Postgraduate Certificate
Tools in NumPy and Pandas

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Postgraduate Certificate
Tools in NumPy and Pandas

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

Website: **www.techtitute.com/pk/information-technology/postgraduate-certificate/tools-numpy-pandas**

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01
Introduction

Visualization with Matplotlib is of great importance in Data Science. This tool enables data to be communicated effectively to audiences through graphics that make patterns more understandable. Along the same lines, these resources help computer scientists to understand the underlying data, which drives them to make informed decisions based on evidence. In addition, visualizations make it easier to identify patterns, trends and relationships in the data. This implies that experts can appreciate information over time, in different categories or in multiple dimensions to obtain valuable details. For this reason, TECH is developing a university qualification that will delve into the creation and personalization using Pandas.

Perform arithmetic operations and alignment through the best academic program and with the most disruptive methodology: Relearning"

Both NumPy and Pandas are essential in the field of Python programming, due to their versatility in data analysis. These tools provide mechanisms to efficiently import, clean, exploit, analyze and prepare data. In addition, these resources offer powerful tools for data cleaning, including detecting and addressing missing, duplicate or outlier values. In this way, computer scientists ensure data quality prior to analysis. Moreover, these libraries are easily integrated with other visualization libraries such as Seaborn to design graphs and other informative visualizations that help communicate the data.

In this context, TECH is launching a comprehensive program that will delve into data management in Python using NumPy and Pandas. The syllabus will delve into the creation and Manipulation of *Arrays*, to represent data in multiple dimensions. Likewise, the syllabus will analyze in detail the Vectorized Operations, taking into account the universal functions and looking for maximum efficiency. On the other hand, the academic materials will address the advanced customization of graphics, exploring different styles and configurations. In addition, the program will provide students with state-of-the-art tools for advanced data analysis and effective visualizations. Graduates will be prepared to face real challenges in the field of data analysis and visualization.

Professionals have a unique opportunity to be up to date in this field through a university program that they can take whenever and wherever they want. All you need is a cell phone, *Tablet* or computer with an Internet connection to view, at any time of the day, the content hosted on the virtual platform. In this way, the students have an educational option that is compatible with their more demanding responsibilities.

This **Postgraduate Certificate in Tools in NumPy and Pandas** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in Python Development
- The graphic, schematic and practical contents of the book provide theoretical 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
- The availability of access to content from any fixed or portable device with an Internet connection.

You will master Vectorized Array Operations to perform efficient and elementary calculations on arrays instead of explicit loops"

Manage the Matplotlib library to create a wide variety of graphs and communicate trends in data"

Looking to handle incomplete data in Pandas? Detect all null values with this program in only 150 hours.

You will organize your time and pace of study, adjusted according to your schedule, through TECH's complete Virtual Campus.

The program's teaching staff includes professionals from the sector who contribute their work experience to this 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 students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

Through this program, graduates will gain a solid understanding of the most widely used libraries in the field of data science: NumPy and Panda. At the end of the course, students will have developed multiple skills for advanced information management. In addition, they will be highly qualified to create and manipulate multidimensional arrays. The specialists will also use Pandas to deal with structured data. In line with this, they will promote proficiency in Data Visualization with Matplotlib. In this way, they will be prepared to meet any challenge during the course of their work.

A holistic syllabus that incorporates all the knowledge you need to take a step towards the highest quality in the field of Information Technology"

