Postgraduate Certificate

Structures in Naval Engineering

tech global university

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Postgraduate Certificate
Structures in Naval Engineering

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **6 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/engineering/postgraduate-certificate/structures-naval-engineering**

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01

Introduction

Naval Engineering requires a high level of specialization on the part of professionals, since it comprises a series of concepts linked to the world of structures that make up one of the most difficult sciences in the world. This Postgraduate Certificate offers professionals the best specialized program for job prospects in the field, with a 100% online format and without cumbersome procedures.

Naval Engineering professionals must have extensive knowledge in design and structural calculation, in order to avoid mistakes in their work. At TECH, we want to offer you the best training so you can update your knowledge in the field"

The Postgraduate Certificate in Structures in Naval Engineering is a program of the highest academic level that aims to specialize professionals in the field, enabling them to carry out their work with the highest quality and safety requirements. It is a very complete program, imparted by professionals with years of experience, and which includes the latest advances in the field.

In this educational program, the methodology to be followed in the calculation of structures in shipbuilding is reviewed, starting with the two main calculation methods currently used, the design based on rules, and the design through direct calculation or numerical simulation. It is essential to understand every vessel is different, subjected to different stresses and classified under different typology, so no two ships will be the same, not even sister ships, which are the closest in similarity. This makes shipbuilding a form of protocol engineering in which each structural calculation is unique for each type of vessel.

Likewise, structural design principles will be explained, including construction systems and materials used. The morphology of the different specific areas in shipbuilding, decks, bulkheads or lining, will also be focused on in detail. The minimum parameters for each are detailed depending on the structural system, as well as its different elements, without forgetting the importance of welding and its calculation methodology.

It will also cover the loads to which ships are subjected, both internally and externally, so-called sea loads, and specific loads per ship type; as well as the different sections and their corresponding morphology and calculation methodology, including plans, so-called key plans and the different types of detail within them. Finally, the different structures annexed to the main structure of the ship will be detailed, such as ramps, cranes, heliports, propulsion elements and power generators, including anchoring and mooring elements.

It should be noted that since this is a 100% online Postgraduate Certificate, students are not constrained by fixed schedules or commutes, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Certificate in Structures in Naval Engineering** contains the most complete and up-to-date program on the market. The most important features include:

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

The completion of this Postgraduate Certificate will place Naval Engineering professionals at the forefront of the latest developments in the sector"

This Postgraduate Certificate is the best investment you can make when selecting a refresher program in Structures in Naval Engineering. We offer you quality and open access to content"

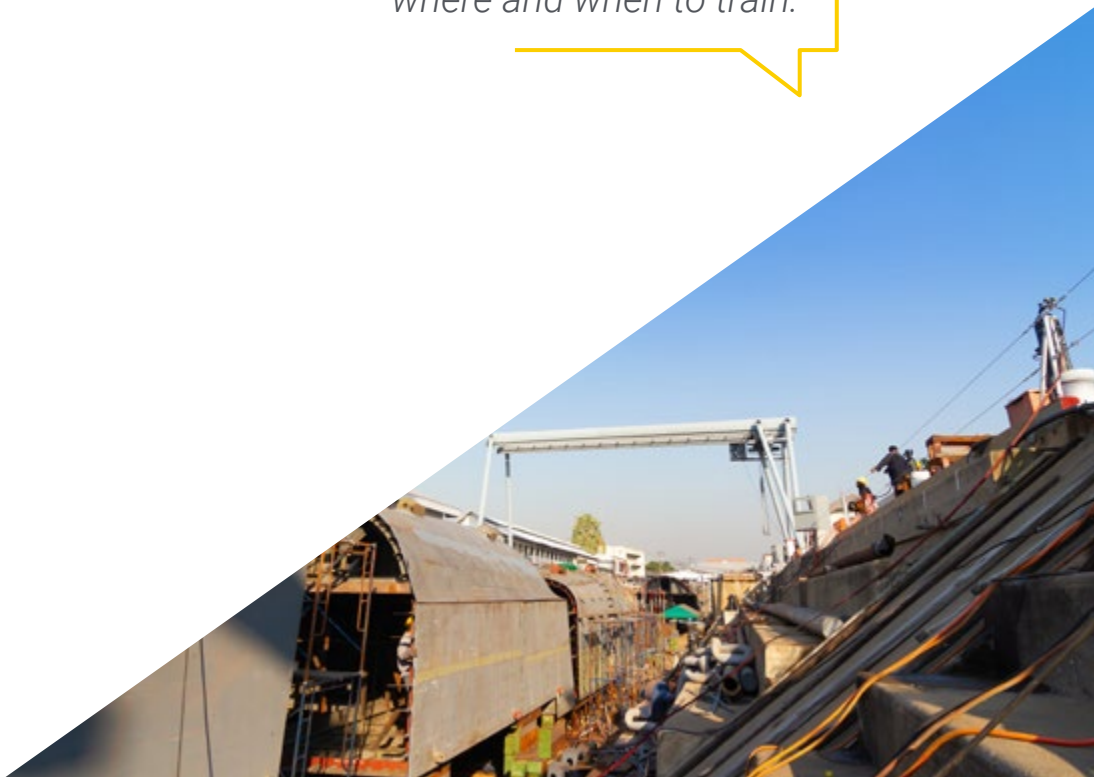
This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

