

Postgraduate Diploma Port Infrastructure Construction





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

Website: www.techtitute.com/us/engineering/postgraduate-diploma/postgraduate-diploma-port-infrastructure-construction

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01

Introduction

In this program, TECH offers the largest and most complete update in the field of port infrastructure construction, with the most innovative and outstanding aspects of the sector. This program has a teaching staff of professionals with more than 50 years of experience in the different specialties of maritime works and who work in leading companies in the sector. A combination of total quality that turns this preparatory program into an exceptional opportunity for professional growth.





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A complete update on the advances and developments in the sector, in a high-level Postgraduate Diploma"

The module, in addition to defining port planning and its historical evolution, develops the different port planning instruments required for the exercise of the profession specialized in port infrastructures.

The module is complemented, of course, with the contents of the State Ports Maritime Works Recommendations for port planning and includes the compilation of the up-to-date international regulations necessary for the design of maritime works globally.

The port planning and regulation module will provide the student with the ability to carry out the port infrastructure planning exercise and the regulatory tools for the design of port infrastructures.

Port dredging is one of the most important engineering activities in the port sector, due to its magnitude and possible impacts.

This is why the professional dedicated to port infrastructures is required to have a wide knowledge of the materials to be dredged, as well as the proper selection of equipment, the fillings coming from such dredging, the dredging methodology and the different environmental considerations.

All these points are addressed in the dredging and pavement module in an efficient and practical way.

The preparation of the module is completed with the port pavements, an indispensable unit in almost every port action. The different standards for their design will also be discussed, including the latest Maritime Works Recommendations for the design and construction of pavements, ROM 4.1-18 and their comparison with other international standards such as those based on the British Standard.

During the execution of port infrastructure works, knowledge of the different specific work units, construction materials and the appropriate choice of machinery plays a fundamental role.

This is why it is essential to plan the construction properly and always taking into account the different recommendations issued by official bodies such as State Ports and the experience of experts in the field, the module also develops the content of the Guide of Good Practices in the Execution of Maritime Works issued by that body.

This **Postgraduate Diploma in Port Infrastructure Construction** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in Port Infrastructures
- ◆ 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 Infrastructures
- ◆ 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



A complete in-depth study of the most current criteria in the construction of port infrastructures"

“

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 contribute their work experience to this training, as well as renowned specialists from reference societies and prestigious universities.

The 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 immersive education that is programmed to teach students 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 Postgraduate Diploma. For this purpose, the professional will be assisted by an innovative interactive video system developed by renowned and experienced experts in Port Infrastructures.

This program has the best educational resources that can be accessed online or downloaded, to make it easier for you to manage your studies and effort.

A very complete program, created with an objective focused on taking our students to the highest level of competence.



02 Objectives

The objectives of this Postgraduate Diploma have been established based on realistic and necessary goals for the professional in the sector. Gradually, you will be able to check 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.





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*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. 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 3. Construction of Port Infrastructures

- ◆ 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 4. 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

Course Management

Within the quality criteria that we apply in all our training, this Postgraduate Diploma offers you the opportunity to learn from the best, with a teaching faculty made up of professionals in the sector who will bring their theoretical and practical knowledge to take you to the highest level of proficiency. With the latest and most effective teaching methods on the online teaching market.



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Learn with the best and acquire the knowledge and skills you need to intervene in this area of development with total success”

Management



Mr. Angulo Vedriel, Rafael

- Civil Engineer with more than 13 years of experience as a project engineer
- Project Manager and Design Manager in Spain as well as in Latam, Middle East and Southeast Asia with PMP © certification for project management with Master's Degree and PhD studies completed in his specialty

Professors

Mr. Hernández Giraldo, Tomás

- ◆ Senior Civil Engineer
- ◆ Specialized in the development of projects in the maritime-port sector
- ◆ More than 20 years of professional experience in consultancy and construction work
- ◆ Responsible for the management and direction of port development projects
- ◆ Design, construction management, site assistance and execution of dredging and port pavements for 20 years

Mr. Montaner Montava, Jorge Alberto

- ◆ 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. Sorní Moreno, Àngel Arcadi

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

Mr. Cortés, Javier

- ◆ 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.
- ◆ University Specialist in Theory and Practical Application of the Finite Element Method and Simulation
- ◆ BASF Award: "Expansion Works Line 5 VLC subway" ETSICCP (UPV)



04

Structure and Content

The syllabus of the Postgraduate Diploma 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 very beginning of this course.

