Postgraduate Diploma

Technical Textiles for Hightech Applications

tech technological university

tech technological university

Postgraduate Diploma
Technical Textiles for Hightech Applications

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

Website: **www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-technical-textiles-hightech-applications**

Index

01

Introduction

Technological advances have led to textiles being increasingly used in the field of architecture and construction, among other sectors, given their properties to reinforce cements in an eco-sustainable way. This benefit and its extension in the current professional activity have highlighted the relevance of having specialists in charge of the design of Textiles for Hightech Applications, which is why TECH has created this degree. Through it, the student will identify the usefulness of fiberglass in construction and detect the novel textile structures and nonwoven fabrics used in the automotive sector. In a 100% online mode and without schedules, you will achieve a learning process that will benefit your professional growth.

This Postgraduate Diploma in Technical Textiles for Hightech Applications will allow you to detect the utilities of glass fibers for the design of textile products oriented to reinforce architectural structures"

Nowadays, textiles are used in a wide variety of professional areas, since they provide countless benefits for designing top-quality materials or instruments that enable work to be carried out with maximum safety. Along these lines, their use is crucial in the healthcare field to generate products for patient care, as well as in aeronautical construction to prevent the formation of smoke and ensure the fire resistance of seats or upholstery elements. Its high magnitude reflects the imperative need for skilled professionals in these fields, offering excellent job prospects for engineers specialized in smart textiles.

That is why TECH has opted to design this academic Postgraduate Diploma, which will enable students to learn about new techniques in the use of Technical Textiles for Hightech Applications. During the 450 intensive learning hours, the professional will identify the latest uses of synthetic and ceramic fibers in the world of construction and establish the advantages offered by thermoplastics and carbon fibers in the aeronautical and aerospace sectors. Also, it will detect the modern textile structures destined to the performance of surgical interventions in the sanitary area.

All this, following a 100% online teaching method that will provide the student with an excellent learning experience without the need to make daily trips to a study center. It will also provide accessible teaching resources in innovative formats such as the explanatory video, the interactive summary or the self-assessment test. This way, the engineer will get an enjoyable learning experience, fully individualized and adapted to their academic tastes.

This **Postgraduate Diploma in Technical Textiles for Hightech Applications** contains the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in Textile Engineering and Textile Finishes
- The graphic, schematic, and practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies
- 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

Combine your advanced learning with your professional and work activities through the study facilities offered by TECH"

With this degree, delve deeper into the role of thermoplastics and carbon fibers in the aeronautical and aerospace sector to perfect your Hightech designs"

Learn from anywhere in the world and at any time you want thanks to the 100% online modality of this degree.

Through this degree, you will detect the benefits offered by textiles to perform a wide range of surgical procedures.

The program's teaching staff includes professionals from 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 professional with situated and contextual learning, i.e., a simulated environment that will provide an immersion education programmed to learn in real situations.

