

# Postgraduate Certificate

## Network and XML Applications

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## Postgraduate Certificate Network and XML Applications

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

Website: [www.techtute.com/pk/informatlon-technology/postgraduate-certificate/network-xml-applications](http://www.techtute.com/pk/informatlon-technology/postgraduate-certificate/network-xml-applications)

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# 01

# Introduction

Controlling all aspects of working with Network and XML Applications is necessary for computer engineers and other professionals who wish to work in this broad field. Understanding the structure of computers is vital for entering the IT field. This program will allow professionals to acquire the necessary knowledge to develop their work in the IT field.



“

*IT professionals must continue their specialization to adapt to new developments in this field”*

The teaching team of this Postgraduate Certificate in Network and XML Applications has made a careful selection of each of the topics of this program to offer the student a study opportunity as complete as possible and always linked to present.

The program of this Postgraduate Certificate focuses on the history of computers in order to introduce students to arithmetic or classical concepts of logic design. The basic operation of a computer, the internal and external memory or the input and output ports, as well as the structure of the processor are key elements of this specialization. In addition, aspects such as the design and evolution of computers or the different processors will also be covered in this program.

This program provides students with specific tools and skills to successfully develop their professional activity in the wide environment of Network and XML Applications. It works key competencies such as knowledge of the reality and daily practice in different IT areas and develops responsibility in the monitoring and supervision of their work, as well as specific skills within this field.

Additionally, as it is a 100% online program, the student is not constrained by fixed timetables or the need to move to another physical location, but can access the contents at any time of the day, balancing their professional or personal life with their academic life.

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

- ◆ Case studies presented by experts in Computer Engineering
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis in innovative methodologies in Networks and XML applications
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable electronic device with an Internet connection



*Do not miss the opportunity to take this Postgraduate Certificate in Network and XML Applications with us. It's the perfect opportunity to advance your career"*

“*This Postgraduate Certificate is the best investment you can make when selecting a refresher program to update your knowledge in Network and XML Applications*”

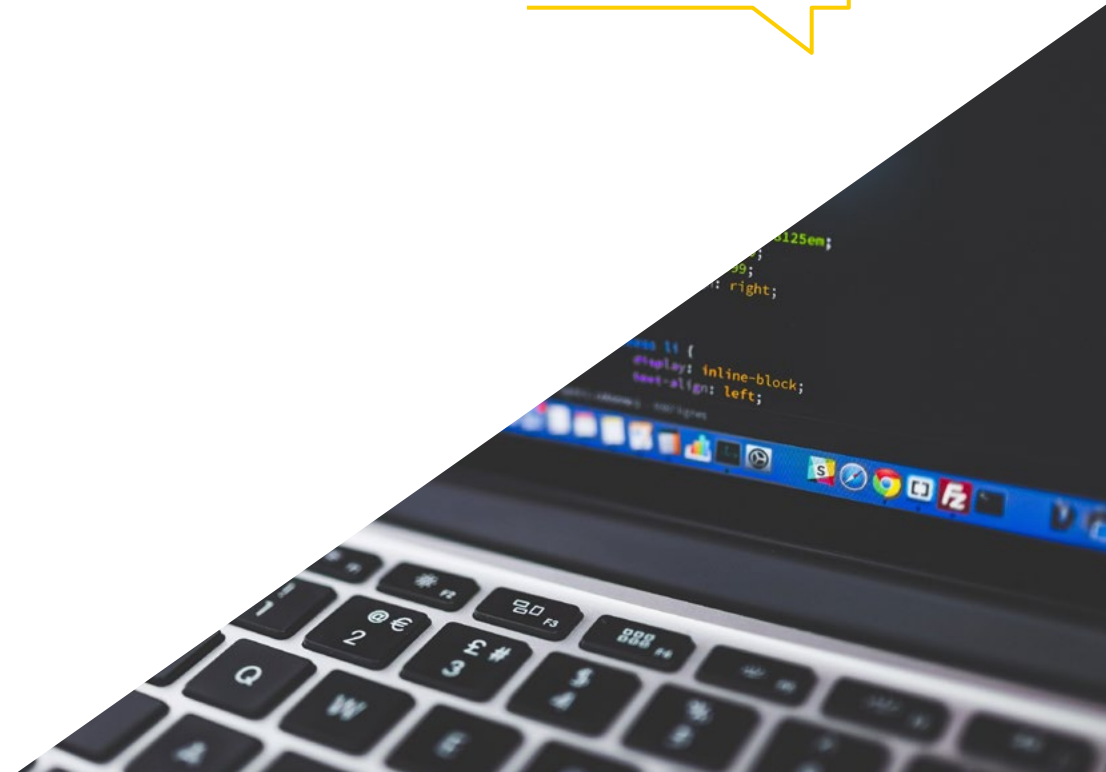
*This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.*

