

# Postgraduate Certificate Naval Development and Production Engineering



## Postgraduate Certificate Naval Development and Production Engineering

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

Website: [www.techtute.com/in/engineering/postgraduate-certificate/naval-development-production-engineering](http://www.techtute.com/in/engineering/postgraduate-certificate/naval-development-production-engineering)

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# 01

# Introduction

Engineering, a science that studies various branches of knowledge, requires highly trained professionals to fulfill projects and field work in production and development. The purpose of this program is to provide Engineering professionals with knowledge in the field of Naval Development and Shipbuilding, a field in demand of effective and proactive Engineers. With this program, students will update their knowledge in the field of shipbuilding, which will enable them to forge new skills and abilities for the world of the future.





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*At TECH we want to offer you the best education in Naval Development and Production Engineering so you can specialize in the field and increase your employability”*



The Postgraduate Certificate in Shipbuilding 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.

The program covers specific engineering from a basic engineering standpoint with the aim of providing the necessary technical information for the production phase of shipbuilding projects. These processes include the manufacture, assembly, construction and erection of the main and secondary metallic structures, including auxiliary structures; equipment and machinery bases; the manufacture and assembly of piping, accessories and control and maneuvering elements that make up the propulsion and auxiliary systems of the vessel; the assembly of equipment and machinery that, in turn, allow the functioning and operation of the vessel, the laying of electrical conduits, as well as medium and low voltage wiring systems; and the weak currents for the remote control and command of the vessel and its outfitting.

The program is based on the use of current 3D modeling technologies and design tools used in detail engineering, and their impact on the efficiency of a vessel's construction phase, ranging from hull shapes to virtual reality and its use in PLM systems.

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

This **Postgraduate Certificate in Naval Development and Production 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 practice
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Special emphasis on innovative methodologies in Naval Development and Production 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 Naval Development and Production Engineering. We offer you quality and free access to content"*

The teaching staff includes professionals in naval engineering, who bring their experience to this program, as well as renowned specialists from leading societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will enable situated and contextual learning, that is, a simulated environment that will provide students with 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 that purpose, students will be assisted by an innovative, interactive video system developed by renowned and extensively experienced experts in Naval Development and Production Engineering.

*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.*



02

# Objectives

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







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*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

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- ◆ 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

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- ◆ Understand corporate strategy
- ◆ Know BSA (Build Strategy Approach)
- ◆ Break down tasks using Work Breakdown
- ◆ Become familiar with CAD-CAM systems and 3D modeling
- ◆ Interface with PLM tools and FEM and CFD calculations
- ◆ Identify virtual reality functionalities to navigate ships and to perform design verifications and revisions
- ◆ Know the following products: flat and curved plates and profiles; previous, sub-blocks and blocks
- ◆ Know how to use 3D modeling for auxiliary structures and equipment poles
- ◆ Know how to make construction and assembly drawings
- ◆ Know how to make equipment layout drawings
- ◆ Know how to perform 3D modeling for piping
- ◆ Know how to perform 3D modeling for electrical piping
- ◆ Know the layout of apparatus, switchboards and consoles
- ◆ Know system wiring layouts (power, lighting, communications, navigation, security and fire)
- ◆ Know how to make electrical diagrams
- ◆ Know how to use 3D modeling for air-conditioning ducts
- ◆ Know how to design construction and assembly drawings of rectangular section ducts
- ◆ Know how to make duct layout drawings
- ◆ Design detailed drawings of flanges and connecting pieces
- ◆ Draft drawings of lifting eyebolt locations to turn and/or assemble blocks and sub-blocks



03

# Course Management

In our 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 Naval Development and Production Engineering. A group of professors who will share their knowledge with the students on the program in order to facilitate their professional lives. 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 areas 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

### Mr. Fiorentino, Norberto Eduardo

- ◆ Naval Engineer Buenos Aires Technology Institute (ITBA)
- ◆ Master's Degree in Environmental Management Postgraduate Course in Ship Construction, Repair and Maintenance
- ◆ 26 years of experience in academic management and university teaching
- ◆ 13 years of experience in Naval Engineering
- ◆ 9 years of experience as a Technical Fleet Manager
- ◆ 6 years of experience as an Engine Section Chief in Shipyard Engineering
- ◆ Director of Marine Projects at SENER INGENIERIA Y SISTEMAS, S.A.
- ◆ Director of the Naval Engineering Department at ITBA



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. Naval Development and Production Engineering