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

02

Objectives

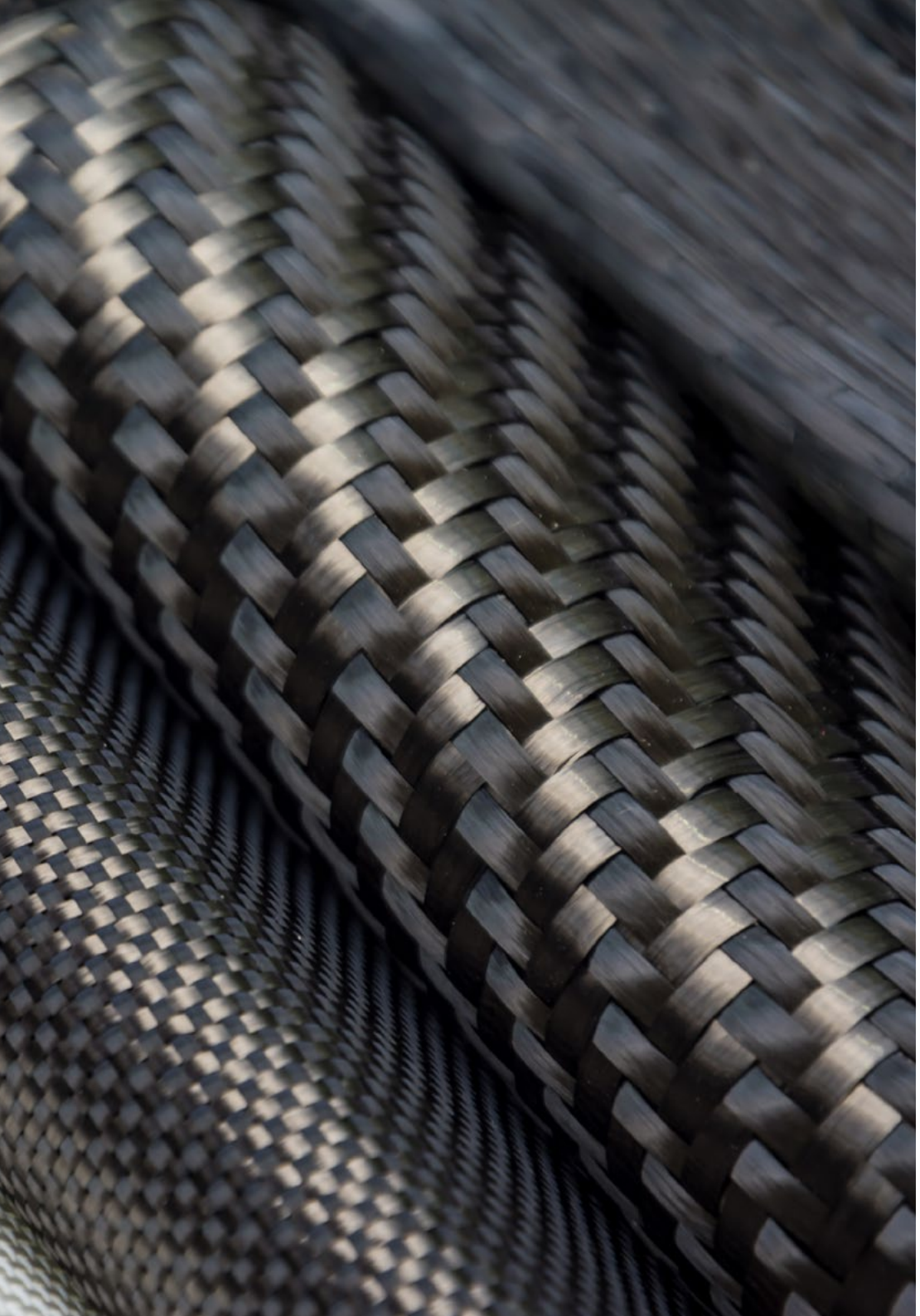
The Postgraduate Diploma in Technical Textiles for Hightech Applications program has been designed to provide textile engineers with the most advanced knowledge in this field in order to improve their professional skills. This way, you will detect the ins and outs of product development for sectors such as the automotive or industrial field, preserving your learning by achieving the following general and specific goals.

Grow professionally in the world of Textile Engineering by obtaining the most advanced knowledge in Technical Textiles for Hightech Applications"

General Objectives

- Classify the different types of fibers according to their nature
- Determine the main physical characteristics of textiles
- Acquire technical skills to recognize the quality of textiles
- Establish practical technical criteria for the selection of suitable materials for the development of textile items in the fashion industry
- Identify and apply the sources of inspiration and the most innovative trends in the textile area
- Generate a transversal vision of textile structures with a multi-sectorial vision of their applications

Increase your chances of working as a textile engineer in the automotive or health sector with this Postgraduate Diploma"



Specific Objectives

Module 1. Textile structures of openwork, mesh and non-woven fabrics

- Calculate and design textile structures related to the requirements of the textile industry
- Distinguish, apply and design processes according to the characteristics of different textile structures
- Be able to develop research and innovation in the field of textile structures
- Integrate knowledge to face the complexity of different textile structures
- Identify and analyze textile structures from a technical approach

Module 2. Development of textile applications for different industries. Multisectorial approach

- Analyze the methodology for the use of textiles as reinforcements
- Deepen the techniques for the development of technical textiles
- Determine applications for the aeronautics sector
- Investigate applications for the automotive sector
- Examine innovations and new trends in technical textiles

Module 3. Development of textile applications for the health sector

- Analyze the methodology of the use of textiles for hygiene, care and medicine
- Detect the applications of intelligent electronic textiles
- Determine the use of protection textiles
- Establish the requirements and use of healthcare and medical textiles

03

Course Management

In order to maintain intact the excellent educational level that characterizes TECH programs, this Postgraduate Diploma is directed and taught by the best specialists in the field of Textile Engineering, who have developed their functions in different fields related to this area. Since these professionals are in charge of elaborating the didactic contents available throughout this degree, the knowledge that the student will acquire will be applicable in their work life.

