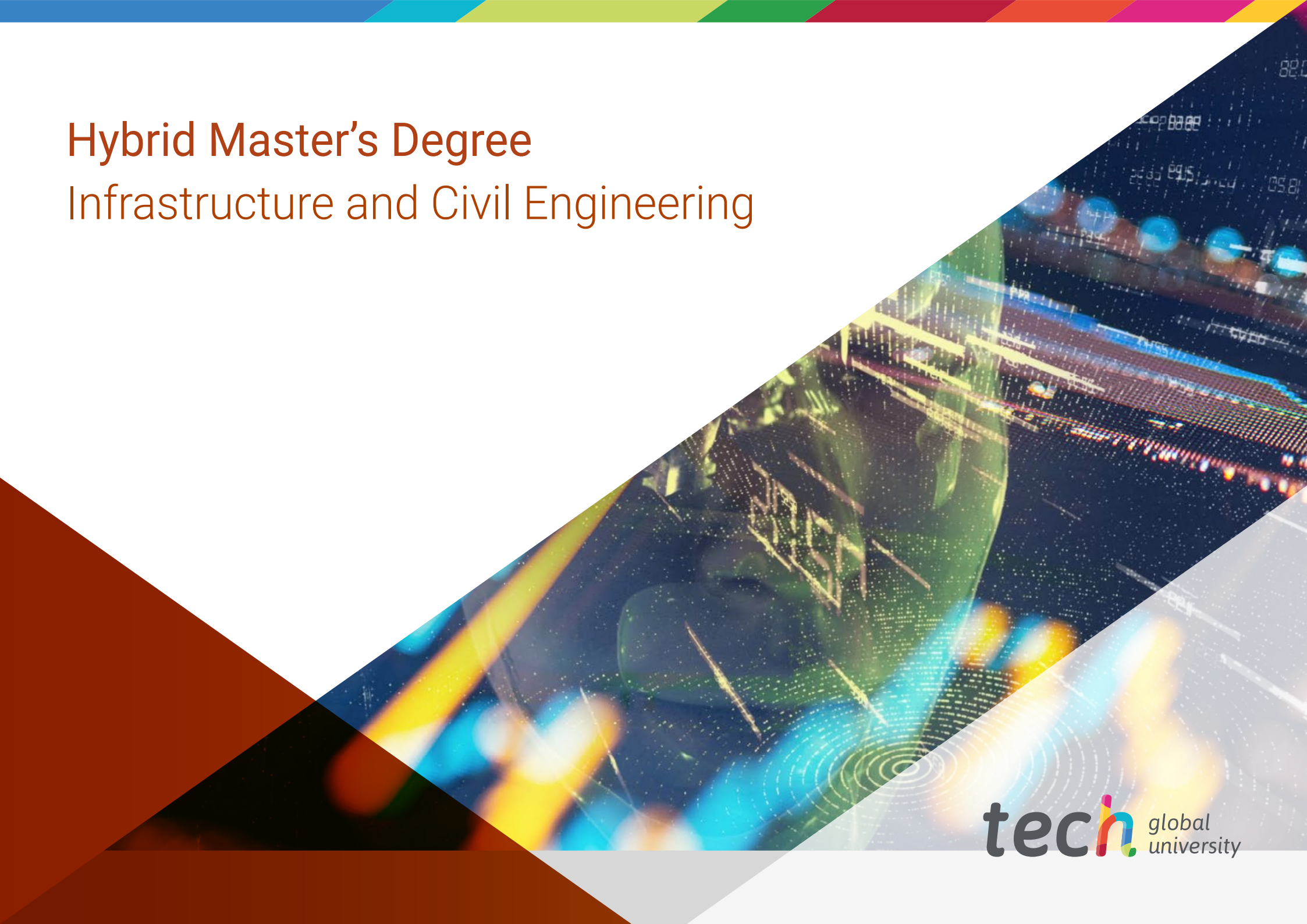
Hybrid Master's Degree

Infrastructure and Civil Engineering



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Hybrid Master's Degree

Infrastructure and Civil Engineering

Modality: **Hybrid (Online + Internship)**

Duration: **12 months**

Certificate: **TECH Global University**

Accreditation: **60 + 4 ECTS**

Website: **www.techtitute.com/us/engineering/hybrid-master-degree/hybrid-master-degree-infrastructure-civil-engineering**

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01

Introduction

Sustainability in civil engineering has emerged as a global imperative, driven by growing concern about climate change and the need to conserve natural resources. A recent report shows that the construction industry is responsible for approximately 38% of global CO2 emissions. Faced with this situation, engineering professionals need to incorporate into their daily practices the most innovative sustainable strategies applied in Infrastructure and Civil Engineering, ranging from the implementation of energy efficient technologies to the integration of eco-design principles. In this context, TECH presents an innovative university degree that brings together the best techniques in this expanding field.

Thanks to this Hybrid Master's Degree, you will handle the most advanced infrastructure monitoring tools and make informed decisions"

Risk management has become a fundamental aspect in the context of planning and execution of Infrastructure and Civil Engineering projects. These processes are subject to a variety of risks that can directly affect their success, ranging from technical problems to economic uncertainties or environmental challenges. Against this backdrop, engineers must be equipped with effective strategies to identify, assess and mitigate these risks.

For this reason, TECH presents an innovative Hybrid Master's Degree in Infrastructure and Civil Engineering Composed of 10 specialized modules, the academic pathway will explore the most recent innovations in fields such as pre-construction phases, structural maintenance and infrastructure repair. In this way, graduates will develop advanced skills to design, analyze and evaluate civil structures using advanced tools and modeling software. In addition, the teaching materials will provide students with the most sophisticated techniques for improving sleep conditions, as well as for the construction of foundations and retaining structures.

As for the methodology of this university program, it is divided into two phases. The first phase is theoretical and is offered completely online, providing a comfortable learning experience. For this, TECH uses its innovative Relearning system, which promotes progressive and natural learning without the need to resort to traditional memorization. Subsequently, the program includes a 3-week internship in a prestigious entity specialized in Infrastructure and Civil Engineering. This will enable graduates to apply their knowledge in a real environment, working alongside a team of experienced professionals in the field.

This **Hybrid Master's Degree in Infrastructure and Civil Engineering** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Development of more than 100 case studies presented by experts in Infrastructure and Civil Engineering
- Its graphic, schematic and practical contents provide essential information on those disciplines that are indispensable for professional practice
- Practical exercises where self-assessment can be used to improve learning
- Special emphasis on innovative methodologies in Infrastructure and Civil Engineering
- All of this will be complemented by 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
- Furthermore, you will be able to carry out an internship in one of the best companies

Do you want to incorporate into your practice the most advanced strategies to develop highly sustainable solutions? Achieve it through this very complete university degree"

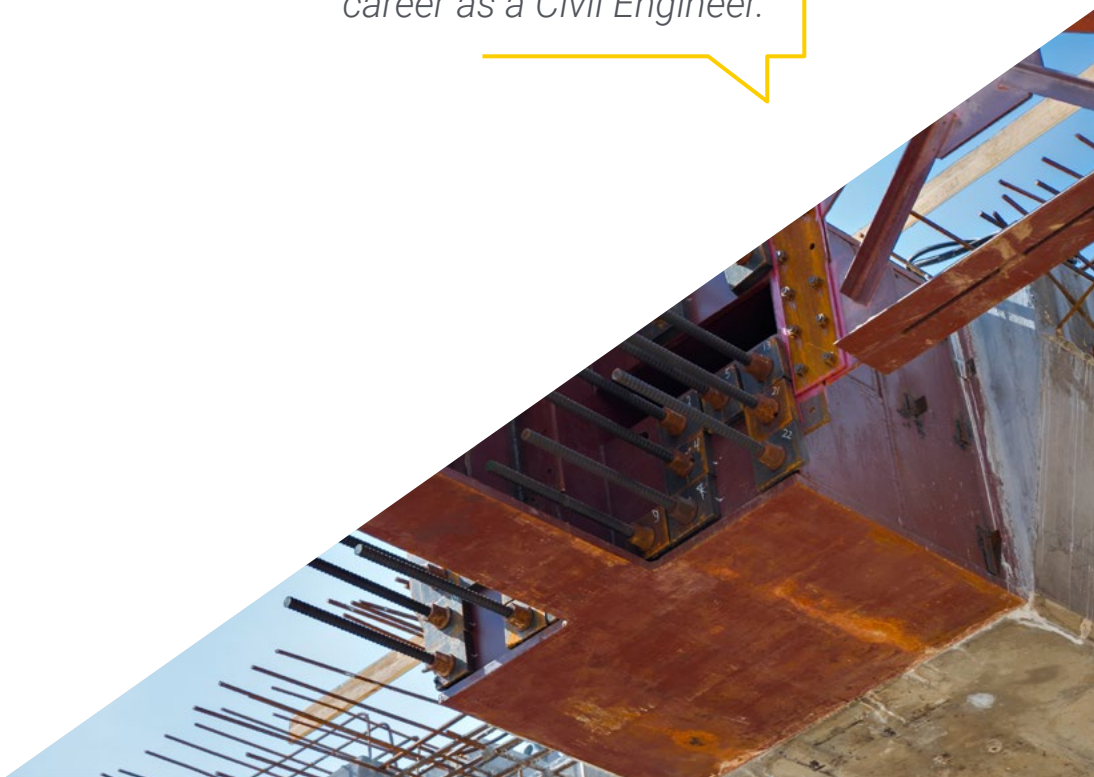
You will spend an intensive 3-week stay in a prestigious center, where you will acquire all the knowledge you need to grow professionally"

Access 24 hours a day to the most innovative didactic material offered by this curriculum.

After completing this program, you will have obtained the necessary tools to boost your career as a Civil Engineer.

In this Hybrid Master's Degree proposal, of a professionalizing nature and blended mode, the program is aimed at updating Civil Engineering professionals. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate theoretical knowledge into practice, and the theoretical-practical elements will facilitate the updating of knowledge.

