Postgraduate Diploma
Visualization Techniques and Tools

tech technological university

Postgraduate Diploma
Visualization Techniques
and Tools

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

Website: **www.techtitute.com/in/information-technology/postgraduate-diploma/postgraduate-diploma-visualization-techniques-tools**

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Introduction

This complete program in Visualization Techniques and Tools is designed to give the professional working with Big Data, the necessary skills to successfully and effectively use the necessary visualization tools. With TECH's exception quality, the largest Spanish-speaking online teaching market

A thorough and complete review of the different tools that the professional working with data must master"

This Postgraduate Diploma is a comprehensive compilation of advances, novelties and work tools that will take students through the most intensive path, to prepare them for the current star profile.

A complete study of the different techniques and tools you need to work with data, with a special focus on data visualization.

With all the new tools and the different techniques you can use to visualize them and how to use them properly. With a vision focused on practice that will turn theory into skills in a real way.

Throughout this training the student will learn everything necessary to analyze data, with the development of the different existing techniques. In addition, TECH will show how to capture the information and how to store it properly in each case.

Be trained by the best with most innovative educational system and the security and solvency of the Improvement online university right now

This **Postgraduate Diploma in Visualization Techniques and Tools** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- Practical case studies presented by experts
- 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 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

All aspects necessary to use data visualization techniques, in a high quality program"

"
A complete update that will provide you with the working capacity of a specialist in the field"

This program has the best teaching material available online or downloadable, to facilitate your study and effort management.

A very complete training, created with a strong focus on quality and bringing our students to the highest level of skill.
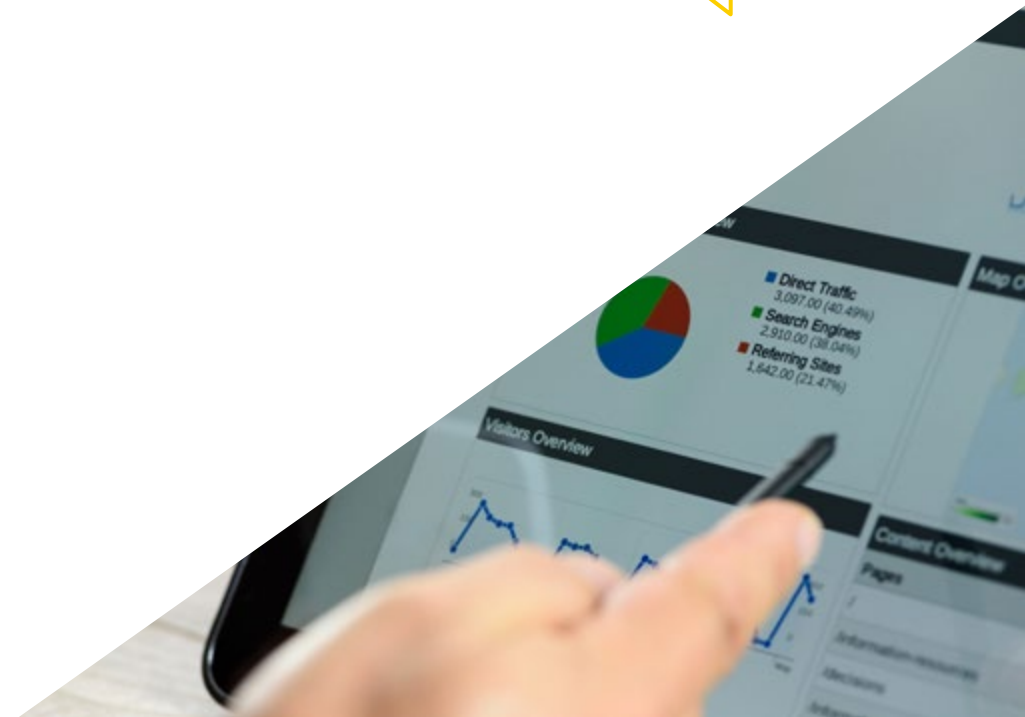
The program's teaching staff includes professionals from sector who contribute their work experience to this program program, as well as renowned specialists from leading societies and prestigious universities.

