

# Postgraduate Certificate

## Introduction to Operating Systems





## Postgraduate Certificate Introduction to Operating Systems

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

Website: [www.techtitute.com/in/information-technology/postgraduate-certificate/introduction-operating-systems](http://www.techtitute.com/in/information-technology/postgraduate-certificate/introduction-operating-systems)

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# 01

# Introduction

Learn the main strategies for algorithm design, as well as the different methods and measures for algorithm computation, is essential for any computer professional who wants to specialize in Introduction to Operating Systems. In this program, students will learn about the latest developments in the sector and will develop their skills in algorithms from professionals with extensive experience in the sector.



“

*This Postgraduate certificate will allow you to update your knowledge in Operating Systems in a practical way, 100% online, without renouncing to the maximum academic rigor"*

This program is aimed at those people interested in achieving a higher level of knowledge in Operating Systems. The main objective is to enable the student to apply the knowledge acquired in this Postgraduate Certificate in the real world, in a work environment that reproduces the conditions that may be encountered in the future, in a rigorous and realistic manner.

This Postgraduate Certificate will prepare the student for the professional practice of computer engineering, thanks to a transversal and versatile training adapted to the new technologies and innovations in this field. You will obtain extensive knowledge in Operating Systems, from the hand of professionals in the sector.

The students will be able to take the opportunity and study this program in a 100% online format, without neglecting their obligations.

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

- ◆ Development of 100 simulated scenarios presented by experts in Introduction to Operating Systems
- ◆ Its graphic, schematic and eminently practical contents provide scientific and practical information on Introduction to Operating Systems
- ◆ News on the latest developments in Introduction to Operating Systems
- ◆ It contains practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Interactive learning system based on the case method and its application to real practice
- ◆ All of this will be complemented by 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



*Learn the latest techniques and strategies and strategies with this program and achieve success as a computer engineer"*

“

*Get trained in Operating Systems with this intensive program, from the comfort of your home”*

*Take advantage of the latest educational technology to get up to date in Operating Systems without leaving home.*

*Learn the latest techniques in Operating Systems from experts in the field.*

It includes in its teaching staff professionals belonging to the field of education, who bring to this program their work experience, in addition to recognized specialists belonging to reference societies and prestigious universities.

Thanks to its multimedia content developed with the latest educational technology, this Postgraduate Certificate will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the students must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned experts in Operating Systems with extensive teaching experience.





# 02 Objectives

The objective of this program is to provide IT professionals with the knowledge and skills necessary to carry out their activity using the most advanced protocols and techniques of the moment. Through a work approach that is totally adaptable to the students, this Postgraduate Certificate will progressively lead them to acquire the competencies that will propel them to a higher professional level.





“

*Achieve the level of knowledge you desire  
and master the fundamental concepts in  
Introduction to Operating Systems with this  
high-level training”*



## General Objectives

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- ♦ Scientific and technological training, as well as preparation for the professional practice of computer engineering, all with a transversal and versatile training adapted to new technologies and innovations in this field
- ♦ Obtain extensive knowledge in the field of computation, computer structure and operating systems, including the mathematical, statistical and physical basis essential in engineering

“*Enroll in the best Introduction to Operating Systems Diploma program on the university scene today*”





## Specific objectives

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- ◆ Learn the basic concepts of Operating Systems, as well as their structure, including services, system calls and the user interface
- ◆ Understand the operation of process scheduling in an operating system and in general the concepts related to processes and threads
- ◆ Assimilate the principles of concurrency, mutual exclusion, synchronization and interlocking
- ◆ Know how memory management works in operating systems and the basics of virtual memory and its policies
- ◆ Learn about the interface and implementation of Operating Systems, understanding the concepts of files, file systems, directory structure and their implementation, as well as the methods of allocation and management of free space
- ◆ Understand the existing protection mechanisms in the Operating Systems



