

# Postgraduate Certificate Estimation I



## Postgraduate Certificate Estimation I

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

Website: [www.techtitute.com/in/engineering/postgraduate-certificate/estimation-i](http://www.techtitute.com/in/engineering/postgraduate-certificate/estimation-i)

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01

# Introduction

Nowadays, estimation is an essential tool for decision making in business, science and technology, and its importance will continue to increase in the coming years. Therefore, the program focuses on providing a solid teaching in statistical inference, with a focus on point and interval estimation, and on the properties of estimators. In addition, the different distributions associated with the normal distribution and procedures for the construction of estimators, such as the method of moments and maximum likelihood, are explored. All this is developed in a 100% online format, using the Relearning methodology, which allows a flexible adaptation to the pace and needs of each student.





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*Take advantage of the unique opportunity for professional and personal growth offered exclusively by this TECH Postgraduate Certificate”*

Engineering is a constantly evolving and increasingly demanding field in terms of required competencies and skills. Among them, the ability to analyze and make decisions based on accurate and reliable data stands out. Statistical estimation is a key tool to achieve this goal, which makes updating in this field a must for any engineer who aspires to excel in their professional career.

Based on this and taking as a reference the latest advances in Estimation, TECH and its team of specialists in Applied Statistics have developed this very complete Postgraduate Certificate in Estimation. In it, engineers will be able to delve into the different techniques and methods used in the estimation of parameters to analyze and make informed decisions in the pre-design and analysis stage of projects. In this way, the program responds to current market needs, providing students with solid knowledge in statistical inference, point and interval estimation, and procedures for the construction of estimators, among others.

Therefore, in just 6 weeks of multidisciplinary education, you will be able to perfect your professional skills through a program that includes the latest developments in the industry. Likewise, the graduate will have access to use cases and additional high quality material such as detailed videos, additional readings, self-knowledge exercises and much more. Everything will be available on the Virtual Campus from the beginning of the academic experience and will be accessible from any device with an Internet connection. This allows you to specialize by distributing your course load according to your other obligations, from the convenience of a fully online qualification.

This **Postgraduate Certificate in Estimation I** 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



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

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*Give a significant boost to your professional career by including this Postgraduate Certificate in your Resume”*

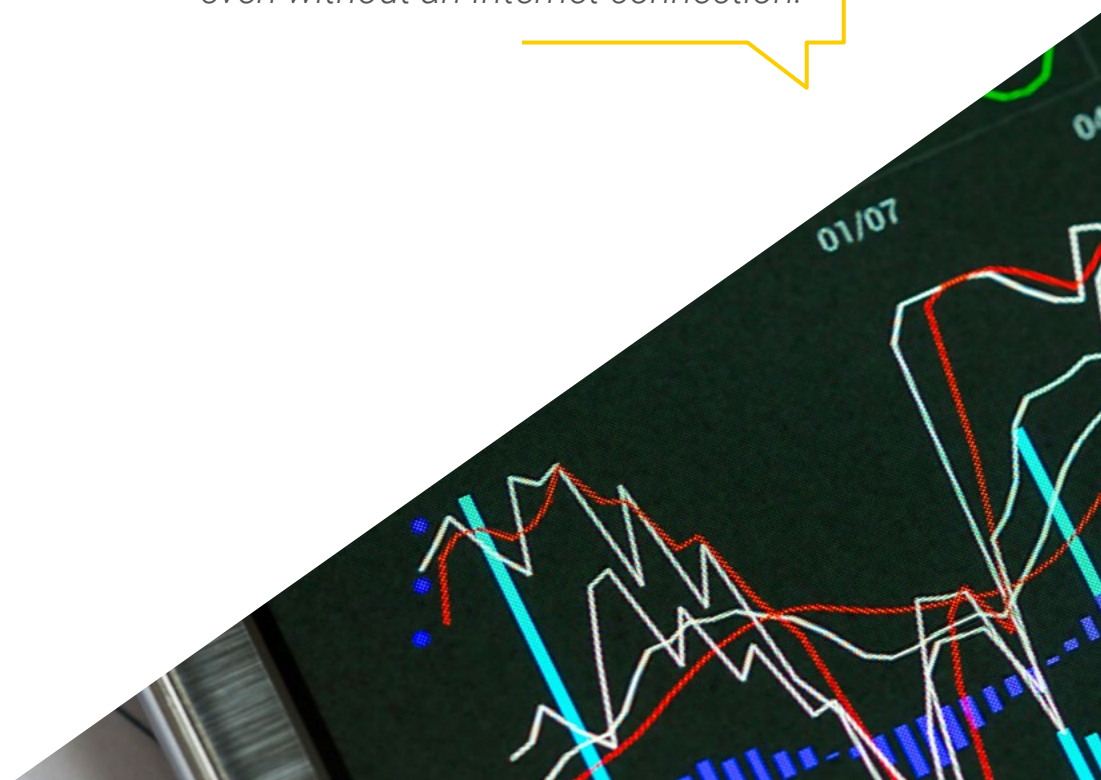
The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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.