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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

The objectives of this Postgraduate Diploma were established with a basis on realistic and necessary goals for a professional in the sector. Gradually, students will be able to verify their learning and progress in the mastery of the contents so that, at the end, they will have finished a complete process of professional growth

Realistic, achievable and high-impact goals for your professional training"

General Objectives

- Understand information sources and the value they bring to the creation of new innovative business models

- Know and use statistical tools to solve problems in the field of Big Data

- Know how the combination of all the data flowing through the Internet can be combined to define new strategies applicable to different industrial, business, financial sectors, etc., in different areas, such as energy, health, economy or communication

- Learn the different techniques for the analysis and exploitation of data, visualization and interaction techniques, all closely linked to the role of the Data Scientist and their contribution in the anticipation and vision for the execution of innovation processes that allow managing changes efficiently in organizations

- Assimilate concepts, techniques, methodologies and knowledge of languages that will be useful to apply them in big data mining

- Delve deep into Artificial Intelligence algorithms and techniques such as decision trees, classification and association rules, neural networks or Deep Learning

- Apply data mining tools to solve learning problems, interpreting the results obtained, as well as the ability to design an intelligent system capable of inferring new knowledge

- Get to know databases, from traditional to unstructured, where data requiring other types of processing, such as audio or video streams, will be stored

- Learn the importance of having cloud computing for processing large volumes of data and how all this Big Data can be ingested into tools that allow us to obtain and infer patterns in seemingly unrelated data

- Delve deep into the Hadoop framework and its file system HDFS (Hadoop Distributed File System), which provides systems and techniques for distributed storage and processing of large amounts of data

- Know how to apply the tools for parallel processing: MapReduce, devised by Google in 2004, or Spark, now under the auspices of the Apache Software Foundation

- Understand how high-performance, low-latency platforms work for real-time manipulation of data sources that need to respond to service demands operating in the millisecond range

- Learn how to use IBM's Many Eyes tool that allows you to create different types of data visualizations such as infographics, maps, word count visualization, bar charts, etc.

- Obtain capabilities in three popular libraries such as Google Charts, JQuery plug-ins for visualizations and Data-Driven, also known as D3, one of the most powerful libraries currently on the market

- Know in depth another set of tools that are widely used in various industries such as Matlab, Tableau, SAS Visual Analytics or Microsoft Power BI, where you will be able to explain the history of a dataset through visualizations

Specific Objectives

Module 1. Data Analysis Techniques

♦ Know the different techniques for data analysis

♦ Design the joint strategy of statistical and artificial intelligence techniques for the development of descriptive and predictive systems applied to the reality of a dataset

♦ Understand the operation and characteristics of common mass data processing techniques

♦ Identify techniques oriented to statistical analysis, artificial intelligence and massive data processing

Module 2. Data Analysis Tools

♦ Know the environments most used by Data Scientists

♦ Know how to process data in different formats from different sources

♦ Learn from the need to guarantee the veracity of the data as a prior step to its processing

♦ Identify new technologies as pedagogical tools in the communication of the different business realities

♦ Know the latest trends in the creation of intelligent entities based on deep learning and neural networks

Module 3. Database Management and Data Parallelization Systems

- Know the artificial intelligence techniques applicable for massively parallelized data processing on a given data set and according to previously defined requirements
- Know how to manage large volumes of data in a distributed manner
- Understand the operation and characteristics of common mass data processing techniques
- Identify commercial and free software tools oriented to statistical analysis, artificial intelligence and massive data processing

