Postgraduate Diploma
Diagnosis and Research in Oncological Surgery

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Postgraduate Diploma
Diagnosis and Research in Oncological Surgery

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Tests: **online**

Website: https://portal-tech-eu-win.azurewebsites.net/us/medicine/postgraduate-diploma/postgraduate-diploma-diagnosis-research-oncological-surgery

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01

Introduction

The profile of an oncological surgeon today is incomprehensible without knowledge of research, methodology, statistics, molecular biology and adjuvant therapies to the surgery itself. The unstoppable progress in the areas of diagnosis and research has led to a unique field of action in this area, inviting specialists to integrate these areas of knowledge into their own work methodology. TECH, in response to this situation, has developed this program. In it, the specialists will find the most updated material on complementary studies of digestive tumors, artificial intelligence, Big Data and innovative research techniques, all in a 100% online format, without face-to-face classes or fixed schedules.

Get updated on the most relevant diagnostic techniques, including genetic studies of the patient and molecular diagnostics"

The oncology field is possibly one of the areas with the greatest momentum in research work and continued developments. The implementation of new technologies in the surgical field, as well as the expanded use of Big Data and artificial intelligence in the assistance of both surgeons and researchers, has led to a favorable situation for all specialists in the area.

This being the case, updating processes are a sine qua non condition to be up to date, especially in a context of continuous advances. This program is presented as a preferential academic option to achieve this goal of updating, delving into advanced techniques and tools to investigate and diagnose tumors in the human body, as well as to implement effective treatments to combat cancer surgically.

Likewise, the Postgraduate Diploma has an eminently practical vision, provided by a teaching staff of advanced experts in surgical oncology. Throughout the course, the most relevant practical skills in oncological surgery research will be reviewed, while developing an in-depth understanding of the biology of cancer and the mechanisms that cause its growth and spread.

All this in a program free of face-to-face classes and preset schedules, giving the specialists absolute freedom to assume the teaching load at their own pace.
The didactic content is available in its entirety in the Virtual Campus, and can be downloaded from any device with an Internet connection to be subsequently reviewed from the tablet, smartphone or computer of choice.

This **Postgraduate Diploma in Diagnosis and Research in Oncological Surgery** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of practical cases presented by experts in Digestive Surgery and Oncology
- Graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

Get up to date in everything related to Radiation Oncology and anatomopathological diagnosis in the field of Oncological Surgery"

You will be able to delve into the most important diagnostic and research fundamentals in Oncologic Surgery through a good variety of practical cases"

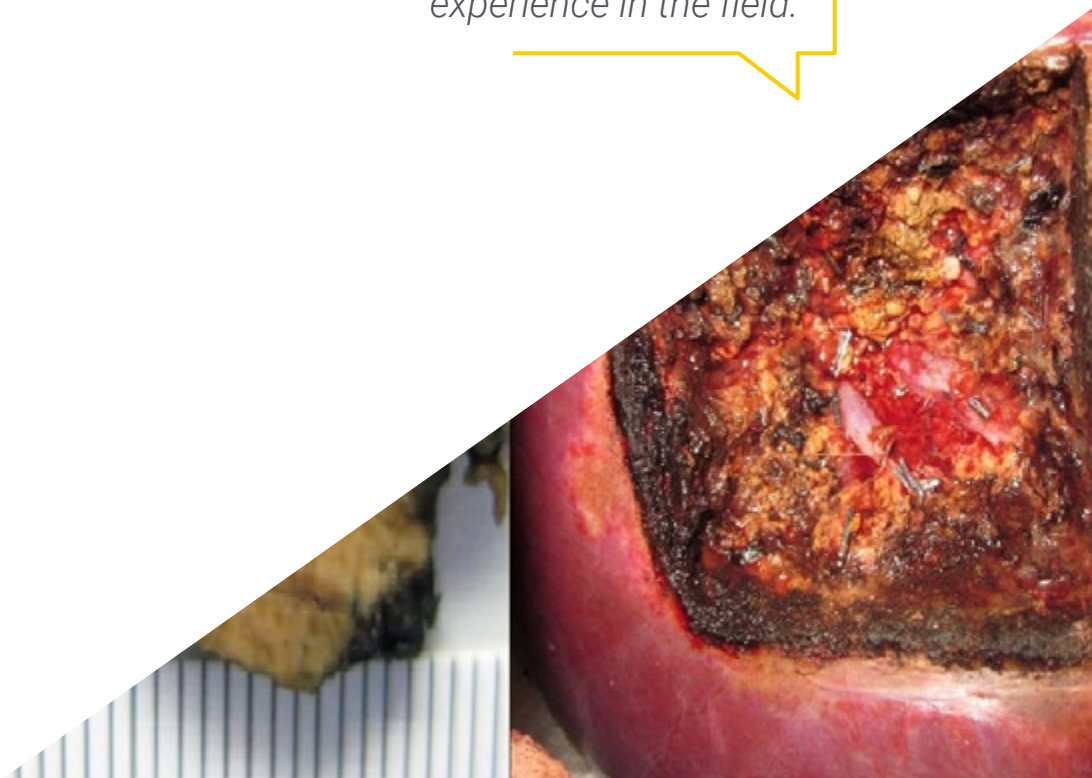
Choose when, where and how to take the course load, having total freedom to adapt the program to your own pace.

Access a Virtual Campus full of high quality multimedia resources, developed by teachers with vast experience in the field.

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

Its multimedia content, developed with the latest educational technology, will provide the professionals with situated and contextual learning, i.e., a simulated environment that will provide an immersive education programmed to learn in real situations.