*This 100% online program will allow you to balance your studies with your professional work while increasing your knowledge in this field.*

Its teaching staff includes professionals belonging to the field of Information Technology, who bring to this program the experience of their work, as well as recognized specialists from leading companies 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 professionals must try to solve the different professional practice situations that are presented throughout the program. To do so, professionals will be assisted by an innovative interactive video system created by renowned and experienced experts in Network and XML Applications.



# 02 Objectives

The Postgraduate Certificate in Network and XML Applications is designed to facilitate the performance of the professionals in this field to enable them to master the main developments in this IT field.







“

*This is the best option to learn  
about the latest developments in  
Network and XML Applications”*



## General Objectives

- ◆ Prepare scientifically and technologically, as well as to develop the professional practice of Network and XML Applications, with a transversal and versatile approach adapted to the new technologies and innovations in this field

“Enroll in the best program on Network and XML Applications on the university scenario today”





## Specific Objectives

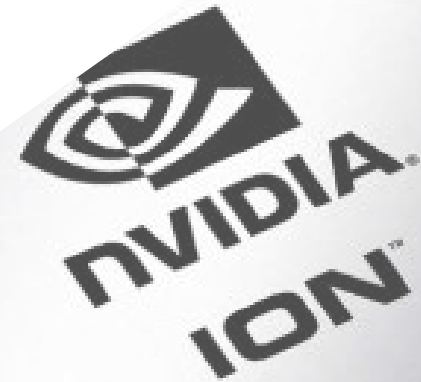
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- ◆ Know the characteristics of the HTML markup language and its use in web creation together with CSS style sheets
- ◆ Learn how to use the browser-oriented programming language JavaScript, and some of its main features
- ◆ Understand the concepts of component-oriented programming and the component architecture
- ◆ Learn how to use the Bootstrap front-end framework for website design
- ◆ Understand the structure of the controller view model in the development of dynamic web sites
- ◆ Know the service-oriented architecture and the basics of the HTTP protocol
- ◆ Introduce the different database systems currently available on the market
- ◆ Learn the use of XML and databases for the web
- ◆ Understand the operation of advanced databases such as parallel and distributed databases
- ◆ Understand the importance of indexing and association in database systems
- ◆ Understand how transactional processing and retrieval systems work
- ◆ Acquire knowledge related to non-relational databases and data mining

03

# Structure and Content

The structure of the contents has been designed by the best professionals in the field of Network and XML Applications with extensive experience and recognized prestige in the profession.