From the hand of textile engineers of reference and experts in this industry, you will obtain the knowledge in better syntony with the advances made in this sector"

Management

Dr. González López, Laura

- Expert in Textile and Paper Engineering
- Textile Innovation Production Manager at Waste Prevention SL
- Pattern and garment maker oriented to the automotive sector
- Researcher in the Tectex group
- Lecturer in undergraduate and postgraduate university studies
- D. in Textile and Paper Engineering from the Polytechnic University of Catalonia
- Graduate in Political Science and Administration from the Autonomous University of Barcelona
- PROFESSIONAL MASTER'S DEGREE in Textile and Paper Engineering

Professors

Mr. Martínez Estrada, Marc

- Engineer specialized in textile processes and technologies
- Product Engineer at Firstvision Technologies SL
- Researcher at RFEMC group
- Lecturer in undergraduate and postgraduate university studies related to Engineering
- Graduate in Industrial Technologies Engineering from the Polytechnic University of Catalonia
- Master's Degree in Industrial Engineering

Ms. Ruiz Caballero, Ainhoa

- Specialist in the sports textile industry
- Commercial team leader of technical textile products for extreme sports at McTrek Retail GmbH Aachen
- Technician specialized in textile products Hightech for high mountain at McTrek Outdoor Sports GmbH Aachen
- Degree in Political Science and Law from the Polytechnic University of Catalonia
- Master's Degree in European Union by the European Institute of Bilbao

04

Structure and Content

The syllabus of this Postgraduate Diploma has been designed with the idea of providing the student, through 3 very complete modules, with the most useful and advanced knowledge in the field of Technical Textiles for Hightech Applications. In addition, the didactic contents accessible during the duration of this degree are available in modern formats such as an explanatory video, an interactive summary or a self-assessment test. As a result, and through a 100% online methodology, the student will achieve a resolute learning process just by using an internet access device.

The Relearning method of this Postgraduate Diploma will allow you to learn at your own pace from anywhere in the world"

Module 1. Textile structures of openwork, mesh and non-woven fabrics

1.1. Textile structures
- 1.1.1. Basic characteristics. Technologies and methods
- 1.1.2. Mechanical characteristics. Methods and results
- 1.1.3. Chemical characteristics. Methods and results

1.2. Methods of obtaining openwork textile structures. Analysis
- 1.2.1. Looms and their design
- 1.2.2. Textile structures of openwork. Analysis and Design
- 1.2.3. Fabrics and Jacquard technology. Identification and analysis

1.3. Methods used to obtain mesh or knitted textile structures. Analysis
- 1.3.1. Processes and weaving looms. Identification and classification
- 1.3.2. Mesh fabrics. Characteristics and structural parameters
- 1.3.3. Mesh structures and range of technical applications according to the technology used. Identification

1.4. Methods used to obtain nonwoven fabrics. Analysis
- 1.4.1. Nonwoven fabrics. Key Features
- 1.4.2. Nonwoven fabric forming and processing technologies
- 1.4.3. Technical application ranges for nonwoven fabrics

1.5. Innovations in the industrial sector of weaving technologies
- 1.5.1. New machinery developments in the last decades for the design of openwork fabrics
- 1.5.2. Openwork fabrics. Multi-sectoral approach within the industry
- 1.5.3. Sustainability. Producers of openwork textiles, utilization of pre-consumer remnants

1.6. Innovations in the industrial sector of netting technologies
- 1.6.1. Changes and innovations in netting machinery
- 1.6.2. Hightech applications of mesh structures in highly complex industrial sectors
- 1.6.3. Adaptation of netting industries to environmental requirements

1.7. Development and technological innovation in the field of nonwovens
- 1.7.1. Development of highly specific machinery for the utilization of leftovers
- 1.7.2. Nonwovens as a solution for the adaptation and transformation of the textile industry
- 1.7.3. Hightech applications of nonwovens in complex and advanced technology sectors

1.8. Design of openwork textile structures
- 1.8.1. Parameter settings for designing openwork fabrics
- 1.8.2. Determination of applications for specific designs of openwork
- 1.8.3. Recirculating design of openwork textile structures
  - 1.8.3.1. Key aspects for reintroducing textiles back into the value chain

1.9. Design of textile mesh structures
- 1.9.1. Setting the parameters for designing mesh fabrics
- 1.9.2. Determination of applications for specific mesh designs
- 1.9.3. Recirculating design of textile mesh structures
  - 1.9.3.1. Key aspects for reintroducing textiles back into the value chain

1.10. Design of nonwoven fabrics
- 1.10.1. Parameter settings for designing nonwoven fabrics
- 1.10.2. Determination of applications for specific nonwoven fabrics designs
- 1.10.3. Recircular design of nonwoven fabrics
  - 1.10.3.1. Key aspects for reintroducing textiles back into the value chain

