

# Postgraduate Certificate Conceptual Naval Engineering





## Postgraduate Certificate Conceptual Naval Engineering

- » Modality: online
- » Duration: 8 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/pk/engineering/postgraduate-certificate/conceptual-naval-engineering](http://www.techtute.com/pk/engineering/postgraduate-certificate/conceptual-naval-engineering)

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# 01

# Introduction

The conceptual design of a naval project aims to provide a greater level of detail, especially in identifying and defining features that have a significant impact on other aspects of the ship, including cost. This program specializes students in conceptual ship engineering so they can take a step forward in their careers.







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*The conceptual design of a ship is an aspect of utmost importance, since it provides a higher level of detail. At TECH, we want to offer you the best education so you can update your knowledge in the field”*

The Postgraduate Certificate in Conceptual Naval Engineering is a program of the highest academic level that aims to educate 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.

Conceptual design is an engineering effort that provides much more detail than preliminary design. It is a second iteration in the design process. For those who think of ship design in terms of the design spiral, it belongs to the second circuit of the spiral, which is intended to converge on a more accurate and improved set of ship characteristics.

This design must provide sufficient detail to allow verification of the technical and economic feasibility of the vessel. This level of detail is sufficient to make an estimate of construction costs. Typically, this requires the main dimensions, weight estimate, type of main engines and any special features of the vessel, which also significantly affect construction such as cargo handling equipment, tank coatings, stabilization systems, etc.

Further, it provides details to estimate operating costs, based on information such as crew number, fuel and lube oil consumption, and an estimate of maintenance costs based on equipment. However, it also provides sufficient information to make estimates of revenue generating capacity, based on deadweight or other load capacity estimates and calculations.

Conceptual design enables assessment of the technical feasibility of the vessel. Compatibility and stowage of cargoes can be verified, the vessel's ability to operate under various loading conditions, the defined level of automation can be correlated with crew size, and assumed or intended designations. It is, therefore, a highly specialized program that will allow student to increase their capabilities in the field.

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 Conceptual 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 practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in Conceptual 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 Conceptual Naval Engineering. We offer you quality and open access to content”*

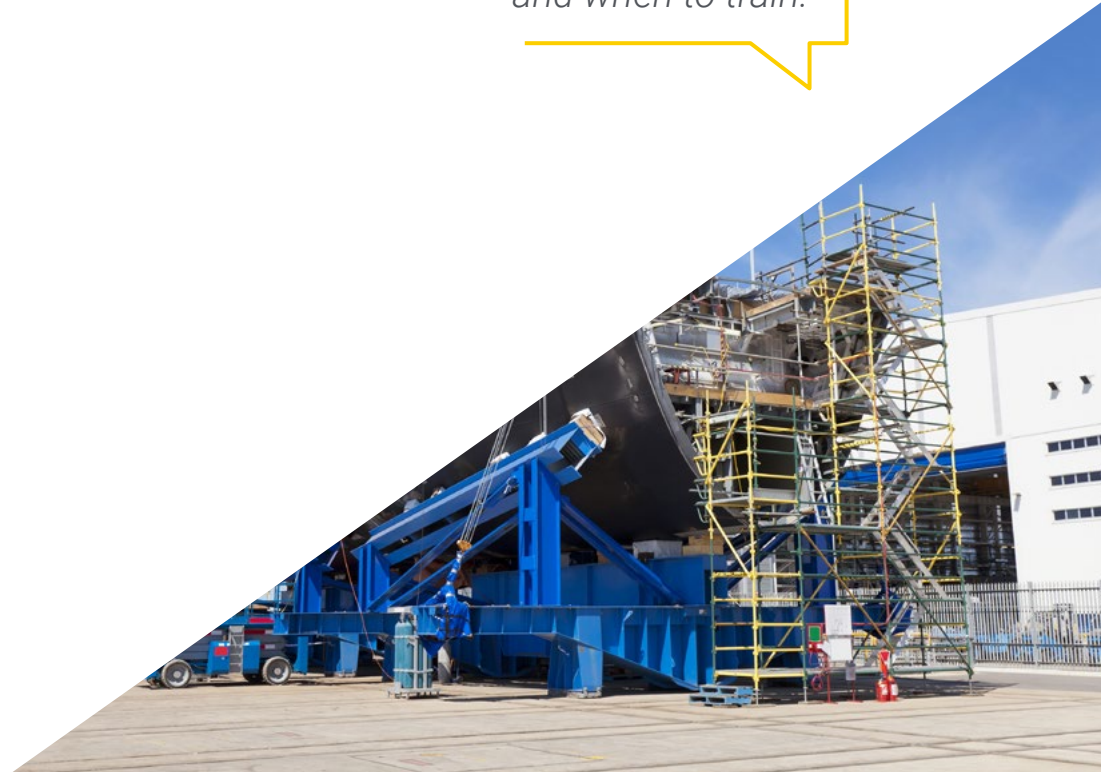
The teaching staff includes professionals in naval engineering, who bring their experience to this program, as well as renowned specialists from leading societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will 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 created by renowned and extensively experienced experts in Conceptual Naval 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 Conceptual Naval 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



