Professional Master's Degree

Port Infrastructure

tech technological university

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Professional Master's Degree

Port Infrastructure

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/in/engineering/professional-master-degree/master-port-infrastructure**

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01

Introduction

The Port Infrastructure program is a high-quality tool created for professionals in this sector in a very specific way. It is developed based on the Project Management Institute's project management guidelines, with a teaching staff of professionals who have more than 50 years of experience in the different specialties of maritime works and who work in leading companies in the sector. An intensive program that offers a complete view of the full cycle of maritime works, from the planning and design phase, to construction and future maintenance in an exceptional opportunity for professional growth.

The latest up-to-date regulations and the most current working procedures for port infrastructure work compiled in a high-level Professional Master's Degree"

The Professional Master's Degree in Port Infrastructure is oriented towards today's requirements for professionals in the port sector, and also considers future trends in the maritime port sector. It is a growing specialty, increasingly in demand and requires highly qualified professionals.

This Professional Master's Degree not only focuses on the theoretical content, but also addresses the practical part in an efficient way, required in the work environment for which it is oriented. It provides a complete view of the entire maritime works cycle, from planning and design to construction and future maintenance.

The Professional Master's Degree in Port Infrastructure incorporates up-to-date international regulations, addressing the ROM regulations that are mandatory in several countries, and others such as the British Standard required in the Anglo-Saxon world, etc. Practical exercises that consolidate the application of this will be addressed.

It also includes specialized training in coastal engineering, offshore renewable energies, which are increasingly in demand, and BIM (Building Information Modeling) in maritime works. Other fields included, such as port geotechnics and dredging, are indispensable in the educational program of the Professional Master's Degree offered.

The Professional Master's Degree in Port Infrastructure is developed based on the Project Management Institute's project management guidelines, with a teaching staff of professionals who have more than 50 years of experience in the different specialties of maritime works and who work in leading companies in the sector that prioritize quality and sustainable development in the design and construction of maritime works around the world.

This **Professional Master's Degree in Port Infrastructure** contains the most complete and up-to-date program on the market. Its most notable features are:

- The development of practical cases presented by Port Infrastructure experts
- 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
- Its special emphasis on innovative methodologies in Port Infrastructure
- 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

Get up to date on aspects such as port geotechnics, maritime climate adaptation and required field studies"

A quality program that will allow you not only to follow the specialization, but also to have complementary support and information banks available"

Its teaching staff includes professionals from the field of civil engineering, who bring to this specialization the experience of their work, as well as recognized specialists from leading companies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive specialization 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, the professional will be assisted by an innovative interactive video system developed by renowned and experienced experts in Port Infrastructure.

This program has the best teaching material available online or downloadable, to make it easier for you to manage your study and effort.

A very complete specialization, created with a total quality objective focused on bringing our students to the highest level of competence.

02

Objectives

The objectives of this Professional Master's Degree have been established based on realistic and necessary goals for the professional in the sector. Gradually, you will be able to see your learning and your progress in the mastery of the contents so that, at the end, you will have achieved a complete process of professional growth.

Realistic, achievable and high-impact goals for your professional development"

General Objective

- Create future professionals capable of addressing actions and solutions in the field of port infrastructures, from a multidisciplinary perspective and based on the investigation of the design of maritime works and the elements that influence it

A stimulating professional growth journey designed to keep you interested and motivated throughout the program"

Specific Objectives

Module 1. Port Planning and Regulation

- Understand the evolution of port planning and deepen your understanding of current trends
- Understand the different tools for port planning
- Delve into the most important international regulations for the design of port infrastructures

Module 2. Maritime Climate and Wave Study

- Delve into the theory of waves, and the characterization of them and their breakage forms
- Delve into the determination of maritime climate parameters that influence the design of port infrastructures
- Be familiar with the recommendations of maritime works of maritime climate and with the physical wave models
- Delve into the compilation of the most widely used software available in the maritime engineering profession

Module 3. Maritime Port Layout and Berthing Works

- Delve into the maritime layout of a port based on ROM maritime works recommendations
- Analyze the most convenient structural typology of the dock
- Delve into the design of docks
- Delve into the typologies of berthing works, the advantages and disadvantages of each type and the construction procedures of such works
- Delve into the structural design of berthing works

Module 4. Design of Shelter Works

- Delve into the most important concepts for the design and construction of dams, their classification and selection of the most appropriate structural typology
- Delve into the knowledge of the physical marine environment and the different types of external maritime works, the advantages and disadvantages of each type and the construction procedures of maritime works
- In-depth knowledge of the structural design of a dike and is familiar with various constructed dike designs

Module 5. Field Studies and Port Geotechnics

- Understand the importance of conducting adequate field surveys in marine works
- Delve into the study of bathymetric, geophysical, geotechnical and data collection campaigns, including their planning
- Delve into the acquisition of geotechnical parameters for the design of port works based on the results of field studies
- Be familiar with a multitude of geotechnical solutions for marine construction projects