Module 2. Development of textile applications for different industries. Multisectorial approach

2.1. Textiles in the construction sector
- 2.1.1. Fiber-reinforced cements
- 2.1.2. Fiberglass applications in construction
- 2.1.3. The uses of synthetic fibers and ceramics in construction

2.2. Use of textiles in architecture and construction
- 2.2.1. Cements reinforced with textile structures
- 2.2.2. Applications of mesh structures in construction
- 2.2.3. Textile architecture and tensile structures. Tensile materials

2.3. Nonwoven structures used in the construction industry
- 2.3.1. Use of nonwoven fabrics for construction purposes. Methodology and technique
- 2.3.2. The incorporation of nonwoven fabrics in construction. Limitations and problems
- 2.3.3. Applications of nonwoven fabrics intended for construction and public works

2.4. Composed materials: high potential as reinforcements in architecture and construction
- 2.4.1. Composed materials at a global level. Situation and outlook
- 2.4.2. Types of composed materials. Definition and Classification
- 2.4.3. Composed materials destined for construction. Specific Applications

2.5. The construction sector, link with the textile sector. News and trends
- 2.5.1. Trends in production and markets
- 2.5.2. Technological advances in the sector and in the implementation of 4.0 industry
- 2.5.3. Prospects for improvement in the sector
  - 2.5.3.1. Solutions to the climate crisis, new needs and requirements

2.6. Development of textiles for the aeronautics and aerospace sector
- 2.6.1. Global analysis of the aeronautical and aerospace sector
  - 2.6.1.1. The market for textiles in the aeronautical and aerospace sector
- 2.6.2. Application of composed materials in the aeronautical and aerospace sector
- 2.6.3. Thermoplastics and carbon fibers for the aeronautical and aerospace sector

2.7. Development of textiles for the automotive sector
- 2.7.1. Global analysis of the automotive sector
  - 2.7.1.1. The textile market within the automotive sector
- 2.7.2. Application of textile materials within the automotive industry
- 2.7.3. New developments in textile structures and nonwoven fabrics for the automotive sector

2.8. Home textiles. Use of textiles in interior design
- 2.8.1. Global analysis of the interior design industry
  - 2.8.1.1. The textile market within the interior design industry
- 2.8.2. Indoor and outdoor textile applications
- 2.8.3. Advanced trends in interior decoration and interior design with textiles

2.9. Geotextiles and geomembranes
- 2.9.1. The geotextile and geomembrane manufacturing industry. Global analysis
  - 2.9.1.1. The textile market within the geotextile and geomembrane manufacturing industry
- 2.9.2. Applications of geomembranes and geotextiles
- 2.9.3. Innovations in the field of geotextiles and geomembranes

2.10. Trends in the transversality of the textile sector. New approaches and new markets
- 2.10.1. Analysis of industrial sectors using textiles
- 2.10.2. Analysis of textile products with use and application in different industrial sectors. Problems and limitations of the textile sector in this field
- 2.10.3. Innovations and adaptability of the textile sector to new market requirements and needs

Module 3. Development of textile applications for the health sector

3.1. Classification of textiles according to their use in the healthcare sector
- 3.1.1. Textile structures for care and hygiene
- 3.1.2. Textile structures intended for the protection of healthcare professionals
- 3.1.3. Antibacterial and antimicrobial textile structures for main use in operating rooms and post-operative rooms