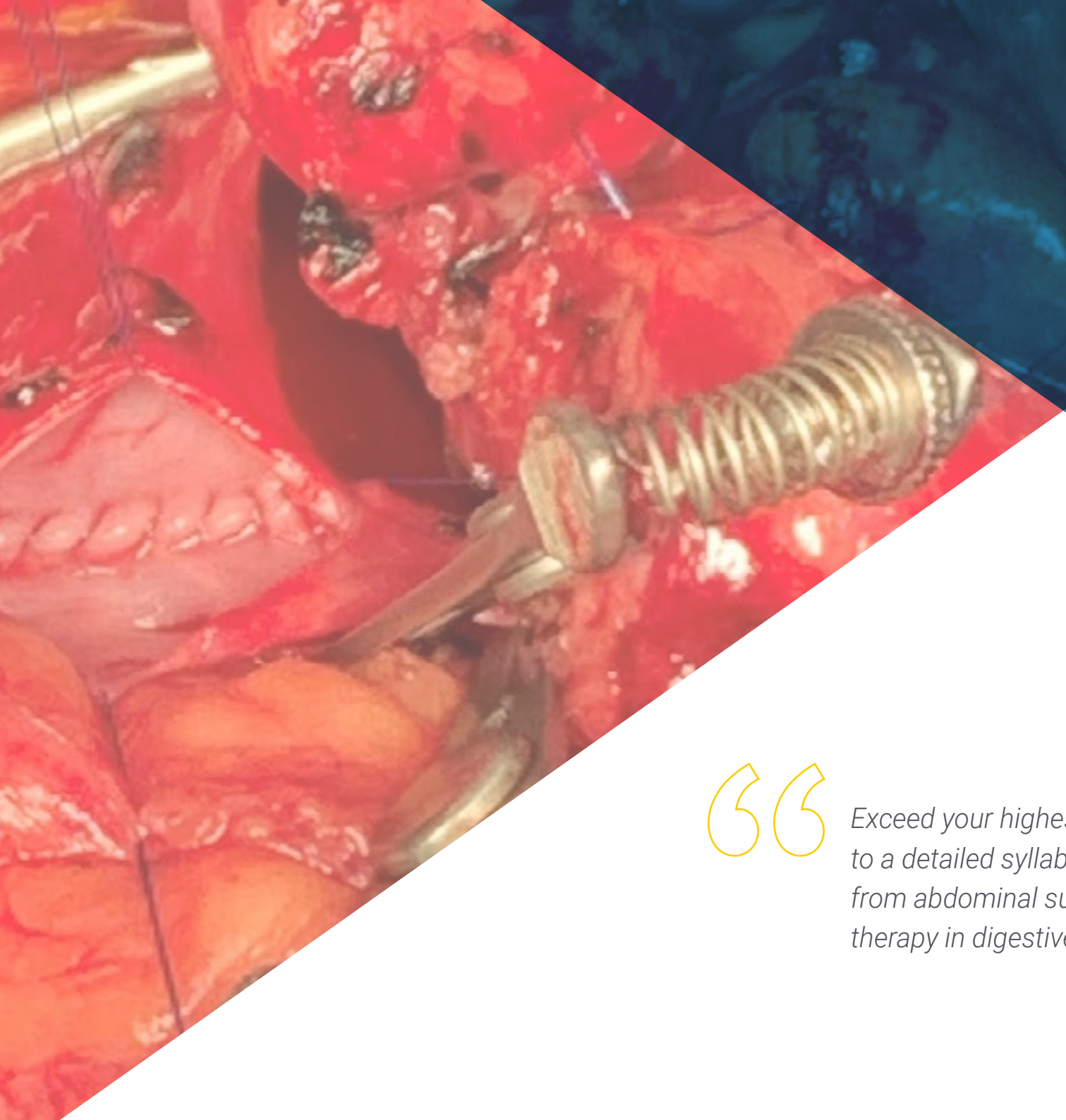
The design of this program focuses on Problem-Based Learning, by means of which the professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.



02

Objectives

The main objectives of this Postgraduate Diploma in Diagnosis and Research in Oncological Surgery are several. Given its analytical and practical approach, it delves into the latest techniques and technologies used in oncologic surgery, especially those with greater relevance for research. In addition, given that critical thinking is fundamental in the field of research, the aim is to foster this competence in the specialists through the analysis of practical examples drawn from the faculty's own experience.

