Postgraduate Certificate
Data Structure and Algorithms

tech technological university

Postgraduate Certificate
Data Structure and Algorithms

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

Website: **www.techtitute.com/us/information-technology/postgraduate-certificate/data-structure-algorithms**

Index

01
Introduction

To fully master programming, it is useful to know how to use certain mathematical concepts and tools that can facilitate development work. Algorithms are mathematical instructions that can be designed to solve a specific challenge. Furthermore, having notions of Data Structures can help to process large amounts of information. These two issues are of vital importance in the process of programming a video game, which is why this program offers students all the knowledge in this area so they can develop video games with all the guarantees.

Create the algorithms that will solve your company's video game programming problems and thrive in the industry"

The process of programming a video game is long and complex. It goes through a series of phases, from inception to the integration of the most artistic and visual aspects, and in order to achieve the proposed goal, it is necessary to master certain mathematical concepts of great difficulty that can solve numerous problems and speed up the code creation.

Two such elements are algorithms and data structures. Having a deep understanding of how algorithms and data structures work can facilitate the task of video game development, since they are basic tools in programming and can be used in this field; so, having notions about them can turn professionals into specialists that large companies in the industry want to count on.

This Postgraduate Certificate in Data Structure and Algorithms offers students the necessary knowledge to be able to master these skills, so they can apply them in their professional careers, improving their programming code and making their video games work better.

This **Postgraduate Certificate in Data Structure and Algorithms** contains the most complete and up to date scientific program on the market. Its most notable features are:

- Practical cases studies are presented by experts in algorithms and data structure management
- The graphic, schematic, and eminently 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
- 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

Algorithms and data structures are basic tools for programming video games. Specialize and develop the best titles on the market"

" *This course will improve your skills as a video game programmer. Enroll now"*

Don't wait any longer. This Postgraduate Certificate can turn you into a top video game programmer.

This industry needs talented programmers like you to develop the best video games of the future.

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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 training programmed to train 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

The main objective of this Postgraduate Certificate in Data Structure and Algorithms is to offer students the best Programming Tools so they can become great Developers. They will attract the attention of the most prestigious companies in the industry, achieving a significant advance in their professional careers. That is why this course is essential for all those who wish to be successful in this promising field.

Specialize and achieve your goals: you will see your name in the credits of the great Video Games of the future"
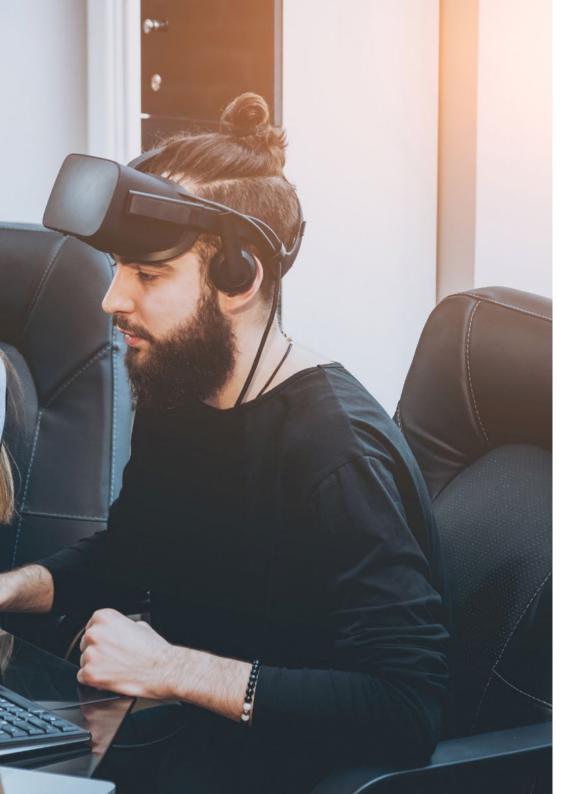
General Objectives

- Delve deeper into the Video Game Production Process and Integrate Programming throughout each stage

- Learn the Fundamentals of Video Game Design and the theoretical knowledge that a Video Game Designer must have

- Apply knowledge of Software Engineering and Specialized Programming to Video Games