- 1.1. Construction Strategies
  - 1.1.1. BSA (Build Strategy Approach)
  - 1.1.2. Work Breakdown
  - 1.1.3. Design to Build Engineering
- 1.2. CAD/CAM Systems: 3D Ship Modeling
  - 1.2.1. 3D Modeling
  - 1.2.2. Interface with PLM Tools and FEM and CFD Calculations
  - 1.2.3. Constructive Limitations in Design
  - 1.2.4. Virtual Reality, Verifications and Design Reviews
- 1.3. Steel Detail Engineering
  - 1.3.1. 3D Modeling
  - 1.3.2. Plate Nesting
  - 1.3.3. Profile Nesting
  - 1.3.4. Products (Flat and Curved Plates and Profiles; Pre-Blocks, Sub-Blocks and Blocks)
  - 1.3.5. Assembly: Sub-Blocks and Blocks
  - 1.3.6. Plate and Profile MTO
- 1.4. Detailed Outfitting Engineering (I)
  - 1.4.1. 3D Modeling of Auxiliary Structures and Equipment Poles
  - 1.4.2. Construction and Assembly Drawings
  - 1.4.3. Plate and Profile MTO
  - 1.4.4. Equipment Layout Drawings
- 1.5. Detailed Outfitting Engineering (II)
  - 1.5.1. 3D Modeling of Pipelines
  - 1.5.2. Spools
  - 1.5.3. Isometric
  - 1.5.4. Layout Drawings
  - 1.5.5. Pipes and Fittings MTO
- 1.6. Detailed Electrical Engineering (I)
  - 1.6.1. 3D Modeling of Electrical Conduits
  - 1.6.2. Arranging Apparatus, Switchboards and Consoles
  - 1.6.3. Listing and Arranging Apparatus in Hazardous Areas
  - 1.6.4. Tray Filling and Electrical Passages
  - 1.6.5. Construction Engineering Machine Control Console
  - 1.6.6. Constructive Engineering Electrical Panels
- 1.7. Detailed Electrical Engineering (II)
  - 1.7.1. Electrical Diagrams
  - 1.7.2. Cable Lists
  - 1.7.3. Wiring Diagrams
  - 1.7.4. System Wiring Arrangements (Power, Lighting, Communications, Navigation, Fire and Safety)
  - 1.7.5. List of Automated Functions and Alarms
- 1.8. Accommodation Detail Engineering
  - 1.8.1. Premises Layout
  - 1.8.2. Booth Layout
  - 1.8.3. General Flag Authorization Layout
  - 1.8.4. General Furniture Layout
  - 1.8.5. General Decorative Flooring Layout
  - 1.8.6. Decorative Projects
- 1.9. Detailed Electrical Engineering (II)
  - 1.9.1. 3D Modeling of Ducts
  - 1.9.2. Construction and Assembly Drawings of Rectangular Section Ducts
  - 1.9.3. Isometric Drawings of Circular Section Ducts
  - 1.9.4. Ducts Layout Drawings
  - 1.9.5. Detailed Drawings of Flanges and Fittings
  - 1.9.6. Ducts and Fittings MTO
- 1.10. Maneuvers
  - 1.10.1. Location Plans of Maneuvering Eyebolts to Turn and/or Assemble Blocks and Sub-Blocks



