Postgraduate Certificate
Application of Statistics to Industry

tech *technological university*

Postgraduate Certificate
Application of Statistics to Industry

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

Website: **www.techtitute.com/pk/engineering/postgraduate-certificate/application-statistics-industry**

Index

01
Introduction

The application of statistical techniques has become essential to improve efficiency and reduce production costs. In that sense, and taking into account that it is an increasingly competitive market, it is advantageous to skilled engineers, helping their companies to be more competitive. As a result, these professionals are increasingly in demand by organizations. For this reason, TECH has designed this program in which the student will learn about flow distribution at minimum cost, as well as the applications of graphs. All of this is taught in a 100% online format and through the Relearning methodology, which allows students to study at their own pace and adapt to their busy schedules.

The best program in the current academic landscape to delve into adjacency and incidence matrices 100% online"

The application of statistics in industry is essential for engineers to make decisions based on data and not on assumptions or intuitions. When it comes to production, informed decision making is key to ensuring efficiency and quality of the final product. Statistics allows engineers to collect accurate data and analyze it to identify patterns and trends, which facilitates informed decisions based on production realities.

Precisely for this reason, companies are increasingly demanding professionals capable of establishing the differences and advantages between PERT and CPM methods. This degree is designed to provide engineers with the skills and knowledge necessary to apply statistical techniques in industry and improve the quality of production. Throughout the curriculum, the professional will delve into topics such as descriptive statistics, inferential statistics, design and analysis of experiments, and quality control.

In addition, the program is offered 100% online and employs the Relearning methodology, which allows students to adjust their learning to their own pace and work schedules. At the end of the program, graduates will be able to apply this knowledge in their work and contribute to business growth, which will enable them to increase their company's competitiveness in the market and qualify for salary and professional improvements.

This **Postgraduate Certificate in Application of Statistics to Industry** 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 practical contents with which they are created, provide practical information on the disciplines that are essential for professional practice

♦ Practical exercises where self-assessment can be used 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

You will gain in-depth knowledge of flow distribution at minimum cost with this unique educational program"

"

The Online Campus is fully compatible with any device with an iIternet connection, so you can take this Postgraduate Certificate from wherever you want and whenever you want, without limits or schedules"

Distribute the course load according to your personal needs and make the university degree compatible with professional work.

Motivational videos, case studies, graphic and schematic contents, discussion forums... Everything you need to jump-start your career. Don't wait any longer.

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.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

02
Objectives

Statistics is a crucial element in the current economic environment and is an indispensable tool for the optimal development of markets and entities. For this reason, TECH has launched a program that allows graduates to deepen their knowledge of new developments and specialize in the mastery of their strategies and software. The objective of this educational program is to provide all the necessary material to achieve this goal, through a cutting-edge and intensive academic experience that will take your talent to the highest level in the industry.

" *Upgrade your skills in applications with duration of random activities through the most innovative theoretical-practical methodology of the online academic market"*

General Objectives

- Provide graduates with the latest and most exhaustive information on Computational Statistics, which will help them specialize in the field and reach the highest level of knowledge

- Provide them with everything necessary to acquire a professional mastery of the main tools used in the field through use cases based on real and frequent situations that arise in the industry

Do you need to master graphs to boost your career? This Postgraduate Certificate is just what you need"

Specific Objectives

- Apply and understand queuing theory
- Study deterministic and random models for decision-making in real projects and inventory planning systems
- Learn and understand statistical techniques for project management in Pert and CPM
- Identify common inventory models, analyze them and interpret the results
- Understand and apply specific prediction methods for one or more variables in situations where traditional methods offer problems of a theoretical nature
- Get to know the different regression processes used in prediction

03

Structure and Content

The team in charge of designing the syllabus of this program is composed of experts in the field of Engineering, specifically in Applied Statistics. Thanks to its experience, TECH has developed a rigorous and intensive program that covers all the knowledge necessary to acquire skills in this discipline in just 12 weeks. In addition to the extensive syllabus, hours of additional materials have been included so that students can customize their learning according to their level of demand. All of this is presented in an easy-to-use online format that is compatible with any internet-connected device.

You will learn about grpahs from different audiovisual supports so that you can integrate the knowledge in a natural way and without the need to memorize"

Module 1. Application of Statistics to Industry

1.1. Queuing Theory
    1.1.1. Introduction
    1.1.2. Queuing Systems
    1.1.3. Measures of Effectiveness
    1.1.4. Poisson Processes
    1.1.5. Exponential Distributions
    1.1.6. Birth and Death Processes
    1.1.7. Queuing Models with One Server
    1.1.8. Models with Multiple Servers
    1.1.9. Capacity-Limited Queuing Models
    1.1.10. Finite Source Models
    1.1.11. General Models

1.2. Introduction to Graph Theory (Graphs)
    1.2.2. Basic Concepts
    1.2.3. Oriented and Non-Oriented Graphs
    1.2.4. Array Representations: Adjacency and Incidence Arrays

1.3. Graph Applications
    1.3.1. Trees: Properties
    1.3.2. Rooted Trees
    1.3.3. Deep Search Algorithm
    1.3.4. Application to Block Determination
    1.3.5. Wide Search Algorithm
    1.3.6. Minimum Weight Overlay Tree