Module 6. Dredging and Pavements

- Understand the importance of dredging activities and the potential impacts that could result from such activities
- Gain an in-depth knowledge of the different types of materials to be dredged and be able to select the equipment according to these and the rest of the conditioning factors that influence them
- Understand the dredging methodology for each type of dredge
- In-depth characterization of materials from dredging and decision on their subsequent use or disposal
- Delve into the design of port pavements based on different international regulations

Module 7. Port Management, Operation and Maintenance

- Understand the role of logistics and the importance of the ports
- Delve into the different agents comprising the port community
- Delve into the role of port authorities and become familiar with their functions and classifications
- Have a global vision of port management, operation and maintenance of port infrastructures
- Delve into the different elements for the instrumentation and monitoring of maritime works
- Analyze the required inspections in time and form of the different elements of the port works
- In-depth knowledge of the ability to undertake a conservation or repair project for any port infrastructure

Module 8. Offshore Structures and Renewable Energies

- Delve into the technology and the different types of offshore structures
- Study the characteristics of offshore structures related to gas and hydrocarbons
- Delve into the characteristics of maritime structures related to the different renewable energies
- Expand knowledge with a more detailed understanding of the characteristics of offshore structures related to offshore wind energy
- Delve into the different types of foundations for offshore structures as well as design approaches
- In-depth study of the characteristics of the navigation channels
- Analyze the influence of maritime dynamics on offshore structures
- Visualize the different construction projects and become familiar with the existing regulations

Module 9. Construction of Port Infrastructure

- Delve into the different units of specific maritime construction work
- In-depth knowledge of the different construction materials and their applicability to port infrastructures
- Analyze the most appropriate machinery for the development of port infrastructure works
- Use the necessary tools to plan marine construction projects

Module 10. BIM Applied to Maritime Works

- Expand general concepts frequently used in BIM environments
- Delve into the global strategy for the implementation of the BIM methodology in the realization of a construction project
- In-depth study of the application of BIM Methodology in the construction and maintenance processes of port infrastructure
- Delve into the design of a maritime project using the BIM Methodology
- Use the appropriate tools to carry out BIM measurement and management of marine works projects
- Handle the BIM Guide of the State-owned Port System of July 2019.

