Postgraduate Certificate
Design and Engineering

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Postgraduate Certificate
Design and Engineering

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

Website: **www.techtitute.com/in/engineering/postgraduate-certificate/design-engineering**

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01

Introduction

The student will learn about the latest tools for the design of engineering works from leading professionals in the field. A study of the highest quality that will elevate you to the forefront of civil engineering. Don't think twice and give your career a boost by joining our alumni community.

Engineers must be aware of the latest advances available to them to design their projects with the latest technology"

This Postgraduate Certificate will provide the student with a global vision of the necessary stages in the design of a project, from the analysis of the problems with the client to the actual drafting of the project. Emphasis will be placed on existing tools on the market in terms of new technologies, drones or software. In this way, we will seek to learn how to optimize resources through the use of state-of-the-art tools.

An important aspect to be addressed in the design and drafting will be the regulatory framework that will apply to each project and in each geographical location, so a review will be made of the main existing international regulations.

In this Postgraduate Certificate, students will learn about the tools in the field of layout, structural calculations, geotechnics, drainage, hydrology and hydraulics, etc., all areas that will be encountered in the drafting of the project. We will also study the latest technologies in the field of topography through the use of drones and the latest advances in the processing of images captured by drones to obtain digital terrain models.

In line with the establishment of engineering professionals at the forefront of the latest advances available to the profession, there will be a review of infrastructure modeling in BIM, giving an overview of what these models encompass and the advances they offer for the integrated management of projects and infrastructure.

It should be noted that since it is a 100% online Postgraduate Certificate, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Certificate in Design and Engineering** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of case studies presented by experts in infrastructure and civil engineering
- The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Special emphasis on innovative methodologies in Design and Engineering
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- Content that is accessible from any fixed or portable device with an Internet connection

The completion of this Postgraduate Certificate will place civil engineering professionals at the forefront of the latest developments in the sector"

This Postgraduate Certificate is the best investment you can make in selecting an up-to-date program in the field of Civil Engineering. We offer you quality and free access to content"

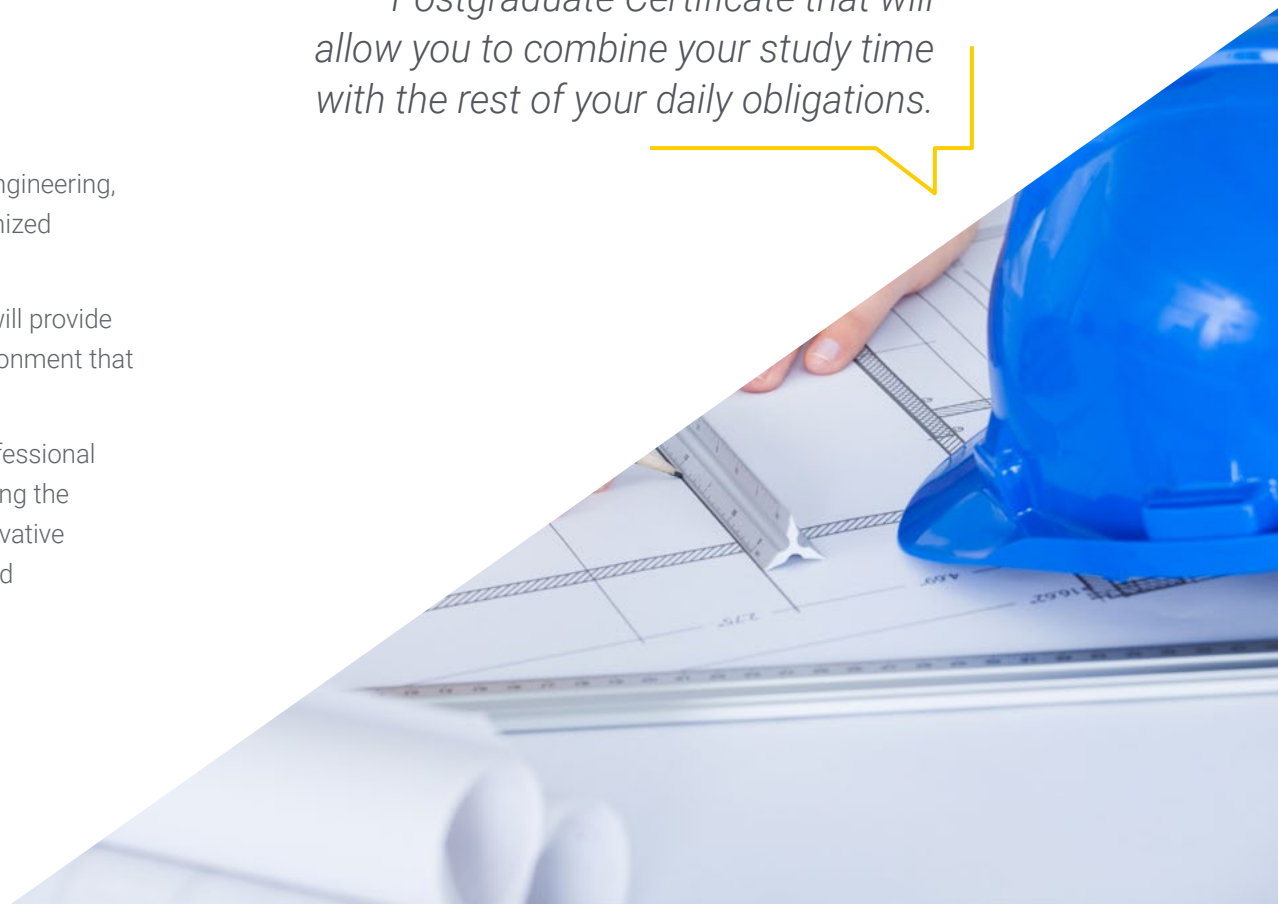
This training comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.