Module 4. Visualization Tools

- Know how to generate diagrams that visually represent the chosen situation from a set of data
- Be able to combine the different techniques studied for the design of original visualizations
- Know how, starting from a design and a set of previous data, an implementation of a visualization that meets the defined requirements can be carried out
- Identify the usability and interactivity needs of a data visualization method and be able to develop a new version of the visualization that improves these aspects
- Design a system that combines data capture and storage techniques, as well as data analysis and visualization, to represent existing patterns in that data set

" *A stimulating professional growth journey designed to keep you interested and motivated throughout the training"*

03

Course Management

Within the quality criteria that we apply in all our programs, this Postgraduate Diploma represents an opportunity to learn from the best, with a teaching staff made up of professionals in the sector who will invest their theoretical and practical knowledge to take you to the highest level of training With the latest and most effective teaching methods on the online teaching market.

Learn with the best and acquire the knowledge and skills you need to intervene in this area of development with total success"

Management

Mr. Galindo, Luis Ángel

- Senior High Performance Consultant with 16 years of experience
- Definition, development and implementation of a successful open innovation model, with +10% year-on-year revenue growth leveraged on innovative assets
- Definition, development and implementation of successful Digital Transformation Programs for more than 8 years and 700+ people leading a pioneering role in the industry.
- Implementation of 20+ complex consulting projects worldwide for large companies in artificial intelligence, economic intelligence, cybersecurity, business development, digital transformation, risk assessment, process optimization and people management
- Expert in understanding customers and translating their needs into actual sales

Professors

Mr. Almansa, Antonio

- Senior Technician: operation, engineering and architecture of the Data Center (DC) networks located in Independencia and Orduña, as well as the transport network at national level for tariffs and discharges
- Level 2 Expert: design and implementation of the networks (with technological change) of the DC of Fco. Sancha and later Manuel Tovar
- Design, implementation and integration of the Julian Camarillo DC contingency center

Dr. García, Felipe

- Founding Partner and President of KNOWDLE AI TECHNOLOGIES GROUP
- President promoter of the KNOWDLE CONSORTIUM GROUP ASSOCIATION
- Promoter and President of the KNOWDLE Foundation of Open Bio-Inspired Knowledge
- FOUNDATION & RESEARCH INSTITUTE) with an ecosystem of startups in acceleration under the same Collective Artificial Intelligence technology
- Degree in IT from the Polytechnic University of Madrid
- Doctoral Thesis on"Wisdom Collective Intelligence

