

# Postgraduate Certificate Computer Mathematics



## Postgraduate Certificate Computer Mathematics

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

Website: [www.techtitute.com/pk/engineering/postgraduate-certificate/computer-mathematics](http://www.techtitute.com/pk/engineering/postgraduate-certificate/computer-mathematics)

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# 01

# Introduction

Advances in the field of technology have generated the need for professionals qualified in applied mathematics. Therefore, this TECH program offers a solid and contemporary education in this area. Therefore, the program is designed to provide the engineer with the necessary tools for the analysis and resolution of complex problems through programming and the application of specialized software. Therefore, you will learn in depth the use of programs such as Matlab, LaTeX, R, SAS, Sage and Python, allowing you to develop accurate and efficient mathematical and statistical models. In addition, the program is developed in a 100% online format, allowing students to adapt their study pace to their personal and professional needs and obligations.





“

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

The use of computer tools for the analysis and resolution of mathematical and statistical problems has become indispensable in most branches of engineering. In that sense, computer mathematics allows engineers to develop accurate and efficient numerical and statistical models for decision making in engineering projects. Therefore, the use of these models reduces uncertainty and risk in the planning and execution of projects, which translates into an increase in the quality and efficiency of the projects.

Based on this and the very high level of knowledge required in this field, TECH and its team of experts have decided to launch a program that allows graduates to learn about fundamental topics ranging from the theoretical foundations to the practical application of estimation techniques, enabling engineers to be prepared to face any challenge they may face in the work field. They will also develop advanced skills in the field of estimation, using tools such as Matlab, LaTeX, R, SAS, Sage and Python.

All this will be accessible to the professional through a fully online presentation and through a program created by experts in the field. In order to further facilitate the acquisition of knowledge and skills, hundreds of hours of varied additional material have been selected. You will have access to them from the first moment and you will obtain them in different audiovisual supports in the virtual campus. In addition, you will be able to download the materials and consult them whenever and wherever you need them. In this way, TECH offers a comprehensive and flexible education, adapted to the needs of its graduates and to the most demanding requirements of the current labor market of Computer Mathematics.

This **Postgraduate Certificate in Computer Mathematics** 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



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

“

*Do you want to become an expert in Computer Mathematics? Now is the best time, this program is your best option. Only with TECH”*

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

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

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

Given the current demand in the market for professionals who master in detail the latest techniques related to the use of Computer Mathematics, TECH has considered necessary to develop a program that allows graduates to catch up 100% online and through an academic experience adapted to their demands and needs. Therefore, this Postgraduate Certificate has arisen, with the aim of providing you with all the tools you need to achieve it in just 6 months of theoretical and practical education.







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*You will achieve your professional goals thanks to the exhaustive syllabus that TECH has developed for your education”*



## 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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- ◆ Know different programs to analyze statistics
- ◆ Develop statistical studies and reports using different programs
- ◆ Know the different types of functions used in different programs
- ◆ Use and choose the best program for each statistical study to help reflect on and reach a conclusion of statistical data

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

# 04

## Structure and Content

TECH has designed a comprehensive syllabus for the Postgraduate Certificate in Computer Mathematics. Therefore, this first level academic qualification represents a highly relevant training for engineers who wish to master their skills in project management and decision making through the main statistical functions and commands. Through this education, engineers can learn to develop accurate and realistic estimates, which will enable them to plan effectively and optimize the use of resources.