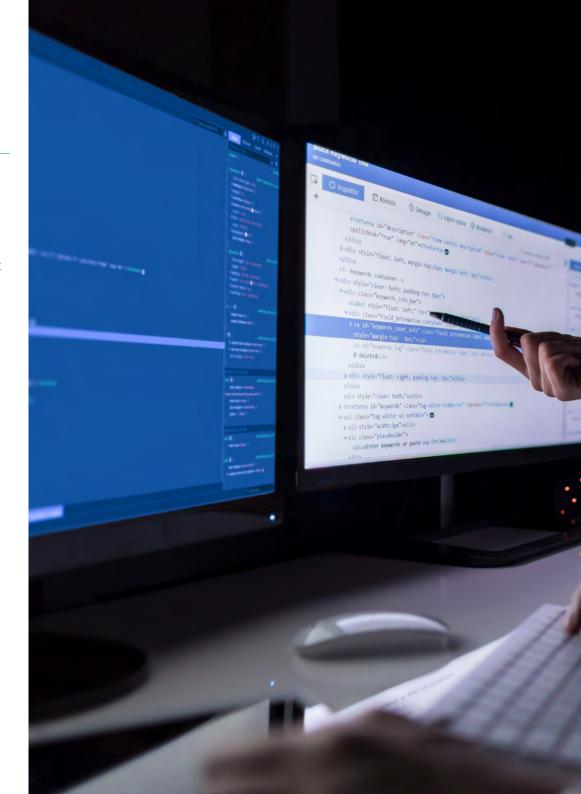## General Objectives

- Provide a comprehensive understanding of Python
- Enable advanced data and type handling in Python
- Apply the principles of Object Oriented Programming (OOP) in Python
- Encourage the use of best practices and modern methodologies in software development
- Provide comprehensive education in web and mobile development with Python
- Integrate UI/UX principles in software development
- Teach the configuration and use of data development tools and environments
- Delve into the use of data structures and functions in Python
- Learn advanced data visualization techniques with Matplotlib
- Learn performance optimization and data warehousing strategies

Specific Objectives

- Create and manipulate Arrays with NumPy
- Promote proficiency in data visualization with Matplotlib

Thanks to this academic pathway you will acquire comprehensive skills to create and manipulate Arrays with NumPy"

03
Course Management

Motivated to build top-quality programs, TECH Technological University has chosen a reputable teaching staff of Tools in NumPy and Pandas specialists to develop this program. These IT professionals are actively practicing their profession in prestigious international organizations. In their commitment to offer high quality services, these experts remain at the technological forefront in their field of specialization. In this way, the knowledge that will be given to the student in this Postgraduate Certificate will be in tune with the latest advances in this area.

A specialized teaching team will pour their extensive knowledge on Tools in NumPy and Pandas"

Management

Dr. Matos Rodríguez, Dionis

- *Data Engineer* at Wide Agency Sadexo
- *Data Consultant* at Tokiota
- *Data Engineer* at Devoteam
- *BI Developer* at Ibermática
- *Applications Engineer* at Johnson Controls
- *Database Developer* at Suncapital España
- *Senior Web Developer* at Deadlock Solutions
- *QA Analyst* at Metaconxept
- Professional Master's Degree in *Big Data* & *Analytics* by the EAE Business School
- Professional Master's Degree in Systems Analysis and Design
- Bachelor's Degree in Computer Engineering from APEC University.

Professors

Ms. Delgado Feliz, Benedit

- Administrative Assistant and Electronic Surveillance Operator for the National Drug Control Directorate (DNCD)
- Customer Service at Cáceres y Equipos
- Claims and Customer Service at Express Parcel Services (EPS)
- Microsoft Office Specialist at the National School of Informatics (Escuela Nacional de Informática).
- Social Communicator from the Catholic University of Santo Domingo.

Ms. Gil Contreras, Milagros

- *Content Creator* at MPCTech LLC
- Project Manager
- *Freelance IT Writer*
- MBA from the Complutense University of Madrid
- Degree/Graduate in Business Administration from the Technological Institute of Santo Domingo.