We offer you a 100% online Postgraduate Certificate that will allow you to combine your study time with the rest of your daily obligations.

It includes, in its teaching staff, professionals belonging to the field of civil engineering, who pour into this learning the experience of their work, in addition to recognized 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 training programmed to train 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 during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system developed by renowned and experienced design and engineering experts.



02

Objectives

The Postgraduate Certificate in Design and Engineering is aimed at facilitating the performance of the professional to acquire and learn the main developments in this field, which will allow him to practice his profession with the highest quality and professionalism.

Our goal is to make you the best professional in your sector. And for this we have the best methodology and content"

General Objectives

- Acquire new knowledge in Civil Engineering and Infrastructures
- Acquire new skills in terms of new technologies, latest machinery and software, knowledge of next steps and recycling
- Extrapolate this knowledge to other sectors of the industry, focusing on those fields that require more trained and qualified personnel year after year
- Processing the data generated in Civil Engineering activities, through the BIM environment, a mandatory reality for the drafting, construction, management and operation of infrastructures

Specific Objectives

- 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
- Knowledge of the BIM environment for the drafting of projects

Improving your skills in the field of civil engineering will allow you to be more competitive. Continue your training and give your career a boost"

03

Course Management

TECH has professionals specialized in each field of knowledge, who pour into our programs the experience of their work.

Our university employs the best professionals in all areas who share their knowledge to help you"

Management

Mr. Uriarte Alonso, Mario

- Civil Engineer from the University of Cantabria.
- Professional Master's Degree in Oceanographic Engineering
- 17 years of experience in the field of Construction Management, having worked as a construction manager in projects such as highways, airports, ports, canals, railways and hydroelectric works.
- In the engineering field, he is the CEO of Candois Ingenieros Consultores SL., a business dedicated to the drafting of projects and construction management.

Mr. Torres Torres, Julián

- Civil Engineer from the University of Cantabria.
- Professional Master's Degree in Oceanographic Engineering
- 17 years of experience in the field of Construction Management, having worked as a construction manager in projects such as highways, airports, ports, canals, railways and hydroelectric works.
- In the engineering field, he is the CEO of Candois Ingenieros Consultores SL., a business dedicated to the drafting of projects and construction management.