## Specific Objectives

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- ◆ Become familiar with project spirals and conceptual design in early stages
- ◆ Update on the applicable regulations and their influence on design
- ◆ Become familiar with design constraints: harbors, passage channels, etc
- ◆ Identify all hydrodynamic processes
- ◆ Draw up general plans and technical specifications
- ◆ Compartmentalization
- ◆ Select the type of structure to be used
- ◆ Perform cargo and deck equipment management
- ◆ Understand how ship type influences the concept

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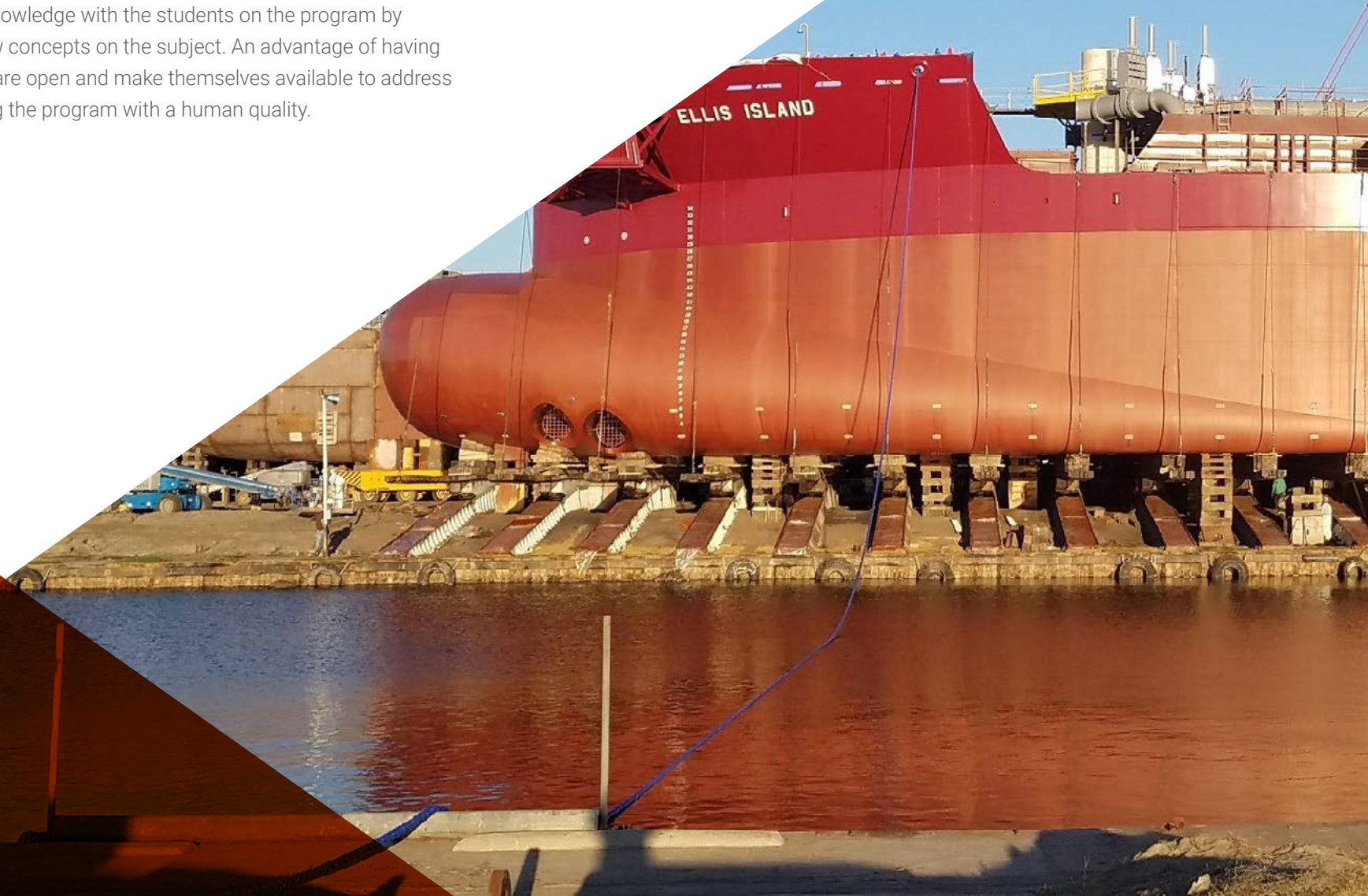
*Join us and we will help you  
achieve professional excellence”*