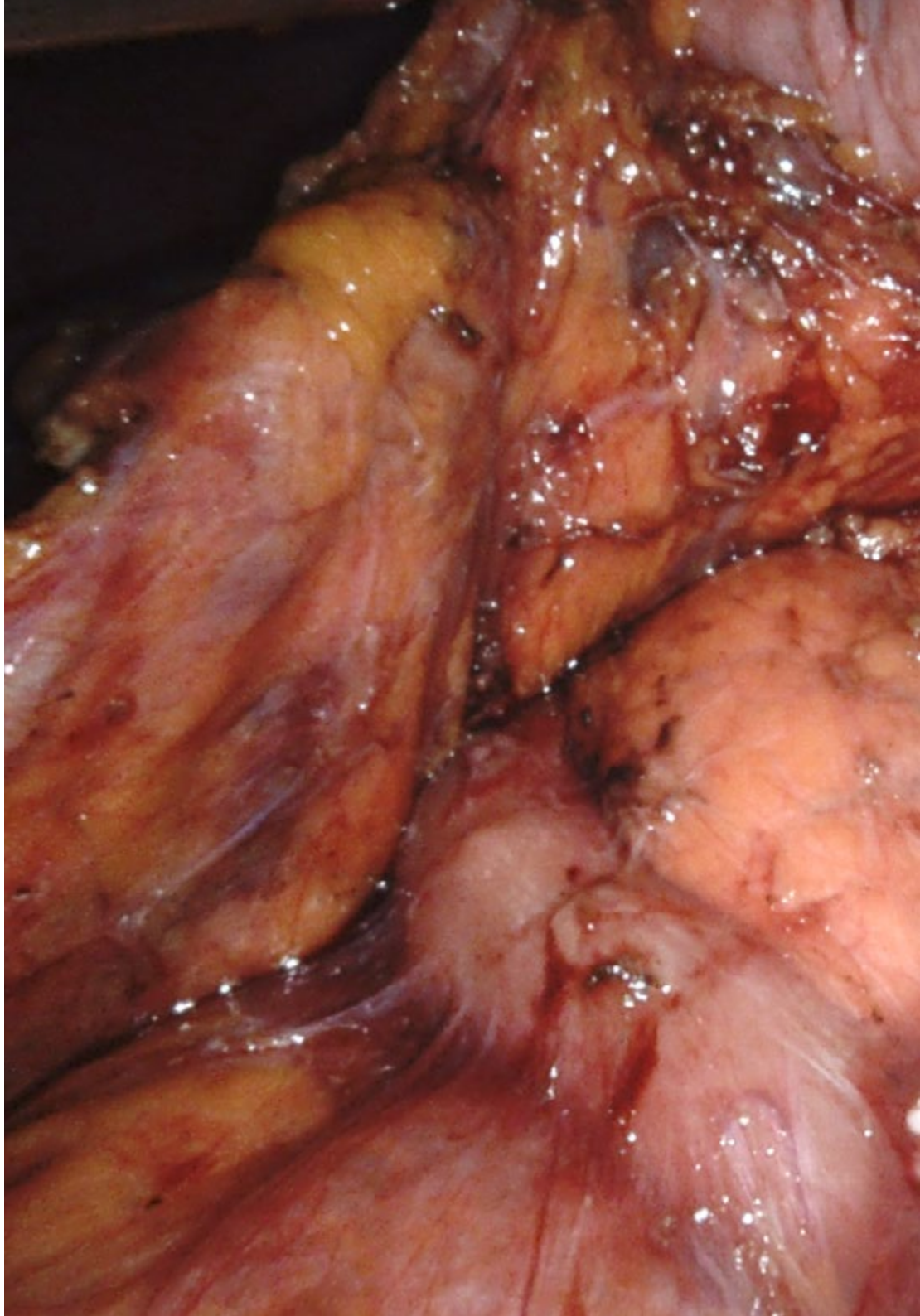


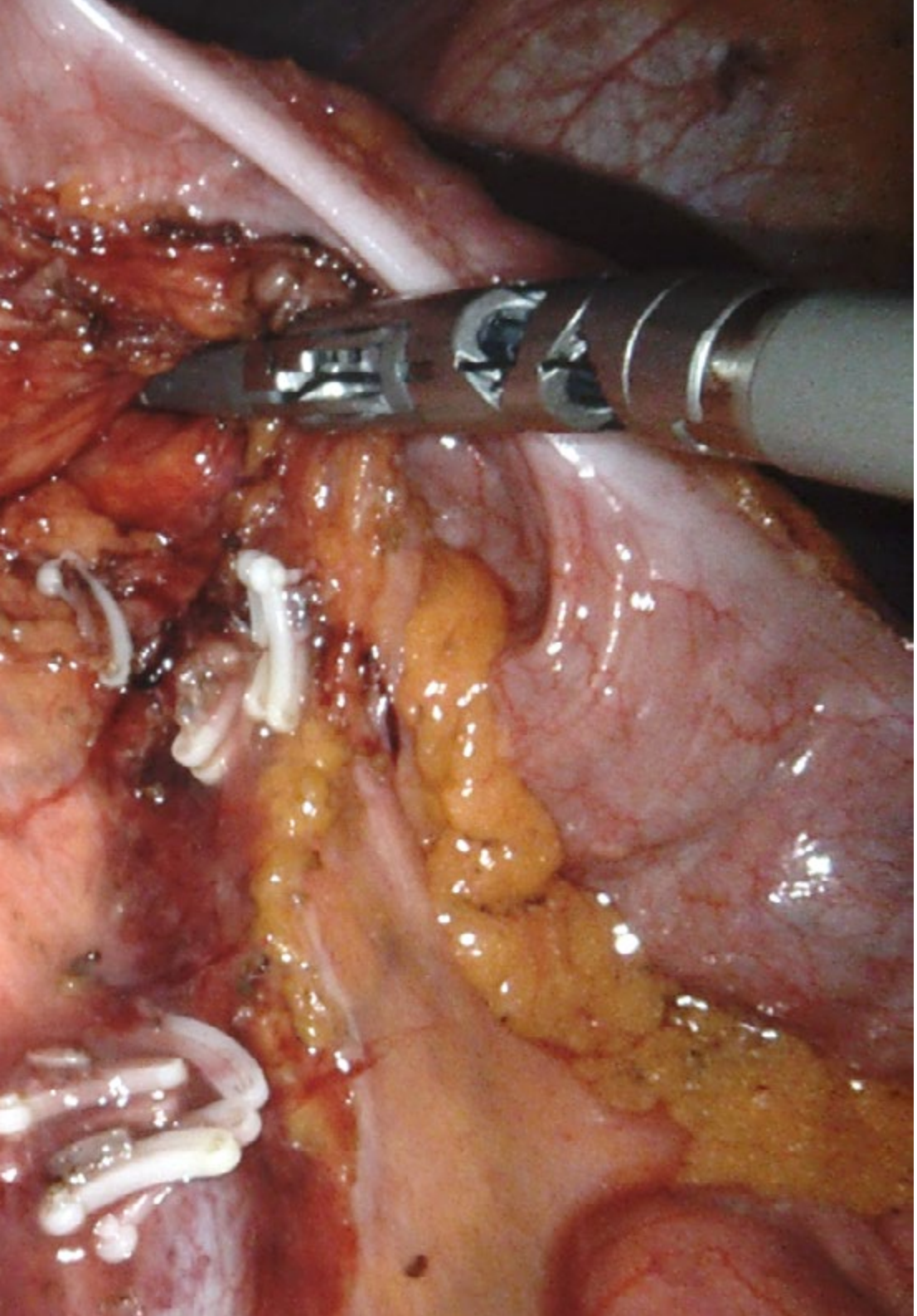
Exceed your highest expectations thanks to a detailed syllabus that will take you from abdominal surgical anatomy to target therapy in digestive oncology and sarcomas"

General Objectives

- Delve into the specific knowledge on the management of patients with tumors affecting the digestive system
- Discern the surgical techniques to be used and the new technologies currently available for their diagnosis and treatment
- Know where modern surgery is heading and which are the ways of its development
- Study the fundamentals of research in oncological surgery
- Understand the way to develop research projects, how to do it and where to get help
- Develop skills and technical knowledge with which to face any situation presented by a patient in an oncological surgery unit of the digestive system

Improve your work methodology based on the most rigorous scientific precepts in Diagnosis and Research in Oncological Surgery"





Specific Objectives

Module 1. Digestive Oncological Surgery

- Understand in detail the anatomy of the abdomen and the organs of the digestive system, focusing on those structures of special interest to the surgeon, which must be known to apply the corresponding surgical techniques in each organ
- Understand the fundamental aspects of the nutrition of an oncologic and surgical patient, his nutritional needs and ways to improve it to face surgery
- Analyze the peculiarities of anesthesia in the oncologic patient undergoing abdominal surgery, participation of anesthesia in multimodal therapy, monitoring, influence of anesthesia with the recovery of patients
- Acquire the ability to recognize the parameters that indicate the postoperative evolution of patients, detect possible complications early and obtain knowledge for immediate postoperative management
- Learn which are the palliative surgical techniques in Digestive Oncology and to recognize which are the factors that must be taken into account when making a decision about palliative treatment
- Understand which surgical techniques should be used in the context of urgent surgery, and depending on the patient's situation and tumor
- Learn the molecular basis of Digestive Oncology
- Study the interference of oncological drugs with the processes of healing or coagulation and how they affect the results of surgery
- Delve into the participation of radiotherapy in the treatment of digestive tumors
- Understand the different ways of application of radiotherapy
- Analyze the side effects of radiotherapy on tissues and how this can affect surgery and its planning

Module 2. Complementary studies in digestive oncology surgery

- Understand the different radiological techniques and their indications in the primary diagnosis of digestive tumors, including ultrasound, CT and MRI
- Study the peculiarities of the different radiological techniques for early diagnosis both in healthy population (screening) and people with risk factors
- Know the contributions of conventional radiology in the follow-up of patients with digestive tumors
- Analyze the different contributions of interventional radiology to the diagnosis of digestive tumors
- Review the basic radiopharmaceuticals used in digestive pathology, as well as the contributions of Nuclear Medicine to the field of Digestive Oncological Surgery
- Understand the basis of molecular diagnostics and its contribution to the development of cancer panels, as well as its importance in the design of personalized therapies and its value in the analysis of response to treatment
- Examine the main hereditary syndromes involved in the development of digestive tumors, their implication in the detection of high-risk patients and the planning of prophylactic surgeries
- Understand the concept of microbiome and its possible role in the carcinogenesis process that determines the development of digestive tumors
- Know the possible role of the microbiome both in the early diagnosis and prevention of digestive tumors