Thanks to its multimedia content elaborated with the latest educational technology, it will allow the engineering professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to prepare in real situations. This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise during the course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.



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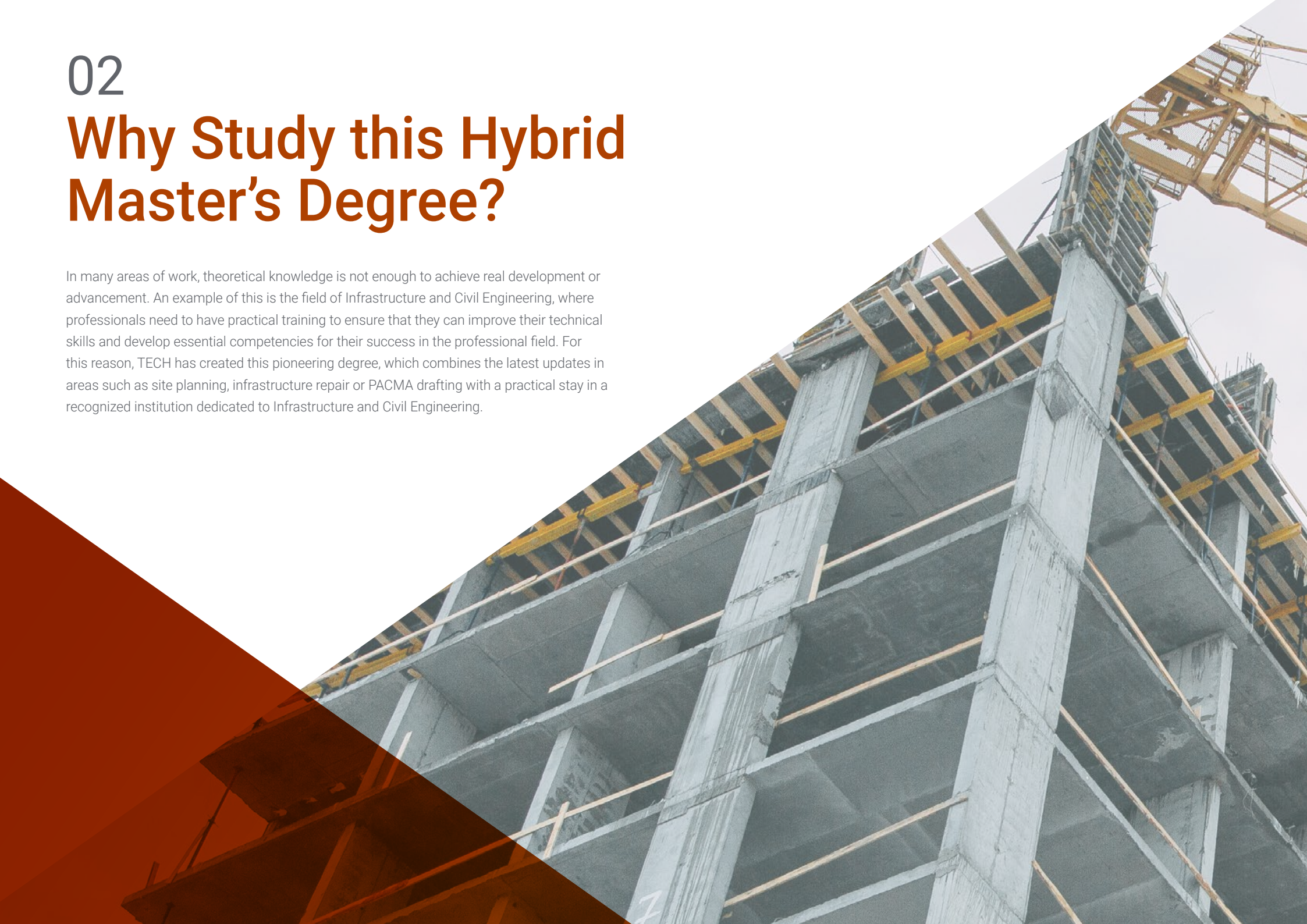
Why Study this Hybrid Master's Degree?

In many areas of work, theoretical knowledge is not enough to achieve real development or advancement. An example of this is the field of Infrastructure and Civil Engineering, where professionals need to have practical training to ensure that they can improve their technical skills and develop essential competencies for their success in the professional field. For this reason, TECH has created this pioneering degree, which combines the latest updates in areas such as site planning, infrastructure repair or PACMA drafting with a practical stay in a recognized institution dedicated to Infrastructure and Civil Engineering.



The program includes real case studies and exercises to bring the development of the program closer to the usual practice of Civil Engineers"

1. Updating from the latest technology available

Technological innovations are having a significant impact in the field of Infrastructure and Civil Engineering. In this sense, its tools improve the efficiency, safety, sustainability and quality of projects. With the objective of bringing engineers closer to these advances, TECH presents this Internship Program with which the professional will enter a prestigious entity, equipped with the latest technology in the Infrastructure and Civil Engineering sector.

2. Gaining in-depth knowledge from the experience of top specialists

This university degree has been designed by leading experts in the field of Infrastructure and Civil Engineering. In the first phase of the program, teachers will provide personalized guidance to students. Subsequently, during the practical stay, engineers will receive support from experienced professionals in the institution that will receive them for this training modality.

3. Entering first-class professional environments

True to its commitment to offer the most complete academic programs in the market, TECH meticulously selects the institutions that will receive its students during the 3-week Internship Program included in this degree. These institutions, recognized for their high prestige, have highly specialized personnel in Infrastructure and Civil Engineering.

4. Combining the best theory with state-of-the-art practice

This Hybrid Master's Degree is a radical departure from traditional pedagogical models, which often offer university programs with little focus on practical training. In contrast, TECH has developed an innovative learning model, combining theory and practice, which allows engineering professionals to access institutions of reference in the sector.

5. Expanding the boundaries of knowledge

Through this university program, TECH offers engineers the possibility of expanding their professional horizons internationally. This is achieved thanks to the vast network of contacts and collaborators available at TECH, the largest digital university in the world.

You will have full practical immersion at the center of your choice"

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Objectives

Through this revolutionary university degree, professionals will acquire comprehensive knowledge of fundamental areas of civil engineering, such as structures, geotechnics and hydraulics, among others. Along the same lines, graduates will acquire the skills to analyze complex infrastructures using advanced tools and methods, including modeling and simulation software. Thanks to this, they will be able to develop innovative and sustainable solutions in this field.

You will implement advanced sensors to monitor structural health in real time and detect problems early"

General Objective

- This Hybrid Master's Degree in Infrastructure and Civil Engineering will provide students with advanced skills in construction project management, ranging from planning or quality control to risk control. At the same time, engineers will apply the relevant regulations and standards for both the construction and maintenance of infrastructure. In addition, experts will integrate sustainability principles into their practices, including the use of environmentally friendly materials and energy efficiency

Thanks to the Relearning method, you will be able to consolidate the key concepts offered by this university course"

Specific Objectives

Module 1. Design and Engineering

- Know the stages in the development of an engineering project
- Know in detail the latest IT tools available in the market, for the optimization of resources, for the drafting of projects
- Study the current regulatory framework
- Know the tools for the realization of project pre-designs, in order to determine solutions with potential clients
- Acquire the skills to analyze and use the documents provided by other businesses for the drafting of the project
- Approach to the latest technologies for the collection of field data necessary for the drafting of the project

Module 2. Contracting and Preliminary Phases of Work

- Analyze the types of contracts existing in the world of Civil Engineering
- Knowledge for the analysis of the solvency of each company
- Acquire skills for the preparation of technical and economic offers
- Study the use of the most suitable software for the preparation of bids
- Study in depth the role of the Contract Manager
- Prepare the necessary processes for the administrative start-up of a construction site and the latest developments in this regard
- Know the documents in the field of Health and Safety, environmental measures and waste management, necessary for the development of the work
- Have the necessary knowledge for the correct implementation of auxiliary site installations

Module 3. Health and Safety and PACMA

- Have the necessary guidelines for the drafting and management of the required Health and Safety documents: ESS and MSS
- Have an overview of those involved in the safety and health organization chart of the worksite
- Train in the documentation to be generated at the construction site
- Develop the latest tools available for documentation management
- Train in site operations, in order to carry out the necessary actions to ensure the safety of workers and their health
- Develop the PACMA document
- Perform waste management during the execution of the work

Module 4. Linear Works

- Develop knowledge of the latest earthmoving machinery available for earthmoving operations
- Train students in earthwork construction processes for linear works
- Provide training on the necessary analysis, prior to the start of the works, in terms of hydrology and hydraulics, to optimize the drainage of the work
- Train for the analysis of existing geotechnical engineering for the optimization of existing foundations
- Analyze the different types of structures that exist in linear works, such as underpasses, overpasses and viaducts
- Have knowledge of the signage required for the execution of the linear work
- Development of the type of signaling installed in different types of railway projects (ERTMS)
- Train in existing track devices on the market

Module 5. Hydraulic Works

- Train in the wide range of hydraulic works in the field of Civil Engineering
- Know the appropriate machinery and construction processes for gravity and pressure piping works
- Access to the special parts available on the market for application in pipeline works
- Train in the particularities, suitable machinery and construction processes of canals and dams works
- Know the particularities, suitable machinery and construction processes of channeling works
- Know the particularities, appropriate machinery and construction processes of WWTP, DWTP and irrigation works

Module 6. Maritime, Airport, Industrial and Renewable Energy Works and Other Sectors

- Execute works in ports
- Construction of Vertical Dikes
- Construction of Breakwater dikes
- Understand beach dynamics
- Know the equilibrium profiles on beaches
- Execution of works on the coast
- Train in the dredging industry
- Know the machinery and construction processes in the dredging sector
- Develop issues related to the particularities of the execution of works at airports, both from a technical and operational point of view
- Focus on the development of works in the industrial and renewable energy sectors.
- Present the latest trends in the field of R+D+I
- Train in the industrialization sector of the civil works sector