USERS: LAST 7 DAYS USING MEDIAN ⌄

LOAD TIME VS BOUNCE RATE
⚙ OPTIONS

Median Page Load (LUX): 2.056s

Bounce Rate
7s
57.1%

75K / 100 %
60K / 80 %
45K / 60 %
30K / 40 %
15K / 20 %
0 / 0 %

0   2.5   5   7.5   10   12.5   15   17.5

● Page Load (LUX)   — Bounce Rate
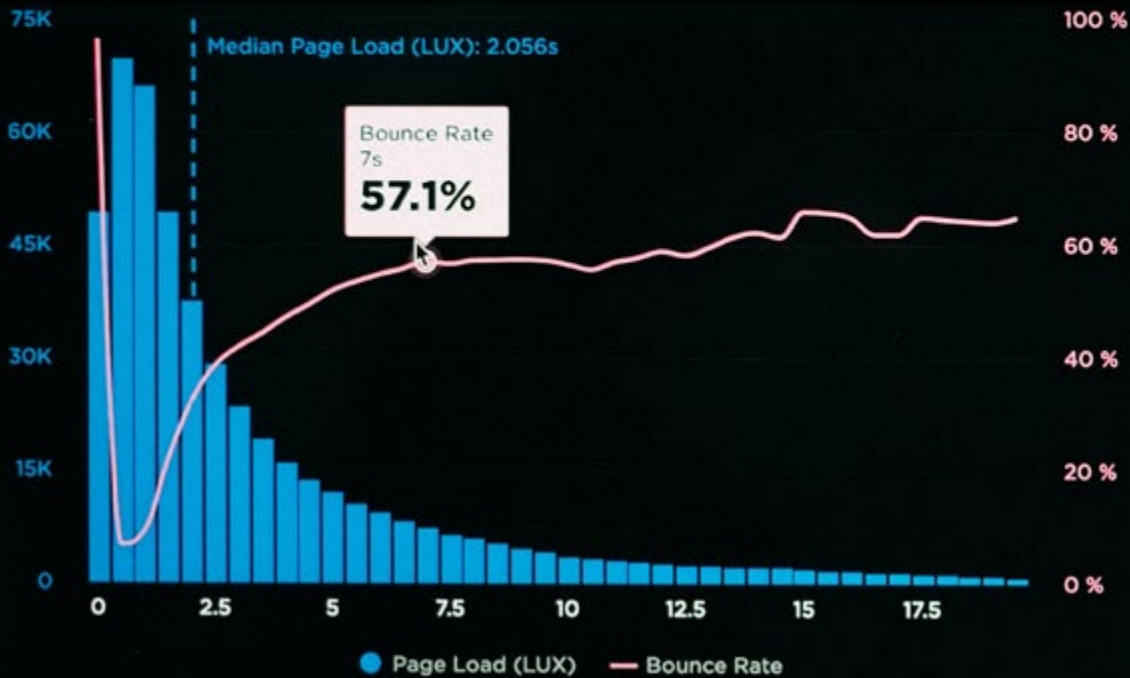
START RENDER VS BOUNCE RATE
⚙ OPT

Median Start Render (LUX): 1.031s

40K
32K
24K
16K
8K
0

0   1   2   3   4   5

● Start Render (LUX)   — Bounce Rate
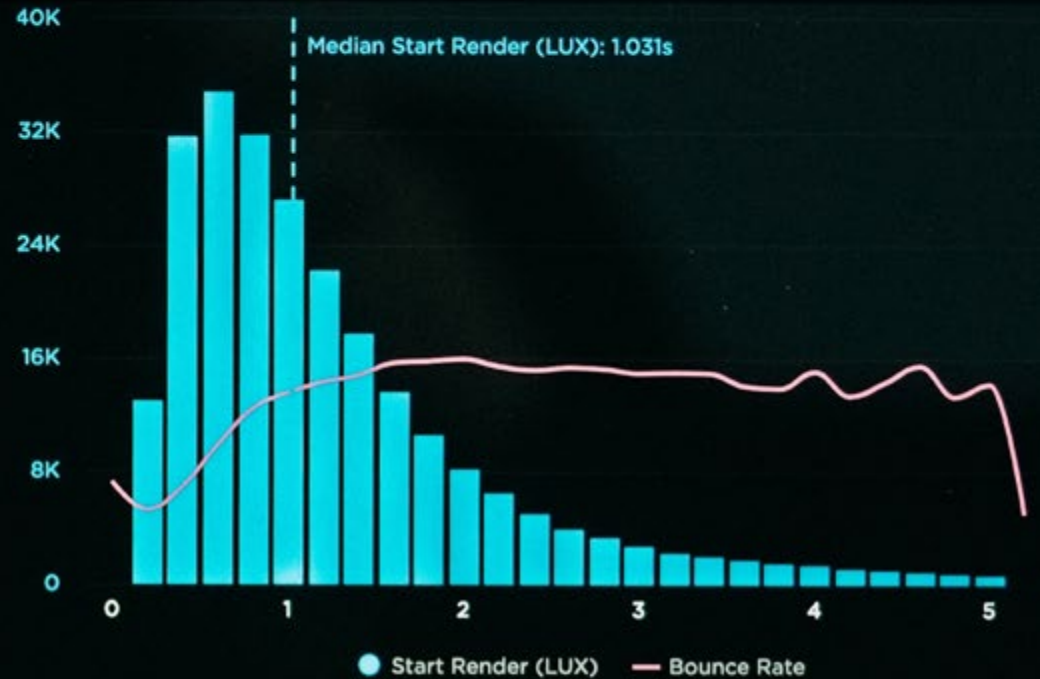
PAGE VIEWS VS ONLOAD
⚙ OPTIONS