This 100% online Postgraduate Certificate will allow you to combine your studies with your professional work. You choose where and when to train.

The teaching staff includes professionals in naval engineering, who bring their experience to this training 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 immersive education programmed to learn 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 throughout the program. For this purpose, professionals will be assisted by an innovative, interactive video system developed by renowned and extensively experienced experts in Structures in Naval Engineering.



02

Objectives

The program in Structures in Naval Engineering is designed to facilitate professional performance so students acquire and learn the main novelties in the field, which will enable them to practice their profession with the highest quality and professionalism.

Our goal is for you to become the best professional in your sector. And for this we have the best methodology and content"

General Objectives

- Possess an overall vision of all stages of the life cycle of a naval project
- Possess and understand knowledge that provides the basis for developing research ideas
- Conceive and develop appropriate technical and economical solutions for naval projects
- Develop the conceptual design that meets shipowner requirements, cost estimates and risk assessments
- Work and negotiate with shipowners from the point of view of design, define ship missions, and assist shipowners in defining ships according to the requirements
- Apply acquired knowledge and problem-solving skills in new environments related to Naval Engineering
- Solve complex problems and make responsible decisions
- Acquire the basis of scientific and technological knowledge applicable to Naval and Ocean Engineering and management methods
- Organize and lead multidisciplinary work groups in multilingual environments
- Acquire the fundamental knowledge of ship design, structure, machinery and on-board installations
- Know the scope of detailed engineering of structure, outfitting, electricity, flag authorization and air conditioning
- Know how to organize and control the processes of construction, repair, transformation, maintenance and inspection of naval projects
- Delve into shipyard management, having a global and current vision of all shipyard departments
- Acquire the knowledge of ship operations throughout the entire flow line
- Possess detailed knowledge of the latest trends in innovation and development in the naval market in all stages of the life cycle of projects, from the initial stages of design to operations and vessel or artifact scrapping

Join us and we will help you achieve professional excellence"

Specific Objectives

- Know the theories of structural calculation
- Identify structural construction systems
- Understand the materials used and how to wield them
- Understand the structure of double bottom, shell decks and bulkheads
- Perform load and stress calculations
- Perform the main scantling calculations
- Understand the principles of numerical simulation, model types and sub-models
- Generate key drawings and understand their significance
- Describe and understand the other structures within ships: stern, bow, machinery space, etc., as well as auxiliary structures and appendages
- Calculate supports and elements involved in ship mooring and mooring equipment
- Estimate weight and MTO in ordering preliminary materials

03

Course Management

In its mission to provide students with the best teaching staff, TECH has selected for this program a number of active professors with extensive experience in the field of Structures in Naval Engineering. They guarantee effective and accurate training by including in the program topics of interest and new concepts in the area. An advantage of having the best professionals is that they are open and make themselves available to address all student concerns, thus enriching the program with a human quality.