03

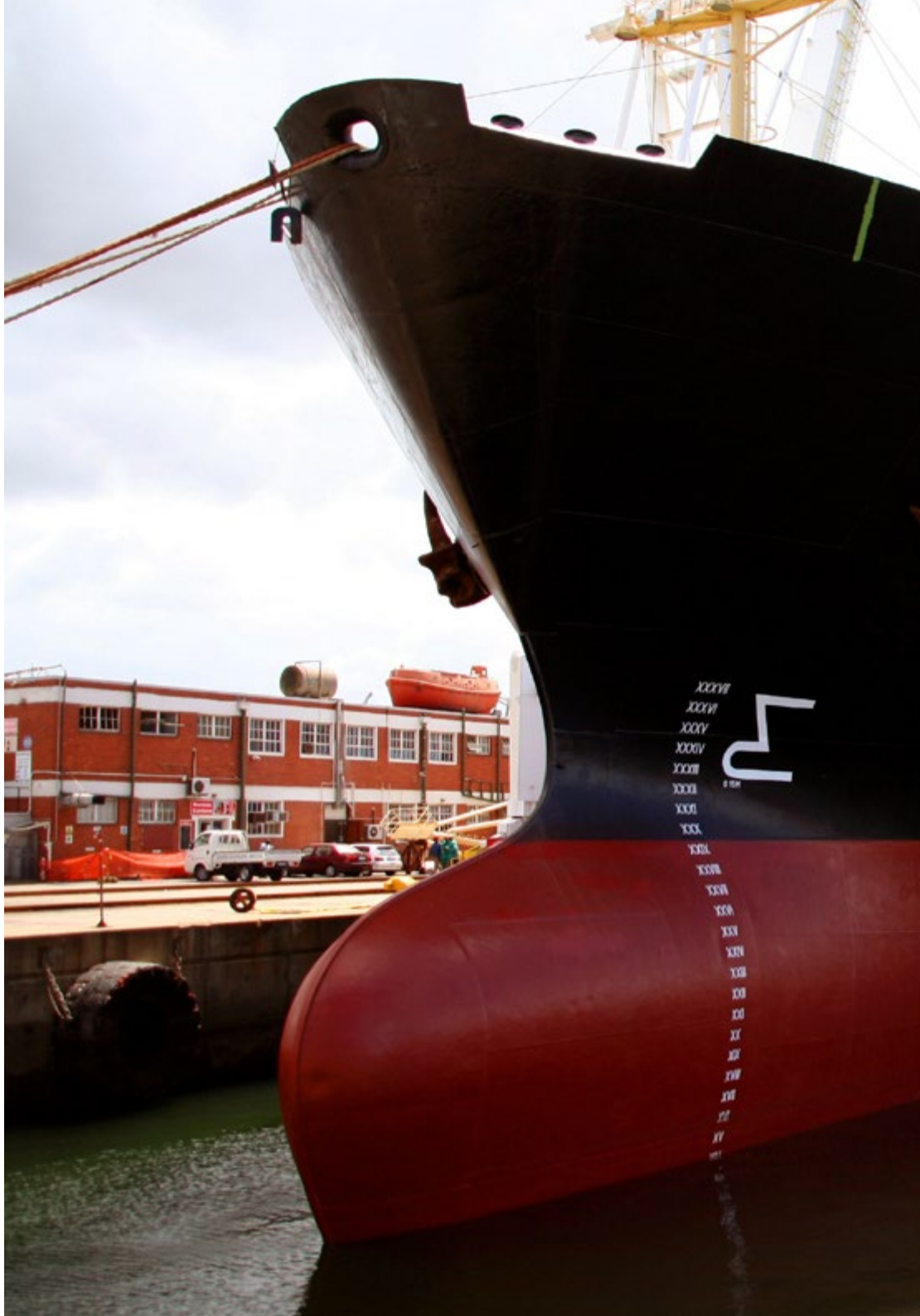
Skills

After passing the assessments of the Professional Master's Degree in Port Infrastructure, the professional will have acquired the necessary skills for a quality up-to-date practice based on the most innovative teaching methodology.

This program will help you acquire the skills you need to excel in your daily work"

General Skills

- Acquire the necessary skills for the professional practice in the field of port infrastructures with the knowledge of all the necessary factors to carry it out with quality and solvency
- Plan, design, inspect and manage maritime infrastructure works (port works and facilities)
- Conduct studies on port planning, coastal environment, coastal management and defence, offshore structures and environmental aspects related to port infrastructures
- Have adequate knowledge of the scientific and technological aspects of mathematical, analytical and numerical methods of engineering, fluid mechanics, mechanics of continuous media and marine engineering
- Be familiar with the BIM environment in maritime works and the BIM guide for State ports
- Understand and quantify coastal and port processes, and propose solutions to problems in these environments



Specific Skills

- In-depth study of atmospheric phenomena and fluxes of water, energy and substances in marine and coastal systems
- In-depth study of mathematical, numerical and statistical techniques for the characterization of hydrodynamics
- Build and maintain the port infrastructure, as well as for the dimensioning, design and the elements of which it is composed
- Develop the design and operation of infrastructure for modal interchange, such as ports and harbors
- Be able to use statistical techniques to study the functionality, safety and reliability of port infrastructures
- Understand and delve into the organizational model of port systems, technologies, operations, services and port management
- Understand the different stages of the life cycle of a port infrastructure

04

Course Management

Within the quality criteria that TECH applies to all of its qualification programs, this Professional Master's Degree offers the opportunity to learn from the best, with a teaching staff of professionals in the sector who will invest their theoretical and practical knowledge to take the professional to the highest level of proficiency. With the latest and most effective teaching methods on the online teaching market.

Learn with the best and see first-hand the international reality of port infrastructure work"

Management

Mr. Angulo Vedriel, Rafael

- Positions: Civil Engineer
- Master's Degree studies in Civil Engineering
- Ph.D. in Civil Engineering
- project manager and Design Manager both in Spain and on secondment in Latam, Middle East and Southeast Asia
- PMP © certification for project management

Professors

Ms. Coba Castro, Eva

- Positions: Road, Canal and Port Engineering
- More than 20 years of experience in the sector
- Project Manager specialized in maritime works

Mr. Hernández Giraldo, Tomás

- Positions: Senior Civil Engineer
- Specialized in the development of projects in the maritime-port sector
- Professional in consulting and construction
- Responsible for the management and direction of port development projects
- Design, construction management, site assistance and execution of dredging and port pavements

Mr. Montaner Montava, Jorge Alberto

- Positions: Civil Engineer from the Polytechnic University of Valencia.
- Specialization in Transportation, Urban Planning and Land Use and Development
- Master's Degree in Renewable Energy Engineering from the University of Newcastle

Mr. Moltó Martín, Rodrigo

- Positions: Civil Engineer
- Specialized in Foundations and Structures
- Projects for piloted piers and jetties, offshore gravity-base foundations (GBS), reinforced concrete floating caissons and port superstructure

Mr. Sorní Moreno, Àngel Arcadi

- Positions: Civil Engineer
- Civil Construction and Building Specialty
- University teacher
- Research related to technical projects and BIM of state ports

Mr. Tordesillas García, Víctor Manuel

- Positions: Civil Engineer, Polytechnical University of Madrid
- Mentions in Civil Construction and Hydrology
- Experience has focused on project management and infrastructure design in maritime engineering

Mr. Cortés Millares, Javier

- Positions: Engineer in Theory and Practical Application of the Finite Element Method and Simulation
- University Expert in Design and Management of Water Supply, Urban Drainage and Wastewater Treatment Systems by the University of Zaragoza
- University Professor at the Faculty of Civil Engineering
- Degree in Civil Engineering from the Polytechnic University of Valencia
- BASF Award: "Expansion Works Line 5 VLC subway" ETSICCP (UPV)

05

Structure and Content

The syllabus of the Professional Master's Degree is configured as a complete tour through each and every one of the knowledge necessary to understand and assume the ways of working in this field. With an approach focused on practical application that will allow you to grow as a professional from the first moment of the program.