# 03

# Structure and Content

The structure of the contents has been designed by a team of computer engineering professionals, aware of the relevance of current training in order to deepen this area of knowledge in order to humanistically enrich the student and raise the level of knowledge in Introduction to Operating Systems through the latest educational technologies available.

```
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...NumberStr = Html.Substring(SourceIndex, EndIndex - SourceIndex);
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return 0;
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    {
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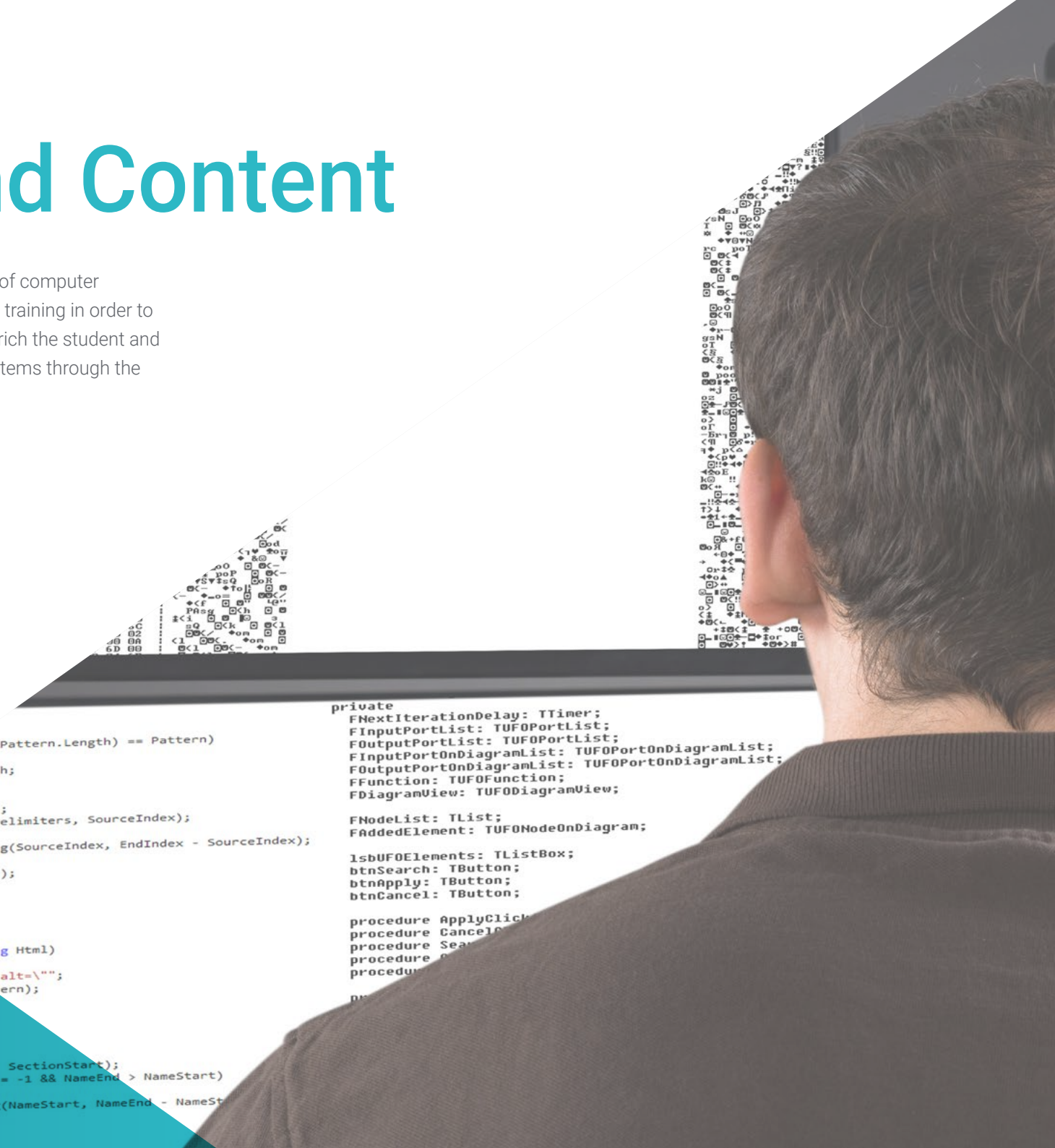
        int NameStart = SectionStart;
        int NameEnd = Html.IndexOf("\",", SectionStart);
        if (NameStart != -1 && NameEnd != -1 && NameEnd > NameStart)
        {
            string Name = Html.Substring(NameStart, NameEnd - NameStart);
            return Name;
        }
    }
}
```

```
private
    FNextIterationDelay: TTimer;
    FInputPortList: TUFOPortList;
    FOutputPortList: TUFOPortList;
    FInputPortOnDiagramList: TUFOPortOnDiagramList;
    FOutputPortOnDiagramList: TUFOPortOnDiagramList;
    FFunction: TUFOFunction;
    FDiagramView: TUFODiagramView;

    FNodeList: TList;
    FAddedElement: TUFONodeOnDiagram;

    IsbUFOElements: TListBox;
    btnSearch: TButton;
    btnApply: TButton;
    btnCancel: TButton;

    procedure ApplyClick;
    procedure CancelClick;
    procedure SearchClick;
    procedure ...;
    procedure ...;
```