Module 7. Construction Planning (PMP)

- Know the figure of the Project Management Professional
- Train in project management from the time, organization, economic and human resources perspectives
- Have the necessary training to improve the professional's communication with customers and suppliers
- Acquire the skills for proper purchasing management
- Analytical capacity to optimize results in the development of each project
- Know the appropriate software tools for planning, monitoring and closing of construction sites

Module 8. Settlement and Closure of Work

- Prepare the necessary documentation for the preparation of the settlement and closing of the work
- Train in general construction site measurements
- Develop knowledge of the methods for closing open nonconformities during the course of the Construction Work
- Detect and create conflicting prices
- Train in negotiation, facing the discussion with the client for the economic closing of the work
- Follow up and open additional files in addition to the work itself, such as price revisions

Module 9. Infrastructure Conservation and Maintenance

- Study conservation and maintenance contracts in greater depth
- Draft bids for maintenance and conservation contracts, both from a technical and economic point of view
- Train in the performance of maintenance tasks
- Coordinate human teams and machinery equipment for the optimal development of the maintenance and conservation contract
- Know the details in the conservation and maintenance of roads, railroads and ports
- Have the guidelines for the economic management of the contract
- Study in depth the specific machinery for road and railroad maintenance and conservation tasks

Module 10. Infrastructure Repair

- Know the necessary guidelines for carrying out inventories of infrastructures susceptible to repair, applying the latest technologies such as drones for the analysis of infrastructures
- Know which are the new IT tools for the decision making process of action in some infrastructures or others
- Study the pathologies that can be found in bridges and tunnels
- Train in infrastructure fault monitoring, both from the point of view of data collection in the field and from the point of view of data processing
- Know the methods for the execution of the repair work itself
- Take a tour of the equipment necessary to perform this type of repair work

Delve into the most relevant theory in this field, subsequently applying it in a real work environment"

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Skills

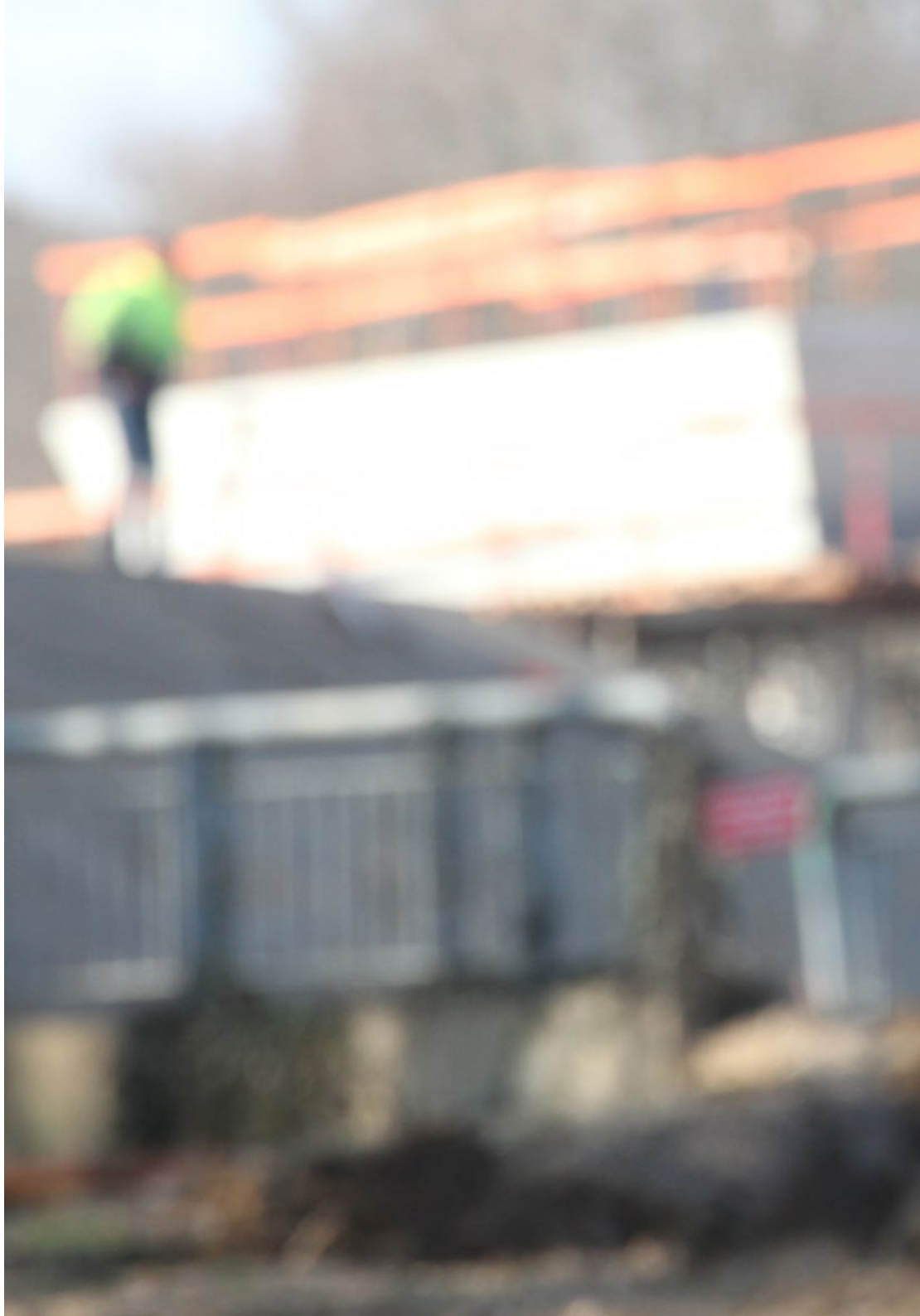
Through the completion of this Hybrid Master's Degree, graduates will acquire advanced skills to plan site installations, perform topographic surveys and manage the implementation of works. At the same time, professionals will be able to optimize drainage, foundations and structures. In this sense, engineers will be highly qualified in pressure and gravity pipelines, canals, dams and watercourse operations, including the selection of valves and pumps. In addition, students will perform maintenance and rehabilitation of hydraulic infrastructures, ensuring their operability and compliance with environmental regulations.

You will apply new technologies for the maintenance of infrastructures, which will allow you to optimize resources and improve efficiency"

General Skills

- Participate or direct all the activities present throughout the different phases, from the location of contracts and preparation of offers for bidding and awarding, to the operation during their execution and closing, using the latest technologies and the most innovative techniques currently available in the market
- Identify and repair infrastructures using novel methods
- Design and manage the application of new technologies to civil infrastructure management, designing and implementing computerized and automated control systems

A program with which you will learn through didactic materials in formats such as video or interactive summary, which will completely enliven your academic experience"



Specific Skills

- Draft construction projects with the use of the latest computer tools
- Apply all the latest knowledge and techniques for the execution of contracts, following all relevant administrative processes
- Apply health and safety regulations at all stages of project design and construction
- Apply all the necessary tools for the construction of hydraulic works
- Develop maritime works, taking into account the peculiarities of each construction and the latest trends in R+D+i
- Perform budget, cost, purchasing, planning and certification control of a project
- Perform the necessary tasks for the completion of the project (settlement and closure of the work), as well as the follow-up of the project
- Perform maintenance and preservation contracts
- Identify and repair possible damage to infrastructures

05

Course Management

In line with its objective of providing the most comprehensive and renewed university degrees in the academic panorama, TECH carries out a thorough process to form its teaching staff. For the delivery of this Hybrid Master's Degree, TECH brings together leading experts in the field of Infrastructure and Civil Engineering. These professionals have an extensive work background, which has allowed them to perform their work in prestigious international entities. In this way, they have created a myriad of first-class didactic materials that will significantly raise the professional horizons of the graduates.

A curriculum designed by a teaching team made up of renowned experts in the field of Infrastructure and Civil Engineering"

Management

Mr. Uriarte Alonso, Mario

- Director and Founder of Candois Consulting Engineers
- COPISA site and production manager
- Eiffage site manager
- Civil Engineer from the University of Cantabria

Professors

Mr. Gámiz Ruíz, Juan José

- Consulting and project writing at AIMA
- Bidding technician at Candois Engineering Consultants
- JGR Engineering Consulting
- Technician in the Town Planning and Civil Works Department of the Cambril Town Council
- Civil Engineer from the University of Granada
- Master's Degree in Structural Calculation from the University of Granada

Mr. Gómez Martín, Carlos

- Independent Civil Engineering and BIM Consultant
- BIM Modeler at AECOM
- Technological consultant in the education and business sector at Rossellimac
- Civil Engineer
- Master's Degree BIM in Civil Engineering

Mr. López Puerta, Miguel Ángel

- Project Engineer at Civiliza Engineering
- Civil Engineer from the University of Granada
- Master's Degree in Structural Calculation from the UDIMA University

Mr.Ruíz Megía, Alejandro

- Construction and Earthworks Manager at Ferrovial Agromán
- Civil Engineer from the Alfonso X El Sabio University of Madrid
- Technical Engineer in Public Works from the University of Cordoba
- Technical Mining Engineering and Mine Explanation from the University of Córdoba
- Master's Degree in Occupational Risk Prevention

The diversity of knowledge of the teaching group will generate a dynamic and enriching learning environment"

06

Educational Plan

This program is designed by real specialists in Infrastructure and Civil Engineering. In this way, engineers will have access to teaching materials that stand out both for their high quality and their applicability to the demands of today's labor market. Comprised of 10 specialized modules, the curriculum will delve into the latest developments in areas such as linear works, site planning and infrastructure repair. In addition, the program will provide graduates with the most advanced techniques for the creation of detailed infrastructure models that facilitate accuracy in both the design and planning process.