A comprehensive syllabus focused on acquiring knowledge and converting it into real skills, created to propel you to excellence"

Module 1. Port Planning and Regulation

1.1. Strategic Planning
1.2. Port Planning: Levels and Instruments
1.3. Strategic Plan
1.4. Master Plans
  1.4.1. Objectives
  1.4.2. Demand Analysis
  1.4.3. Supply Capacity
1.5. Delimitation of Port Areas and Uses
1.6. Port-City Relationship
1.7. Rom Maritime Works Recommendations
  1.7.1. Introduction
  1.7.2. Current Rom
1.8. International Regulations
  1.8.1. Pianc
  1.8.2. British Standard bs 6349
  1.8.3. Other Standards, Manuals and Reference Books for Port Design
1.9. Impact of Climate Change on Port Infrastructure

Module 2. Maritime Climate and Wave Study

2.1. Wave Theory
  2.1.1. Wave Mechanics
  2.1.2. Classification of Waves at Sea
  2.1.3. General Characteristics of a Wave
2.2. Waves
  2.2.1. Wave Characterization
  2.2.2. Forms of Wave Breakage
2.3. Effects Produced by Waves
  2.3.1. Diffraction
  2.3.2. Refraction
  2.3.3. Breakage
  2.3.4. Shoaling
  2.3.5. Others
2.4. Sea Level and Tides
2.5. Characterization of the Marine Environment
2.6. Data Collection Methodologies
2.7. Program Rom Maritime Climate
2.8. Physical Wave Models
2.9. Marine Engineering Software

Module 3. Maritime Port Layout and Berthing Works

3.1. Maritime Port Layout: Elevation Requirements
  3.1.1. Project Criteria
  3.1.2. Ship
  3.1.3. Water Level
  3.1.4. Bottom
3.2. Maritime Port Layout: Elevation Requirements
  3.2.1. Navigation Areas
  3.2.2. Harbour Mouth
  3.2.3. Maneuver
  3.2.4. Docks and Maneuvers
  3.2.5. Operation
3.3. In-plant Port Dimensioning
  3.3.1. General Considerations for Location, Orientation and Alignments
  3.3.2. Determination of the Number of Berths
  3.3.3. Length of Berthing Line
  3.3.4. Dimensioning of Heels and Ramps
  3.3.5. Determination of Width
3.4. Port Dimensioning in Elevation
  3.4.1. Dock Superstructure Crest Elevation
  3.4.2. Mooring Berthing Ditch
  3.4.3. Longitudinal Profile of Heels and Ramps
  3.4.4. Operating Area Slopes
3.5. General and Classification of Berthing Works
  3.5.1. General Aspects on Berthing Works
  3.5.2. General and Functional Classification

3.6. Mooring and Berthing Works: Structural Typology
  3.6.1. Classification According to Structural Typology
3.7. Main Elements of the Berthing Works
3.8. Classification of Berthing and Mooring Works according to the Structural Typology of their Parts
3.9. Berthing Works: Parameters for the Choice of Structural Typology
  3.9.1. Berthing Works: Geotechnical and Seismic Parameters
  3.9.2. Berthing Works: Morphological, Climatic and Environmental Parameters
  3.9.3. Berthing Works: Construction and Material Parameters, Use and Operation, and Maintenance and Conservation
3.10. Examples of Berthing Works and Characteristics

Module 4. Design of Shelter Works

4.1. Slope Dikes: General and Environmental Actions for Design
  4.1.1. General Aspects
  4.1.2. Marine Climate
  4.1.3. Sea Level
  4.1.4. Wave Surges in Slope Dikes
4.2. Design of Slope Dikes
  4.2.1. Sections Type
  4.2.2. Analysis of Alternatives
4.3. Dimensioning of Slope Dikes
  4.3.1. Materials
  4.3.2. Failure Mechanism
  4.3.3. Main Elements of the Slope Dike
  4.3.4. Superstructure
4.4. Considerations for Slope Dike Construction
4.5. Slope Dike Scale Models and Examples
  4.5.1. Considerations for Slope Dike Construction
  4.5.2. Examples of Slope Dikes
4.6. Vertical Dikes: General Aspects and Main Elements
  4.6.1. General aspects
  4.6.2. Foundations for Vertical Dikes
  4.6.3. Substructure of Vertical Dikes
  4.6.4. Superstructure of Vertical Dikes