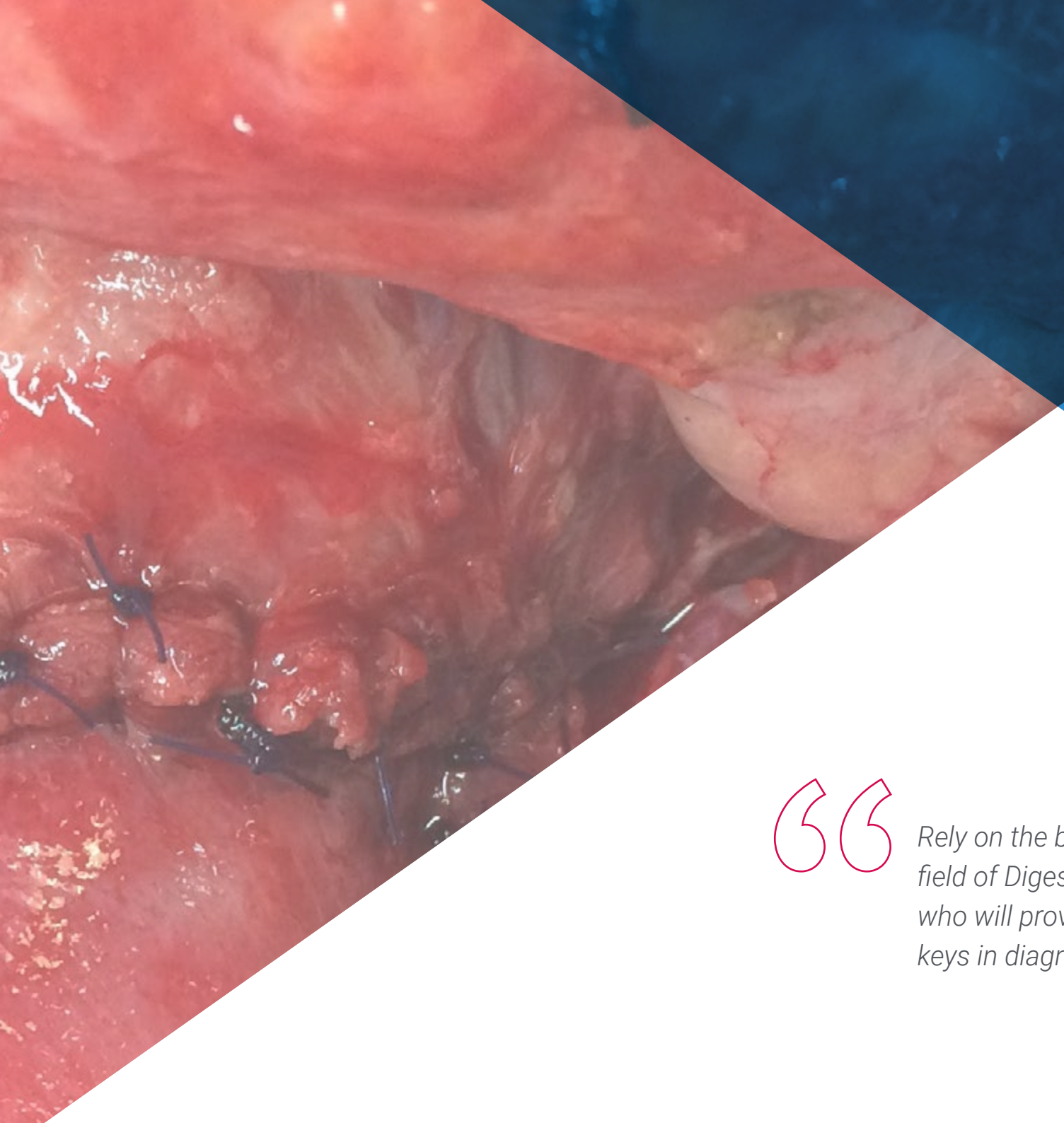
Module 3. Innovation, Research and Development in Digestive Oncologic Surgery

- Implement knowledge in basic-translational research, presenting the different strategies in molecular analysis
- Study the different laboratory research models: animal models, 2D cellular models and 3D organoids
- Obtain the necessary knowledge to start a clinical research in Oncologic Surgery, how to design a clinical trial and to know the sources of funding and the methodology to apply for research grants
- Know the use of Big Data and artificial intelligence in research, what information they provide and their validity
- Understand the different techniques for the application of fluorescence as an aid in Oncologic Digestive Surgery, when to use it and the benefits it can provide
- Delve into the knowledge of current technological advances and how they can facilitate the surgical technique in Oncologic Digestive Surgery
- Study navigation systems, 3D models and intraoperative virtual and augmented reality
- Learn about the new minimally invasive surgical approach techniques, their indications and advantages. Understand the differences between laparoscopy and robotics
- Learn about the intraoperative ablative and adjuvant techniques that currently exist, how to use them and in which cases, as well as the side effects or complications they may generate
- Study what liquid biopsy is, how it is performed, what it is used for, how it can be used for diagnosis, prognosis and early detection of recurrences
- Have knowledge of the new lines of diagnosis, prognosis and treatment in oncology, based on molecular biology, target therapies or immunotherapy

03

Course Management

The teaching staff of this Postgraduate Diploma in Diagnosis and Research in Oncological Surgery is composed of a group of highly qualified specialists with extensive experience in the field. The faculty includes leading oncological surgeons with years of experience in the field, as well as leading researchers in the field of oncology. All of them come from multidisciplinary areas such as Hepatobiliopancreatic Surgery, Digestive Tumors and Peritoneal Oncology or Liver and Pancreas Transplants, with an extensive academic background that supports them.



Rely on the best professionals in the field of Digestive Oncologic Surgery, who will provide you with the current keys in diagnosis and research"

Guest Director

Dr. Alonso Casado, Oscar

- Chief of Hepatobiliopancreatic Surgery at MD Anderson Cancer Center Hospital, Madrid
- Specialist in the General and Digestive Oncology Surgery Service at MD Anderson Cancer Center Madrid, collaborating in the Thoracic Surgery Unit and Plastic Surgery Unit
- Assistant Surgeon at Quirónsalud Sur and El Escorial Hospitals
- Clinical Tutor in Practical Teaching at UFV and MD Anderson Cancer Center Madrid
- Degree in Surgery and Medicine from the UCM
- Certified in Console Surgery of the Da Vinci Xi Robotic System

Professors

Dr. Arjona Sánchez, Álvaro

- Specialist of the Oncological Surgery Unit and the Liver and Pancreas Transplant Unit at the Reina Sofia University Hospital
- Researcher and Coordinator of the Emerging Research Group Research in Peritoneal and Retroperitoneal Oncological Surgery
- Associate Professor at the Department of Medical and Surgical Specialties of the University of Cordoba
- PhD in Medicine from the University of Córdoba
- European Board in Oncologic Surgery
- Member of: European Expert Committee on the Treatment of Pseudomyxoma Peritonei

Dr. Ortega Pérez, Gloria

- Specialist in the Digestive Tumor and Peritoneal Oncology Unit at MD
- Anderson Cancer Center. Madrid
- Specialty in General and Digestive Surgery at Hospital university 12 de Octubre
- Degree in Medicine and Surgery from the Autonomous University of Madrid
- Fellowship in Gastrointestinal Oncologic Surgery at the Washington Hospital Center
- Professional Master's Degree in Molecular Oncology and Molecular Bases of Cancer at
- National Center for Oncological Research (CNIO)

04

Structure and Content

Following the *Relearning* pedagogical methodology, all the contents of this Postgraduate Diploma have been created to provide the specialists with the best possible academic experience. Therefore, the most relevant key concepts and terminology in diagnosis and research are provided gradually, resulting in a much more natural and effective acquisition of knowledge. This, in turn, means a considerable saving in the hours of study required to pass the program, allowing you to invest that time in the topics of greatest personal interest.