You will acquire skills to design road works, bridges or tunnels considering drainage and foundations"

Module 1. Design and Engineering

1.1. Stages in the Design and Engineering of a Project
- 1.1.1. Problem Analysis
- 1.1.2. Solution Design
- 1.1.3. Analysis of the Regulatory Framework
- 1.1.4. Solution Engineering and Drafting

1.2. Knowledge of the Problem
- 1.2.1. Coordination With the Client
- 1.2.2. Study of the Physical Environment
- 1.2.3. Social Environment Analysis
- 1.2.4. Economic Environment Analysis
- 1.2.5. Analysis of the Environmental Setting (EIS)

1.3. Solution Design
- 1.3.1. Conceptual Design
- 1.3.2. Study of Alternatives
- 1.3.3. PreEngineering
- 1.3.4. Preliminary Economic Analysis
- 1.3.5. Coordination of the Design with the Client (Cost-Sales)

1.4. Client Coordination
- 1.4.1. Land Ownership Study
- 1.4.2. Economic Feasibility Study of the Project
- 1.4.3. Environmental Feasibility Analysis of the Project

1.5. Pre-Startup Engineering
- 1.5.1. Site or Layout Study
- 1.5.2. Study of Typologies to be Used
- 1.5.3. Pre-Packaging Study of the Solution
- 1.5.4. Realization of the Project Model
- 1.5.5. Adjusted Economic Analysis of the Project

1.6. Analysis of the Tools to be Used
- 1.6.1. Team Personnel in Charge of the Work
- 1.6.2. Equipment Materials Necessary
- 1.6.3. Software Required for the Drafting of the Project
- 1.6.4. Subcontracting Necessary for the Drafting of the Project

1.7. Field Work Topography and Geotechnics
- 1.7.1. Determination of the Necessary Topography Works
- 1.7.2. Determination of the Necessary Geotechnical Works
- 1.7.3. Subcontracting Topography and Geotechnical Works
- 1.7.4. Monitoring Topography and Geotechnical Works
- 1.7.5. Analysis of Results of Topography and Geotechnical Works

1.9. Drafting of the Project
- 1.8.1. EIS Drafting
- 1.8.2. Writing and Calculation of the Solution in Geometric Definition (1)
- 1.8.3. Drafting and Calculation of the Structural Calculation Solution (2)
- 1.8.4. Drafting and Calculation of the Solution in the Adjustment Phase (3)
- 1.8.5. Drafting of Annexes
- 1.8.6. Drawing up of Plans
- 1.8.7. Drafting of Specifications
- 1.8.8. Budget Preparation

1.9. BIM Model Implementation in Projects
- 1.9.1. BIM Model Concept
- 1.9.2. BIM Model Phases
- 1.9.3. Importance of the BIM Model
- 1.9.4. The Need for BIM for the Internationalization of Projects

Module 2. Contracting and Preliminary Phases of Work

2.1. Choice of Type of Contracts to Be Offered and Location of Contracts
- 2.1.1. Identification of Contracting Objectives
- 2.1.2. Contracting Platforms
- 2.1.3. Customer Knowledge and Analysis
- 2.1.4. Financial Solvency Analysis
- 2.1.5. Technical Solvency Analysis
- 2.1.6. Choice of Contracts to Be Offered

2.2. Analysis of Required Solvency
- 2.2.1. Financial Solvency Analysis
- 2.2.2. Technical Solvency Analysis
- 2.2.3. Analysis of the Need for Joint Venture Partners
- 2.2.4. UTE Training Negotiation

2.3. Preparation of the Financial Offer
- 2.3.1. Project Budget Breakdown
- 2.3.2. Request for Quotations for Study
- 2.3.3. Hypothesis Statement
- 2.3.4. Closing of Economic Offer / Risk

2.4. Technical Drafting of Bids
- 2.4.1. Study of Bidding Terms and Conditions and Basic Bidding Project
- 2.4.2. Technical Report Writing
- 2.4.3. Drafting of Work Program
- 2.4.4. SYS and PACMA Documents
- 2.4.5. Improvements

2.5. Contract Analysis (Contract Manager)
- 2.5.1. Figure of the Contract Manager
- 2.5.2. Opportunities for the Figure of the Contract Manager
- 2.5.3. Training of the Contract Manager

2.6. Drafting of PSS and Opening of Work Center
- 2.6.1. PSS Drafting
- 2.6.2. PSS Approval and Opening of the Work Center
- 2.6.3. The Incident Book

2.7. Drafting of the PACMA and Waste Management Plan
- 2.7.1. Analysis of Environmental Documentation of the Project
- 2.7.2. Analysis of the Environmental Characteristics of the Area of Action
- 2.7.3. Adjustment of the PACMA of the Business to the Project
- 2.7.4. Elaboration of the Plan for the Management of SDWRs

2.8. Site Installations, Logistics, Site Layout
- 2.8.1. Needs Analysis for Storage Areas and Facilities
- 2.8.2. Study of Materials and Facilities Required for the Implementation Area
- 2.8.3. Implementation
- 2.8.4. Topographic Survey of the Site
- 2.8.5. Drones and Topography
- 2.8.6. In-Cabinet Verification of Topographic Data
- 2.8.7. Signing of the Staking Out Report

2.9. Multilateral International Tenders
- 2.9.1. Multilateral Organizations
- 2.9.2. Advantages of Multilateral Bidding
- 2.9.3. Search for Opportunities in the Multilateral Market
- 2.9.4. Implementation for Multilateral Bidding
  - 2.9.4.1. Countries of Interest
  - 2.9.4.2. Regulatory Framework
  - 2.9.4.3. Local Partner
  - 2.9.4.4. Technical and Economic Solvency with a View to Internationalization
  - 2.9.4.5. Development of International Contracts
  - 2.9.4.6. Risks of Business Internationalization

2.10. Internationalization of the Business
- 2.10.1. Countries of Interest
- 2.10.2. Regulatory Framework
- 2.10.3. Local Partner
- 2.10.4. Technical and Economic Solvency with a View to Internationalization
- 2.10.5. Development of International Contracts
- 2.10.6. Risks of Business Internationalization

Module 3. Health and Safety and PACMA

3.1. SYS Application Standard
- 3.1.1. International Regulations
- 3.1.2. Implications and Responsibilities of those Involved in the SYS of the Site

3.2. Health and Safety Study and PSS
- 3.2.1. Health and Safety Study
- 3.2.2. Health and Safety Plan
- 3.2.3. Drafting Phases of both Documents
- 3.2.4. Involvement and Responsibilities of the Authors of the ESS and PSS

3.3. Figures within the Site Organizational Chart
- 3.3.1. Health and Safety Coordinator
- 3.3.2. Preventive Resources of the Business
- 3.3.3. Prevention Service
- 3.3.4. Workers

3.4. Required Documentation
- 3.4.1. Documentation Prior to Commencement of Work
- 3.4.2. Documentation Related to Workers
- 3.4.3. Machinery Documentation
- 3.4.4. Documentation Related to Company

3.5. Installations, Individual and Collective Protections
- 3.5.1. On-site Installations
- 3.5.2. Individual Protection
- 3.5.3. Collective Protection

3.6. PACMA
- 3.6.1. PACMA definition
- 3.6.2. PACMA Drafting
- 3.6.3. PACMA On-Site Monitoring
- 3.6.4. External and Internal Audits
- 3.6.5. PACMA's Added Value on Site

3.7. On-Site Testing Control
- 3.7.1. Test Plan
- 3.7.2. Planning of a Test Plan
- 3.7.3. Figures in Charge of Monitoring the Test Plan
- 3.7.4. Importance of the Test Plan within the Site

3.8 Documentation Generated On-Site Related to PACMA
- 3.8.1. PACMA Documentation
- 3.8.2. Environmental Documentation
- 3.8.3. New Tools for PACMA Control
- 3.8.4. Participants in the Follow-up of Documents Generated in Relation to PACMA

3.9. Environmental Monitoring of the Work
- 3.9.1. Guidelines Set Out for the Environmental Monitoring of the Construction Site
- 3.9.2. Use of Recycled Materials and Recovery of Materials
- 3.9.3. On-site Carbon Footprint Reduction

3.10. Waste Management
- 3.10.1. Waste Management Plan
- 3.10.2. Hazardous Waste Management
- 3.10.3. CDW Valorization

Module 4. Linear Works

4.1. Types of Linear Works
- 4.1.1. Road Works
- 4.1.2. Railroad Works
- 4.1.3. Bridges
- 4.1.4. Tunnels

4.2. Earthwork
- 4.2.1. Terrain Analysis
- 4.2.2. Dimensioning of the Necessary Machinery
- 4.2.3. Control and Monitoring Systems
- 4.2.4. Quality Control
- 4.2.5. Standards of Good Execution

4.3. Longitudinal and Transverse Drainage
- 4.3.1. Project Drainage Review
- 4.3.2. Recalculation and Optimization of Project Drainage
- 4.3.3. Execution of Cost Savings Study

4.4. Foundations
- 4.4.1. Analysis of the Geotechnical Study of the Project
- 4.4.2. Recalculation of Project Foundations
- 4.4.3. Preparation of the New Geotechnical Study
- 4.4.4. Discussion of the New Geotechnical Study with the D.O.

4.5. Underpasses
- 4.5.1. Analysis of Existing Underpasses in the Project
- 4.5.2. Redimensioning in Terms of Drainage and Structural Capacity
- 4.5.3. Optimization of the Calculation
- 4.5.4. Optimization of Underpass
- 4.5.5. Discussion of the New Structure with the D.O.

4.6. Overpasses
- 4.6.1. Analysis of Existing Overpasses in the Project
- 4.6.2. Redimensioning in Terms of Drainage and Structural Capacity
- 4.6.3. Optimization of the Calculation
- 4.6.4. Optimization of Overpass
- 4.6.5. Discussion of New Structure with the D.O.

4.7. Viaducts
- 4.7.1. Analysis of the Existing Viaducts in the Project
- 4.7.2. Redimensioning in Terms of Drainage and Structural Capacity
- 4.7.3. Optimization of the Calculation
- 4.7.4. Optimization of Viaducts
- 4.7.5. Discussion of New Structure with the D.O.