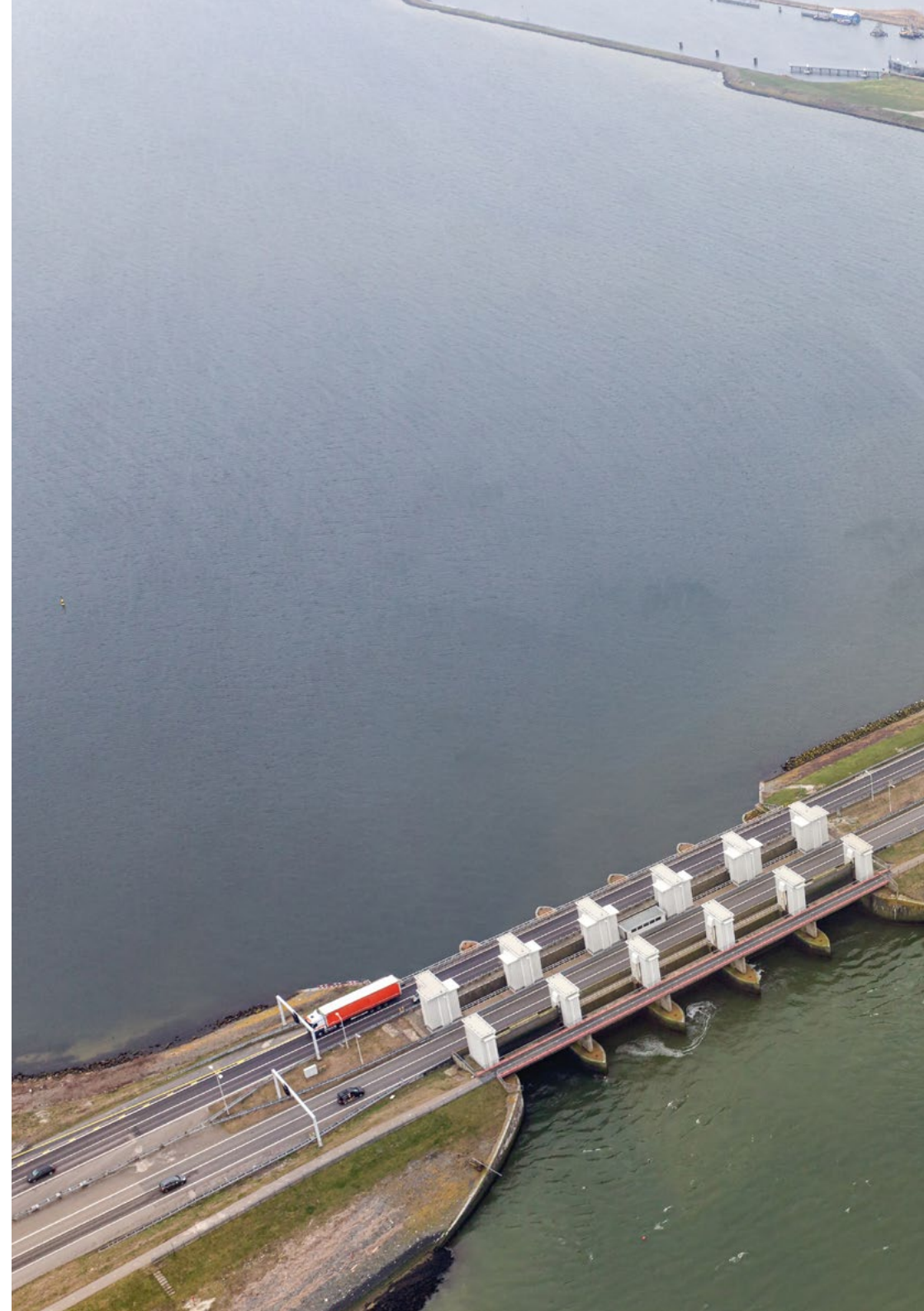


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A comprehensive syllabus focused on acquiring knowledge and converting it into real skills, created to propel you to excellence”