Our university employs the best professionals in all field who share their knowledge to help you"

Management

Ms. López Castejón, María Ángeles

- Naval and Ocean Engineer School of Naval Engineering (ETSIN)
- 22 years of experience in Naval Engineering, Engineering and Shipyards
- Master's Degree in Occupational Risk Prevention Safety. MAPFRE
- PRL Auditor C.E.F
- Safety Coordinator
- C.A.P. University of Seville
- CCPC Co-Active Professional Certified Coach CTI
- Director of Marine Projects at SENER INGENIERIA Y SISTEMAS, S.A
- Certified Professional Coach

Professors

Mr. De Vicente Peño, Mario

- Naval and Ocean Engineer School of Naval Engineering (ETSIN)
- Master's Degree at UPM: Numerical Simulation in Engineering with ANSYS
- 16 years of experience in Naval Engineering and Classification Society
- Associate Professor of Structures and Shipbuilding at UPM, (ETSIN): Official Degree Courses: Finite Element Models in Ship Structures (1C), Master Frame Calculation (2C), MAERM Topics: Structural Design (1C), Structural Analysis of Offshore Platforms (2C)
- Director of Marine Projects at SENER INGENIERIA Y SISTEMAS, S.A
- ETSIN Associate Professor

04

Structure and Content

The contents have been structured and designed by the best professionals in Naval and Ocean Engineering, who have extensive experience and recognized prestige in the profession, and who are aware of the benefits that the latest educational technology can bring to higher education.

We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"

Module 1. Structures in Naval Engineering

1.1. Calculation Systems
- 1.1.1. Rule-Based Design
- 1.1.2. Rationally Based Design

1.2. Structural Design Principles
- 1.2.1. Materials
- 1.2.2. Bottom and Double Bottom Structures
- 1.2.3. Deck Structure
- 1.2.4. Liner Structure
- 1.2.5. Bulkhead Structure
- 1.2.6. Welding

1.3. Loads
- 1.3.1. Internal
- 1.3.2. External
- 1.3.3. Sea-Related
- 1.3.4. Specific

1.4. Scantlings
- 1.4.1. Tertiary Element Calculation
- 1.4.2. Ordinary Element Calculation

1.5. Primary Element Calculation
- 1.5.1. New Technologies
- 1.5.2. Numeric Methods
- 1.5.3. Bar Numerical Simulation
- 1.5.4. Shell Numerical Simulation
- 1.5.5. Submodels