Mr. Villar Valor, Javier

- Director and Founding Partner of Impulsa2
- *Chief Operations Officer* (COO) at Summa Insurance Brokers
- Director of Transformation and Operational Excellence at Johnson Controls
- Professional Masters Degree in Professional *Coaching*
- Executive MBA from Emlyon Business School, France
- Professional Master's Degree in Quality Management from EOI, Spain
- Computer Engineering from the University Action Pro-Education and Culture (UNAPEC)

Mr.Gil Contreras, Armando

- Lead *Big Data Scientist* at Jhonson Controls
- *Data Scientist-Big Data* at Opensistemas S.A.
- Fund Auditor at Creatividad y Tecnología S.A. (CYTSA)
- Public Sector Auditor at PricewaterhouseCoopers Auditores.
- Professional Master's Degree in *Data Science* at University Center of Technology and Art
- Professional Máster Degree MBA in International Relations and Business from the Center for Financial Studies (CEF).
- Bachelor's Degree in Economics from the Technological Institute of Santo Domingo.

Mr. Delgado Panadero, Ángel

- *ML Engenieer* at Paradigma Digital
- *Computer Vision Engineer* at NTT Disruption
- *Data Scientist* at Singular People
- *Data Analyst* at Parclick
- Specialist in *Data Engineering on GPC*
- Specialist in *Deep Learning*
- Degree in Physics at the University of Salamanca

Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"
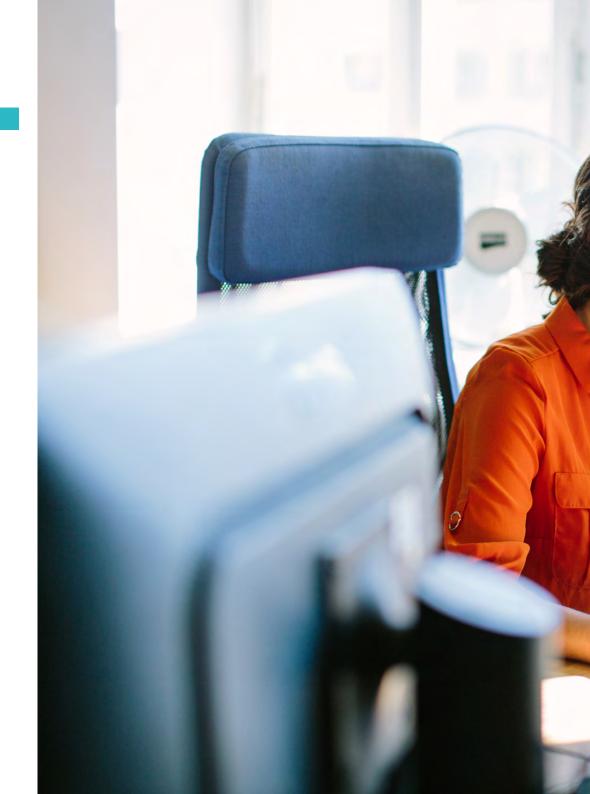
04
Structure and Content

With an eminently practical approach, this Postgraduate Certificate will enable students to obtain advanced skills in data management using NumPy and Pandas. The academic itinerary will cover from basic operations with Arrays to the manipulation and transformation of these elements. The syllabus will delve into various strategies for concatenation, data merging and the use of *pivot tablet*. On the other hand, the didactic materials will analyze how to create and customize graphics, so that the graduates can integrate them with Pandas to achieve an effective visualization of information. In addition, the program will provide the most modern tools to perform advanced data analysis.

You will nurture your IT procedures with the most effective strategies for handling incomplete data"

Module 1. Data Handling in Python with NumPy and Pandas

Delve into the most up-to-date academic content in the IT landscape, available in innovative multimedia formats to optimize your study. And it's all through TECH!"

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.

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 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 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 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%

tech

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.

20%

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".

25%

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.

4%

3%

Certificate

The Postgraduate Certificate in Tools in NumPy and Pandas 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 Tools in NumPy and Pandas** 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 Tools in NumPy and Pandas**
Official Nº of Hours: **150 h.**

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

POSTGRADUATE CERTIFICATE
in

Tools in NumPy and Pandas

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

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.

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