4.8. Vertical and Horizontal Signage, Fenders and Additional Elements
- 4.8.1. Analysis of the Type and Quantity of Existing Signage in Project
- 4.8.2. Optimization of Existing Signage
- 4.8.3. Analysis of Existing Defenses and their Optimization
- 4.8.4. Noise Shield Analysis and Optimization
- 4.8.5. Preparation of a Report on the Optimization Performed
- 4.8.6. Discussion of Optimization Report with the D.O.

4.9. Railway Signaling and Track Equipment
- 4.9.1. Introduction to Railway Signaling
- 4.9.2. Signaling Systems Currently in Use
- 4.9.3. Introduction to Track Devices
- 4.9.4. Welded Long Bar
- 4.9.5. Track on Plate
- 4.9.6. Specific Machinery for Railway Works

4.10. Environmental, Social and Cultural Measures
- 4.10.1. Analysis of the Measures Included in the Project
- 4.10.2. Adequacy of PACMA
- 4.10.3. Analysis of Social and Archaeological Measures

Module 5. Hydraulic Works

5.1. Types of Hydraulic Works
- 5.1.1. Pressure Piping Works
- 5.1.2. Severity Pipeline Works
- 5.1.3. Canal Works
- 5.1.4. Dam Works
- 5.1.5. Works of Actions in Watercourses
- 5.1.6. WWTP and DWTP Works

5.2. Earthwork
- 5.2.1. Terrain Analysis
- 5.2.2. Dimensioning of the Necessary Machinery
- 5.2.3. Control and Monitoring Systems
- 5.2.4. Quality Control
- 5.2.5. Standards of Good Execution

5.3. Severity Pipeline Works
- 5.3.1. Survey Data Collection in the Field and Data Analysis in the Office
- 5.3.2. Re-Study of the Project Solution
- 5.3.3. Piping Assembly and Manhole Construction
- 5.3.4. Final Testing of Pipelines

5.4. Pressure Piping Works
- 5.4.1. Analysis of Piezometric Lines
- 5.4.2. Lifting Stations Execution
- 5.4.3. Piping and Valve Assembly
- 5.4.4. Final Testing of Pipelines

5.5. Special Valve and Pumping Elements
- 5.5.1. Types of Valves
- 5.5.2. Types of Pumps
- 5.5.3. Boilermaking Elements
- 5.5.4. Special Valves

5.6. Canal Works
- 5.6.1. Types of Channels
- 5.6.2. Execution of Channels of Excavated Sections in the Ground
- 5.6.3. Type of Rectangular Cross-Section
- 5.6.4. Desanders, Sluice Gates and Loading Chambers
- 5.6.5. Auxiliary Elements (Gaskets, Sealants and Treatments)

5.7. Dam Works
- 5.7.1. Types of Dams
- 5.7.2. Earth Dams
- 5.7.3. Concrete Dams
- 5.7.4. Special Valves for Dams

5.8. Actions in the Channels
- 5.8.1. Types of Works in Watercourses
- 5.8.2. Channeling
- 5.8.3. Works for Channel Defenses
- 5.8.4. River Parks
- 5.8.5. Environmental Measures in River Works

5.9. WWTP and DWTP Works
- 5.9.1. Elements of a WWTP
- 5.9.2. Elements of a DWTP
- 5.9.3. Water and Sludge Lines
- 5.9.4. Sludge Treatment
- 5.9.5. New Water Treatment Systems

5.10. Irrigation Works
- 5.10.1. Study of the Irrigation Network
- 5.10.2. Lifting Stations Execution
- 5.10.3. Piping and Valve Assembly
- 5.10.4. Final Testing of Pipelines

Module 6. Maritime, Airport, Industrial and Renewable Energy Works and Other Sectors

6.1. Port Works
- 6.1.1. Marine Climate
- 6.1.2. Ports Executed with Sunken Caissons
- 6.1.3. Breakwater Dikes
- 6.1.4. Marinas

6.2. Coastal Works
- 6.2.1. Coastal Dynamics
- 6.2.2. Coastal Sediment Transport
- 6.2.3. Beach Equilibrium Profile
- 6.2.4. Exempt Dams on Coasts

6.3. Maritime Dredging and Earthmoving Works
- 6.3.1. Need for Dredging Works in Coasts and Ports
- 6.3.2. Machinery for the Execution of Dredging Works
- 6.3.3. Execution of Dredging Works

6.4. Work on Airports, Runways and Taxiways
- 6.4.1. Operation of Airport Works
- 6.4.2. Airport Signage
- 6.4.3. Restrictions on Work at Airports

6.5. Works at Terminal Airports
- 6.5.1. Execution Project Analysis
- 6.5.2. BIM Analysis of the Project
- 6.5.3. Airport Terminal Project Work Team

6.6. Works in the Industrial Sector
- 6.6.1. Industry Sectors of Reference
- 6.6.2. Civil works in the Industrial Sector
- 6.6.3. Application of BIM Methodology in the Industrial Sector
- 6.6.4. Working Methods in Industrial Projects

6.7. Works for Renewable Energy Projects: Solar Farms
- 6.7.1. Design and Calculation of the Drainage Network
- 6.7.2. Design and Calculation of Roadways
- 6.7.3. Design and Calculation of Foundations
- 6.7.4. Preparation of Reports Applied to Energy Projects

6.8. Works for Renewable Energy Projects: Wind Farms
- 6.8.1. Design and Calculation of the Drainage Network
- 6.8.2. Design and Calculation of Roadways
- 6.8.3. Design and Calculation of Foundations
- 6.8.4. Preparation of Reports Applied to Energy Projects

6.9. R+D+I Works
- 6.9.1. Areas of Study for R&D&I Projects
- 6.9.2. Methodology of Work
- 6.9.3. Advantages of Project Development in the R&D&I Field
- 6.9.4. Added Value of R&D&I Projects for the Business

6.10. Industrialization of Civil Engineering
- 6.10.1. Current Status of the Industrialization of Civil Engineering
- 6.10.2. Sector Projection
- 6.10.3. Technologies Applicable to Civil Engineering Industrialization
- 6.10.4. Future and Prospects of Civil Engineering Industrialization

Module 7. Construction Planning (PMP)

7.1. Introduction and Life Cycle
- 7.1.1. Project Definition and Project Management
- 7.1.2. Areas of Expertise
- 7.1.3. Life Cycle
- 7.1.4. Interested Parties
- 7.1.5. Management Influence

7.2. Management Processes
- 7.2.1. Operation and Maintenance Project Management Processes
- 7.2.2. Management Process Groups
- 7.2.3. Interactions between Processes

7.3. Integration Management
- 7.3.1. Development of the Articles of Incorporation
- 7.3.2. Development of the Scope Statement
- 7.3.3. Development of the Management Plan
- 7.3.4. Project Management
- 7.3.5. Work Supervision and Control
- 7.3.6. Integrated Change Control
- 7.3.7. Project Closing

7.4. Scope Management
- 7.4.1. Scope Planning
- 7.4.2. Scope Definition
- 7.4.3. Creation of Work Breakdown Structure
- 7.4.4. Scope Verification
- 7.4.5. Scope Closure

7.5. Time Management
- 7.5.1. Definition of Activities
- 7.5.2. Establishment of a Sequence of Activities
- 7.5.3. Estimated Resources
- 7.5.4. Estimated Duration
- 7.5.5. Schedule Development

7.6. Cost Management
- 7.6.1. Cost Estimates
- 7.6.2. Preparation of a Cost Estimate
- 7.6.3. Control of Costs and Variances

7.7. Human Resources Management
- 7.7.1. Schedule Control
- 7.7.2. Human Resources Planning
- 7.7.3. Training of the Teaching Staff
- 7.7.4. Team Development
- 7.7.5. Human Resources Management
- 7.7.6. Human Resources Organizational Models
- 7.7.7. Theories on the Organization of Human Resources

7.8. Communications in Management
- 7.8.1. Communications Planning
- 7.8.2. Distribution of Information
- 7.8.3. Performance Reporting
- 7.8.4. Stakeholder Management

7.9. Risk Management
- 7.9.1. Risk Management Planning
- 7.9.2. Identification of Risks
- 7.9.3. Qualitative Risk Analysis
- 7.9.4. Quantitative Risk Analysis
- 7.9.5. Risk Response Planning
- 7.9.6. Risk Monitoring and Control

7.10. Procurement Management
- 7.10.1. Purchasing and Procurement Planning
- 7.10.2. Recruitment Planning
- 7.10.3. Solicit Vendor Responses
- 7.10.4. Contract Administration
- 7.10.5. Contract Closure

Module 8. Settlement and Closure of Work

8.1. Pre-Completion Work
- 8.1.1. Monthly Follow-up of Work Measurements
- 8.1.2. Monthly Follow-up of Nonconformities
- 8.1.3. Monthly Follow-up of New Construction Work Items
- 8.1.4. Administrative Management in the Event of Modifications

8.2. Final Measurement of the Work
- 8.2.1. Participants in the Final Measurement of the Work
- 8.2.2. Planning for the Final Measurement of the Work
- 8.2.3. Coordination of Site Measurements
- 8.2.4. Discussion with the Client of the Final Measurement of the Work.