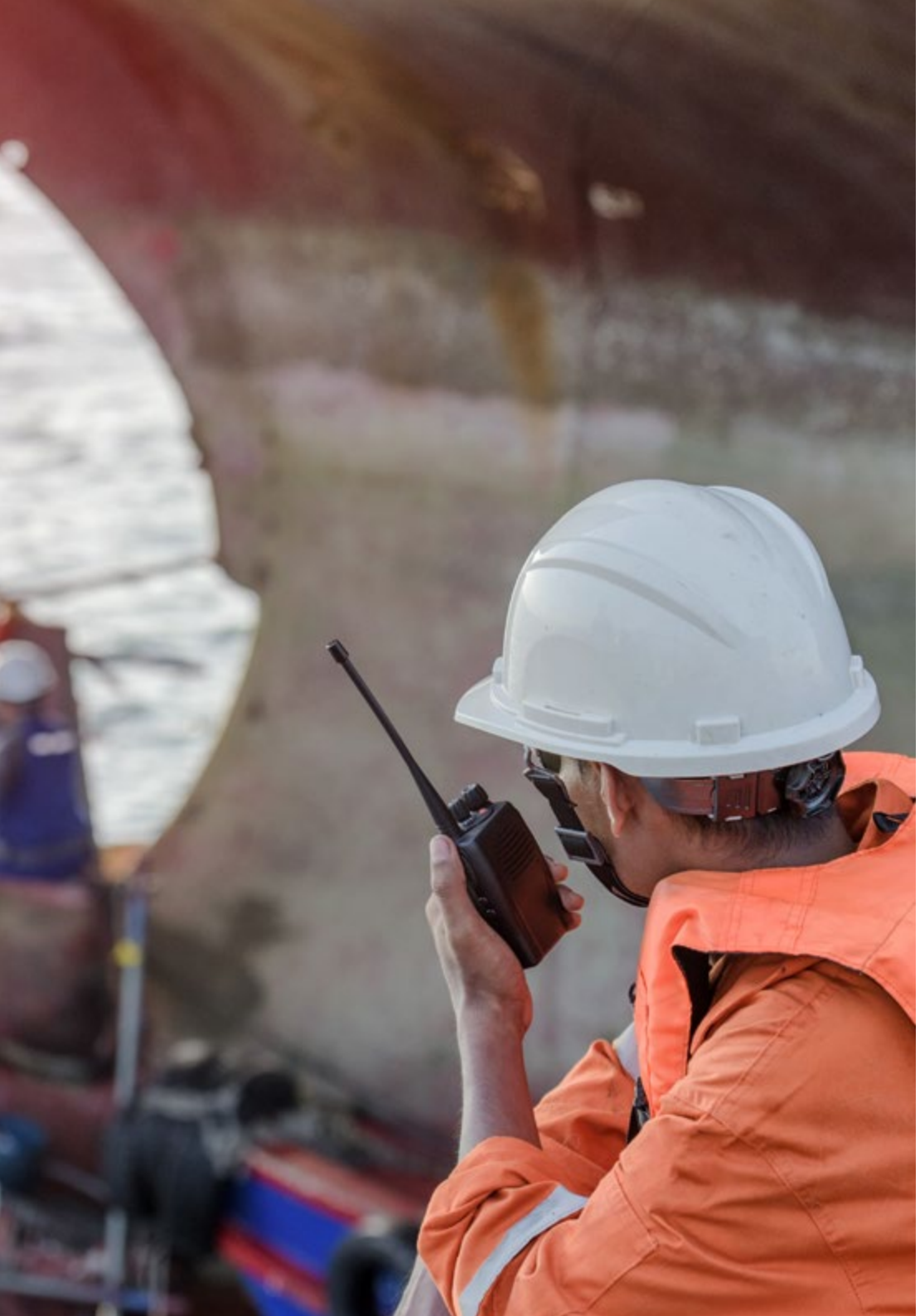
1.6. New Technologies
- 1.6.1. Software
- 1.6.2. Models and Submodels
- 1.6.3. Fatigue

1.7. Key Plans
- 1.7.1. Digital Twins
- 1.7.2. Constructability

1.8. Other Structures (I)
- 1.8.1. Bow
- 1.8.2. Stern
- 1.8.3. Engine Space
- 1.8.4. Superstructure

1.9. Other Structures (II)
- 1.9.1. Ramps and Side Doors
- 1.9.2. Hatches
- 1.9.3. Heliports
- 1.9.4. Main Engine Mount
- 1.9.5. Crane Calculation
- 1.9.6. Rudder and Appendages

1.10. Other Calculations
- 1.10.1. Anchoring and Mooring Equipment Structure
- 1.10.2. Anchoring Models
- 1.10.3. Weight and Preliminary MTO



A comprehensive and multidisciplinary educational program that will allow you to excel in your career by following the latest advances in the field of naval engineering"

