Postgraduate Certificate
Estimation

tech technological university

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Postgraduate Certificate
Estimation

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

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

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01

Introduction

In a world in constant evolution, data analysis is an indispensable tool for decision making. That is why this program in Estimation offers an up-to-date and complete education in this field. Therefore, in an increasingly competitive business environment, the engineer needs to have the skills to interpret and analyze data with rigor and precision, and this program provides the necessary tools to do so. In addition, the program is taught in a 100% online format, which allows participants to access it from anywhere and at any time. It is also based on the Relearning methodology, which facilitates meaningful learning and long-term knowledge retention.

You will be able to download all the content to any electronic device from the Virtual Campus and access it whenever you need it, even without an Internet connection"

The field of engineering is one of the fields that benefits most from data analysis and statistics, and estimation is one of the key tools for informed decision making in project pre-design and analysis. Therefore, a solid education in this area becomes a necessity for any engineer who wishes to advance in their professional career and stand out in the job market.

The Postgraduate Certificate in Estimation for Predesign and Analysis offers all the specialized knowledge in the different techniques and specialized knowledge in the different techniques and methods used in parameter estimation, providing engineers with the necessary skills to analyze and make informed decisions at the design and analysis stage of projects. Therefore, the program adapts to the current needs of the market, providing first level information to students on topics such as statistical inference, point and interval estimation, and procedures for the construction of estimators, among others.

For this reason, TECH has designed a program is developed in 100% online format, which allows students to access all content from anywhere and at any time, adapting to the needs of professionals who wish to continue their instruction without giving up their work activity. In addition, it uses the Relearning methodology, which allows a natural and progressive integration of the fundamental concepts, through repetition and presentation in different audiovisual supports.

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

- The development of case studies presented by experts in Applied Statistics
- The graphic, schematic and eminently practical contents with which it is conceived provide sporting and practical information on those disciplines that are essential for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Its special emphasis on innovative methodologies
- 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

Distribute the teaching load according to your personal needs and make the university qualification compatible with professional work”

Motivational videos, case studies, graphical and schematic content, discussion forums... Everything you need to take a leap forward in your career. Don't wait any longer"

Delve into the procedures for the construction of estimators, delving into the maximum likelihood methods.

Combine your personal and work responsibilities with your studies thanks to this Postgraduate Certificate. 100% flexible and online.

The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading 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 programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The content and structure of this syllabus has been designed by the prestigious professionals that conform the expert team of TECH in Estimation. These specialists have used their extensive experience and state-of-the-art knowledge to create practical and completely up-to-date content. All this, based on the most efficient pedagogical methodology, TECH Relearning.

Expand your skills in the types of confidence intervals and their properties through the most innovative theoretical and practical methodology in the online academic market"

General Objectives

- Provide the graduate with the latest and most exhaustive information on Computational Statistics, which will help them to specialize in this field reaching the highest level of knowledge
- Provide them with everything necessary to acquire a professional mastery of the main tools in this field through the resolution of use cases based on real and frequent situations in the industry

Specific Objectives

- Become familiar with the methods of statistical inference: estimations
- Apply "statistical thinking" and deal with the different stages of a statistical study (from the problem statement to presenting results)
- Become familiar with the methods of statistical inference: hypothesis contrasting
- Choose and use the most appropriate estimation method in an investigation according to its objectives

You will develop the specific skills and knowledge most valued in the industry to boost your professional success"

03

Structure and Content

The syllabus that composes this program has been elaborated by experts in Estimation. Therefore, they have included 300 hours of the best theoretical, practical and additional content presented in different audiovisual formats. In addition, with TECH's exclusive revolutionary methodology, Relearning, the graduate will delve into statistics in a natural and progressive way. All of this is presented in a flexible and fully online format, allowing the student to acquire the most advanced tools from any device with an Internet connection and access to the virtual campus 24 hours a day.

The most complete and up-to-date syllabus on the market is at your disposal thanks to this Postgraduate Certificate through 100% online learning"

Module 1. Estimations I

1.1. Introduction to Inference Statistics
- 1.1.1. What Is Inference Statistics?
- 1.1.2. Examples

1.2. General concepts
- 1.2.1. Population
- 1.2.2. Sample
- 1.2.3. Sampling
- 1.2.4. Parameter

1.3. Statistical Inference Classification
- 1.3.1. Parametric
- 1.3.2. Non-Parametric
- 1.3.3. Classical Approach
- 1.3.4. Bayesian Approach

1.4. Statistical Inference Objective
- 1.4.1. What Objectives?
- 1.4.2. Statistical Inference Applications

1.5. Distributions Associated with Normal Distribution
- 1.5.1. Chi-Squared
- 1.5.2. T-Student
- 1.5.3. F- Snedecor

1.6. Introduction to Point Estimation
- 1.6.1. Definition of Simple Random Sample
- 1.6.2. Sample Space
- 1.6.3. Statistics and Estimators
- 1.6.4. Examples