04

Structure and Content

The structure of the contents has been designed by the best professionals in the civil engineering sector, with extensive experience and recognized prestige in the profession, and aware of the benefits that the latest educational technology can bring to higher education.

We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"

Module 1. Design and Engineering

1.1. Stages in the Design and Engineering of a Project
- 1.1.1. Analysis of Problems
- 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. Pre-Engineering
- 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. Regulatory Framework.
- 1.5.1. General Regulations
- 1.5.2. Structural Design Regulations
- 1.5.3. Environmental Regulations
- 1.5.4. Water Regulations

1.6. Pre-start-up Engineering
- 1.6.1. Site or Layout Study
- 1.6.2. Study of Typologies to Be Used
- 1.6.3. Pre-Packaging Study of the Solution
- 1.6.4. Realization of the Project Model
- 1.6.5. Adjusted Economic Analysis of the Project

1.7. Analysis of the Tools to Be Used
  1.7.1. Personal Team in Charge of the Work
  1.7.2. Equipment Materials Necessary
  1.7.3. Software Required for the Drafting of the Project
  1.7.4. Subcontracting Necessary for the Drafting of the Project
1.8. Field Work Topography and Geotechnics
  1.8.1. Determination of the Necessary Surveying Works
  1.8.2. Determination of Geotechnical Works Required
  1.8.3. Subcontracting Surveying and Geotechnical Works
  1.8.4. Follow-up of Topography and Geotechnical Works
  1.8.5. Analysis of Results of Topography and Geotechnical Works
1.9. Drafting of the Project
  1.9.1. DIA Newsroom
  1.9.2. Drafting and Calculation Solution Geometric Definition (1)
  1.9.3. Drafting and Calculation of Structural Calculation Solution (2)
  1.9.4. Drafting and Calculation Solution Adjustment Phase (3)
  1.9.5. Drafting of Annexes
  1.9.6. Drawing up of Plans
  1.9.7. Drafting of Specifications
  1.9.8. Budget Preparation
1.10. BIM Model Implementation in Projects
  1.10.1. BIM Model Concept
  1.10.2. BIM Model Phases
  1.10.3. Importance of the BIM Model
  1.10.4. The Need for BIM for the Internationalization of Projects

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"

You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.

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

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

> *Our program prepares you to face new challenges in uncertain environments and achieve success in your career"*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

