diagnose cancerous lesions early.
- Recognize the environmental and occupational factors (mutagenic agents) that
  are directly and indirectly involved in cancer, and the carcinogenic capacity of some
  toxic substances found in food.
- Relate DNA AND RNA viruses known to cause cancer in humans.
- Expose the mechanisms by which viruses are able to subjugate the normal activity
  of host cytoplasmic proteins, affecting key points in the control of the cell cycle,
  cell growth and differentiation, causing severe alterations in cell growth and cancer
  development.
- Recognize the role of H. pylori bacteria in the pathogenesis of gastric cancer.

- Understand cancer as a genetic disease resulting from mutations that accumulate in genes that are critical for the growth and development of somatic cells.
- Describe the genes associated with cancer, and the importance of DNA analysis to identify individuals, detect predisposing gene polymorphisms, analyze mutations, and establish the diagnosis of cancer as a genetic disease.
- Recognize the susceptibility genes involved in breast, lung, thyroid, colon, skin, bone, pancreatic, and neuroblastoma cancers, and by what mechanism they participate in tumorigenesis.
- Know the symptoms and signs that are most frequently related to cancer, as well as the different systems for the staging of tumor disease and their importance.
- Know the phases of the cell cycle, the critical control points, as well as the genes involved in its regulation.
- Recognize the important role of cell cycle checkpoints and DNA repair systems in maintaining the fidelity and integrity of genome replication and repair, and regulating cell cycle dynamics.
- Explain the positive and negative feedback regulatory processes that contribute to cell cycle progression, and the significance of negative controls on cell cycle progression that are present during development, differentiation, senescence, and cell death, which play an important role in preventing tumorigenesis.
- Identify the difference in gene expression between normal tissue and tumor tissue.
- Know the stages involved in the transformation of a normal cell to a malignant cell.
- Recognize the malignant phenotype as the result of a characteristic pattern of gene expression, alterations in the function of the human genome, leading to aberrant growth, dedifferentiation, invasion and metastasis.
- Characterize the different genes involved in cell cycle regulation (growth-promoting genes, growth-inhibiting genes, genes that regulate apoptosis and genes that repair



- damaged DNA), and the mutations that alter them.
- Explain the key role that oncogenes may play in the development of cancer by directing mechanisms that lead to the development of neoplasms.
- Know tumor suppressor genes as cytoplasmic components capable of reversing the tumor phenotype; proteins that control the cell cycle, proliferation, and differentiation.
- Identify epigenetic aberrations (DNA methylation with silencing of gene expression, and histone modifications that can enhance or dampen expression), which contribute to the malignant properties of cells.
- Recognize the role of epigenetic changes in malignant phenotype, including gene expression, control of differentiation, and sensitivity and resistance to anticancer therapy.
- Know the genes and proteins associated with malignant diseases and their utility
  as tumor markers to define a particular entity, its diagnosis, staging, prognosis, and
  screening in the population.
- Know and apply the different technologies used to analyze the gene expression
  profile of neoplasms to identify clinical and biological aspects that are difficult
  to determine by histopathological examination. Its principles, advantages, and
  disadvantages.
- Explain the importance of gene expression profiling for the application of different treatment protocols and the response to them among histologically similar tumors.
- Recognize the importance of gene expression profiling in the new classifications of malignant tumors associated with prognosis and response to treatment.
- Address, in-depth, the epidemiological and diagnostic aspects of breast cancer and its precursors
- Take a more in-depth look at the molecular classification of breast cancer.
- Acquire more in-depth knowledge of the most important aspects, such as pre and post neoadjuvant breast assessment, as well as sentinel lymph node management.







#### International guest conductor

With more than 4 decades of professional career in the area of Pathology, Dr. Ignacio Wistuba is considered an international reference in this complex medical field. This prestigious researcher leads the Department of Translational Molecular Pathology at MD Anderson Cancer Center. He is also Director of the Khalifa Institute for Cancer Personalization, linked to the University of Texas.