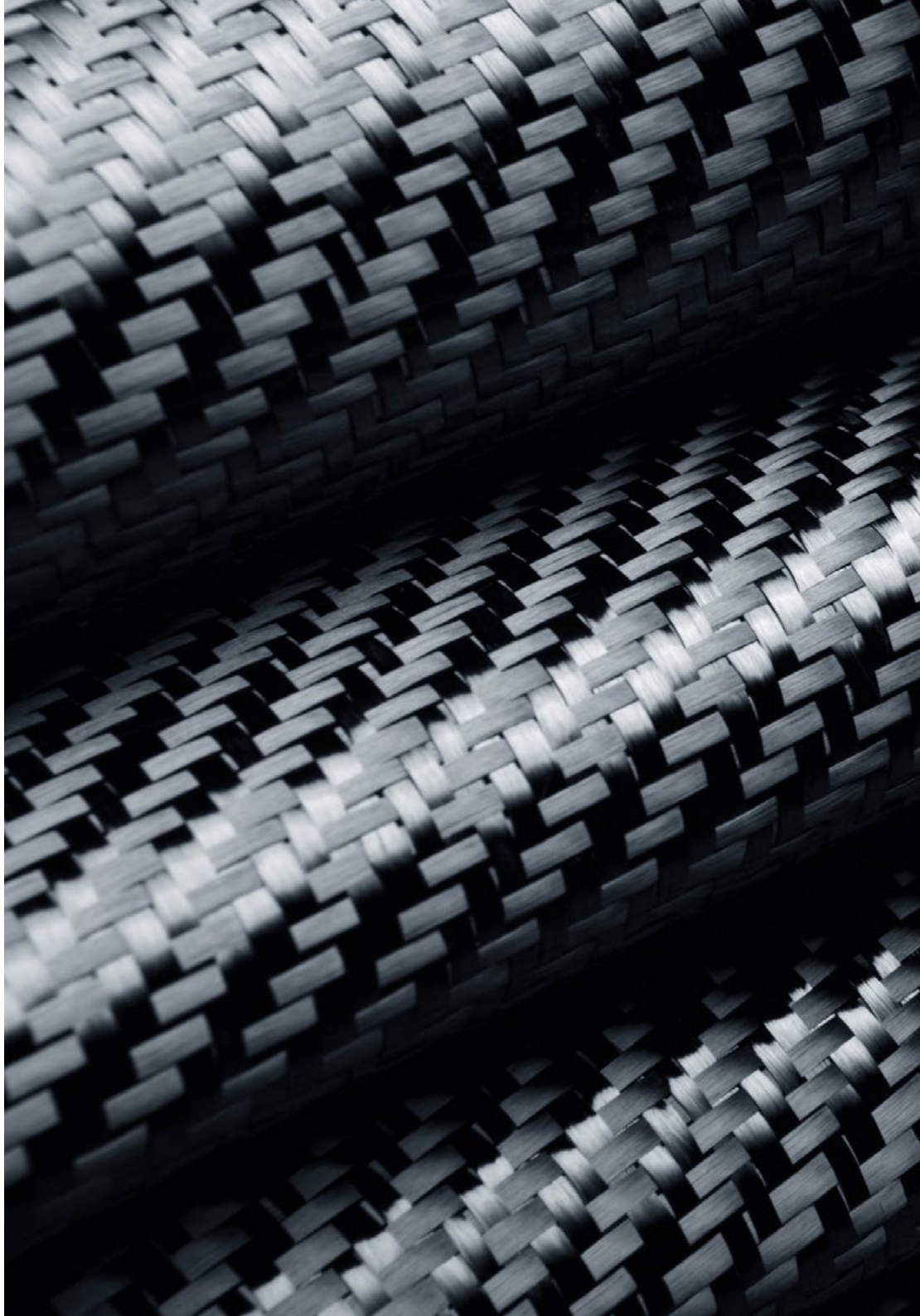
3.2. Traditional uses of textiles in the healthcare sector
- 3.2.1. Presence of textiles in medicine
- 3.2.2. Adaptations and innovations of textiles according to needs in the medical sector
- 3.2.3. Textiles for medical use. Vision for the future