4.7. Classification of Vertical Dikes
- 4.7.1. Classification According to Type of Foundations
- 4.7.2. Classification According to Type of Caisson
- 4.7.3. Classification According to Energy Dissipation
- 4.7.4. Classification According to the Type of Ramparts
- 4.7.5. Mixed Type Vertical Dikes
- 4.7.6. Vertical Dikes of Cylindrical Geometry

4.8. Structural Stability and Wave-Structure Interaction in Vertical Dikes
- 4.8.1. Wave Actions
- 4.8.2. Reflection
- 4.8.3. Transmission
- 4.8.4. Rebase
- 4.8.5. Stability and Bearing Capacity of Foundations

4.9. Considerations for Slope Dike Construction

4.10. Examples of Vertical Dikes
- 4.10.1. Examples of Vertical Dikes

Module 5. Field Studies and Port Geotechnics

5.1. Basic Field Studies. Bathymetric Control
- 5.1.1. Background Examination Study. Comprehensive Knowledge of the Littoral and Reservoir Bottom
- 5.1.2. Bathymetric Campaign: Project Preparation

5.2. Bathymetry: Data Editing and Debugging
- 5.2.1. Tidal Correction
- 5.2.2. Elimination of False Echoes
- 5.2.3. Export X, Y, Z
- 5.2.4. Results and Functionalities

5.3. Bathymetry: Equipment for Bathymetric Surveys
- 5.3.1. Single Beam and Multibeam Echo Sounder
- 5.3.2. Sound Profiler
- 5.3.3. GPS
- 5.3.4. D.G.P.S GPS
- 5.3.5. Gyroscopic and Wave Compensator
- 5.3.6. Hydrographic Software

5.4. Marine Geophysics
- 5.4.1. Equipment for Geophysical Campaigns
- 5.4.2. Geophysical Campaign

5.5. Complementary Field Studies
- 5.5.1. Sediment Samples
- 5.5.2. Data Collection Campaigns

5.6. Geotechnical Prospecting Campaigns

5.7. Instrumentation and Control of Maritime Works

5.8. Geotechnical Recommendations for the Design of Maritime and Port Works - ROM 05-05 part I

5.9. Geotechnical Recommendations for the Design of Maritime and Port Works - ROM 05-05 part II

5.10. Geotechnical Actions of Port Works

Module 6. Dredging and Pavements

6.1. Dredging General Aspects

6.2. Choice of Dredging Equipment
- 6.2.1. Mechanical Dredges
- 6.2.2. Hydraulic Dredges

6.3. Grab, Bucket and Cutter Dredges
- 6.3.1. Grab Dredges
- 6.3.2. Bucket Dredgers
- 6.3.3. Cutter Dredges

6.4. Suction Dredges

6.5. Other Dredges

6.6. General Fills from Dredging
- 6.6.1. General Aspects
- 6.6.2. Material Selection
- 6.6.3. Placement of Materials

6.7. Methodology of Dredging Works
- 6.7.1. General Aspects
- 6.7.2. Previous Operations
- 6.7.3. Specific Works
- 6.7.4. Maintenance Dredging
- 6.7.5. Dredging of New Facilities

6.8. Environmental Considerations for Dredging Works
- 6.8.1. Impacts Produced by Dredging Operations
- 6.8.2. Water Quality
- 6.8.3. Sediments
- 6.8.4. Air Quality
- 6.8.5. Noise
- 6.8.6. Other Environmental Considerations

6.9. Port Pavements: General Aspects
6.10. Port Pavements: Dimensioning and Construction

Module 7. Port Management, Operation and Maintenance

7.1. General Aspects and Organization of the Ports
- 7.1.1. Logistics
- 7.1.2. Sea Port
- 7.1.3. Unctad Classification
- 7.1.4. Functions
- 7.1.5. Port Community

7.2. Port Authority
7.3. Port Terminals
7.4. Port Services
- 7.4.1. Commercial Port Customers
- 7.4.2. Agents Providing Services
- 7.4.3. Port Services
- 7.4.4. Classification of Port Services
- 7.4.5. Port Services Management

7.5. Port Fees
7.6. Port Operation
- 7.6.1. Port Operation: General Aspects
- 7.6.2. Port Operation: Types

7.7. Instrumentation, Monitoring and Inspection for Port Infrastructure Maintenance
- 7.7.1. Instruments
- 7.7.2. Monitoring
- 7.7.3. Inspection

7.8. Breakdowns and Auscultation of Port Infrastructure
7.9. Reparation and Conservation of Port Infrastructure

Module 8. Offshore Structures and Renewable Energies

8.1. Introduction to Offshore Technology
8.2. Types of Offshore Structures
8.3. Hydrocarbons and Gas
8.4. Renewable Energies
8.5. Wind Turbines
8.6. Offshore Foundations
8.7. Navigation Channels
8.8. Influence of Maritime Dynamics
8.9. Construction Projects
8.10. Regulatory Introduction