8.3. Review of Final Construction Plans
- 8.3.1. Control of Current Plans
- 8.3.2. Final Drawing of Plans
- 8.3.3. Presentation of As Built Plans

8.4. Review of Non-Conformities
- 8.4.1. Monitoring and Closure of Non-Conformities Throughout the Development of the Project
- 8.4.2. Importance of Nonconformities
- 8.4.3. Final Review of Nonconformities Generated During the Construction Work

8.5. Negotiation of Contradictory Prices
- 8.5.1. Definition of Contradictory Pricing
- 8.5.2. Negotiation of Contradictory Price
- 8.5.3. Contradictory Price Closing

8.6. Negotiation of Economic and Legal Closing of the Work
- 8.6.1. Summary of Data for Site Closure
- 8.6.2. Economic Negotiation for the Closing of the Work
- 8.6.3. Legal and Administrative Closing of Work
- 8.6.4. Ongoing Files

8.7. Adequacy of Affected Areas of the Construction Site
- 8.7.1. Definition of Areas Affected During the Development of Works
- 8.7.2. Measures Taken Throughout the Execution of the Works
- 8.7.3. Measures in Affected Areas for the Closure of the Construction Site
- 8.7.4. Final Restoration of the Work

8.8. Minutes of Receipt
- 8.8.1. Works Acceptance Ceremony
- 8.8.2. Figure of the Controller
- 8.8.3. Works Acceptance Report

8.9. Removal and Cleaning of Installation Areas
- 8.9.1. Withdrawal of Installations Area
- 8.9.2. Cleaning of Areas Affected by the Works
- 8.9.3. Removal of Site Equipment

8.10. Subsequent Files (Price Revisions and Possible Claims)
- 8.10.1. Types of Files after the Works Have Been Received
- 8.10.2. Price Revisions
- 8.10.3. Claim Files
- 8.10.4. Final Closure of the Work File

Module 9. Infrastructure Conservation and Maintenance

9.1. Conservation Contracts
- 9.1.1. Administrations Responsible for the Operation of Infrastructures
- 9.1.2. Types of Contracts
- 9.1.3. Businesses for Maintenance and Upkeep
- 9.1.4. Purpose of Management and Maintenance Contracts

9.2. Drafting of the Bid for Conservation and Maintenance
- 9.2.1. Objectives of the Bidding Business
- 9.2.2. Search for a Suitable Contract
- 9.2.3. Drafting of the Technical Offer
- 9.2.4. Preparation of the Financial Offer
- 9.2.5. Management and Maintenance Contract

9.3. Figures within the Conservation and Maintenance Contract
- 9.3.1. Maintenance Contract Manager
- 9.3.2. Maintenance Manager
- 9.3.3. Maintenance Technician
- 9.3.4. Maintenance Personnel

9.4. Road Maintenance and Upkeep
- 9.4.1. Analysis of the Initial Situation
- 9.4.2. Customer Needs Analysis
- 9.4.3. Analysis of Routine and Special Tasks
- 9.4.4. Economic Monitoring of the Contract

9.5. Railroad Maintenance and Upkeep
- 9.5.1. Analysis of the Initial Situation
- 9.5.2. Customer Needs Analysis
- 9.5.3. Analysis of Routine and Special Tasks
- 9.5.4. Economic Monitoring of the Contract

9.6. Port Operation
- 9.6.1. Figures Involved in the Operation of Ports
- 9.6.2. Conservation Tasks
- 9.6.3. Maintenance Tasks
- 9.6.4. Engineering Works
- 9.6.5. Commercial Management of the Port

9.7. Port Conservation and Maintenance
- 9.7.1. Maintenance and Upkeep of Roads
- 9.7.2. Maintenance and Upkeep of Docks
- 9.7.3. Conservation and Maintenance of Port Facilities
- 9.7.4. Maintenance and Upkeep of Office Buildings

9.8. Economics of the Conservation and Maintenance Contract
- 9.8.1. Economic studies of Public Services
- 9.8.2. Economic Engineering Applied to Public Services
- 9.8.3. Regulation of the Service Fee
- 9.8.4. Economic Planning of Conservation and Maintenance Works

9.9. Specific Machinery and Personnel for Road Maintenance and Upkeep
- 9.9.1. Sizing of the Human Resources Team
- 9.9.2. Dimensioning of the Necessary Machinery
- 9.9.3. Specific Machinery Requirements
- 9.9.4. New Technologies Applied to Conservation and Maintenance

9.10. Machinery and Specific Personnel and Railway Maintenance and Upkeep
- 9.10.1. Sizing of the Human Resources Team
- 9.10.2. Dimensioning of the Necessary Machinery
- 9.10.3. Specific Machinery Requirements
- 9.10.4. New Technologies Applied to Conservation and Maintenance

Module 10. Infrastructure Repair

10.1. Works Related to the Maintenance and Repair of Infrastructures
- 10.1.1. Introduction to the State of Preservation of Infrastructures
- 10.1.2. Importance of Infrastructure Maintenance
- 10.1.3. Infrastructure Maintenance
- 10.1.4. Infrastructure Repair

10.2. Opportunities in the Bridge and Tunnel Repair Industry
- 10.2.1. Status of the Bridge Network
- 10.2.2. Status of the Tunnel Network
- 10.2.3. Status of Work in this Sector
- 10.2.4. Future of the Infrastructure Maintenance and Repair Sector

10.3. Infrastructure Inventory
- 10.3.1. Field Work
- 10.3.2. Field Data Processor in Cabinet
- 10.3.3. Analysis of Processed Data
- 10.3.4. Coordination with the Customer of the Priority Works

10.4. Bridge Pathology Analysis
- 10.4.1. Analysis of Processed Data on Bridge Pathologies
- 10.4.2. Types of Pathologies Detected
- 10.4.3. Action Decision

10.5. Tunnel Pathology Analysis
- 10.5.1. Analysis of Processed Data on Tunnel Pathologies
- 10.5.2. Types of Pathologies Detected
- 10.5.3. Action Decision

10.6. Infrastructure Monitoring
- 10.6.1. Importance of Infrastructure Monitoring
- 10.6.2. Infrastructure Monitoring Application Technology
- 10.6.3. Monitoring Data Analysis
- 10.6.4. Decision-Making for Action

10.7. Bridge Repair Work
- 10.7.1. Preparation for Bridge Repair Work
- 10.7.2. Common Pathologies
- 10.7.3. Action According to the Pathology
- 10.7.4. Documentation of the Proceedings

10.8. Repair Work in Tunnels
- 10.8.1. Preparation for Tunnel Repair Work
- 10.8.2. Common Pathologies
- 10.8.3. Action According to the Pathology
- 10.8.4. Documentation of the Proceedings

10.9. Equipment for Bridge Repair Work
- 10.9.1. Team Personnel in Charge of the Work
- 10.9.2. Machinery for the Execution of Works
- 10.9.3. New Technologies Applied to Bridge Repair

10.10. Equipment for Tunnel Repair Work
- 10.10.1. Team Personnel in Charge of the Work
- 10.10.2. Machinery for the Execution of Works
- 10.10.3. New Technologies Applied to Bridge Repair

You will be highly qualified to identify and mitigate risks in infrastructure projects"

07

Clinical Internship

After completing the online theoretical stage, this university degree provides for a period of Internship Program in a reference entity in the field of Infrastructure and Civil Engineering. Throughout this itinerary, graduates will have the support of a highly specialized tutor in this field, who will accompany them throughout the process, both in the preparation and in the development of the internship.

You will carry out a practical stay in a prestigious entity, where you will apply your knowledge in the field of Infrastructure and Civil Engineering"

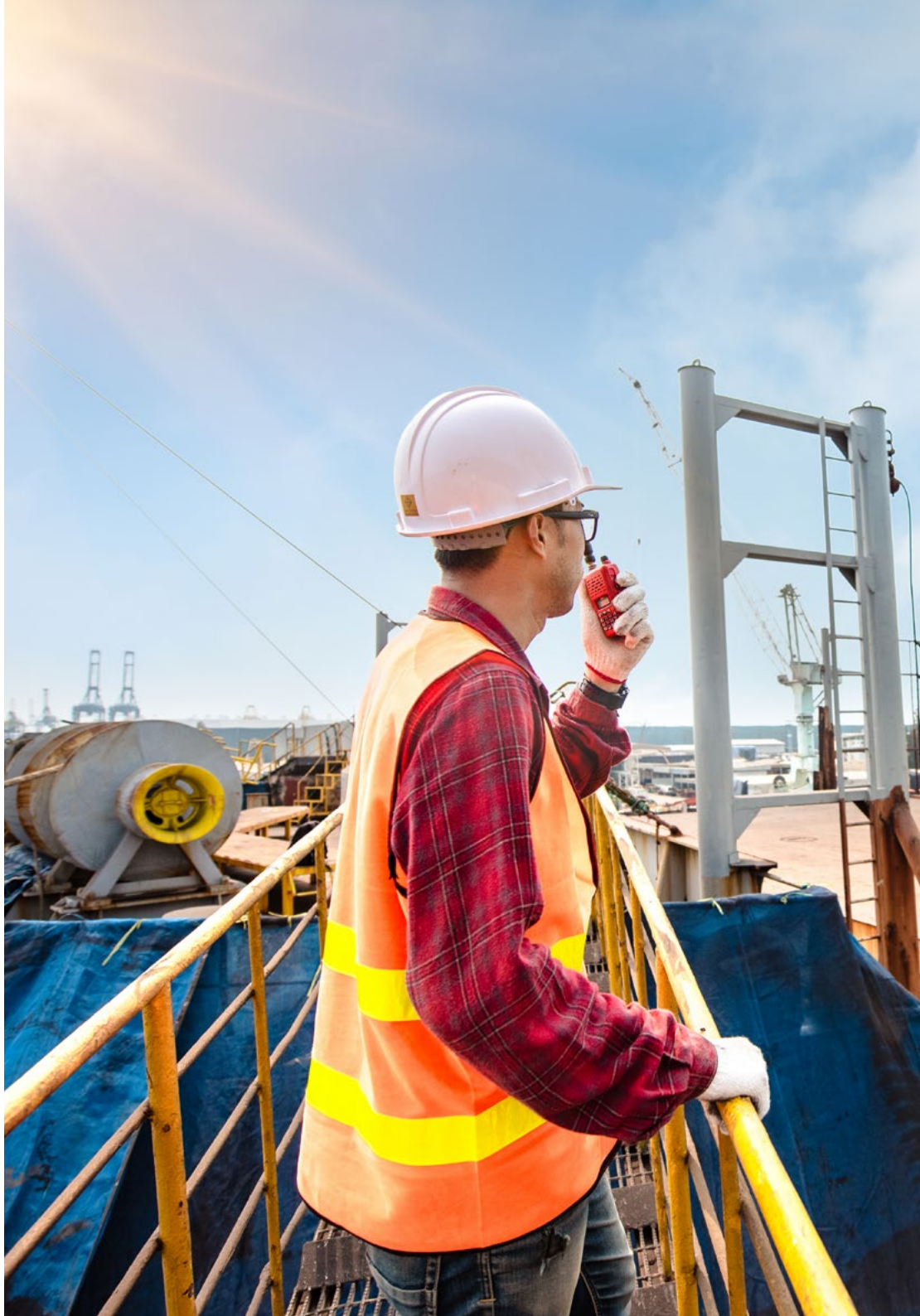
The Internship Program of this program in Infrastructure and Civil Engineering consists of a practical internship in a distinguished company, lasting 3 weeks, from Monday to Friday, with 8 consecutive hours of practical training with an assistant specialist.