## Module 1. Operating Systems

- 1.1. Introduction to Operating Systems
  - 1.1.1. Concept
  - 1.1.2. Historical Recap
  - 1.1.3. Fundamental Blocks of Operating Systems
  - 1.1.4. Operating Systems Objectives and Functions
- 1.2. Structure of Operating Systems
  - 1.2.1. Operating System Services
  - 1.2.2. Operating System User Interface
  - 1.2.3. System Calls
  - 1.2.4. Types of System Calls
- 1.3. Process Planning
  - 1.3.1. Basic Concepts
  - 1.3.2. Planning Criteria
  - 1.3.3. Planning Algorithms
- 1.4. Processes and Threads
  - 1.4.1. Process Concept
  - 1.4.2. Thread Concept
  - 1.4.3. Process Status
  - 1.4.4. Process Control
- 1.5. Concurrency. Mutual Exclusion, Synchronization, and Interlocking
  - 1.5.1. Principles of Concurrency
  - 1.5.2. Mutual Exclusion
  - 1.5.3. Traffic Lights
  - 1.5.4. Monitors
  - 1.5.5. Message Passing
  - 1.5.6. Fundamentals of Interlocking
  - 1.5.7. Interlock Prevention
  - 1.5.8. Interlock Avoidance
  - 1.5.9. Interlock Detection and Recovery







- 1.6. Memory Management
  - 1.6.1. Memory Management Requirements
  - 1.6.2. Process Memory Model
  - 1.6.3. Contiguous Assignment Scheme
  - 1.6.4. Segmentation
  - 1.6.5. Pagination
  - 1.6.6. Segmented Pagination
- 1.7. Virtual Memory
  - 1.7.1. Virtual Memory Fundamentals
  - 1.7.2. Life Cycle of a Page
  - 1.7.3. Virtual Memory Management Policy
  - 1.7.4. Localization Policy
  - 1.7.5. Extraction Policy
  - 1.7.6. Replacement Policy
- 1.8. Input/Output System
  - 1.8.1. Input/Output Devices
  - 1.8.2. Input/Output System Organization
  - 1.8.3. Use of Buffers
  - 1.8.4. Magnetic Disk
- 1.9. File System Interface and Implementation
  - 1.9.1. Archiving Concept
  - 1.9.2. Access Methods
  - 1.9.3. Directory Structure
  - 1.9.4. Structure of a File System
  - 1.9.5. File System Interface and Implementation
  - 1.9.6. Directories System Interface and Implementation
  - 1.9.7. Allocation Methods
  - 1.9.8. Management of Free Space
- 1.10. Protection
  - 1.10.1. Objectives
  - 1.10.2. Authentication
  - 1.10.3. Authorization
  - 1.10.4. Cryptography

# 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 we face 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.

With this methodology we have 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, markets, and financial 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.