Module 9. Construction of Port Infrastructure

9.1. Execution of Dredging
9.2. Fills and Riprap Dikes
- 9.2.1. Filling
- 9.2.2. Riprap Dikes

9.3. Construction of Dikes and Caisson Docks
- 9.3.1. Floating Caisson
- 9.3.2. Concrete Caisson
- 9.3.3. Caisson Dikes
- 9.3.4. Caisson Docks

9.4. Execution of Piloted Maritime Works
9.5. Execution of Screens and Piloted Offshore Works
- 9.5.1. Concrete Screens
- 9.5.2. Sheet Piles
- 9.5.3. Piles

9.6. Subsea Outfalls and Underwater Works
- 9.6.1. Pipelines
- 9.6.2. Submarine Outfalls
- 9.6.3. Underwater Works

9.7. Materials for the Execution of Maritime Works
9.8. Machinery for the Execution of Maritime Works
9.9. Maritime Works Planning

Module 10. BIM Applied to Maritime Works

10.1. BIM Methodology
- 10.1.1. BIM Introduction
- 10.1.2. BIM General Aspects
- 10.1.3. BIM: Current Status
- 10.1.4. BIM: Key Factors

10.2. Application of BIM Methodology
- 10.2.1. BIM: Software
- 10.2.2. File Exchange
- 10.2.3. Collaborative Systems
- 10.2.4. BIM: Pillars

10.3. Implementation and BIM Lifecycle
- 10.3.1. Life Cycle and BIM Implementation
- 10.3.2. BIM Maturity Levels
- 10.3.3. BIM Document Management
- 10.3.4. BIM Team and Roles

10.4. BIM Implementation Phases and Examples
- 10.4.1. BIM Implementation Phases
- 10.4.2. Examples:

10.5. Design and BIM Modeling, Sheltering Works and Ramparts
- 10.5.1. BIM: Previous Information
- 10.5.2. BIM: Design and Modeling of Sheltering Works and Ramparts

10.6. Design and BIM Modeling of Berthing and Equipment Works
- 10.6.1. BIM: Design and Modeling of Berthing Works
- 10.6.2. BIM: Design and Modeling of Nautical Equipment

10.7. Construction Planning with BIM
- 10.7.1. Introduction to BIM Planning
- 10.7.2. Planning with Navisworks
- 10.7.3. Planning with Timeliner
- 10.7.4. 4D Simulation and Virtual Flight

10.8. BIM Measurements
- 10.8.1. General Aspects for BIM Measurements
- 10.8.2. Creation of Planning Tables for Measurements in Revit
- 10.8.3. Export to Excel of BIM Measurements from Revit

10.9. BIM Guide to the State-Owned Port System: General Aspects

10.10. BIM Guide to the State-Owned Port System: Application to Port Infrastructure

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

06

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

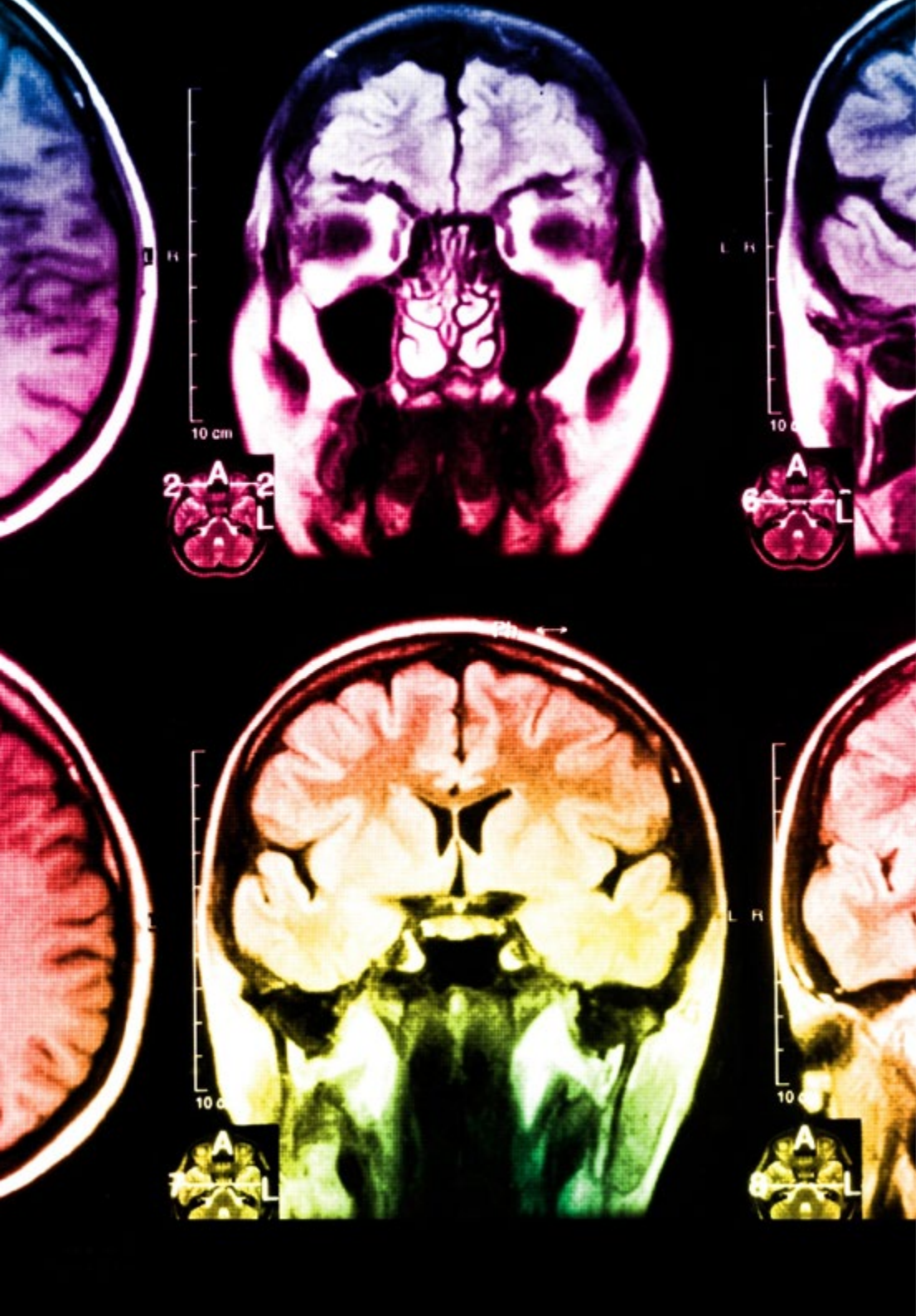
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