1.4. Paths and Distances
    1.4.1. Distance in Graphs
    1.4.2. Critical Path Algorithm

1.5. Maximum Flow
    1.5.1. Transport Networks
    1.5.2. Minimum Cost Flow Distribution

1.6. Program Evaluation and Review Technique (PERT)
    1.6.1. Definition
    1.6.2. Method
    1.6.3. Applications

1.7. Critical Path Method (CPM)
    1.7.1. Definition
    1.7.2. Method
    1.7.3. Applications

1.8. Project Management
    1.8.1. Differences and Advantages between PERT and CPM Methods
    1.8.2. Procedure to Draw Network Models
    1.8.3. Applications with Random Durations

1.9. Deterministic Inventories
    1.9.1. Costs Associated with Flows
    1.9.2. Costs Associated with Stocks or Storage
    1.9.3. Costs Associated with Processes. Replenishment Planning
    1.9.4. Inventory Management Models

1.10. Probabilistic Inventories
    1.10.1. Service Level and Safety Stock
    1.10.2. Optimal Order Size
    1.10.3. One Period
    1.10.4. Several Periods
    1.10.5. Continuous Review
    1.10.6. Periodic Review

Module 2. Advanced Prediction Techniques

2.1.   General Linear Regression Model
    2.1.1.   Definition
    2.1.2.   Properties
    2.1.3.   Examples:

2.2.   Partial Least Squares Regression
    2.2.1.   Definition
    2.2.2.   Properties
    2.2.3.   Examples:

2.3.   Principal Component Regression
    2.3.1.   Definition
    2.3.2.   Properties
    2.3.3.   Examples:

2.4.   RRR Regression
    2.4.1.   Definition
    2.4.2.   Properties
    2.4.3.   Examples:

2.5.   Ridge Regression
    2.5.1.   Definition
    2.5.2.   Properties
    2.5.3.   Examples:

2.6.   Lasso Regression
    2.6.1.   Definition
    2.6.2.   Properties
    2.6.3.   Examples:

2.7.   Elasticnet Regression
    2.7.1.   Definition
    2.7.2.   Properties
    2.7.3.   Examples:

2.8.   Non-Linear Prediction Models
    2.8.1.   Non-Linear Regression Models
    2.8.2.   Non-Linear Least Squares
    2.8.3.   Conversion to a Linear Model

2.9.   Parameter Estimation in a Non-Linear System
    2.9.1.   Linearization
    2.9.2.   Other Parameter Estimation Methods
    2.9.3.   Initial Values
    2.9.4.   Computer Programs

2.10.   Statistical Inference in Non-Linear Regression
    2.10.1.   Statistical Inference in Non-Linear La Regression
    2.10.2.   Approximate Inference Validation
    2.10.3.   Examples:

A multidisciplinary and dynamic program, perfect to update your knowledge in the field of Application of Statistics to Industry and combine it with your personal and professional duties"

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.

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.

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

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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.

30%

10%

8%

20%

25%

4%

3%
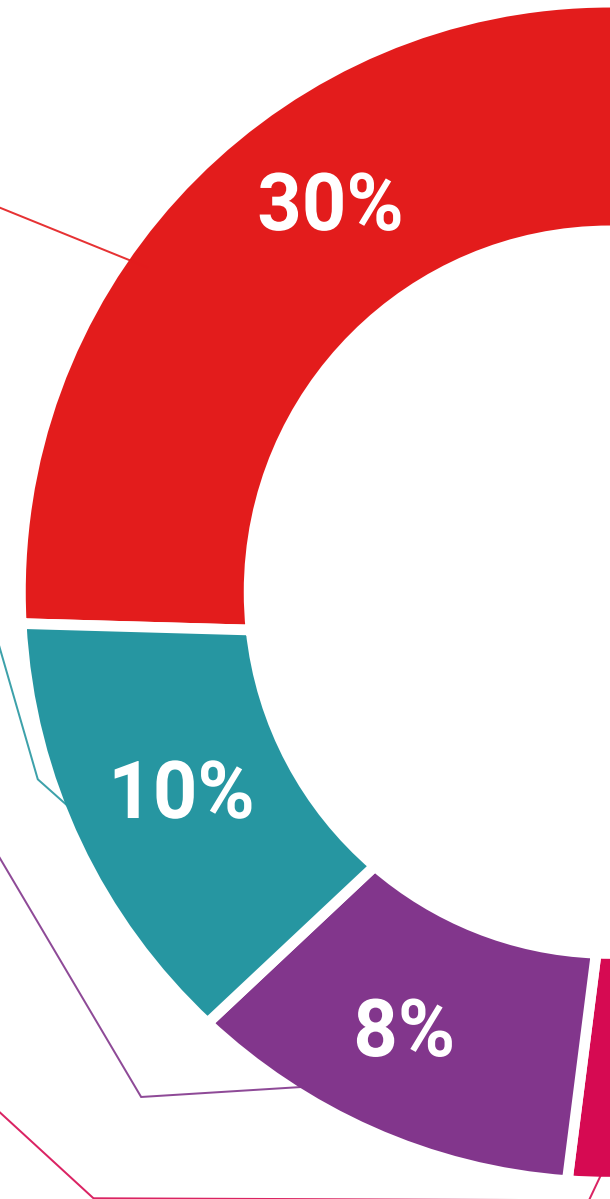
Case Studies

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 Application of Statistics to Industry 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 Application of Statistics to Industry** 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 Application of Statistics to Industry**

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
Application of Statistics to Industry

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.

tech technological university

Postgraduate Certificate
Application of Statistics to Industry

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

Postgraduate Certificate
Application of Statistics to Industry