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. Environmental Legislation
 - 1.8.1. Coastal Regulation
 - 1.8.2. Environmental Impact Study Regulations
- 1.9. International Regulations
 - 1.9.1. PIANC
 - 1.9.2. British Standard BS 6349
 - 1.9.3. Other Standards, Manuals and Reference Books for Port Design
- 1.10. Impact of Climate Change on Port Infrastructures





Module 2. Dredging and Pavements

- 2.1. Dredging General Aspects
- 2.2. Choice of Dredging Equipment
 - 2.2.1. Mechanical Dredges
 - 2.2.2. Hydraulic Dredges
- 2.3. Grab, Bucket and Cutter Dredges
 - 2.3.1. Grab Dredges
 - 2.3.2. Bucket Dredgers
 - 2.3.3. Cutter Dredges
- 2.4. Suction Dredges
- 2.5. Other Dredges
- 2.6. General Fills from Dredging
 - 2.6.1. General aspects
 - 2.6.2. Material Selection
 - 2.6.3. Placement of Materials
- 2.7. Methodology of Dredging Works
 - 2.7.1. General Aspects
 - 2.7.2. Previous Operations
 - 2.7.3. Specific Works
 - 2.7.4. Maintenance Dredging
 - 2.7.5. Dredging of New Facilities
- 2.8. Environmental Considerations for Dredging Works
 - 2.8.1. Impacts Produced by Dredging Operations
 - 2.8.2. Water Quality
 - 2.8.3. Sediments
 - 2.8.4. Air Quality
 - 2.8.5. Noise
 - 2.8.6. Other Environmental Considerations
- 2.9. Port Pavements: General Aspects
- 2.10. Port Pavements: Dimensioning and Construction

Module 3. Construction of Port Infrastructures

- 3.1. Execution of Dredging
- 3.2. Fills and Riprap Dikes
 - 3.2.1. Filling
 - 3.2.2. Riprap Dikes
- 3.3. Construction of Dikes and Caisson Docks
 - 3.3.1. Floating Caisson
 - 3.3.2. Concrete Caisson
 - 3.3.3. Caisson Dikes
 - 3.3.4. Caisson Docks
- 3.4. Execution of Piloted Maritime Works
- 3.5. Execution of Screens and Piloted Offshore Works
 - 3.5.1. Concrete Screens
 - 3.5.2. Sheet Piles
 - 3.5.3. Piles
- 3.6. Subsea Outfalls and Underwater Works
 - 3.6.1. Pipelines
 - 3.6.2. Submarine Outfalls
 - 3.6.3. Underwater Works
- 3.7. Materials for the Execution of Maritime Works
- 3.8. Machinery for the Execution of Maritime Works
- 3.9. Maritime Works Planning
- 3.10. Guide of Good Practices for the Execution of Maritime Works of State Ports