*With the Relearning methodology you will acquire the knowledge in a progressive way and with total flexibility. A program that fits you.*

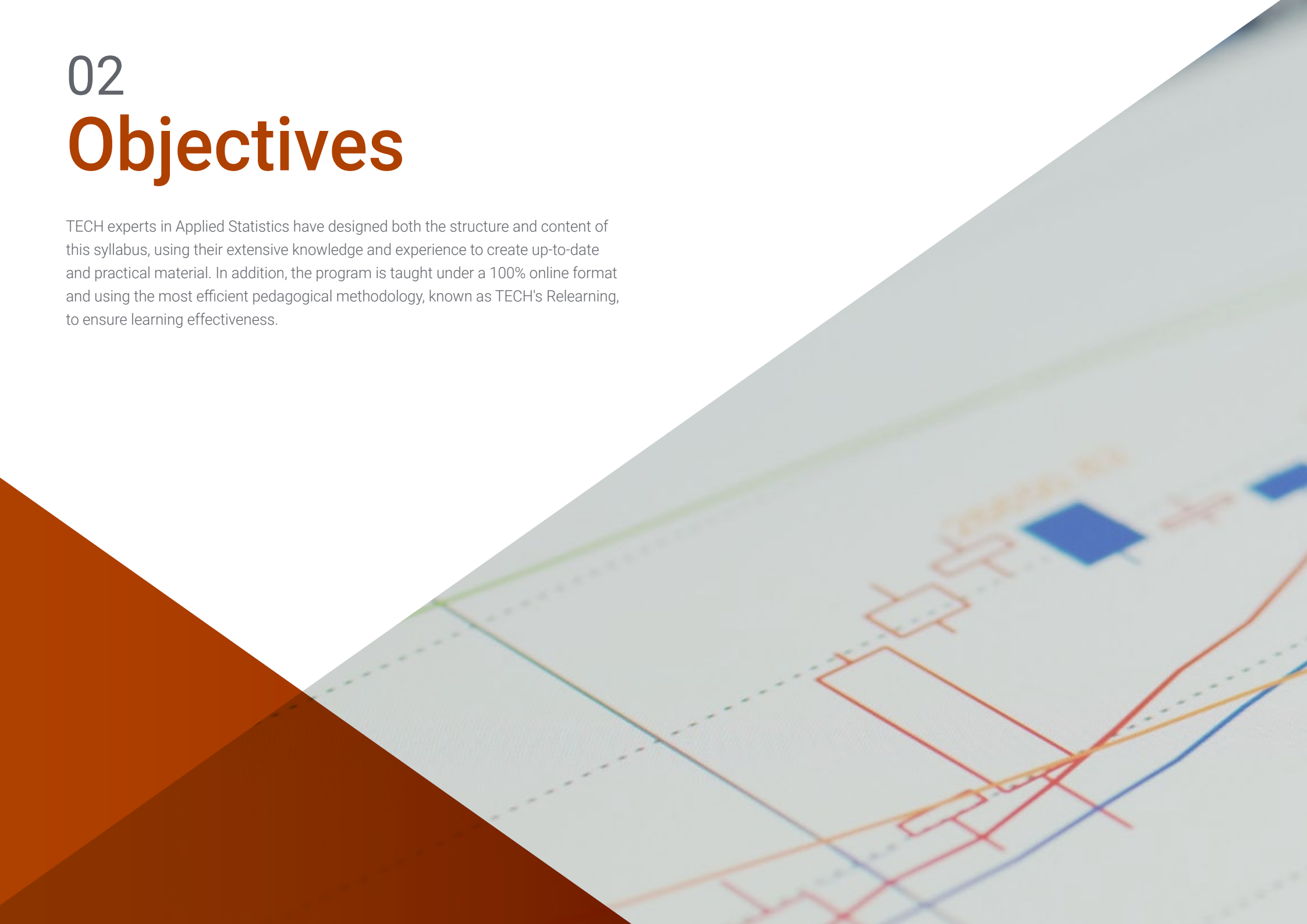
*You will be able to download all the content to any electronic device from the Virtual Campus and consult it whenever you need it, even without an Internet connection.*



02

# Objectives

TECH experts in Applied Statistics have designed both the structure and content of this syllabus, using their extensive knowledge and experience to create up-to-date and practical material. In addition, the program is taught under a 100% online format and using the most efficient pedagogical methodology, known as TECH's Relearning, to ensure learning effectiveness.