During this intensive on-site stay, students will be tutored by a professional in this area, who will guarantee the fulfillment of all the objectives for which this itinerary has been designed. In this sense, his extensive knowledge in this area will allow students to progress at the labor level with immediacy.

This is an ideal opportunity for civil engineers to learn by working in a sector that is highly demanded by companies, which requires constant updating in order to create long-lasting, safe and sustainable works.

The practical part will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of the professors and other training partners that facilitate teamwork and multidisciplinary integration as transversal competencies for the praxis of Infrastructure and Civil Engineering (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the program, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:



Module	Practical Activity
Planning Phase	Conduct topographic surveys and soil studies to analyze the feasibility of the project
	Prepare plans that include technical specifications for the structures involved in the initiative
	Process the corresponding construction licenses and environmental permits
	Evaluate the environmental effects of the project and create mitigation measures
Risk Prevention and Occupational Safety	Prepare a document detailing in detail the preventive and protective measures at the site
	Monitor construction activities on an ongoing basis to ensure compliance with safety regulations
	Provide courses and workshops on safe practices and the use of personal protective equipment
	Install safety signs at the construction site
Maintenance of Structures	Conduct periodic visual inspections to detect damage or deterioration of infrastructure
	Implement monitoring systems to monitor structural health in real time
	Develop short-term plans for the conservation of structures
	Carry out preventive maintenance such as drain cleaning, unclogging of ducts and disposal of waste
Design of Hydraulic Works	Draw up plans and specifications for the construction of both dams and reservoirs
	Design irrigation, drainage and aqueduct canals
	Plan drinking water supply networks
	Create dams, retaining walls and other protective structures

Civil Liability Insurance

This institution's main concern is to guarantee the safety of the students and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the practical training period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.

General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Hybrid Master's Degree, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Hybrid Master's Degree, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Hybrid Master's Degree will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: the Hybrid Master's Degree shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Hybrid Master's Degree. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Hybrid Master's Degree will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

08

Where Can I Do the Internship?

In line with its commitment to offer the most complete and up-to-date university programs, TECH meticulously selects the institutions to carry out its Internship Programs. This will allow engineers to carry out their internships in companies of international prestige, in an environment of excellence. Therefore, graduates will have the opportunity to join multidisciplinary teams led by experts in the field of Infrastructure and Civil Engineering.

You will carry out your practical stay in a distinguished organization, where you will have the support of experienced professionals in Infrastructure and Civil Engineering"

The student will be able to complete the practical part of this Hybrid Master's Degree at the following centers:

Cones

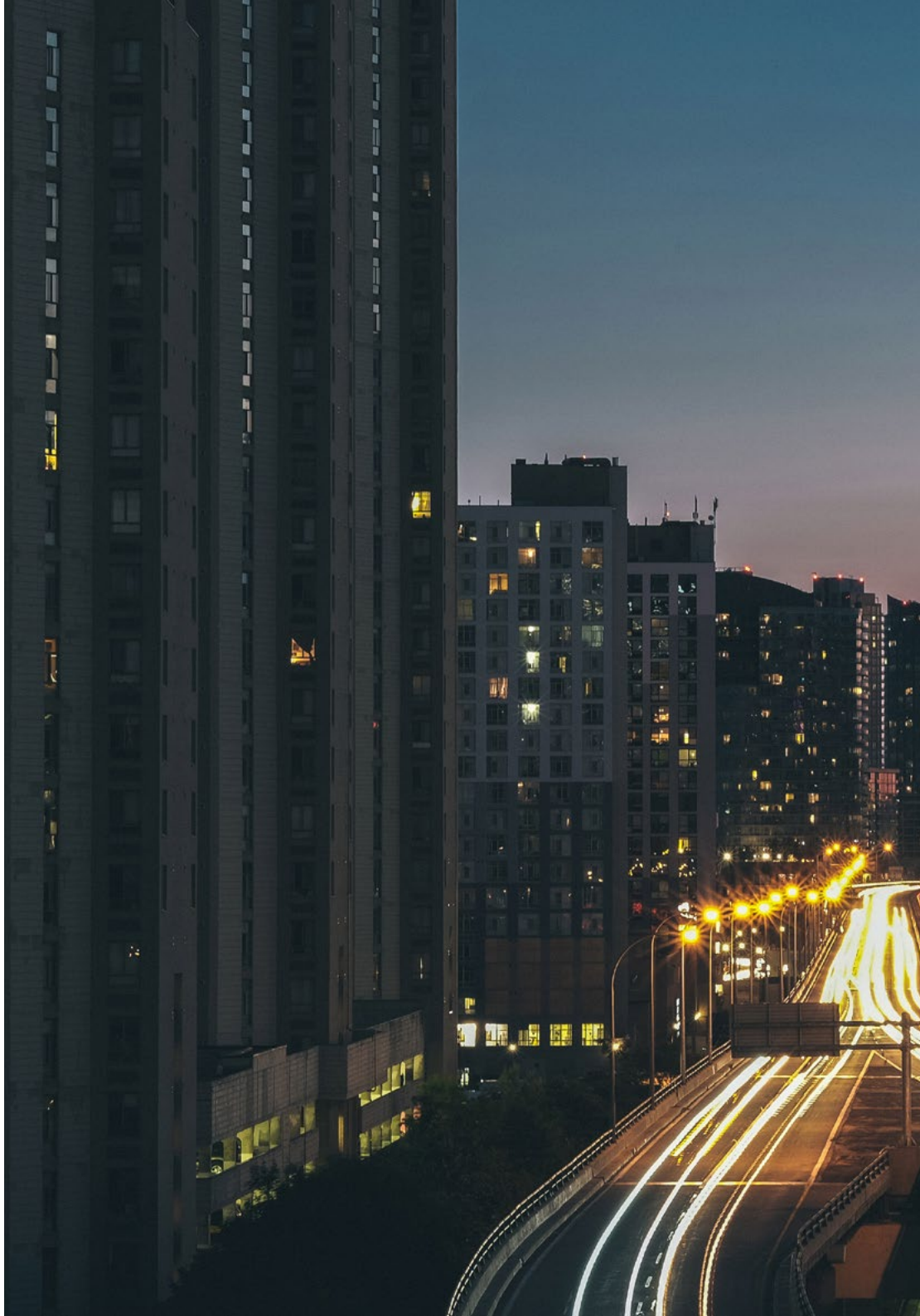
Country
Spain

City
Madrid

Address: Calle Zinc, 3, Humanes de Madrid, 28970. Madrid

A prestigious construction company highly specialized in quality control of materials and geotechnical studies.

Related internship programs:
- Geotechnics and Foundations
-Acoustic Engineering



Lo Bruno Estructuras S.A.

Country: Argentina

City: Santiago del Estero

Address: Fray L. Beltrán y 1º Teniente Ardiles. Parque Industrial - La Banda, Santiago del Estero

Company specialized in the manufacture of construction materials

Related internship programs:
- MBA in Commercial Sales Management
- Infrastructure and Civil Engineering

You will combine theory and professional practice through a demanding and rewarding educational approach"

09

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

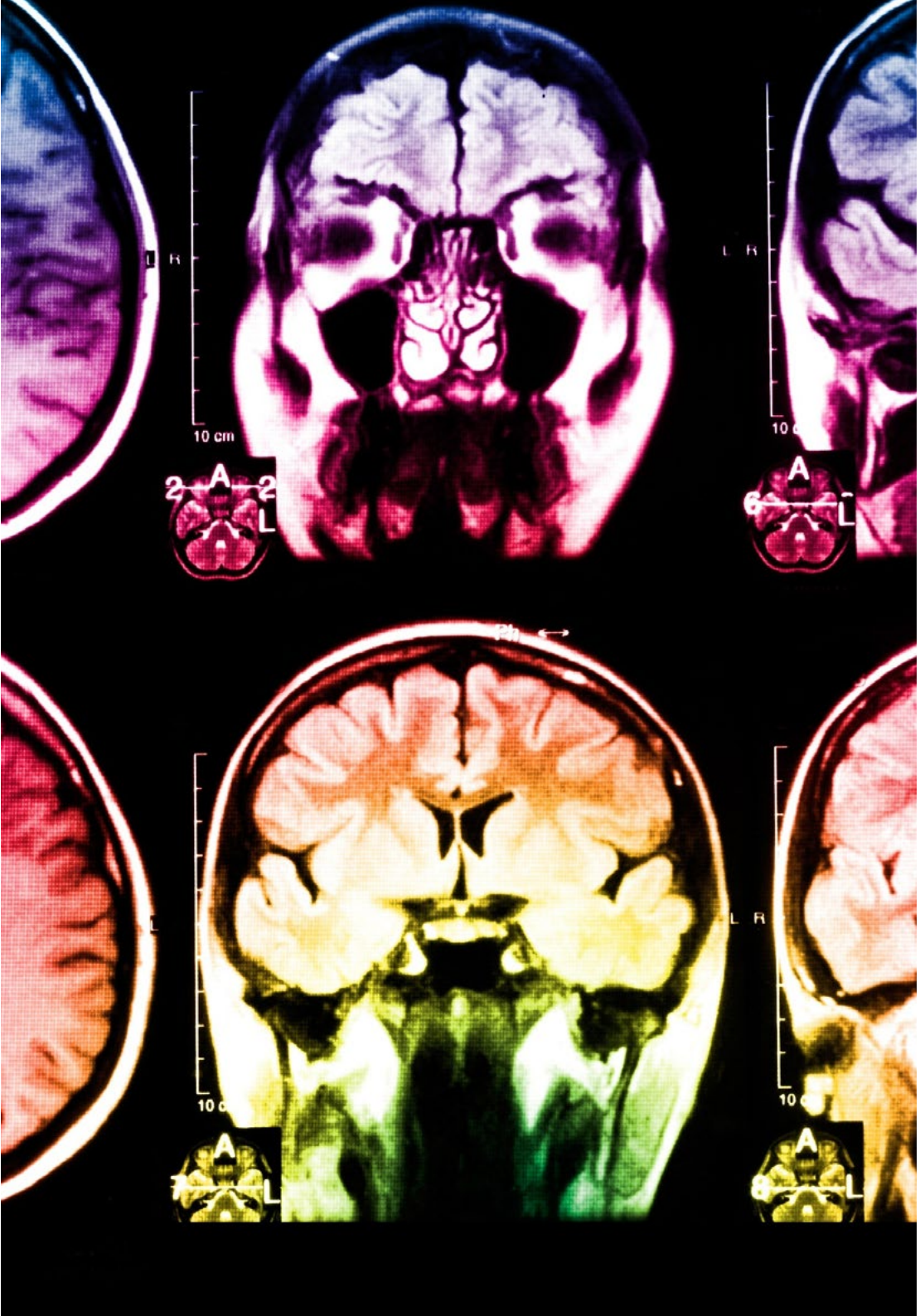
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