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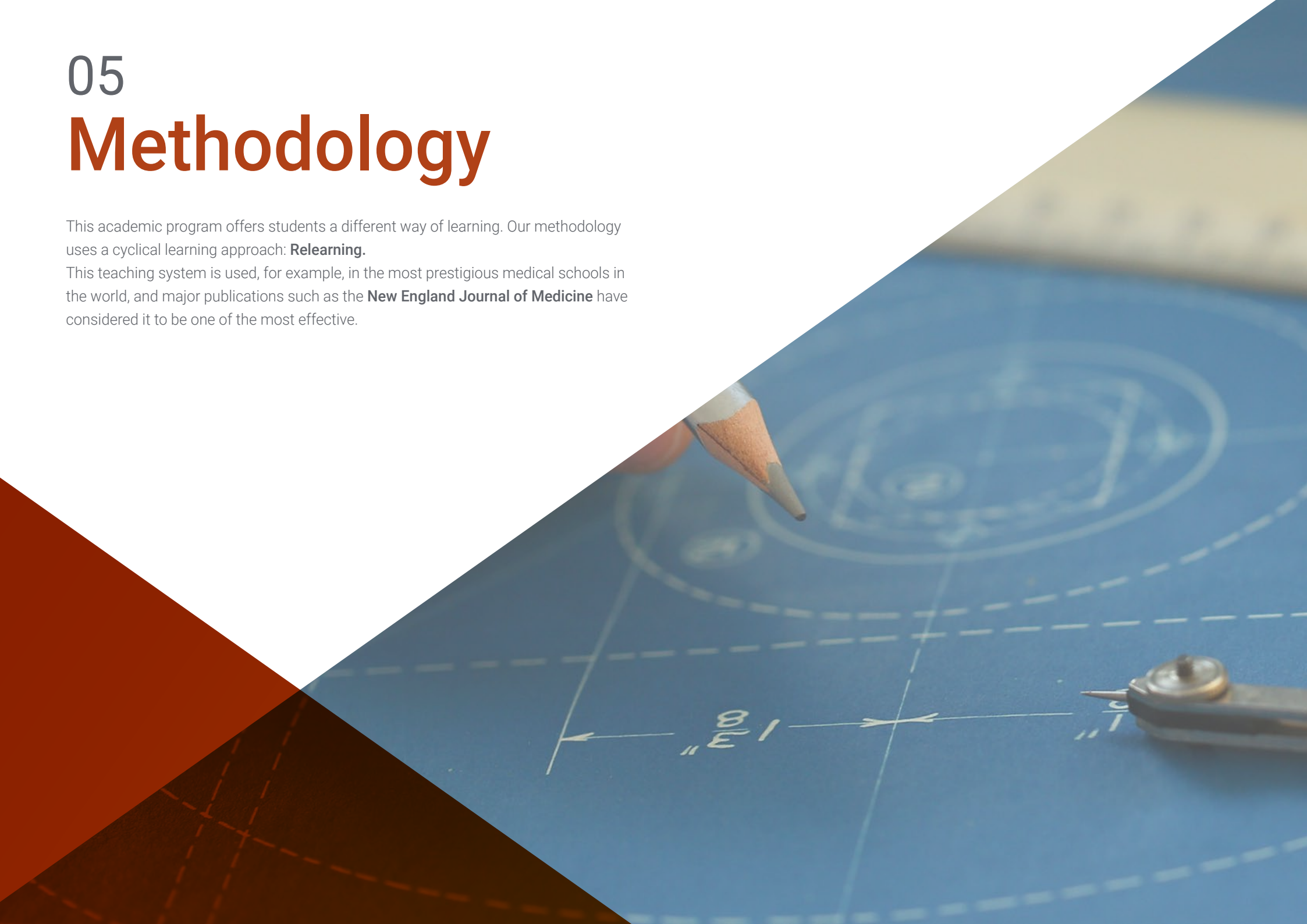
*A comprehensive and multidisciplinary educational program that will allow you to excel in your career, following the latest advances in the field of Naval Engineering”*

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.*



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

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

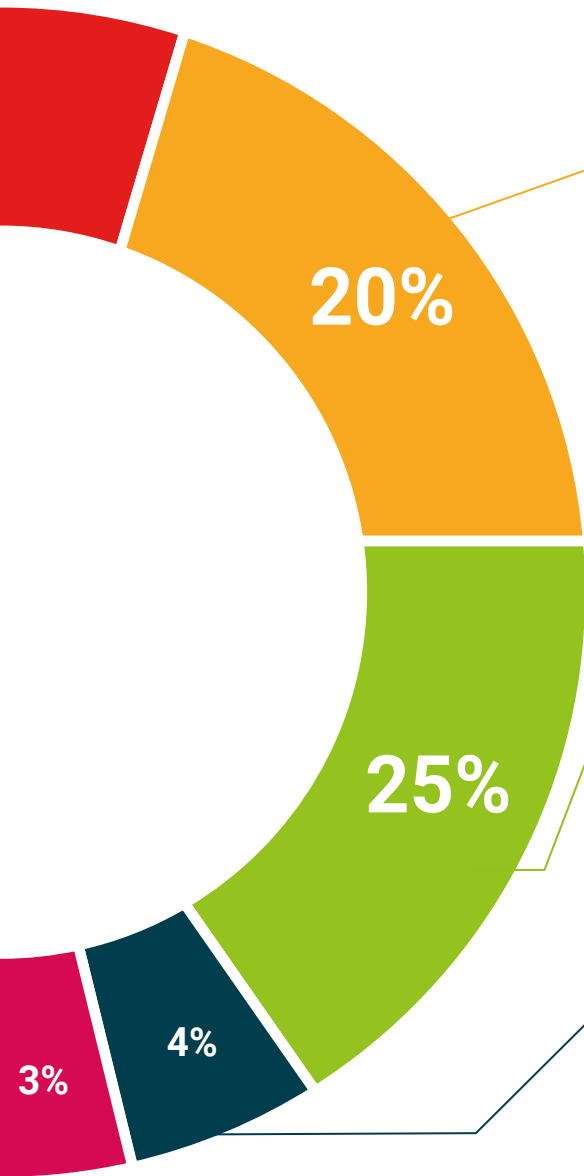
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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 Naval Development and Production Engineering guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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



This **Postgraduate Certificate in Naval Development and Production Engineering** 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 Certificate** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Certificate in Naval Development and Production Engineering**  
Official N° of Hours: **150 h.**



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

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
classroom



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