In parallel, he directs the Thoracic Molecular Pathology Laboratory, the SPORE Lung Tissue Bank and the Institutional Tissue Bank. In turn, he is Director of the Biorepository and Pathology Core Network at the Eastern Cooperative Oncology Group, in conjunction with the American College of Radiology Imaging Network (ECOG-ACRIN).

One of the main lines of work of this pathologist in recent years has been Genomic and Precision Medicine. His multiple investigations in this field have allowed him to address the origin and complexities of different types of tumors, their incidence and their relationship with specific characteristics of the DNA of individuals. Specifically, he has delved into these issues in relation to lung neoplasms.

On the other hand, Wistuba maintains active research collaborations with other specialists from different parts of the world. An example of this is his participation in an exploratory analysis of cytokine levels in pleural fluid associated with immunotherapeutic protocols with the University for Development in Chile. He is also a member of global teams that, orchestrated by the Australian Royal Prince Alfred Hospital, have investigated different predictive biomarkers of lung cancer.

Likewise, the pathologist has sustained a continuous education since his initial studies in distinguished Chilean universities. Proof of this are his postdoctoral research internships in renowned institutions such as the Southwestern Medical Center and the Simmons Cancer Center in Dallas.



## Dr. Wistuba, Ignacio

- President of the Department of Translational Molecular Pathology, MD Anderson Cancer Center
- Director of the Division of Pathology/Laboratory Medicine at MD Anderson Cancer Center
- Specialty Pathologist in the Department of Thoracic/Head and Neck Medical Oncology at the
- University of Texas Medical Center
- Director, UT-Lung SPORE Tissue Bank
- Lung Cancer Pathologist for the Lung Cancer Committee at Southwestern Oncology Group (SWOG)
- Principal Investigator on several studies conducted by the Cancer Prevention and Research Institute of Texas
- Principal Investigator of the Translational Genomics and Precision Cancer Medicine Training Program at NIH/NCI
- Postdoctoral Fellow at the Hamon Center for Therapeutic Oncology Research Center
- Postdoctoral Fellow at Southwestern Medical Center and Simmons Cancer Center



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

### tech 16 | Course Management

#### Management



#### Dr. Rey Nodar, Severino

- Head of the Anatomy Pathology Department at Manises University Hospital, Synlab Pathology Europe. Valencia, Spain.
- President of FORESC and FEBIP (Foundation for Sciences and Research USA/ Spanish Foundation for Training in Biomedical Sciences and Oncologic Pathology).
- Doctor Honoris Causa 2012 at Bircham International University, USA.
- Chief Editor of Journal of Cancer and Tumor international.
- Member of the Editorial Board of 6 international journals (topics related to oncopathology).
- Author: Glands Thyroid Pathology. Ed. Bubok 2012 y Endocrine Pathology. Text and Atlas. Ed. EdStudios, Spain, 2018
- Member of the New York Academy of Sciences (Sciences Academy of NY), 2011
- Integrant of the Power List 2019

#### **Professors**

#### Dr. Aldecoa Ansorregui, Iban

- Specialist in Anatomy and Pathology Barcelona Clinical Hospital
- Neuropathology Expert

#### Mr. Ballester Lozano, Gabriel

• Molecular Biologist at Vinalopó Hospital Ribera Salud Group

#### Dr. Barbella, Rosa

 Anatomopathologist attached to the Anatomy and Pathology Service at Albacete General Hospital. Resident tutor. Faculty of Medicine, Castilla La Mancha University. Expert in breast pathology

#### Dr. Camarasa, Natalia

- Specialist in Anatomy and Pathology at Castellón University Hospital, Valencia, Spain.
- Expert in hemato-lymphoid pathology

#### Professor. Dr. Cuatrecasas, Miriam

- Specialist in Anatomy and Pathology Barcelona Clinical Hospital
- Expert and Consultant in Gastrointestinal Pathology
- · Coordinator of the Digestive Pathology SEAP working group.
- Coordinator of the Catalan Network of Tumor Banks (XBTC) and the Tumor Bank Clinic Hospital-IDIBAPS.
- IDIBAPS researcher

#### Dr. Franco, María Ángeles

- Head of Radiodiagnosis Service, Torrevieja and Vinalopó University Hospitals.
- Radiology Professor at UCAM.
- President of the Spanish Society of Radiodiagnosis and former Chief of Service of the Fundación Jiménez Díaz.