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

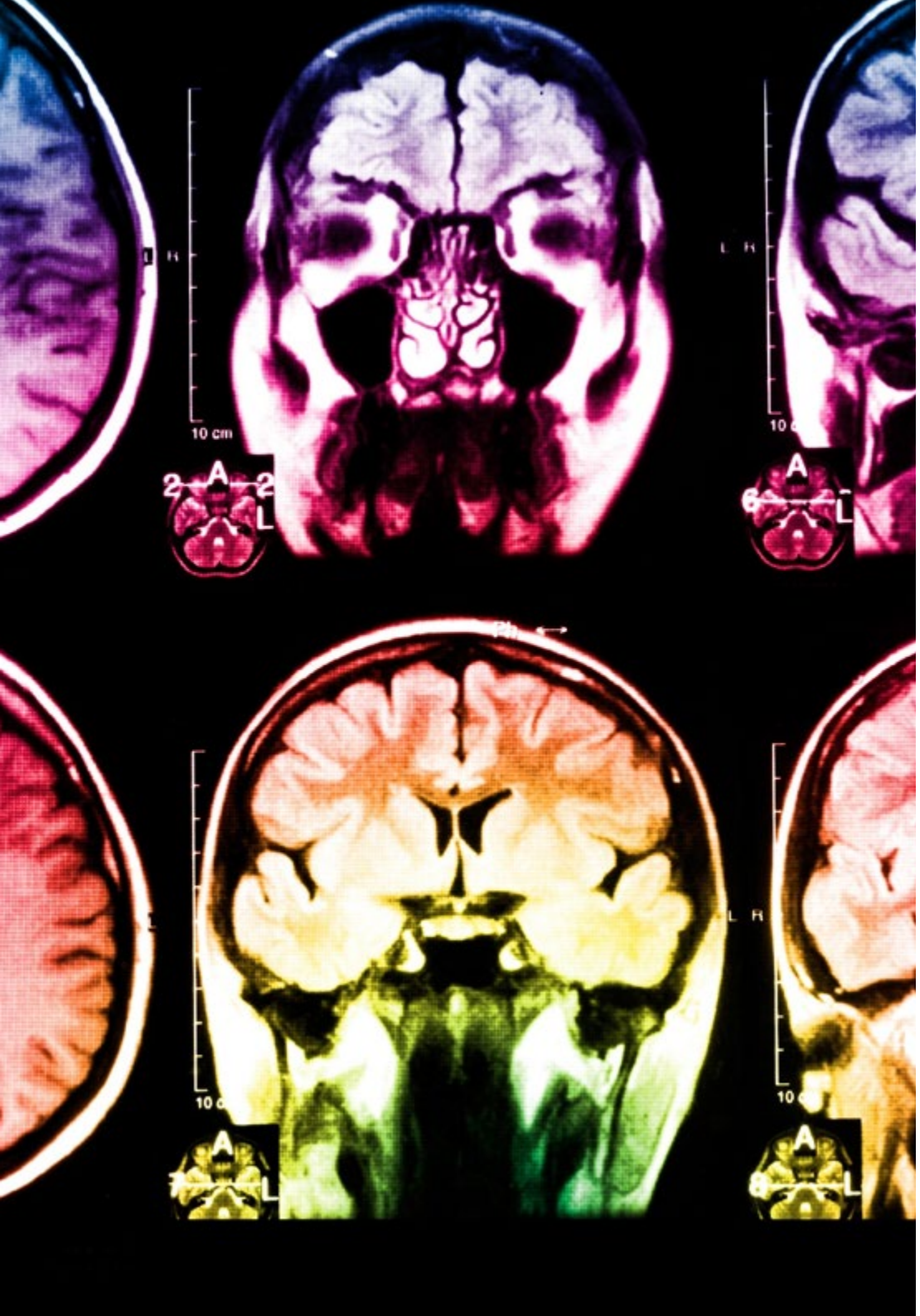
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