Relearning Methodology

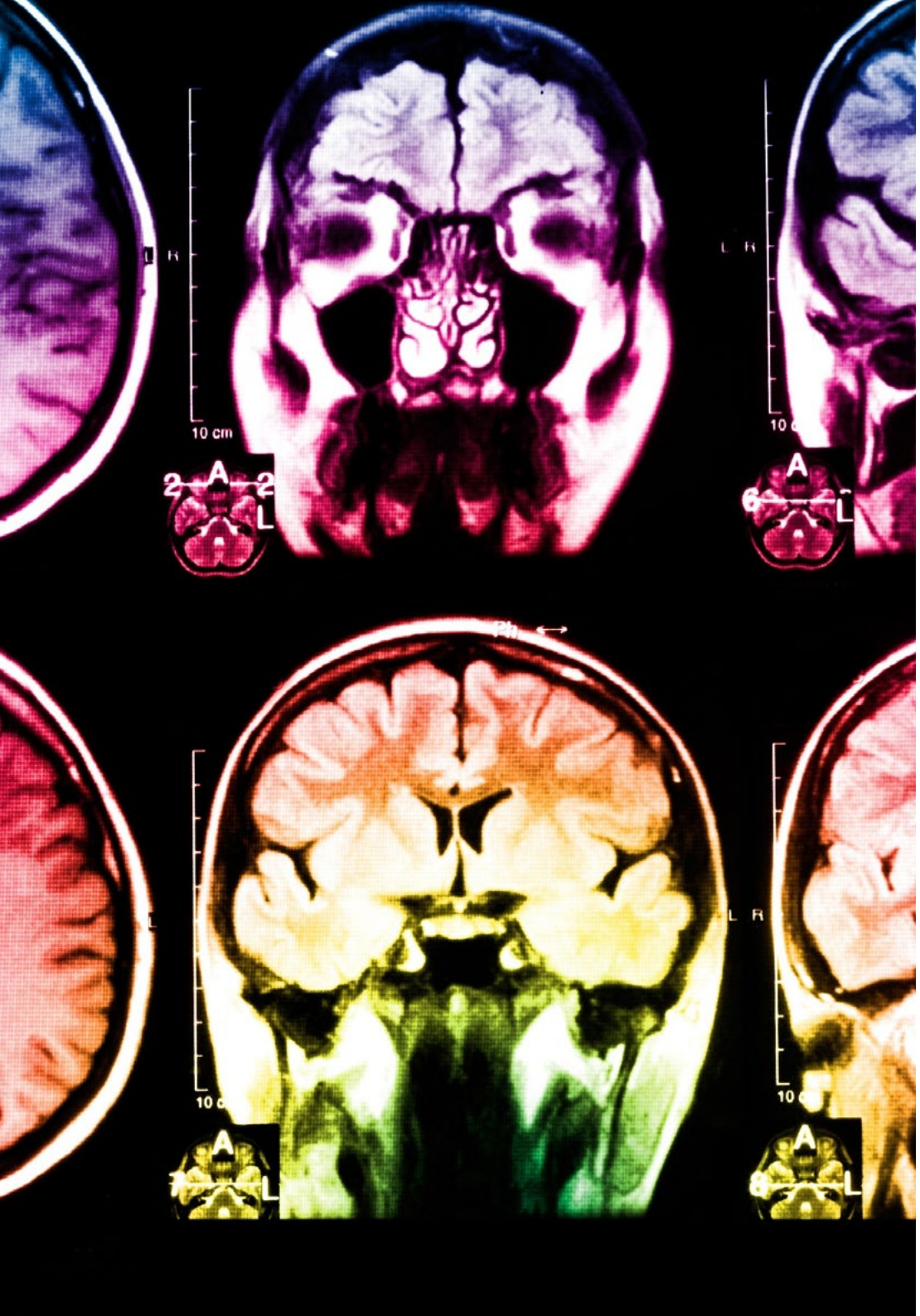
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

In 2019, we obtained the best learning results of all online universities in the world.

At TECH, you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.



In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically. This methodology has trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, and financial markets and instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

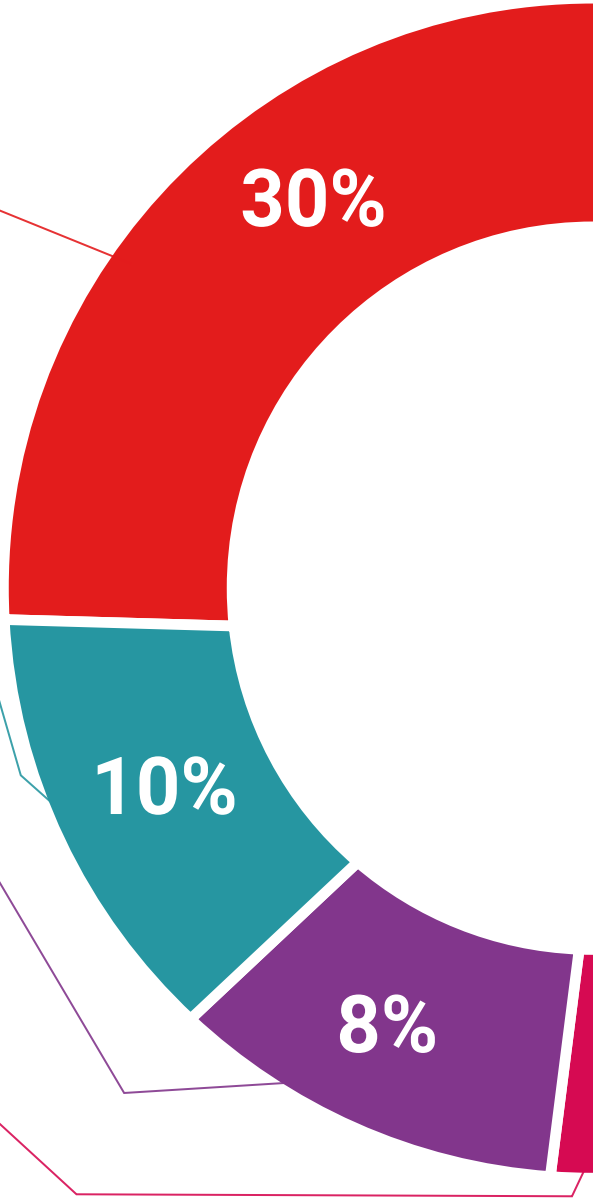
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