The multimedia library you will have available contains a multitude of detailed videos, practical analysis and interactive summaries on Oncological Surgery, the state of research and diagnostic novelties"

Module 1. Digestive Oncological Surgery

1.1. Surgical Anatomy of the Abdomen
- 1.1.1. Anatomy of the abdominal cavity
- 1.1.2. Esophagogastric anatomy
- 1.1.3. Hepatobiliary anatomy
- 1.1.4. Colorectal anatomy

1.2. Prehabilitation Multimodal rehabilitation
- 1.2.1. Prehabilitation
- 1.2.2. Intraoperative measures
- 1.2.3. Postoperative measures

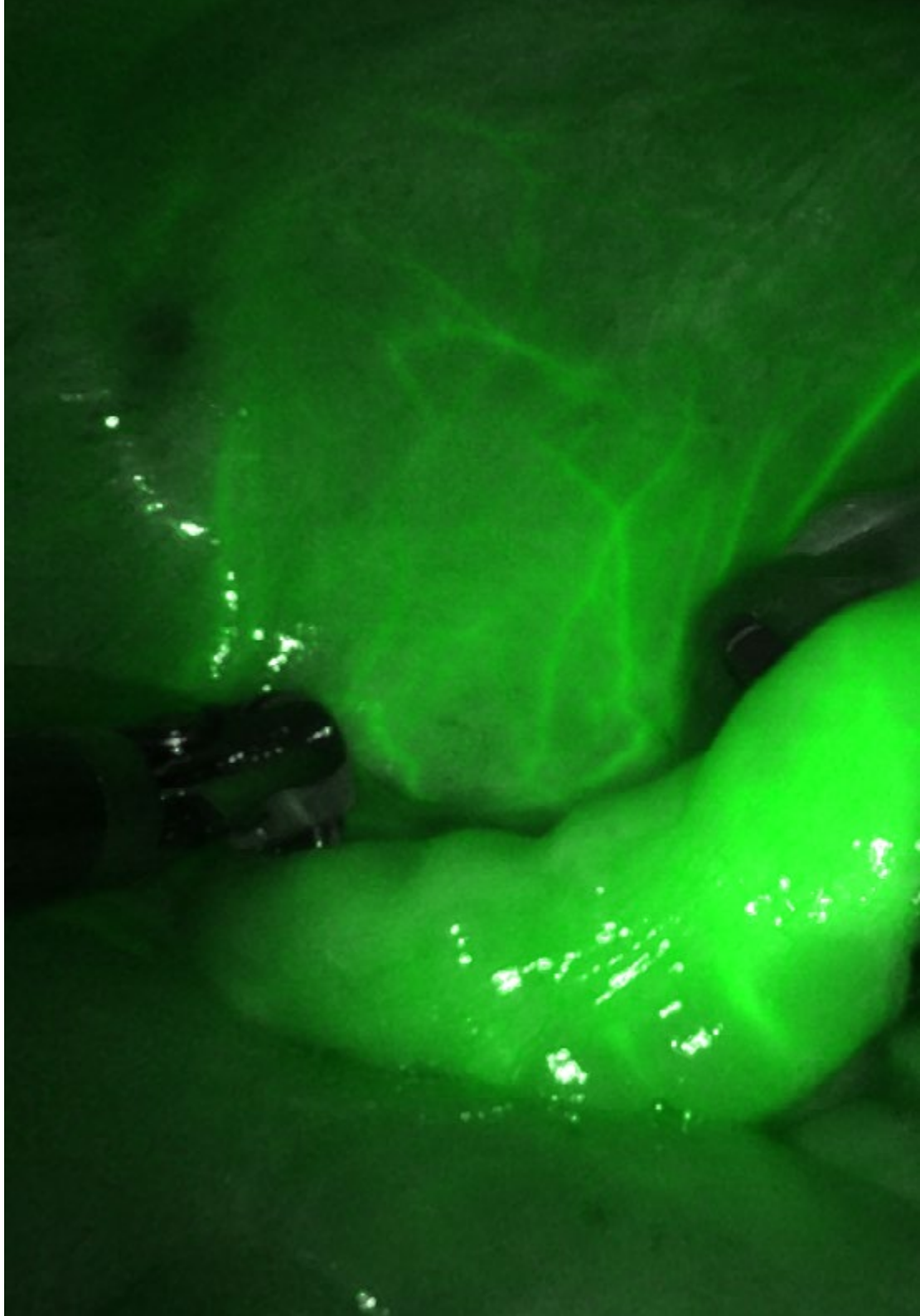
1.3. Fundamentals of Nutrition in Oncological Digestive Surgery
- 1.3.1. Determination of nutritional status
- 1.3.2. Consequences of malnutrition
- 1.3.3. Measures to improve preoperative nutritional status