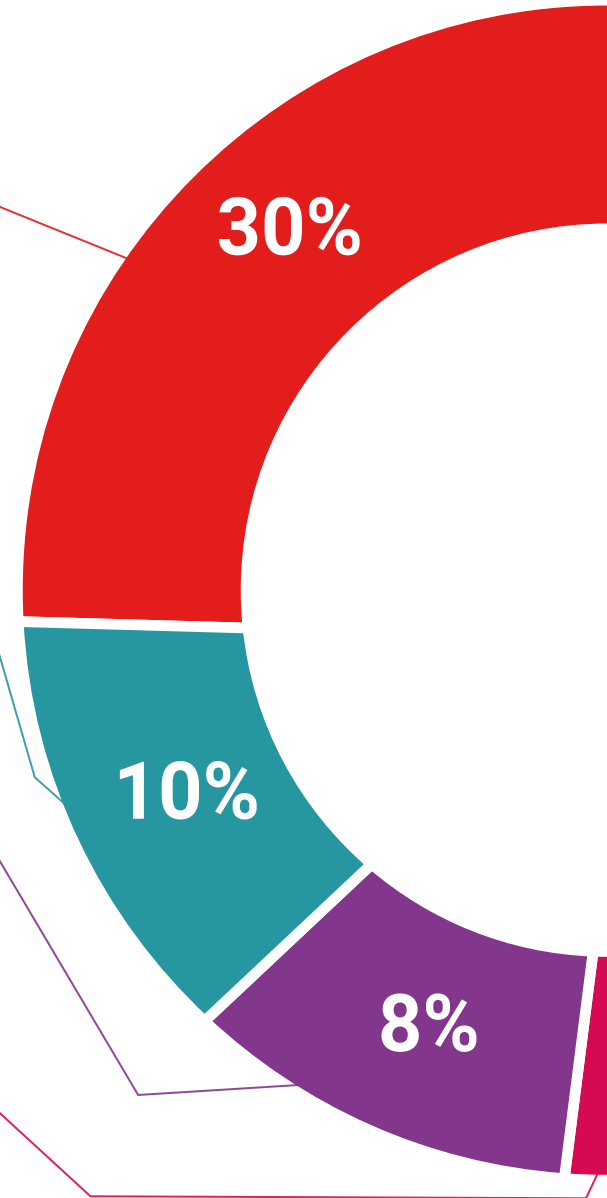
### Practising Skills and Abilities

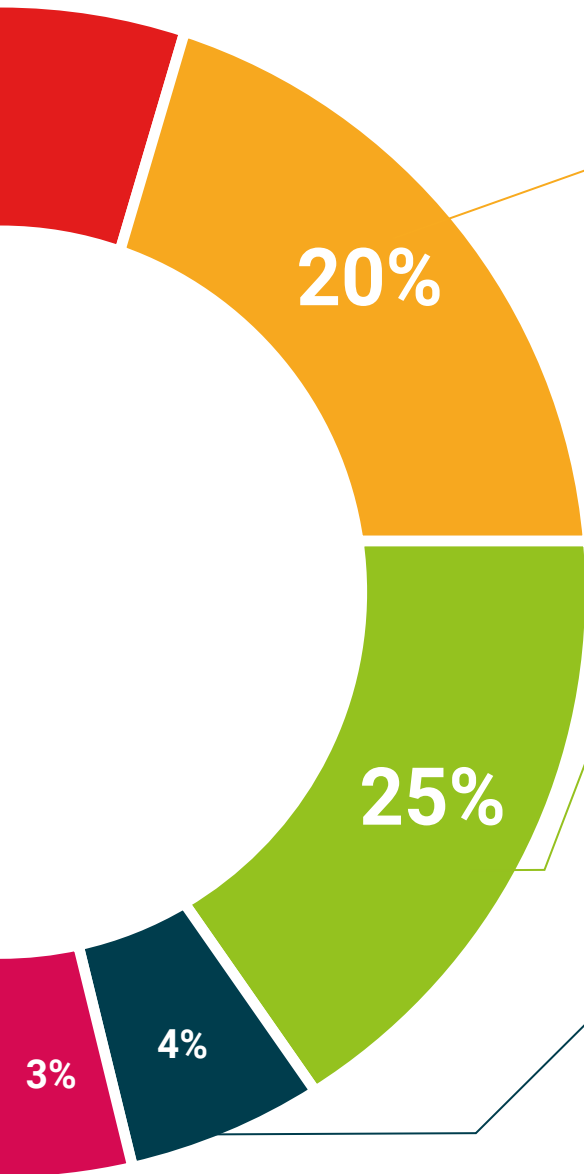
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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 Introduction to Operating Systems 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 Introduction to Operating Systems** 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 Introduction to Operating Systems**

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 committm

personalized service innovation

knowledge present

development language

virtual classroom

**tech** technological  
university

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