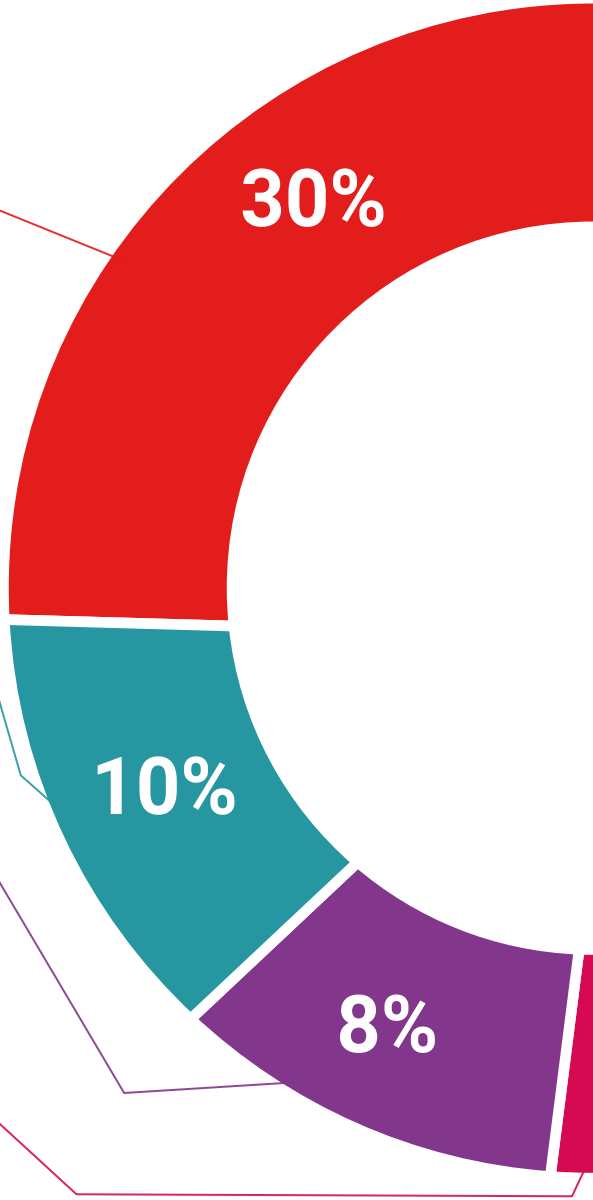
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