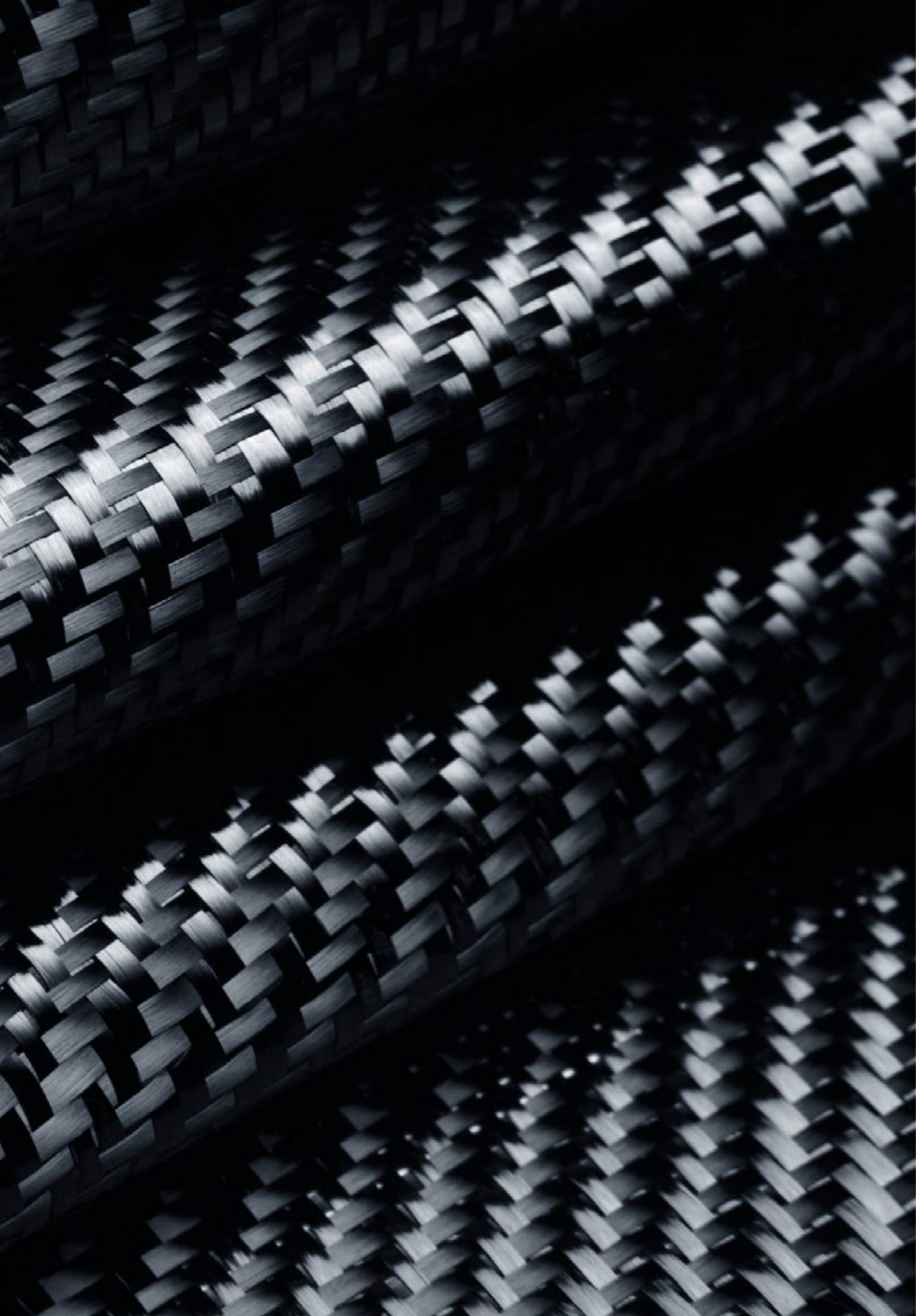
3.3. Textile structures for surgical uses
- 3.3.1. Special yarns
- 3.3.2. Special fibers
- 3.3.3. Special coatings

3.4. Smart fabrics. Uses in the social and health care field
- 3.4.1. Classification of vulnerable social and health groups
- 3.4.2. Socio-health centers. Uses, needs and concerns
- 3.4.3. Smart textile solutions for caregiving

3.5. Textile sensors for healthcare applications
- 3.5.1. Electronic smart textiles and their use in health care
- 3.5.2. Limitations of electronic smart fabrics
- 3.5.3. Use of e-textiles for the healthcare environment

3.6. Medicine and textiles. Medical applications
- 3.6.1. Textile applications as medicine. Uses and requirements
- 3.6.2. Real examples of medicines in textile format
- 3.6.3. Innovations in the use of new textiles as medicines





3.7. Technologies and development of textile structures and nonwoven fabrics for hygiene and care purposes
- 3.7.1. Textile structures according to technology used
- 3.7.2. Classification of textile structures according to their uses in the hygienic and care field
- 3.7.3. Correct recycling of textile structures focused on care hygiene

3.8. Development of nonwoven fabrics for healthcare applications
- 3.8.1. Development of antibacterial and antimicrobial nonwovens for the healthcare sector
- 3.8.2. Nonwoven fabrics for operating room and postoperative use
- 3.8.3. Development of drug-releasing membranes

3.9. Protective fabrics in the healthcare field
- 3.9.1. COVID-19 phenomenon and the search for protective textile materials
- 3.9.2. Traditional protective fabrics in the healthcare field
- 3.9.3. Innovations in protective fabrics in the healthcare field. Post- COVID-19 reflections

3.10. Materials and trends in medicine using textiles
- 3.10.1. New fibers and their use in medicine
- 3.10.2. Therapeutic and rehabilitation textiles
- 3.10.3. Biomaterials and regenerative medicine

Enroll in this program and get access to the most up-to-date didactic contents of the educational panorama in Technical Textiles for Hightech Applications"

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"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

The student will learn to solve complex situations in real business environments through collaborative activities and real cases.