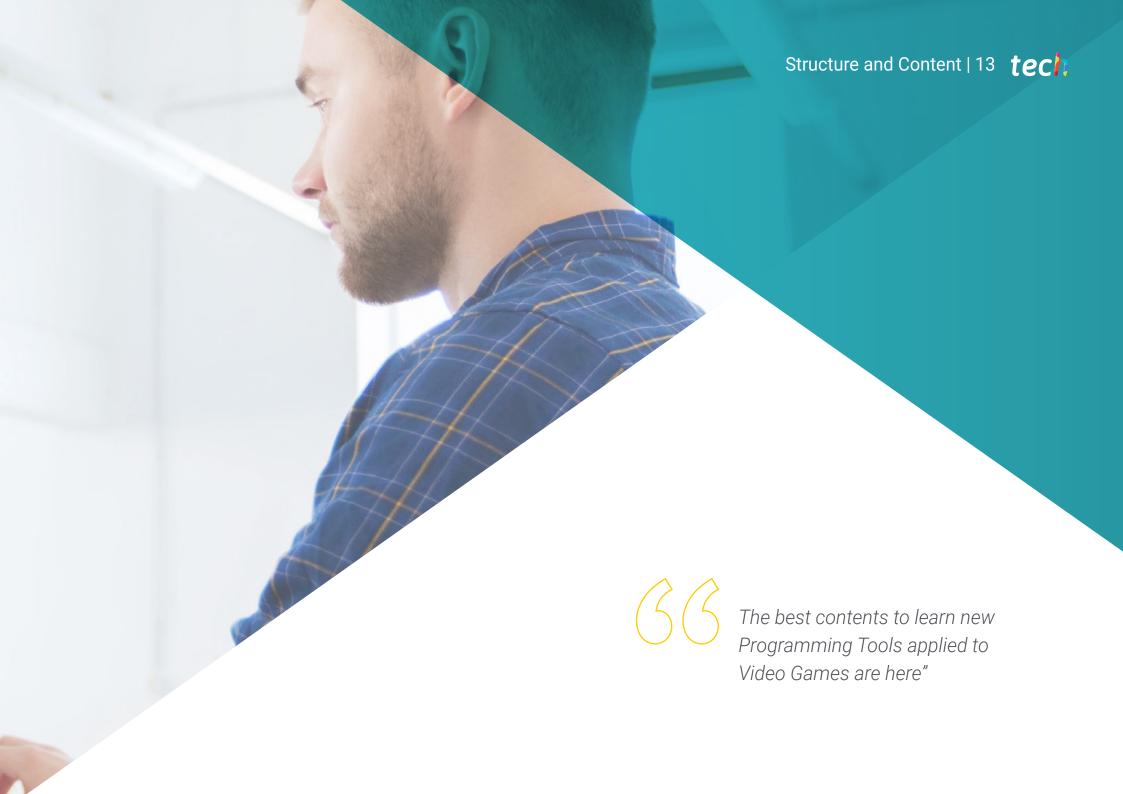- Understand the role of Programming in Video Game Development

Specific Objectives

- Learn the main Algorithm Design Strategies, as well as the different Methods and Measures for Algorithm Computation
- Understand Algorithm Function, strategies and examples for the most common problems
- Understand the *Backtracking* Technique and its main uses

The Video Game Industry is the future: specialize and reach the top"

03

Structure and Content

The contents of this Postgraduate Certificate in Data Structure and Algorithms have been designed by genuine experts in the field, so students will enjoy great professional opportunities thanks to the knowledge they will acquire during the course. Thus, with the focus of this program, which is eminently practical, students will be able to directly apply everything they have learned in their working lives, making their job performance improve substantially.

The best contents to learn new Programming Tools applied to Video Games are here"

Module 1. Data Structure and Algorithms

Learn all about Data Structure and Algorithms with this course"

Methodology

This training program offers 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"*

At TECH we use the Case Method

Our program offers a revolutionary method of skills and knowledge development. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

"

At TECH, you will experience a way of learning that is shaking the foundations of traditional universities around the world"

We are the first online university to combine Harvard Business School case studies with a 100% online learning system based on repetition.

A learning method that is different and innovative.

This intensive Information Technology program at TECH Technological University prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH Technological University you will use Harvard case studies, with which we have a strategic agreement that allows us, to offer you material from the best university in the world.

"

Our program prepares you to face new challenges in uncertain environments and achieve success in your career"

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.

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

Relearning Methodology

Our university is the first in the world to combine Harvard University case studies with a 100% online learning system based on repetition, which combines different teaching elements in each lesson.

We enhance Harvard case studies 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 university 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 competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.

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

They will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management 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 multimedia content presentation training Exclusive system 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 your goals.

05

Certificate

The Postgraduate Certificate in Data Structure and Algorithms guarantees, in addition to the most rigorous and up to date training, access to a qualification issued by TECH Technological University.

tech

" *Successfully complete this training program and receive your diploma without travel or laborious paperwork"*

This **Postgraduate Certificate in Data Structure and Algorithms** contains the most complete and up to date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** diploma issued by **TECH Technological University** via tracked delivery*.

The diploma 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 Data Structure and Algorithms**
Official Nº of hours: **150 h.**

tech technological university

Awards the following
DIPLOMA
to
Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

POSTGRADUATE CERTIFICATE
in

Data Structure and Algorithms

This is a qualification awarded by this University, equivalent to 150 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 diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

tech technological university

Postgraduate Certificate
Data Structure and Algorithms

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

Postgraduate Certificate
Data Structure and Algorithms

tech technological university