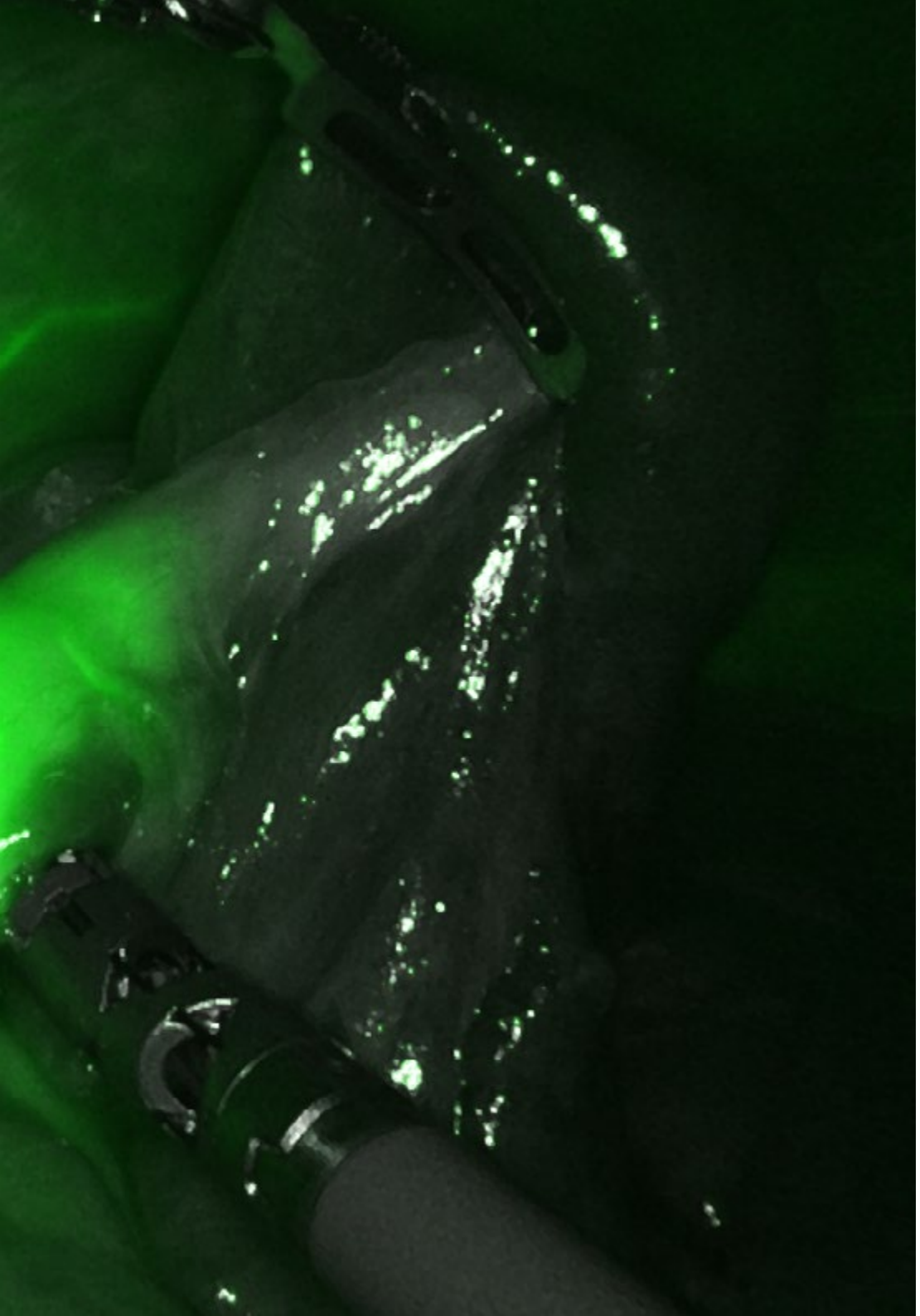
1.4. Anesthesia in Oncological Digestive Surgery
- 1.4.1. Preparation for Anesthesia
- 1.4.2. The importance of anesthesia in Oncological Surgery
- 1.4.3. Anesthesia in complex surgeries

1.5. Post-Surgical Resuscitation
- 1.5.1. Patient optimization after surgery
- 1.5.2. Detection of early complications
- 1.5.3. Sepsis and systemic inflammatory response

1.6. Palliative surgery in Digestive Oncology
- 1.6.1. What is palliation?
- 1.6.2. When do we talk about palliation?
- 1.6.3. Palliative surgical techniques

1.7. Fundamentals of Emergency Surgery in Digestive Oncology
- 1.7.1. Urgent situations in Oncologic Surgery
- 1.7.2. Urgent esophagogastric surgery
- 1.7.3. Urgent hepatobiliary surgery
- 1.7.4. Urgent colorectal surgery





1.8. Molecular basis of Digestive Oncology
1.9. Interaction between systemic treatments and Surgery
  1.9.1. Mechanism of action of systemic oncological treatments
  1.9.2. Interaction and consequences on surgery
  1.9.3. Measures to minimize related surgical complications systemic contracting
1.10. Radiation Oncology in Digestive Oncologic Surgery
  1.10.1. Fundamental concepts of Radiotherapy
  1.10.2. Principles of radiotherapy in the different organs of the digestive tract
  1.10.3. Side effects of radiotherapy on the gastrointestinal tract. Prevention and Treatment

Module 2 Complementary studies in digestive tumors

2.1. Role of conventional radiological techniques
  2.1.1. Initial Diagnosis
  2.1.2. Extension study in patients with digestive tumors
  2.1.3. Treatment planning
2.2. Role of conventional radiology in the early diagnosis and follow-up of patients with digestive tumors
  2.2.1. Ultrasound
  2.2.2. CAT
  2.2.3. MRI
2.3. Role of interventional radiology in digestive tumors
  2.3.1. Diagnostic Techniques
  2.3.2. Participation in treatment
  2.3.3. Role in the management of complications
2.4. Nuclear medicine in the management of digestive tumors
  2.4.1. Diagnostic techniques
  2.4.2. Role in treatment
  2.4.3. Radioguided surgery
2.5. Anatomopathological diagnosis. Beyond morphology
  2.5.1. Importance of intraoperative biopsy
  2.5.2. Handling of fresh specimen and study of margins
  2.5.3. Histological risk factors
  2.5.4. Standardization of reports

2.6. Molecular diagnosis
- 2.6.1. Concept of molecular diagnostics
- 2.6.2. Cancer panels
- 2.6.3. From diagnosis to the design of personalized therapies

2.7. Genetic study in patients with risk factors for digestive tumors
- 2.7.1. Hereditary syndromes associated with digestive tumors
- 2.7.2. Detection of patients at risk
- 2.7.3. Follow-up and prophylactic treatment in patients at risk

2.8. Diagnostic techniques in digestive tumors performed by surgeons

2.9. Microbiome and digestive tumors
- 2.9.1. Microbiota Concept
- 2.9.2. Role of the microbiome in carcinogenesis
- 2.9.3. Role of the microbiome in the early diagnosis and prevention of digestive tumors

2.10. Preoperative assessment of the elderly patient
- 2.10.1. Surgical risk scales
- 2.10.2. Concept of frailty
- 2.10.3. Prehabilitation in the elderly

Module 3. Innovation, Research and Development in Digestive Oncologic Surgery

3.1. Basic research in oncological surgery
- 3.1.1. Genomic introduction
- 3.1.2. Introduction to Proteomics
- 3.1.3. Introduction to Cytometry

3.2. Platforms for testing new therapies
- 3.2.1. Animal Models
- 3.2.2. 2D cellular models
- 3.2.3. 3D organoid models

3.3. Clinical research in oncologic surgery
- 3.3.1. Design of clinical trialsDesign of Clinical Trial
- 3.3.2. Sources of Financing
- 3.3.3. Introduction to grant application methodology

3.4. Big data, artificial intelligence and the use of neural networks in oncology research
- 3.4.1. Introduction to Big Data
- 3.4.2. Artificial intelligence in oncological surgery
- 3.4.3. Use of neural networks in oncologic research

3.5. Techniques and applications of fluorescence in advanced oncological surgery
- 3.5.1. Use of fluorescence in oncologic surgery
- 3.5.2. Techniques of use, doses, times
- 3.5.3. Results