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

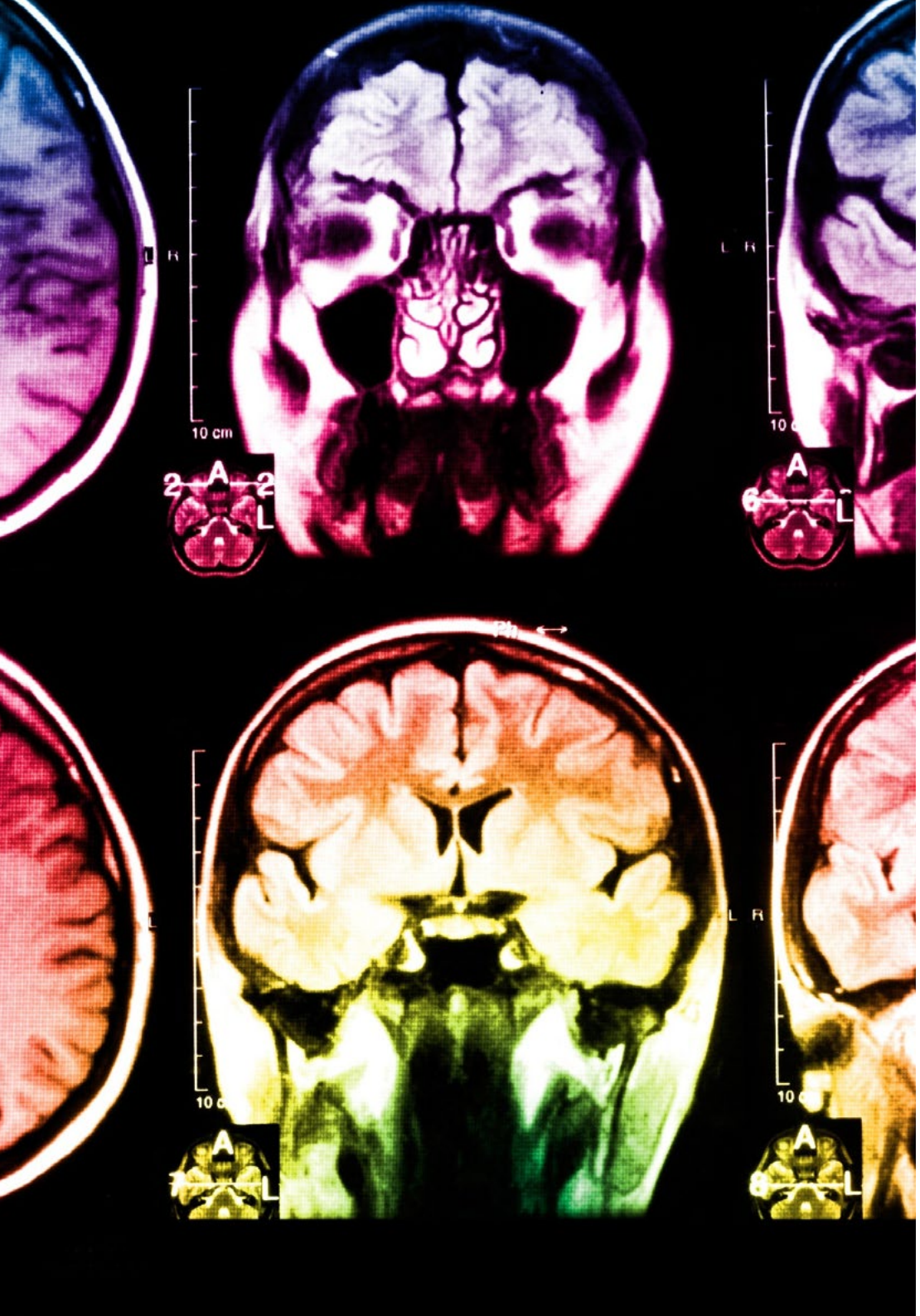
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



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. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

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.