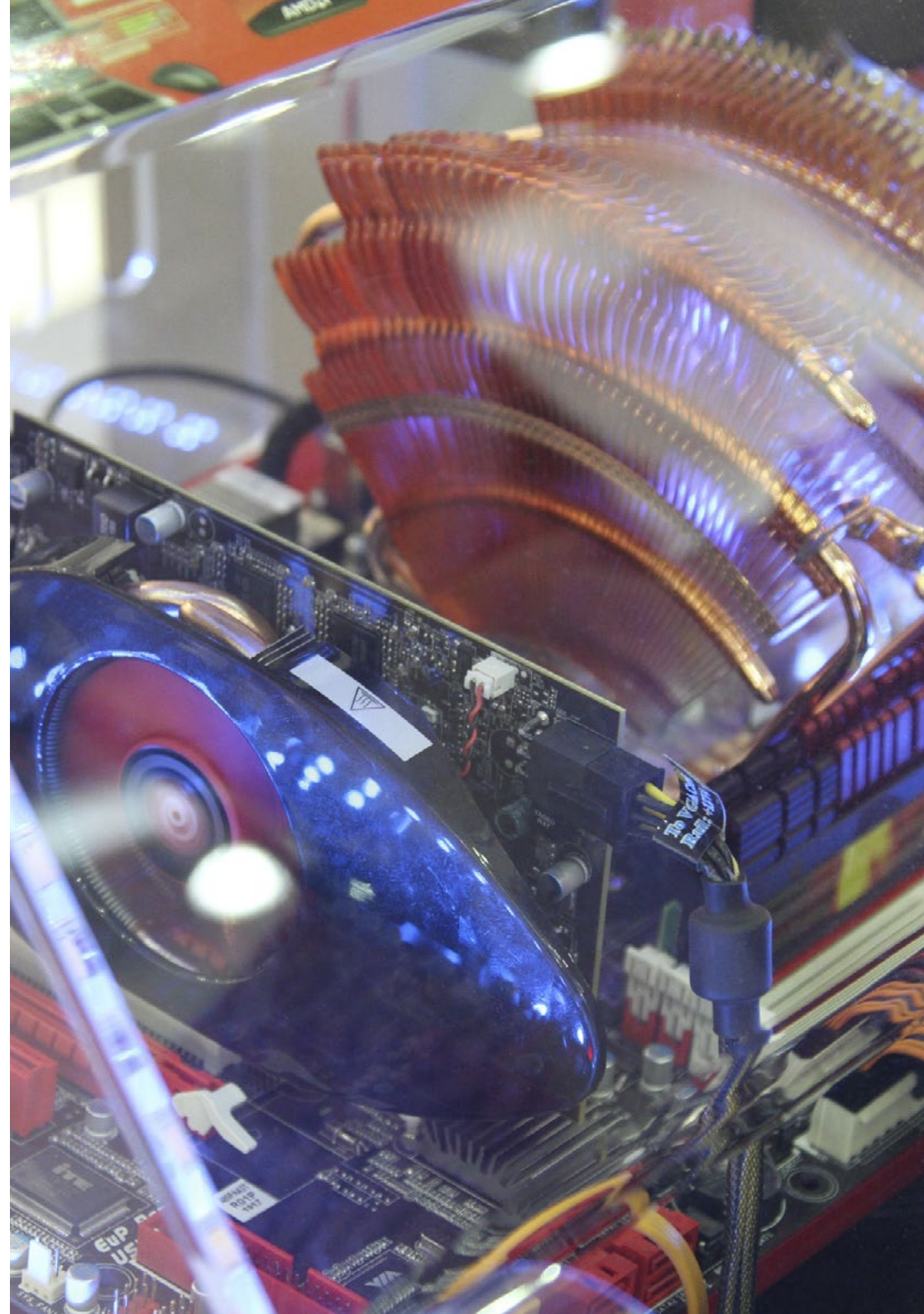


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*We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too”*

## Module 1. Development of Network Applications

- 1.1. HTML5 Markup Languages
  - 1.1.1. HTML Basics
  - 1.1.2. New HTML 5 Elements
  - 1.1.3. Forms: New Controls
- 1.2. Introduction to CSS Style Sheets
  - 1.2.1. First Steps with CSS
  - 1.2.2. Introduction to CSS3
- 1.3. Browser Scripting Language: JavaScript
  - 1.3.1. JavaScript Basics
  - 1.3.2. DOM
  - 1.3.3. Events
  - 1.3.4. JQuery
  - 1.3.5. Ajax
- 1.4. Concept of Component-Oriented Programming
  - 1.4.1. Context
  - 1.4.2. Components and Interfaces
  - 1.4.3. States of a Component
- 1.5. Component Architecture
  - 1.5.1. Current Architectures
  - 1.5.2. Component Integration and Deployment
- 1.6. Framework Front-End: Bootstrap
  - 1.6.1. Grid Design
  - 1.6.2. Forms
  - 1.6.3. Components
- 1.7. Model View Controller
  - 1.7.1. Web Development Methods
  - 1.7.2. Design Pattern: MVC
- 1.8. Information Grid Technologies
  - 1.8.1. Increased Computing Resources
  - 1.8.2. Concept of Grid Technology
- 1.9. Service-Oriented Architecture
  - 1.9.1. SOA and Web Services
  - 1.9.2. Topology of a Web Service
  - 1.9.3. Platforms for Web Services