# 03

# Course Management

In its mission to provide students with the best teaching staff, TECH has selected for this program active professors with extensive experience in the field of Conceptual Naval Engineering, to share their knowledge with the students on the program by including topics of interest and new concepts on the subject. 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. Martín Sánchez, José Luis

- ◆ Naval and Ocean Engineer, School of Naval Engineering (ETSIN)
- ◆ Master's Degree in Integral Project Management
- ◆ 26 years of experience in Naval Engineering
- ◆ Director of Marine Projects at SENER INGENIERIA Y SISTEMAS, S.A.



# 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. Conceptual Naval Engineering

- 1.1. Regulation
  - 1.1.1. Statutory
  - 1.1.2. Classification Societies
  - 1.1.3. Additional Regulations
- 1.2. Vessel Sizing
  - 1.2.1. Main Dimensions
  - 1.2.2. Relation between Dimensions
  - 1.2.3. Main Coefficients
  - 1.2.4. Design Constraints
  - 1.2.5. Alternatives and Final Selection
- 1.3. Hydrodynamics (I)
  - 1.3.1. Shapes
  - 1.3.2. Propulsive Power, Selecting the Type of Propulsive and Steering Equipment
- 1.4. Hydrodynamics (II)
  - 1.4.1. Theoretical Basis
  - 1.4.2. CFD (Computational Fluid Dynamics)
  - 1.4.3. Channel Tests
  - 1.4.4. Validation during Sea Trials
- 1.5. General Arrangement and Technical Specifications
  - 1.5.1. Technical Specifications
  - 1.5.2. Compartmentalization
  - 1.5.3. Autonomy
  - 1.5.4. Flag Authorization
  - 1.5.5. Security and CI
  - 1.5.6. Ventilation
  - 1.5.7. HVAC
- 1.6. Stability
  - 1.6.1. Thread Weight and Center of Gravity of the Vessel
  - 1.6.2. Stability (Intact and Damage)
  - 1.6.3. Longitudinal Strength
  - 1.6.4. Validation Using Stability Tests
- 1.7. Structure
  - 1.7.1. Structural Parameters
  - 1.7.2. Preliminary Master Frame: Steel Weight Estimation
  - 1.7.3. Noise and Vibration
- 1.8. Machinery
  - 1.8.1. Machine Room Layout, Equipment List
  - 1.8.2. Conceptual Electrical Balance
- 1.9. Load and Deck Equipment
  - 1.9.1. Loading Equipment
  - 1.9.2. Mooring and Anchoring Equipment
- 1.10. Vessel Types
  - 1.10.1. Passengers (SRTP)
  - 1.10.2. Weight Vessels
  - 1.10.3. Volume Vessels
  - 1.10.4. Special Vessels
  - 1.10.5. Fishing Vessels and Tugboats
  - 1.10.6. Platforms