Classes

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

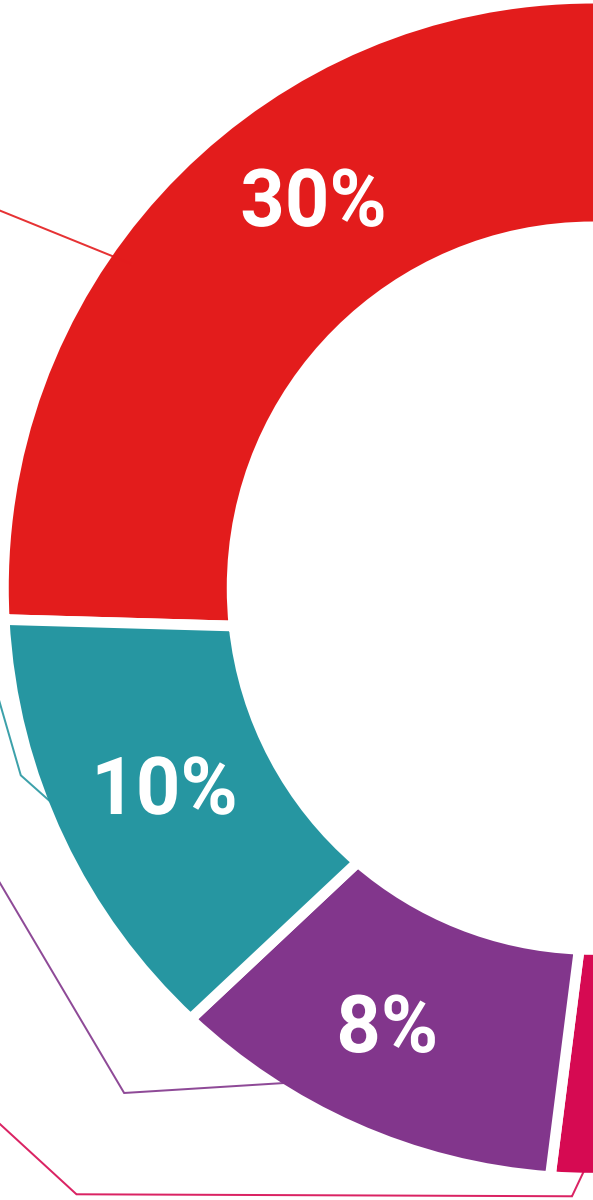
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

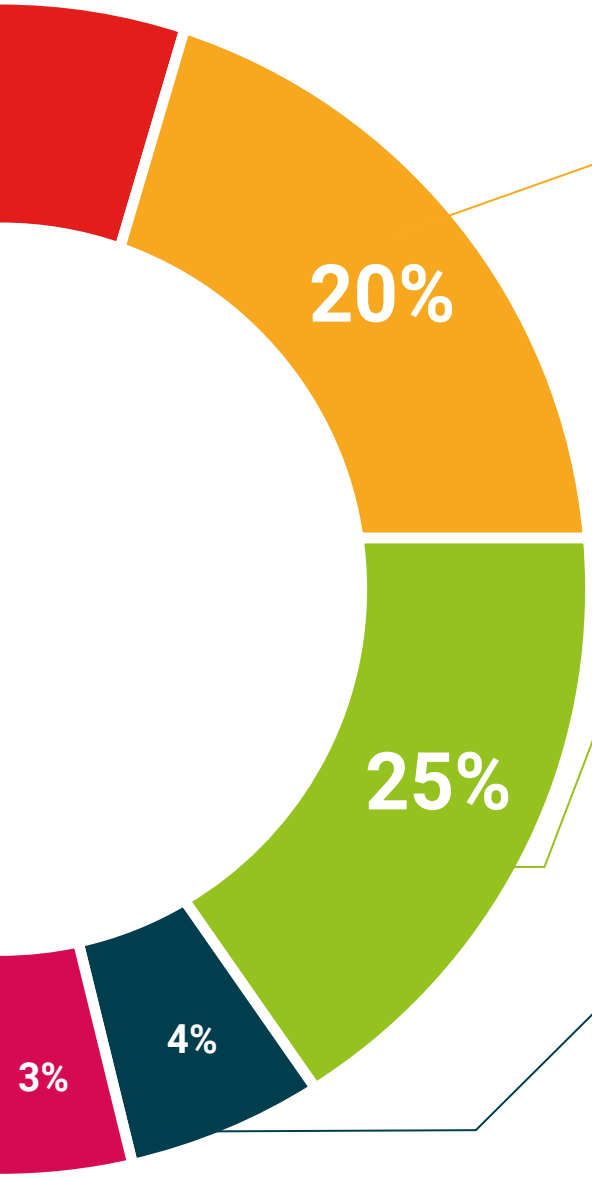
Practising Skills and Abilities

They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.

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.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

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".

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.

06

Certificate

The Postgraduate Diploma in Technical Textiles for Hightech Applications guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

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

This **Postgraduate Diploma in Technical Textiles for Hightech Applications** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate 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 Technical Textiles for Hightech Applications**

Official Nº of Hours: **450 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

Technical Textiles for Hightech Applications

This is a qualification awarded by this University, equivalent to 450 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.

tech technological university

Postgraduate Diploma
Technical Textiles for Hightech Applications

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

Postgraduate Diploma

Technical Textiles for Hightech Applications

tech technological university