- 1.10. HTTP Protocol
  - 1.10.1. Messages
  - 1.10.2. Persistent Sessions
  - 1.10.3. Cryptographic System
  - 1.10.4. HTTPS Protocol Operation

## Module 2. Advanced Databases

- 2.1. Introduction to the Different Database Systems
  - 2.1.1. Historical Recap
  - 2.1.2. Hierarchical Databases
  - 2.1.3. Network Databases
  - 2.1.4. Relational Databases
  - 2.1.5. Non-Relational Databases
- 2.2. XML and Databases for the Web
  - 2.2.1. Validation of XML Documents
  - 2.2.2. XML Document Transformations
  - 2.2.3. XML Data Storage
  - 2.2.4. XML Relational Databases
  - 2.2.5. SQL/XML
  - 2.2.6. Native XML Databases
- 2.3. Parallel Databases
  - 2.3.1. Parallel Systems
  - 2.3.2. Parallel Database Architectures
  - 2.3.4. Parallelism in Queries
  - 2.3.5. Query Parallelism
  - 2.3.6. Design of Parallel Systems
  - 2.3.7. Parallel Processing in SQL
- 2.4. Distributed Databases
  - 2.4.1. Distributed Systems
  - 2.4.2. Distributed Storage
  - 2.4.3. Availability
  - 2.4.4. Distributed Query Processing
  - 2.4.5. Distributed Database Providers
- 2.5. Indexing and Association
  - 2.5.1. Ordered Indexes
  - 2.5.2. Dense and Sparse Indexes
  - 2.5.3. Multilevel Indices
  - 2.5.4. Index Updating
  - 2.5.5. Static Association
  - 2.5.6. How to Use Indexes in Databases
- 2.6. Introduction to Transactional Processing
  - 2.6.1. States of a Transaction
  - 2.6.2. Implementation of atomicity and durability
  - 2.6.3. Sequentiality
  - 2.6.4. Recoverability
  - 2.6.5. Isolation Implementation
- 2.7. Recovery Systems
  - 2.7.1. Failure Classification
  - 2.7.2. Storage Structures
  - 2.7.3. Recovery and Atomicity
  - 2.7.4. Retrieval Based on Historical Record
  - 2.7.5. Concurrent Transactions and Retrieval
  - 2.7.6. High Availability in Databases
- 2.8. Execution and Processing of Queries
  - 2.8.1. Cost of a Query
  - 2.8.2. Selection Operation
  - 2.8.3. Sorting
  - 2.8.4. Introduction to Query Optimization
  - 2.8.5. Performance Monitoring
- 2.9. Non-Relational Databases
  - 2.9.1. Document-Oriented Databases
  - 2.9.2. Graph-Oriented Databases
  - 2.9.3. Key-Value Databases
- 2.10. Data Warehouse, OLAP and Data Mining
  - 2.10.1. Components of Data Warehouses
  - 2.10.2. Architecture of a Data Warehouse
  - 2.10.3. OLAP
  - 2.10.4. Data Mining Functionality
  - 2.10.5. Other Types of Mining

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

The case method has been the most widely used learning system among the world's leading Information Technology schools for as long as they have existed. 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 course, students 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 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 Network and XML Applications 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 Network and XML Applications** 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 Network and XML Applications**

Official N° of Hours: **300 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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