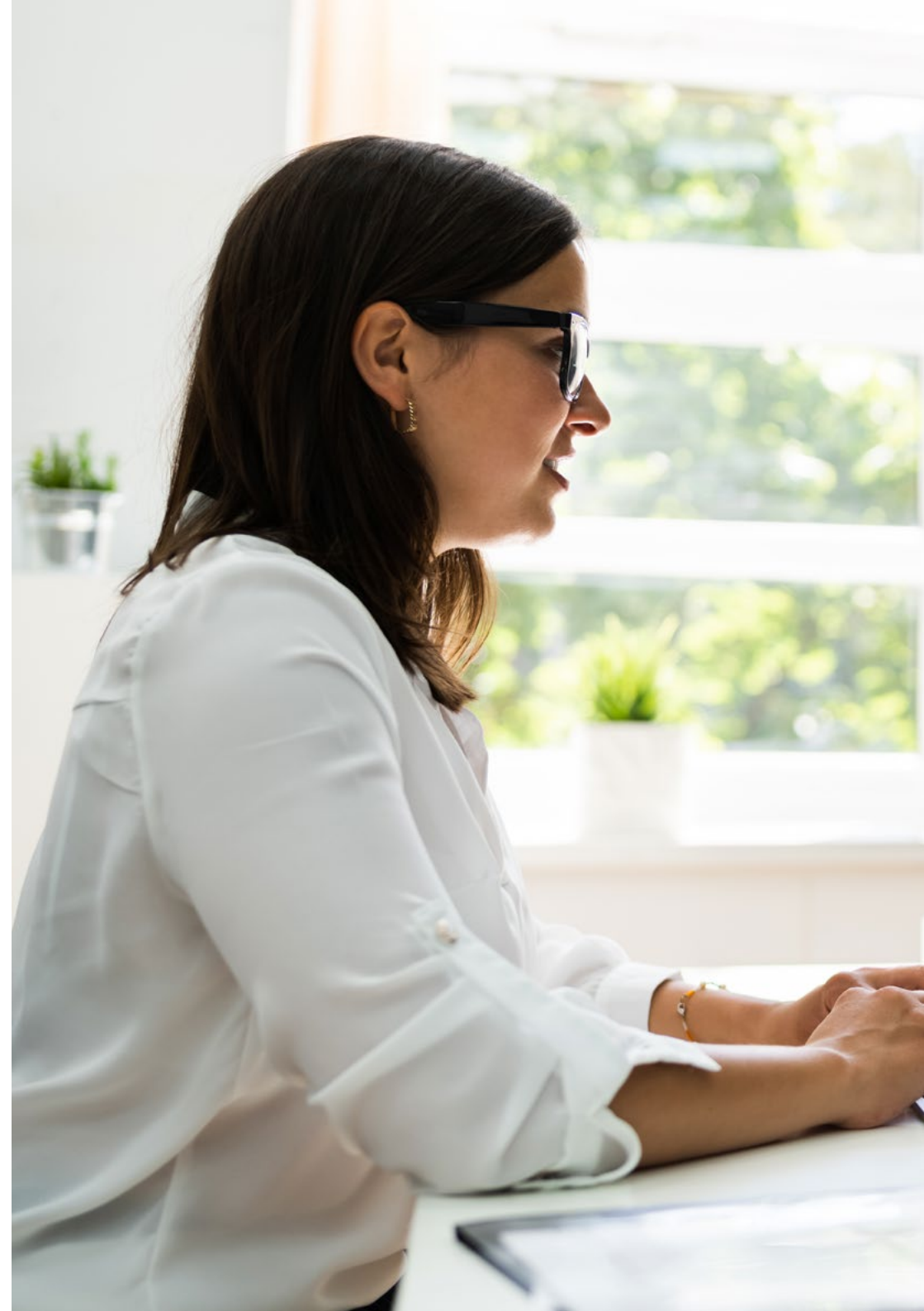




*TECH has selected and puts at your disposal the best syllabus. Everything you need to know in depth a discipline, from A to Z"*