#### Dr. Gómez Román, Javier

- Specialist in Anatomy and Pathology Marqués de Valdecilla Hospital, Santander, Spain
- Expert in Pulmonary Pathology and Molecular Pathology
- Researcher Cantabria University

#### Dr. Herrero, Josefa

- Specialist in Anatomy Pathology, Torrevieja and Vinalopó University Hospitals.
- Professor at Alicante University
- Expert in Uropathology

#### Dr. Labiano Miravalles, Tania

- Specialist in Anatomy and Pathology, Pamplona Hospital Complex, Navarra, Spain.
- Cytology Expert

#### Professor. Dr. Machado, Isidro

- Specialist in Pathological Anatomy, Valencian Institute of Oncology (IVO), Valencia.
- Expert in Soft Tissue Pathology and Sarcomas

### tech 18 | Course Management

#### Dr. Ortiz Reina, Sebastián

- · Specialist in Pathological Anatomy.
- University Specialist in Electron Microscopy at Madrid Complutense University.
   University Specialist in Dermatopathology at Alcalá de Henares University.
   Associate Professor of Health Sciences in the subject of Pathological Anatomy at Madrid Complutense University.
- Lecturer in Histology and Cell Biology at the University School of Nursing at the Murcia University.
- University professor of practices for students of the career of Medicine at Murcia Catholic University.
- Tutor of residents of Anatomy Pathology of the University Complex of Cartagena

#### Dr. Rey Nodar, Severino

- Head of Female Anatomy Service, Torrevieja and Vinalopó University Hospitals.
- Expert in Endocrine, Head and Neck, and Thoracic Pathology

#### Dr. Ribalta, Teresa

- Anatomy and Pathology Professor, Barcelona University
- Expert in Neuropathology, currently Pediatric Pathology.
- Head of the Anatomy and Pathology Department, Sant Joan de Déu Hospital, Barcelona, Spain