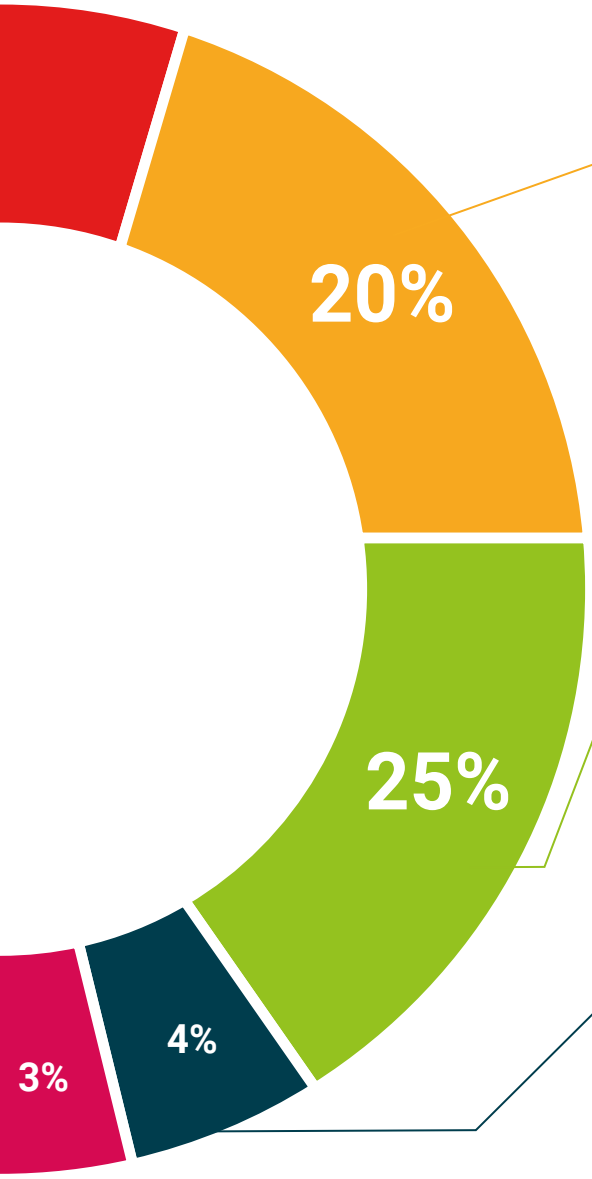
Practising Skills and Abilities

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

06

Certificate

The Postgraduate Certificate in Design and Engineering guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.

Successfully complete this program and receive your university title without the hassle of travel or cumbersome paperwork

This **Postgraduate Certificate in Design and Engineering** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Certificate in Design and Engineering**

Official Nº of Hours: **150 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Design and Engineering

This is a qualification awarded by this University, equivalent to 150 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

*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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