Page Load (LUX)
0.7s

Page Views (LUX)
2.7Mpvs

Bounce Rate (LUX)
40.6%

1s
0.8s
0.6s
0.4s

500K 100%
400K 80%
300K 60%
200K 40%

SESSIONS
⚙ OP

Sessions (LUX)
479K

Session Length (LUX)
17min

PVs Per Session (L
2pvs

4 pvs
3.2 pvs
2.4 pvs
1.6 pvs

100K
80K
60K
40K
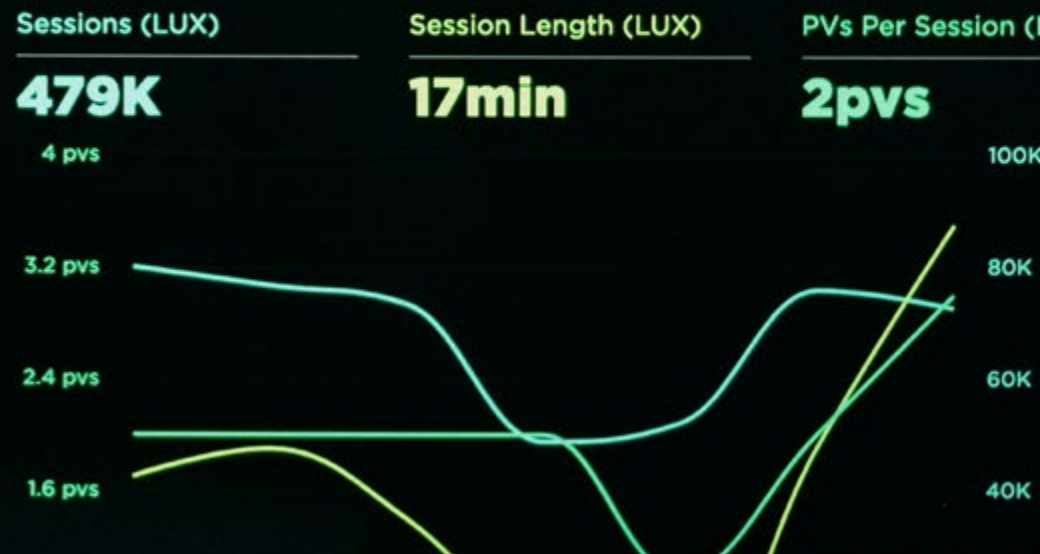
04

Structure and Content

The syllabus of the Postgraduate Diploma university is configured as a complete tour through each and every one of the knowledge necessary to understand and assume the ways of working in this field. With an approach focused on practical application that will help you grow as a professional from the very first moment of training..
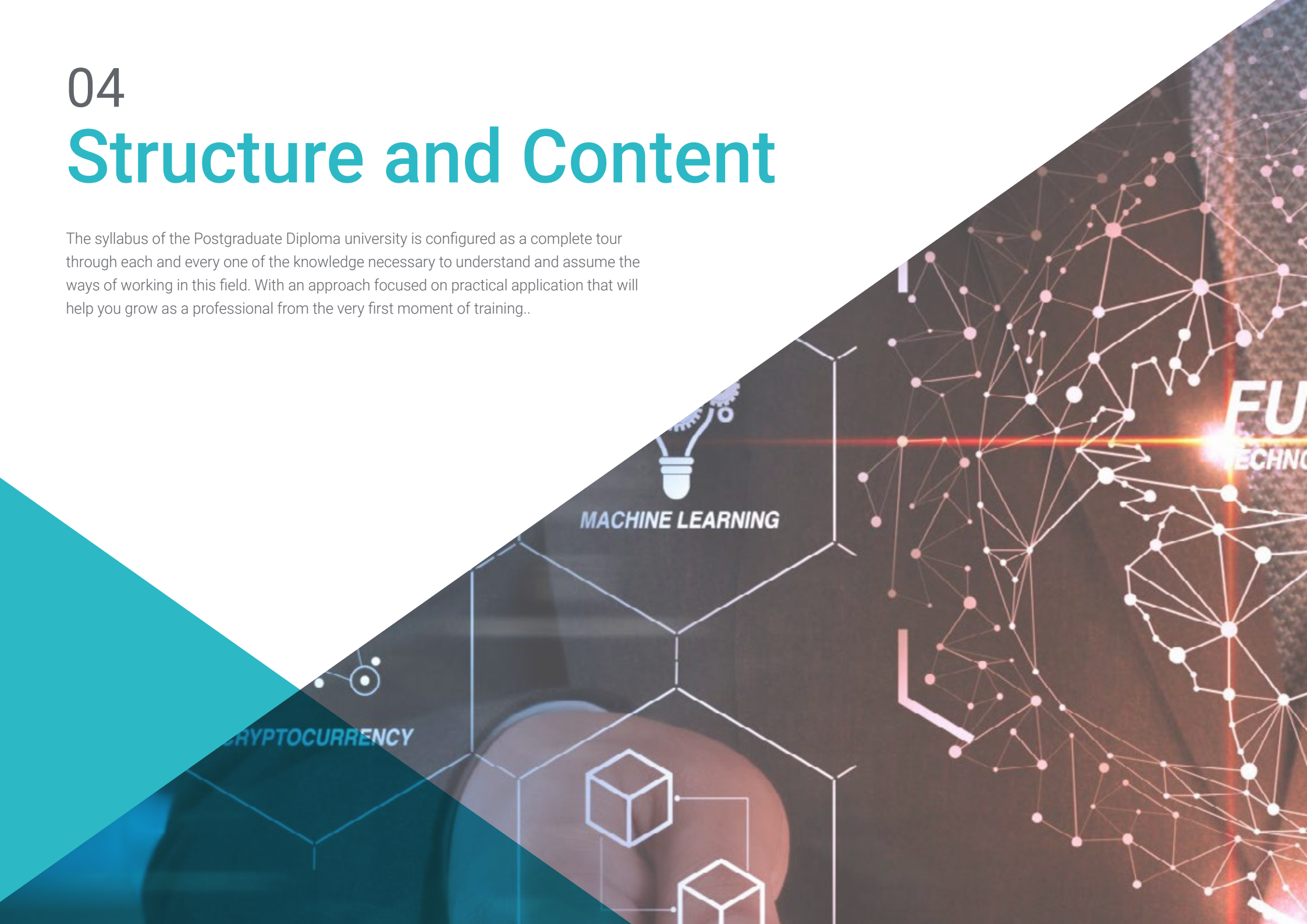
A comprehensive syllabus focused on acquiring knowledge and converting it into real skills, created to propel you to excellence"

Module 1. Data Analysis Techniques

1.1. Predictive Analytics
1.2. Evaluation Techniques and Model Selection
1.3. Lineal Optimization Techniques
1.4. Monte Carlo Simulations
1.5. Scenario Analysis
1.6. Machine Learning Techniques
1.7. Web Analytics
1.8. Text Mining Techniques
1.9. Methods of Natural Language Processing (NLP)
1.10. Social Network Analytics

Module 2. Data Analysis Tools

2.1. Data Science R Environment
2.2. Data Science Python Environment
2.3. Static and Statistical Graphs
2.4. Data Processing in Different Formats and Different Sources
2.5. Data Cleaning and Preparation
2.6. Exploratory Studies
2.7. Decision Trees
2.8. Classification and Association Rules
2.9. Neural Networks
2.10. Deep Learning

A comprehensive and multidisciplinary training that will allow you to excel in your career"