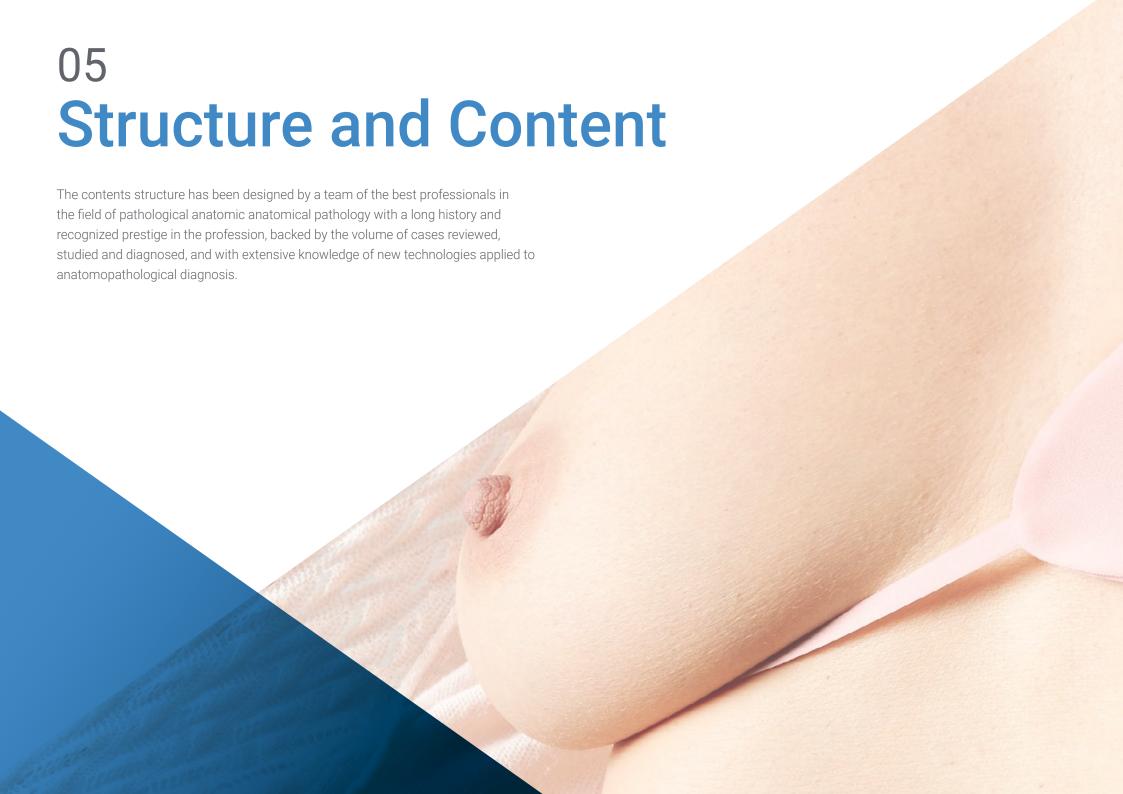
#### Lic. Rubio Fornés, Abel

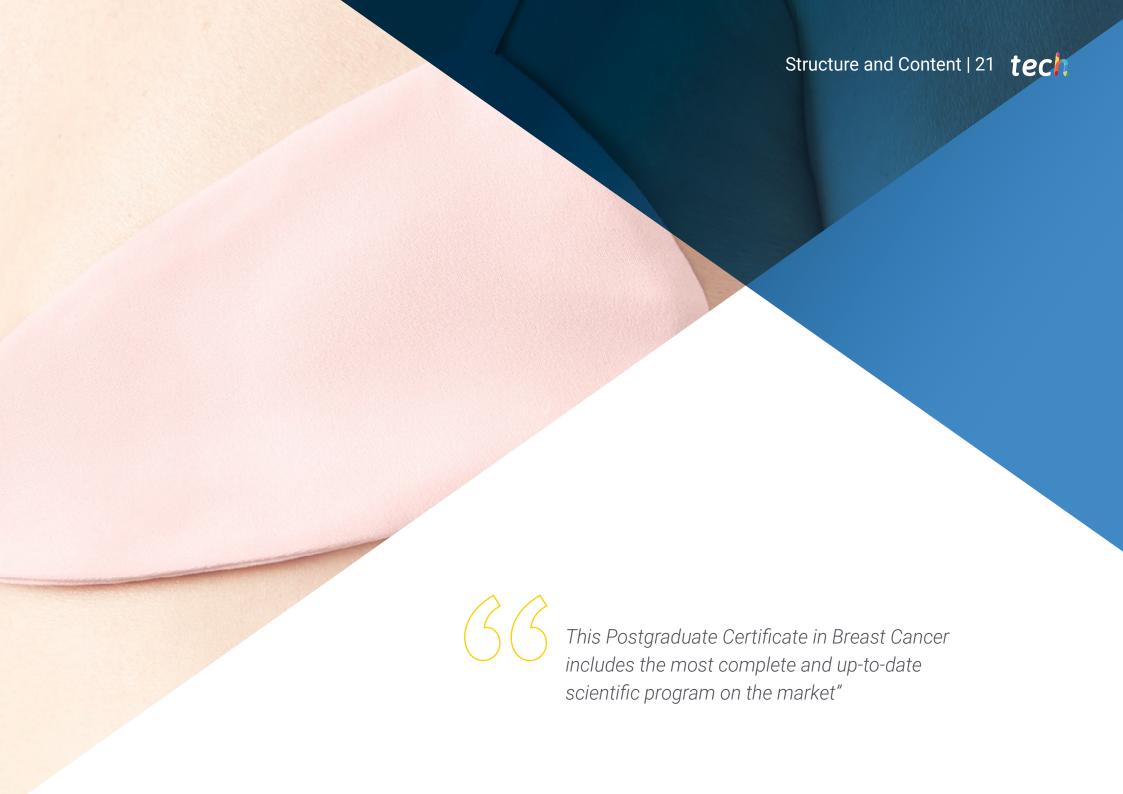
• Mathematician. Postgraduate Diploma in Statistics and Operations Research. University of Valencia