1.7. Properties of Estimators
- 1.7.1. Sufficiency and Completeness
- 1.7.2. Factorization Theorem
- 1.7.3. Unbiased and Asymptotically Unbiased Estimators
- 1.7.4. Mean Square Error
- 1.7.5. Efficiency
- 1.7.6. Consistent Estimators
- 1.7.7. Estimating Mean, Variance, and Proportion of a Population

1.8. Procedures to Build Estimators
- 1.8.1. Method of Moments
- 1.8.2. Maximum Likelihood Method
- 1.8.3. Properties of Maximum Likelihood Estimators

1.9. Introduction to Interval Estimation
- 1.9.1. Introduction to the Definition of Confidence Interval
- 1.9.2. Pivotal Quantity Method

1.10. Types of Confidence Intervals and their Properties
- 1.10.1. Confidence Intervals for the Mean of a Population
- 1.10.2. Confidence Interval for the Variance of a Population
- 1.10.3. Confidence Intervals for Proportions
- 1.10.4. Confidence Intervals for the Difference of Population Means. Independent Normal Populations. Paired Samples
- 1.10.5. Confidence Interval for the Variance Ratio of Two Independent Normal Populations
- 1.10.6. Confidence Interval for the Difference of Proportions of Two Independent Populations
- 1.10.7. Confidence Interval for a Parameter based on its Maximum Likelihood Estimator
- 1.10.8. Use of a Confidence Interval to Reject Hypotheses or Not

Module 2. Estimations II

2.1. Introduction to Hypothesis Contrasting
- 2.1.1. Problem Statement
- 2.1.2. Null and Alternative Hypothesis
- 2.1.3. Contrast Statistics
- 2.1.4. Types of Error
- 2.1.5. Level of Significance
- 2.1.6. Critical Region. p-value
- 2.1.7. Power

2.2. Types of Hypothesis Contrasting
- 2.2.1. Likelihood Ratio Test
- 2.2.2. Contrasts on Means and Variances in Normal Populations
- 2.2.3. Contrasts on Proportions
- 2.2.4. Relationship between Confidence Intervals and Hypothesis Contrasting

2.3. Introduction to Bayesian Inference
- 2.3.1. A Priori Distributions
- 2.3.2. Conjugate Distributions
- 2.3.3. Reference Distributions

2.4. Bayesian Estimation
- 2.4.1. Point Estimation
- 2.4.2. Estimation of an Proportion
- 2.4.3. Mean Estimate in Normal Populations
- 2.4.4. Comparison to Classical Methods

2.5. Introduction to Non-Parametric Inference Statistics
- 2.5.1. Non-Parametric Statistical Methods: Concepts
- 2.5.2. Use of Non-Parametric Statistics

2.6. Non-Parametric Inference Compared to Parametric Inference
- 2.6.1. Differences between Inferences

2.7. Goodness-of-Fit Test
- 2.7.1. Introduction
- 2.7.2. Graphic Methods
- 2.7.3. Contrast of the Goodness-of-Fit Equation
- 2.7.4. Kolmogorov-Smirnov Test
- 2.7.5. Normality Contrasts

2.8. Independence Contrasts
- 2.8.1. Introduction
- 2.8.2. Randomness Contrasts. Contrast of Spurts
- 2.8.3. Independence Contrasts in Paired Samples
  - 2.8.3.1. Kendall's Contrast
  - 2.8.3.2. Spearman's Ranks Contrast
  - 2.8.3.3. Independence Chi-Square Test
  - 2.8.3.4. Generalization of the Chi-Square Contrast
- 2.8.4. Independence Contrasts in K Related Samples
  - 2.8.4.1. Generalization of the Chi-Square Contrast
  - 2.8.4.2. Kendall's Coefficient of Concordance

2.9. Position Contrast
- 2.9.1. Introduction
- 2.9.2. Position Contrasts for a Single Sample and Paired Samples
  - 2.9.2.1. Sign Test for a Single Sample. Median Test
  - 2.9.2.2. Sign Test for Paired Samples
  - 2.9.2.3. Wilcoxon Signed-Rank Test for a Single Sample
  - 2.9.2.4. Wilcoxon Signed-Rank Test for Paired Samples
- 2.9.3. Non-Parametric Contrasts for Two Independent Samples
  - 2.9.3.1. Wilcoxon-Mann-Whitney's Test
  - 2.9.3.2. Median Test
  - 2.9.3.3. Chi-Square Contrast
- 2.9.4. Position Contrasts for K Independent Samples
  - 2.9.4.1. Kruskal-Wallis Test
- 2.9.5. Independence Contrasts in K Related Samples
  - 2.9.5.1. Friedman's Test
  - 2.9.5.2. Cochran Q Test
  - 2.9.5.3. Kendall W Test