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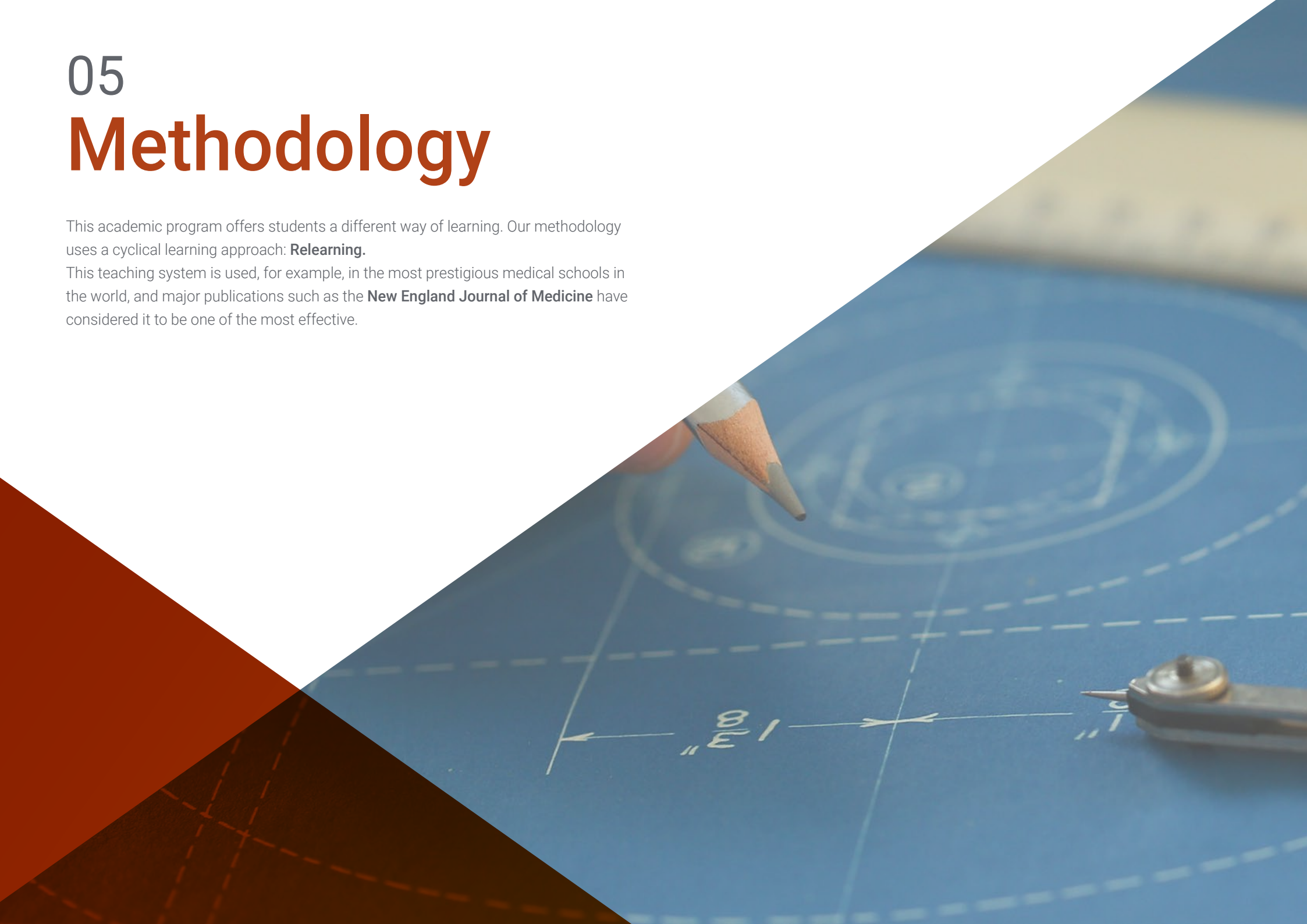
*A comprehensive and multidisciplinary educational program that will allow you to excel in your career by following the latest advances in the field of naval engineering”*

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



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