#### Mrs. Sansano Botella, Magdalena

- Degree in Criminology at the Alicante University.
- Technician specializing in Anatomy and Pathology, Alicante University.





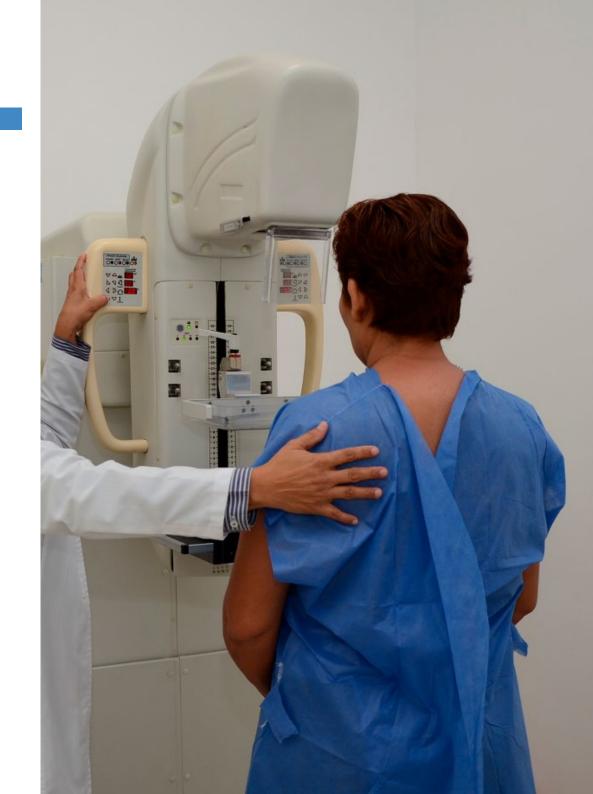


### tech 22 | Structure and Content

#### Module 1. Cancer General Aspects. Risk Factors

#### 1.1. Introduction.

- 1.1.1. Overview of Malignant Neoplasms.
  - 1.1.1.1. Nomenclature.
  - 1.1.1.2. Features.
  - 1.1.1.3. How Metastases Spread.
  - 1.1.1.4. Prognostic Factors
- 1.1.2. Epidemiology of Cancer.
  - 1.1.2.1. Incidence.
  - 1.1.2.2. Prevalence.
  - 1.1.2.3. Geographical Distribution
  - 1.1.2.4. Risk Factors.
  - 1.1.2.5. Prevention.
  - 1.1.2.6. Early Diagnosis.
- 1.1.3. Mutagenic Agents.
  - 1.1.3.1. Environmental.
  - 1.1.3.2. Workplace.
  - 1.1.3.3. Toxic Substances in Food.
- 1.1.4. Biological Agents and Cancer.
  - 1.1.4.1. RNA Virus.
  - 1.1.4.2. DNA Virus.
  - 1.1.4.3. H. pylori.
- 1.1.5. Genetic Predisposition.
  - 1.1.5.1. Genes Linked to Cancer.
  - 1.1.5.2. Susceptibility Genes.
    - 1.1.5.2.1. Breast Tumors.
    - 1.1.5.2.2. Lung Tumors.
    - 1.1.5.2.3. Thyroid Tumors.
    - 1.1.5.2.4. Colon Tumors.
    - 1.1.5.2.5. Skin Tumors.
    - 1.1.5.2.6. Bone Tumors.
    - 1.1.5.2.7. Pancreas Tumors.
    - 1.1.5.2.8. Neuroblastoma.
- 1.1.6. Clinical Aspects of Malignant Neoplasms.
- 1.1.7. Staging of neoplastic disease.