2.10. Homogeneity Contrast
- 2.10.1. Homogeneity Contrasts for Two Independent Samples
  - 2.10.1.1. Wald-Wolfowitz Contrast
  - 2.10.1.2. Kolmogorov-Smirnov Test
  - 2.10.1.3. Chi-Square Contrast

A syllabus in which the contents are presented in an attractive and dynamic way to turn you into a high-level engineer"

04

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

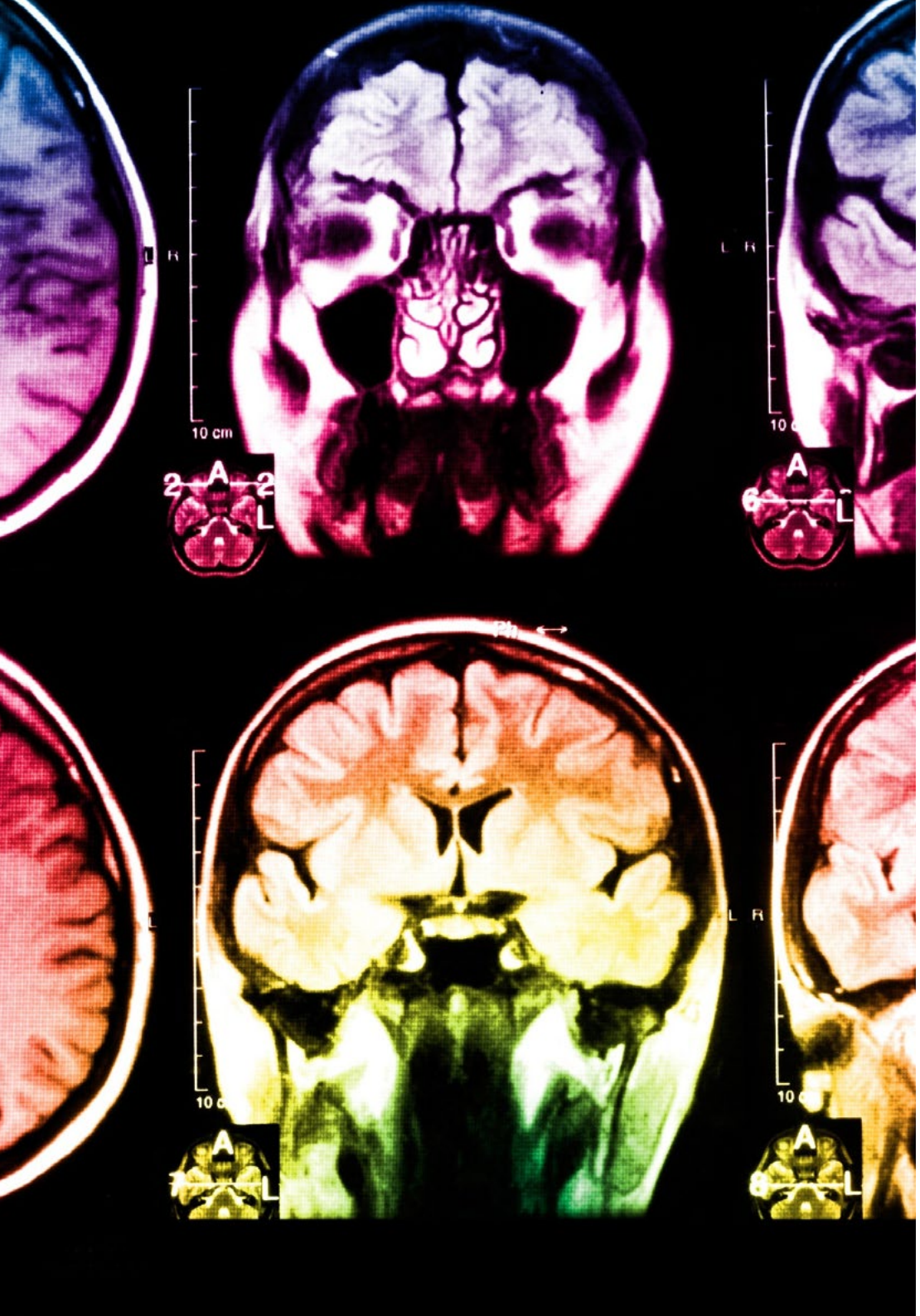
TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

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.