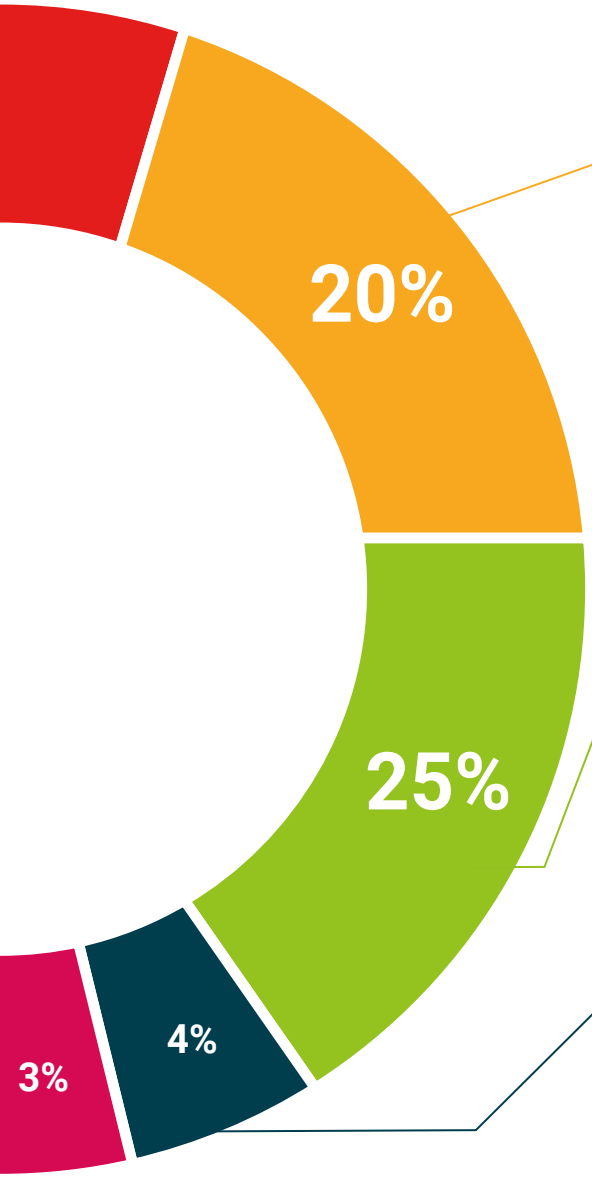
Practising Skills and Abilities

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.

07

Certificate

The Professional Master's Degree in Port Infrastructure guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree 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 **Professional Master's Degree in Port Infrastructure** contains the most complete and up-to-date educational program on the market.

After the student has passed the assessments, they will receive their corresponding Professional Master's Degree **diploma** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Professional Master's Degree in Port Infrastructure**
Official Nº of hours: **1,500 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.
For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE
in

Port Infrastructure

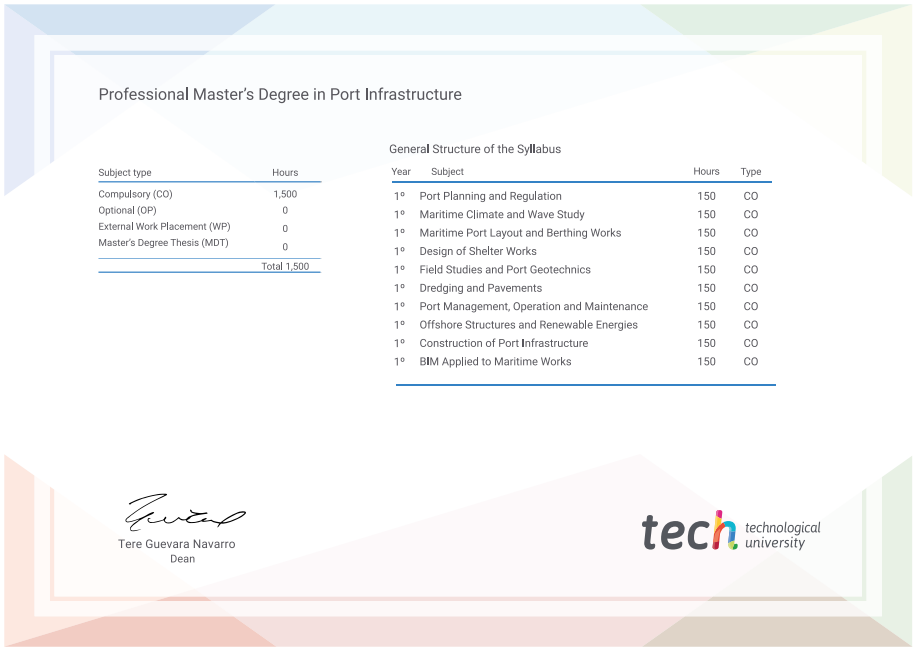
This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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


Professional Master's Degree in Port Infrastructure

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Port Planning and Regulation	150	CO
1º	Maritime Climate and Wave Study	150	CO
1º	Maritime Port Layout and Berthing Works	150	CO
1º	Design of Shelter Works	150	CO
1º	Field Studies and Port Geotechnics	150	CO
1º	Dredging and Pavements	150	CO
1º	Port Management, Operation and Maintenance	150	CO
1º	Offshore Structures and Renewable Energies	150	CO
1º	Construction of Port Infrastructure	150	CO
1º	BIM Applied to Maritime Works	150	CO

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*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.

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Professional Master's Degree

Port Infrastructure

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Technological University**
- Dedication: **16h/week**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree
Port Infrastructure

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