#### Module 2. Molecular Basis of Cancer

- 2.1. Introduction to the Molecular Basis of Cancer.
  - 2.1.1. Genes and the Genome.
    - 2.1.1.1. The Main Cell Signaling Pathways.
    - 2.1.1.2. Cell Growth and Proliferation.
    - 2.1.1.3. Cell Death. Necrosis and Apoptosis.
  - 2.1.2. Mutations.
    - 2.1.2.1 Types of Mutations. Frameshift; Indels, Translocations, SNV; Missense, Nonsense, CNV, Driver vs. Passenger.
    - 2.1.2.2. Mutagens.
      - 2.1.2.2.1. Biological Agents and Cancer.
    - 2.1.2.3. Mutation Repair Mechanisms.
    - 2.1.2.4. Mutations with Pathological and Non-Pathological Variants.
  - 2.1.3. Major Advances in Precision Medicine
    - 2.1.3.1. Tumor Biomarkers.
    - 2.1.3.2. Oncogenes and Tumor Suppressor Genes.
    - 2.1.3.3. Diagnostic Biomarkers.
      - 2.1.3.3.1. Resistance.
      - 2.1.3.3.2. Prognosis.
      - 2.1.3.3.3. Pharmaco-Genomics.
    - 2.1.3.4. Cancer Epigenetics.
  - 2.1.4. Main Techniques in the Molecular Biology of Cancer.
    - 2.1.4.1. Cytogenetics and FISH (Fluorescence In Situ Hybridization).
    - 2.1.4.2. DNA Extract Quality.
    - 2.1.4.3. Liquid Biopsy.
    - 2.1.4.4. PCR as a Basic Molecular Tool.
    - 2.1.4.5. Sequencing, NGS.

#### Module 3. Female Breast Tumors Male and

- 3.1. Breast Cancer Epidemiology.
  - 3.1.1. Worldwide Distribution.
  - 3.1.2. Incidence and Prevalence.
  - 3.1.3. Risk Factors.
  - 3.1.4. Early Diagnosis.

- 3.2. Cancer Diagnostic Circuit.
  - 3.2.1. Multidisciplinary Work.
  - 3.2.2. Radiology and Pathological Anatomy of the Breast.
  - 3.2.3. Diagnosis by Core Needle Biopsy and Vacuum Aspiration.
- 3.3. General Information about the Breast.
  - 3.3.1. Hormone Receptor Expression.
- 3.4. Clinical Aspects of Precursor Lesions of Breast Cancer.
  - 3.4.1. B3 Lesions.
  - 3.4.2. Diagnosis: Immunohistochemical Panel.
  - 3.4.3. Treatment.
    - 3.4.3.1. Excision.
    - 3.4.3.2. Bless
    - 3.4.3.3. Active Surveillance.
    - 3.4.3.4. Hormone Therapy.
- 3.5. Invasive Ductal and Lobular Carcinoma.
  - 3.5.1. Clinical Radiological Aspects.
  - 3.5.2. Biological Behavior.
  - 3.5.3. Hereditary Cancer Staging (TNM).
  - 3.5.4. Prognostic Group.
  - 3.5.5. Biological Profile of Breast Cancer.
    - 3.5.5.1. Hormone Receptors, ki67 and Her2 (Immunohistochemical Diagnosis-HIS).
  - 3.5.6. Role of p53 and bcl2 in Breast Cancer.
  - 3.5.7. New Therapeutic Targets.
    - 3.5.7.1.1. PD1/PDL-1.
- 3.6. Anatomical and Pathological Assessment of the Breast after Neoadjuvant Treatment.
  - 3.6.1. Sentinel Lymph Node.
    - 3.6.1.1. Pre- and Post-Neoadjuvant Diagnosis.
      - 3.6.1.1.1. The OSNA Method.
      - 3.6.1.1.2. Frozen Section.
- 3.7. Axillary Management.
  - 3.7.1. Axillary Conservation vs. Lymphadenectomy.