## Module 1. Computer Mathematics

- 1.1. Introduction to MATLAB
  - 1.1.1. What Is MATLAB?
  - 1.1.2. Main Functions and Commands in MATLAB
  - 1.1.3. Statistical Applications in MATLAB
- 1.2. Linear Algebra in MATLAB
  - 1.2.1. Concepts of Linear Algebra
  - 1.2.2. Main Functions and Commands
  - 1.2.3. Examples
- 1.3. Numerical and Functional Series in MATLAB
  - 1.3.1. Concepts of Numerical and Functional Series
  - 1.3.2. Main Functions and Commands
  - 1.3.3. Examples
- 1.4. Functions of One and Several Variables in MATLAB
  - 1.4.1. Concepts of Functions of One and Several Variables
  - 1.4.2. Main Functions and Commands
  - 1.4.3. Examples
- 1.5. Introduction to LaTeX
  - 1.5.1. What Is LaTeX?
  - 1.5.2. Main Functions and Commands in LaTeX
  - 1.5.3. Statistical Applications in LaTeX
- 1.6. Introduction to R
  - 1.6.1. What is R?
  - 1.6.2. Main Functions and Commands in R
  - 1.6.3. Statistical Applications in R
- 1.7. Introduction to Sage
  - 1.7.1. What Is Sage?
  - 1.7.2. Main Functions and Commands in Sage
  - 1.7.3. Statistical Applications in Sage





- 1.8. Introduction to the Bash Operating System
  - 1.8.1. What Is Bash?
  - 1.8.2. Main Functions and Commands in Bash
  - 1.8.3. Statistical Applications in Bash
- 1.9. Introduction to Python
  - 1.9.1. What Is Python?
  - 1.9.2. Main Functions and Commands in Python
  - 1.9.3. Statistical Applications in Python
- 1.10. Introduction to SAS
  - 1.10.1. What is SAS?
  - 1.10.2. Main Functions and Commands in SAS
  - 1.10.3. Statistical Applications in SAS



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

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.



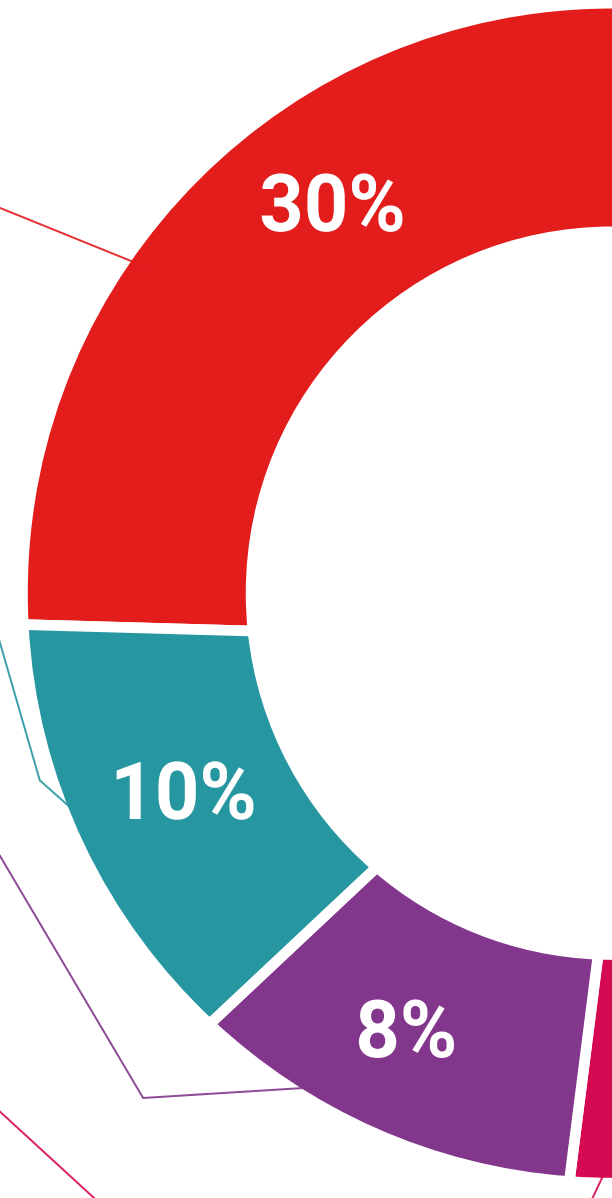
### Practising Skills and Abilities

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 Computer Mathematics 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 Computer Mathematics** 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 Computer Mathematics**

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



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