Module 4. BIM Applied to Maritime Works

- 4.1. BIM Methodology
 - 4.1.1. BIM Introduction
 - 4.1.2. BIM General Aspects
 - 4.1.3. BIM: Current Status
 - 4.1.4. BIM: Key Factors
- 4.2. Application of BIM Methodology
 - 4.2.1. BIM: Software
 - 4.2.2. File Exchange
 - 4.2.3. Collaborative Systems
 - 4.2.4. BIM: Pillars
- 4.3. Implementation and BIM Lifecycle
 - 4.3.1. Life Cycle and BIM Implementation
 - 4.3.2. BIM Maturity Levels
 - 4.3.3. BIM Document Management
 - 4.3.4. BIM Team and Roles
- 4.4. BIM Implementation Phases and Examples
 - 4.4.1. BIM Implementation Phases
 - 4.4.2. Examples
- 4.5. Design and BIM Modeling, Sheltering Works and Ramparts
 - 4.5.1. BIM: Previous Information
 - 4.5.2. BIM: Design and Modeling of Sheltering Works and Ramparts
- 4.6. Design and BIM Modeling of Berthing and Equipment Works
 - 4.6.1. BIM: Design and Modeling of Berthing Works
 - 4.6.2. BIM: Design and Modeling of Nautical Equipment

- 4.7. Construction Planning with BIM
 - 4.7.1. Introduction to BIM Planning
 - 4.7.2. Planning with Navisworks
 - 4.7.3. Planning with Timeliner
 - 4.7.4. 4D Simulation and Virtual Flight
- 4.8. BIM Measurements
 - 4.8.1. General Aspects for BIM Measurements
 - 4.8.2. Creation of Planning Tables for Measurements in Revit
 - 4.8.3. Export to Excel of BIM Measurements from Revit
- 4.9. BIM Guide to the State-Owned Port System: General Aspects
- 4.10. BIM Guide to the State-Owned Port System: Application to Port Infrastructures

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A comprehensive and multidisciplinary preparation program that will allow you to excel in your career, following the latest advances in the field of Port Infrastructure Construction”



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

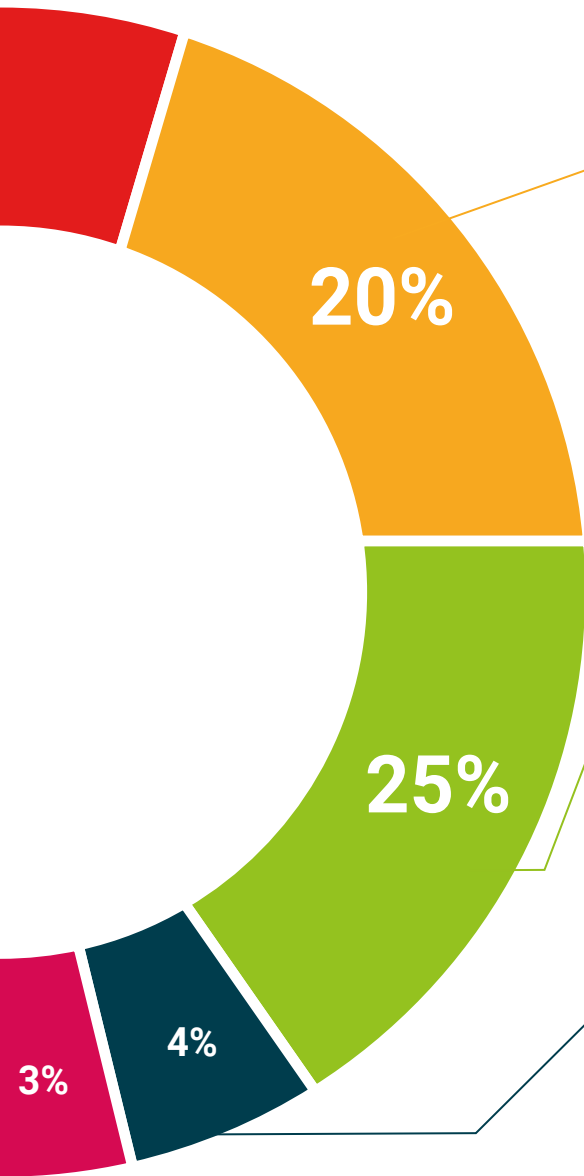
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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 Diploma in Port Infrastructure Construction guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Port Infrastructure Construction** contains the most complete and up-to-date program the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Diploma in Port Infrastructure Construction**

Official N° of Hours: **600 h.**



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

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

tech technological
university

personalized service

innovation

knowledge present

Postgraduate Diploma

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