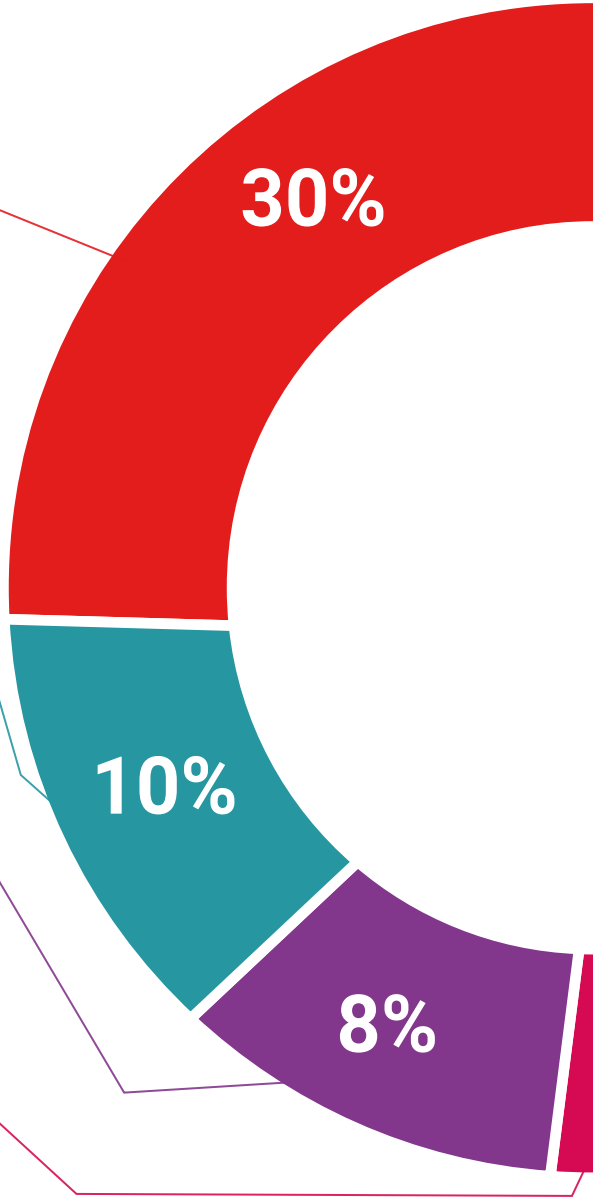
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

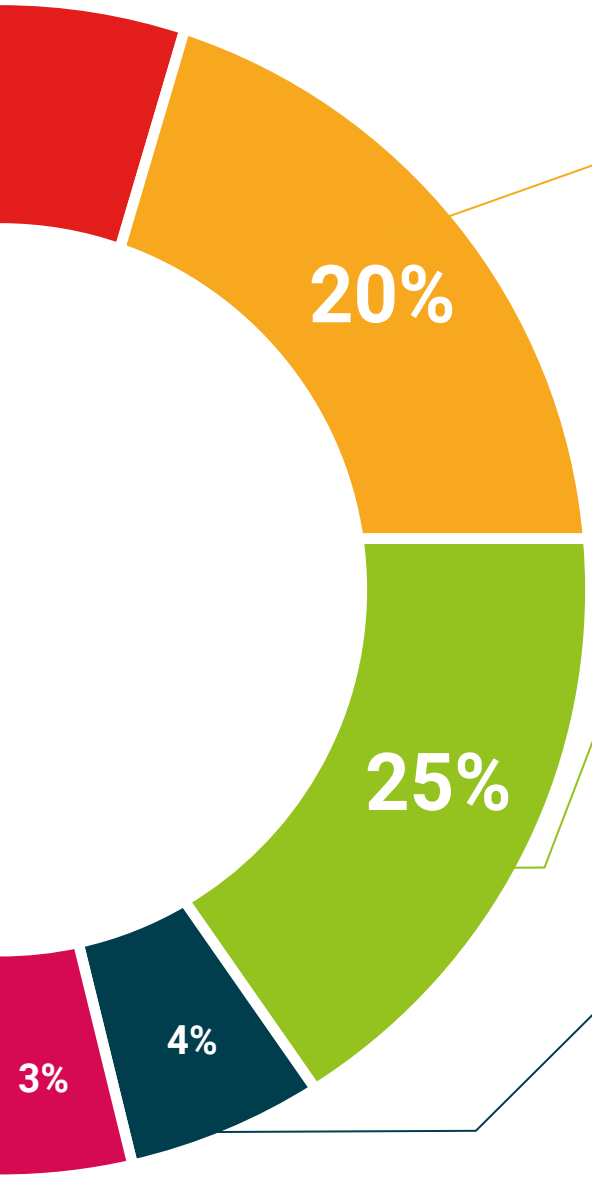
Practising Skills and Abilities

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.

10

Certificate

The Hybrid Master's Degree in Infrastructure and Civil Engineering guarantees students, in addition to the most rigorous and up-to-date education, access to a Hybrid Master's Degree issued by TECH Global University.

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

This private qualification will allow you to obtain a **Hybrid Master's Degree in Infrastructure and Civil Engineering** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra (***official bulletin***). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Hybrid Master's Degree in Infrastructure and Civil Engineering**

Modality: **Hybrid (Online + Internship)**

Duration: **12 months**

Accreditation: **60 + 4 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Hybrid Master's Degree in Infrastructure and Civil Engineering

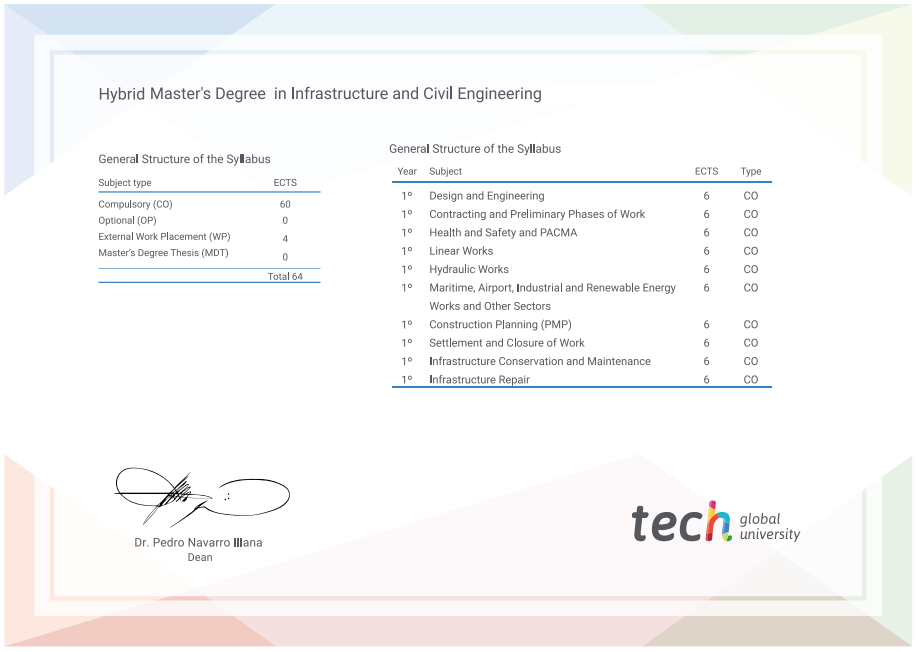
This is a private qualification of 1,920 hours of duration equivalent to 64 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
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


Hybrid Master's Degree in Infrastructure and Civil Engineering

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	4
Master's Degree Thesis (MDT)	0
	Total 64

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Design and Engineering	6	CO
1º	Contracting and Preliminary Phases of Work	6	CO
1º	Health and Safety and PACMA	6	CO
1º	Linear Works	6	CO
1º	Hydraulic Works	6	CO
1º	Maritime, Airport, Industrial and Renewable Energy Works and Other Sectors	6	CO
1º	Construction Planning (PMP)	6	CO
1º	Settlement and Closure of Work	6	CO
1º	Infrastructure Conservation and Maintenance	6	CO
1º	Infrastructure Repair	6	CO

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Dean

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

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