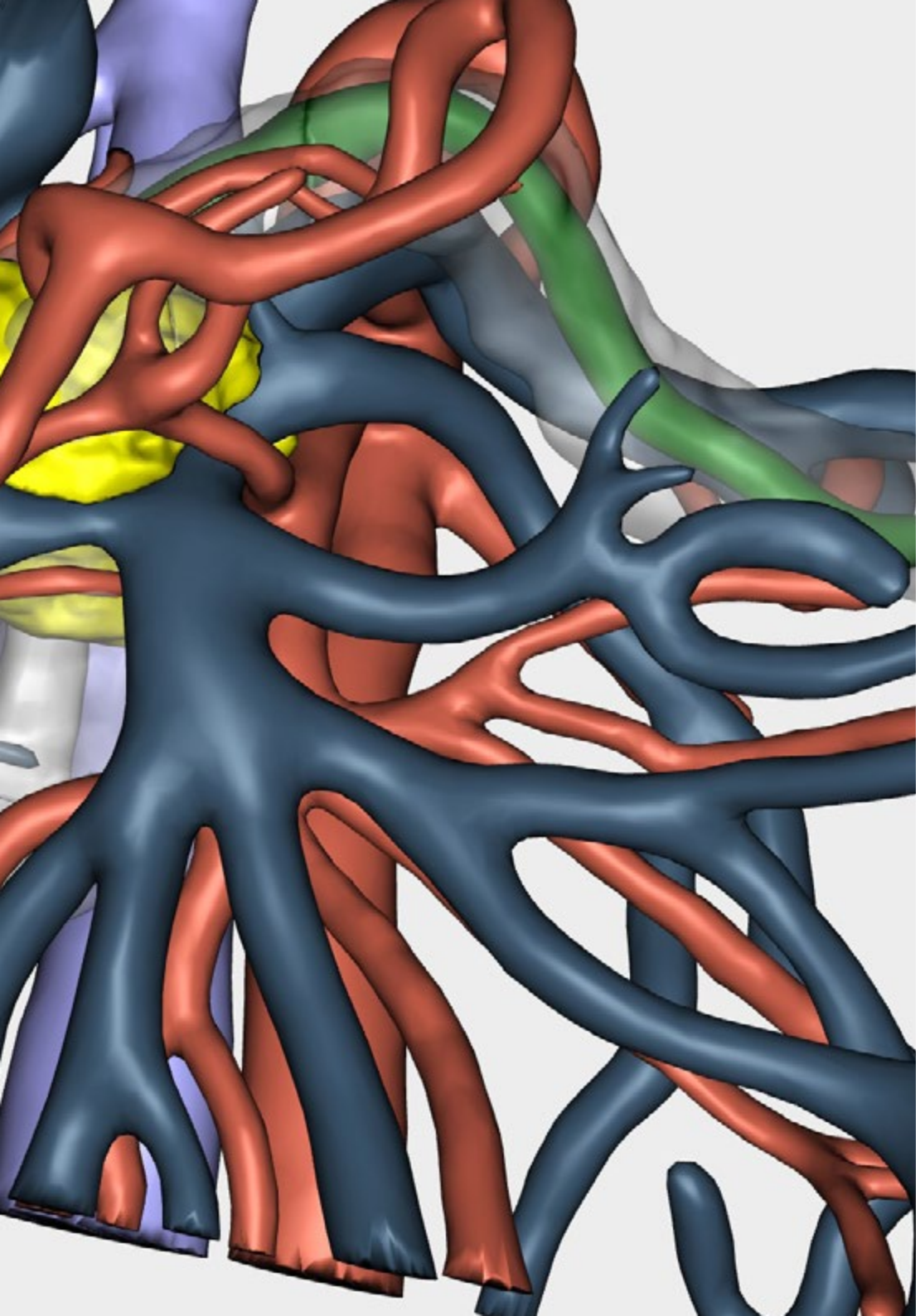
3.6. Navigation systems, 3D models and intraoperative virtual reality in the approach to oncologic disease
- 3.6.1. Browsing Systems
- 3.6.2. Uses and Application of 3D Models
- 3.6.3. Intraoperative virtual reality

3.7. Minimally invasive approach in complex oncologic surgery
- 3.7.1. Concept of minimally invasive approach and modalities
- 3.7.2. Description of the different modalities
- 3.7.3. Robotics

3.8. Intraoperative ablative and adjuvant techniques in oncologic surgery
- 3.8.1. Intraoperative ablation techniques: mechanism of action
- 3.8.2. Differences, Advantages, and Disadvantages
- 3.8.3. Intraoperative radiotherapy

3.9. Liquid biopsy and circulating DNA as diagnostic and prognostic methods in advanced neoplastic disease
- 3.9.1. What is liquid biopsy?
- 3.9.2. How is an Fluid Biopsy Done?
- 3.9.3. Applications of Liquid Biopsy

3.10. New lines of oncological treatment
- 3.10.1. Target therapy in digestive oncology and sarcomas
- 3.10.2. Immunotherapy in digestive tumors
- 3.10.3. CAR-T therapy



Delve deeper through a multitude of complementary readings provided by the teaching staff itself"

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 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.

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:

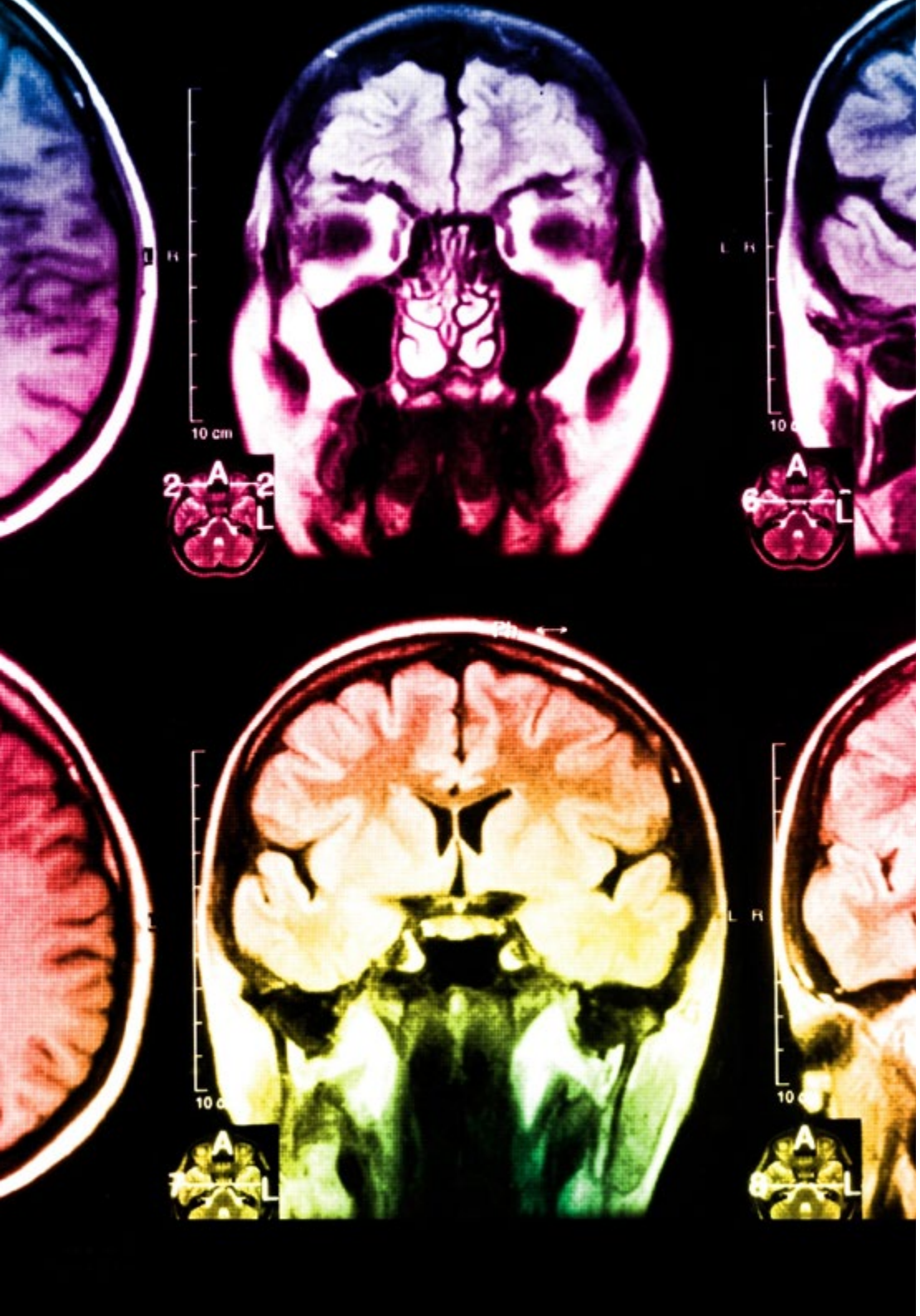
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.

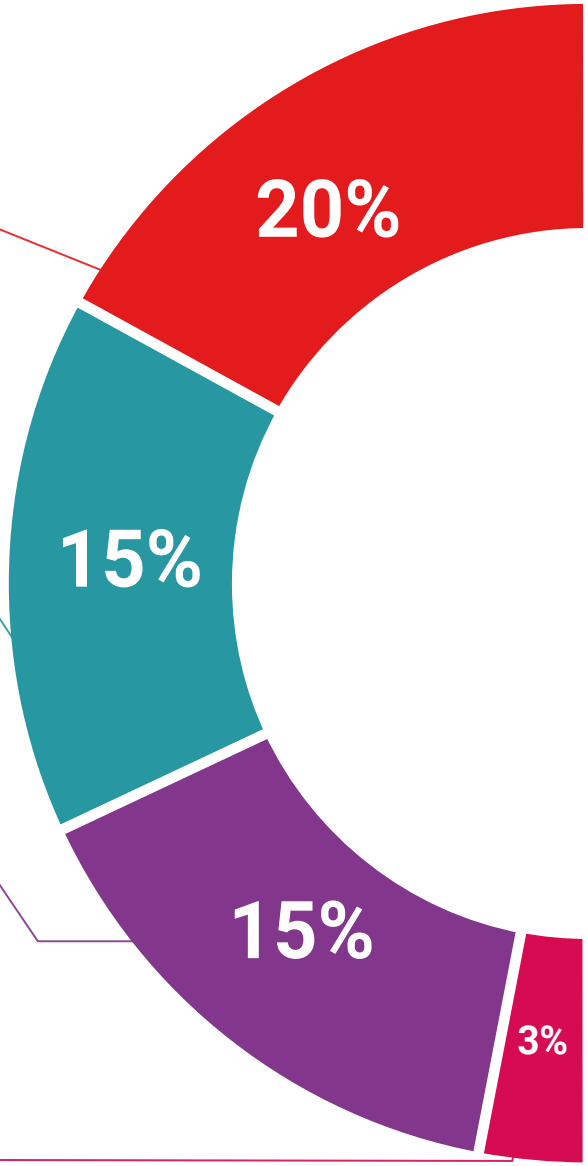
Interactive Summaries

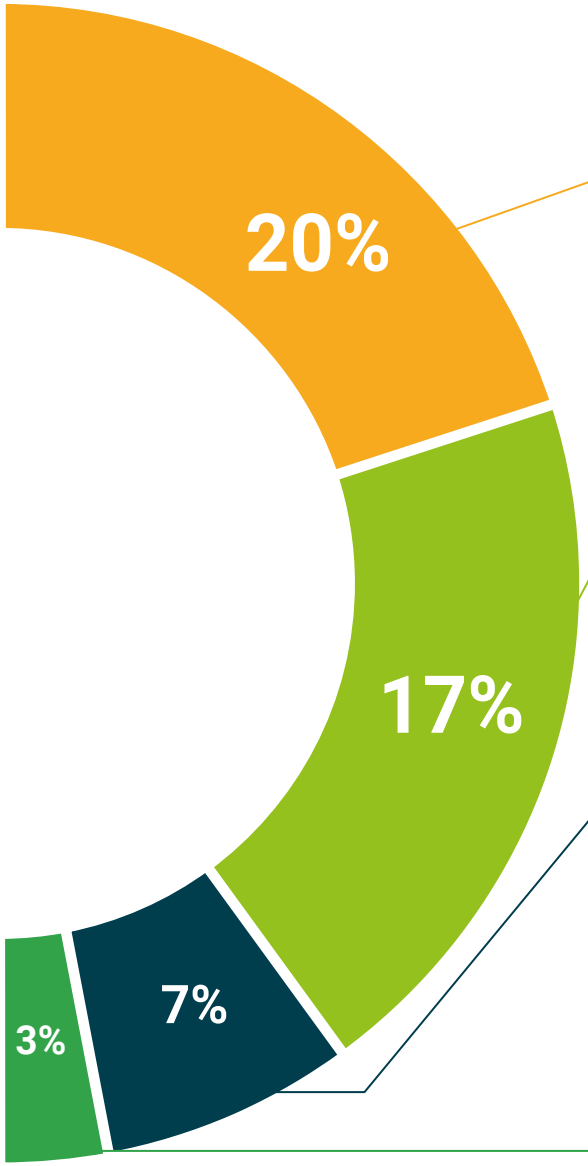
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Diploma in Diagnosis and Research in Oncological Surgery guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Postgraduate Diploma in Diagnosis and Research in Oncological Surgery** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Diagnosis and Research in Oncological Surgery**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Diploma in Diagnosis and Research in Oncological Surgery

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

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 certificate issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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- Schedule: **at your own pace**
- Tests: **online**

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