### tech 26 | Methodology

#### At TECH we use the Case Method

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you can 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 potential 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 professional medical practice.



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

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

- Students who follow this method not only 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 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.
- 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.

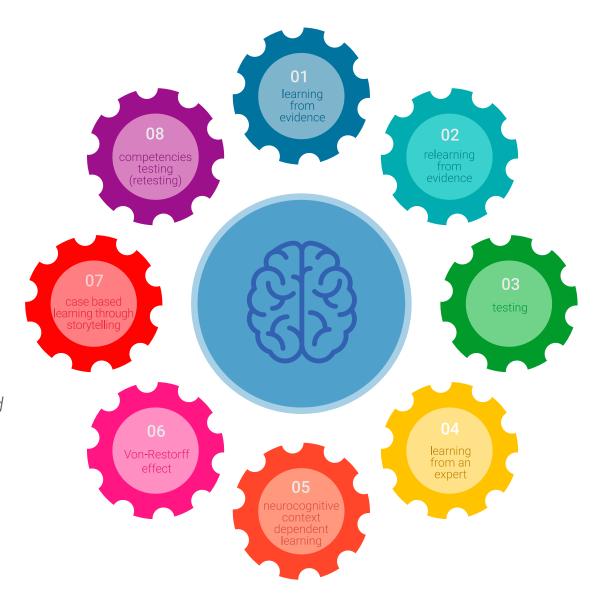


### Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.

The physician 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.



### Methodology | 29 tech

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

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning 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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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

In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



#### **Latest Techniques and Procedures on Video**

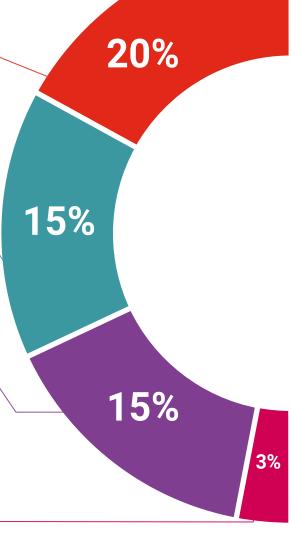
We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### **Interactive Summaries**

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

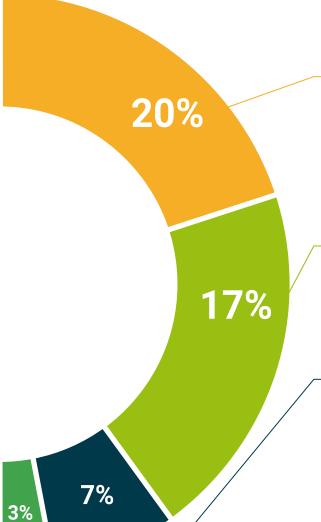
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".





#### **Additional Reading**

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.



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

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### **Testing & Re-testing**

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our future difficult decisions.

#### **Quick Action Guides**

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.





### tech 32 | Certificate

This **Postgraduate Certificate in Breast Cancer** contains the most complete and up-todate 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 certitificate issued by La **TECH Technological University** will express the qualification obtained in the course, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: Postgraduate Certificate in Breast Cancer

ECTS: 11

Official Number of Hours: 275





## Postgraduate Certificate **Breast Cancer**

- » Modality: online
- » Duration: 2 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