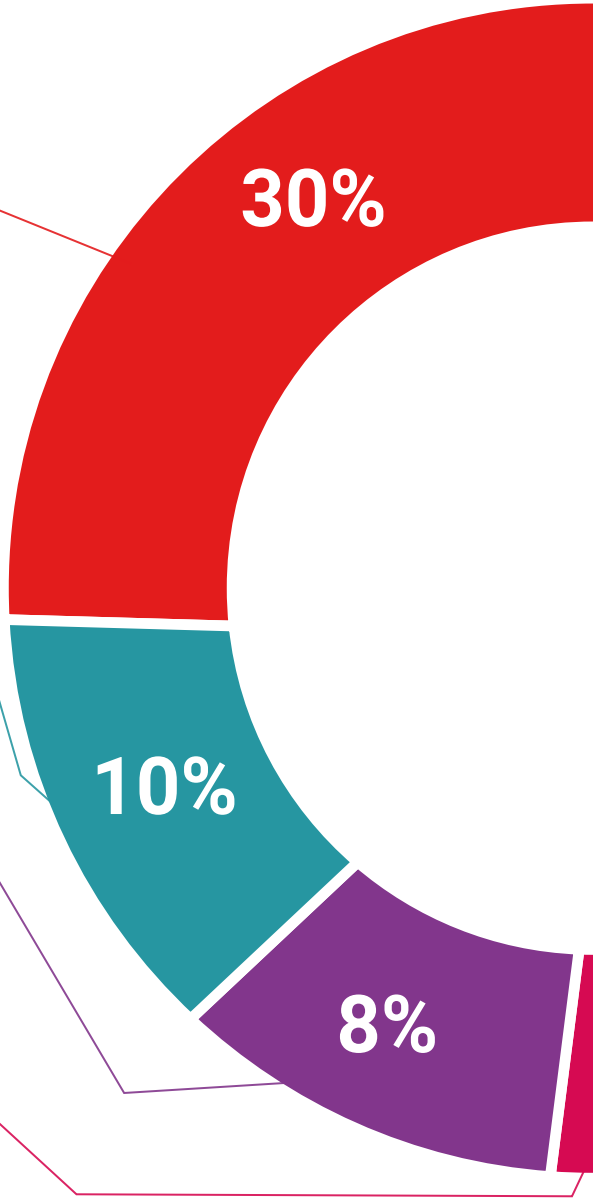
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

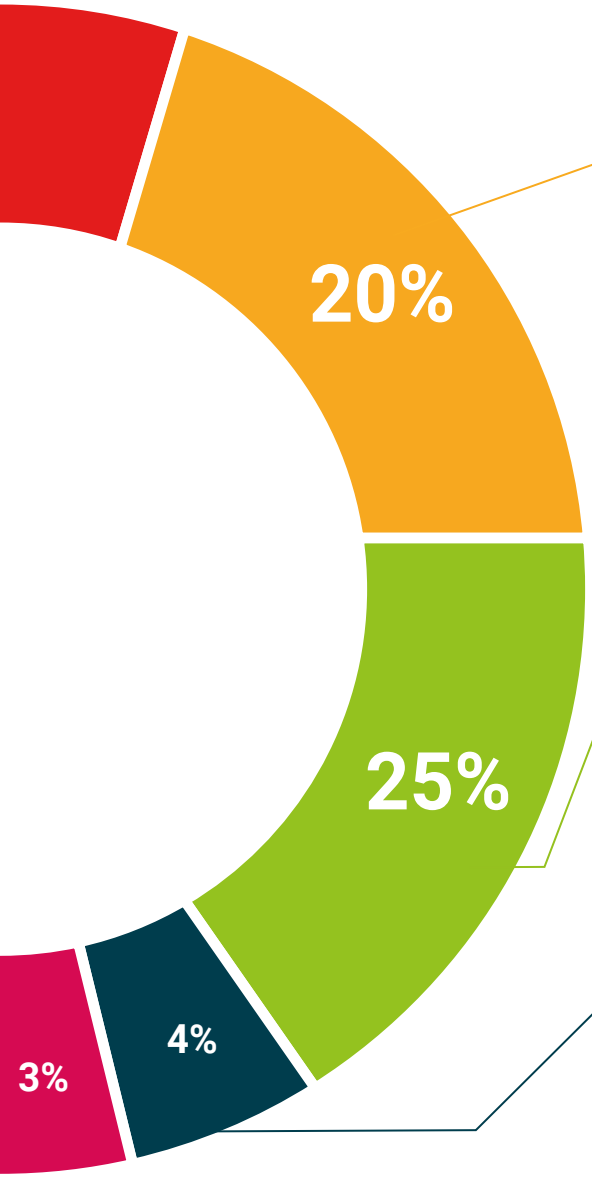
Practising Skills and Abilities

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 Certificate in Structures in Naval Engineering guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 Certificate in Structures in Naval Engineering** 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 Certificate in Structures in Naval Engineering**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

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

Postgraduate Certificate in Structures in Naval Engineering

This is a program of 180 hours of duration equivalent to 6 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 diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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Structures in Naval Engineering

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