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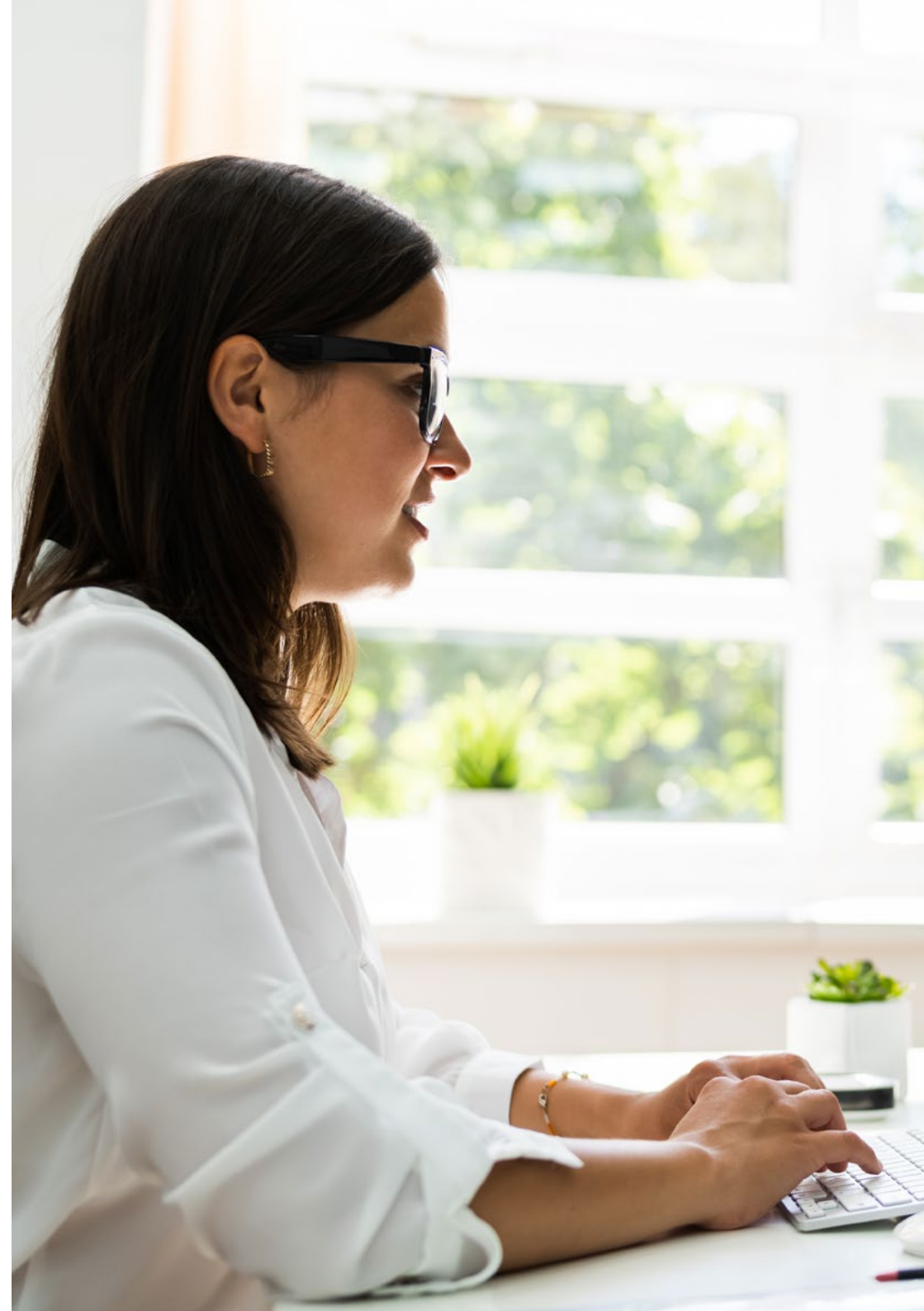
*Motivational videos, case studies, graphic and schematic content, discussion forums... Everything you need to take a leap in your career. Don't wait any longer to reach your goals”*



## General Objectives

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- ◆ 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

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- ◆ 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)



*Achieve your objectives and goals thanks to an in-depth mastery of the different stages of a statistical study”*

03

# Structure and Content

TECH has designed a comprehensive syllabus for the Postgraduate Certificate in Estimation I. Therefore, this first level academic qualification represents a highly relevant training for engineers who wish to improve their skills in project management and decision making. Through this program, participants will learn to develop accurate and realistic estimates, which will enable them to plan effectively and optimize the use of resources.





“

*An avant-garde methodology with an innovative and different learning method”*

## Module 1. Estimation 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

“Recent articles, consensus documents, international guides..., in TECH's virtual library you will have access to everything you need to complete your program”

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.

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





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

This **Postgraduate Certificate in Estimation I** 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 I**

Official N° of Hours: **150 h.**



\*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.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



## Postgraduate Certificate Estimation I

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

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