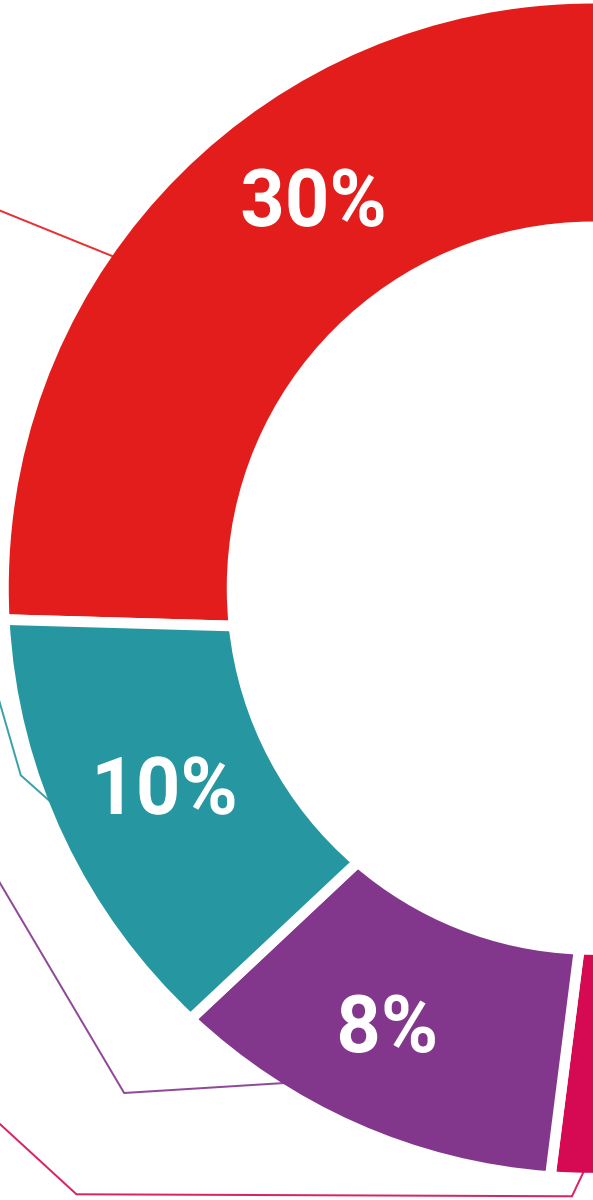
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

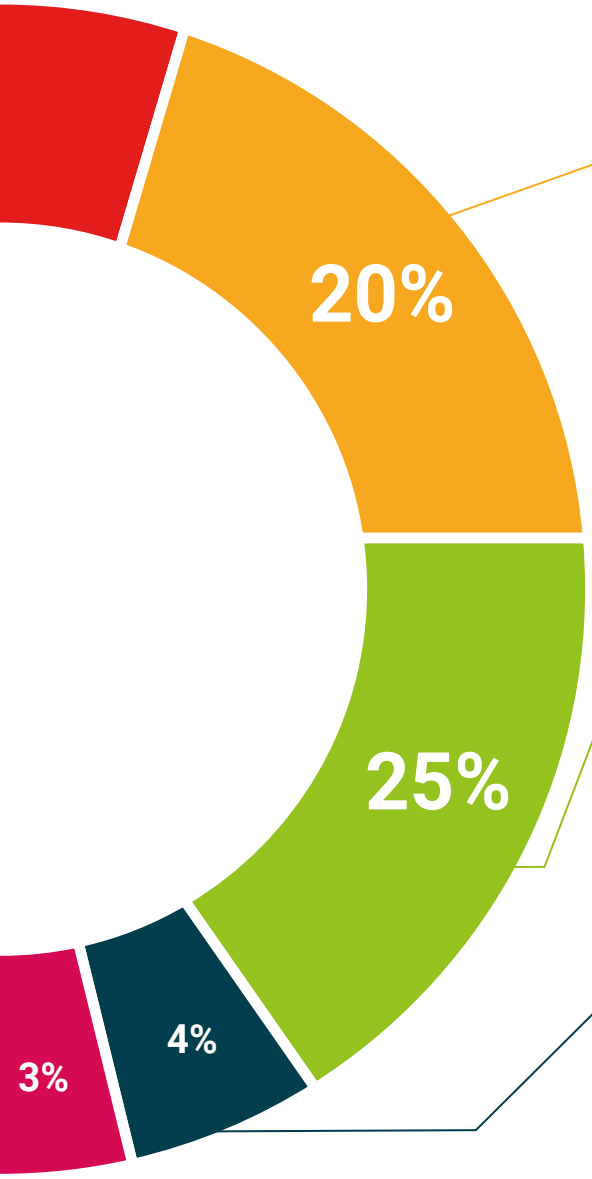
Practising Skills and Abilities

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.

05

Certificate

The Postgraduate Certificate in Estimation guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.

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

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

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

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

Title: **Postgraduate Certificate in Estimation**

Official Nº of Hours: **300 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

Estimation

This is a qualification awarded by this University, equivalent to 300 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.

Postgraduate Certificate
Estimation

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

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