Module 3. Database Management and Data Parallelization Systems

3.1. Conventional Databases

3.2. Non-Conventional Databases

3.3. Cloud Computing Data Distribution Management

3.4. Tools for the Ingestion of Large Volumes of Data

3.5. Types of Parallels

3.6. Data Processing in Streaming and Real Time

3.7. Parallel Processing: Hadoop

3.8. Parallel Processing: Spark

3.9. Apache Kafka

    3.9.1. Introduction to Apache Kafka

    3.9.2. Architecture

    3.9.3. Data Structure

    3.9.4. APIs Kafka

    3.9.5. Case Uses

3.10. Cloudera Impala

Module 4. Visualization Tools

4.1. Introduction to Data Visualization Tools

4.2. Many Eyes

4.3. Google Charts

4.4 jQuery

4.5. Data-Driven Documents I

4.6. Data-Driven Documents II

4.7. Matlab

4.8. Tableau

4.9. SAS Visual Analytics

4.10. Microsoft Power BI

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"

At TECH we use the Case Method

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"

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 to solve complex situations in real business environments through collaborative activities and real cases.

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 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.

30%

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.

10%

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 that we are experiencing.

8%

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.

20%

25%

4%

3%
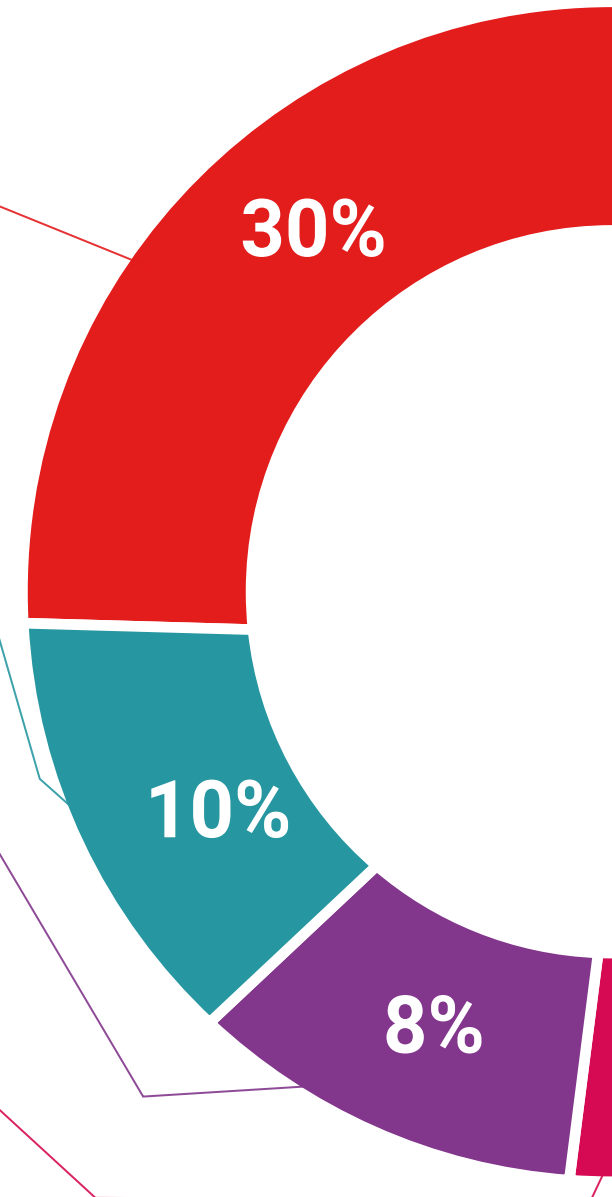
Case Studies

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 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.

Certificate

The Postgraduate Diploma in Visualization Tools and Techniques guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

Successfully complete this program and receive your university title without the hassle of travel or paperwork"

This **Postgraduate Diploma in Visualization Techniques and Tools** contains the most complete and up-to-date scientific program on the market.

After students have passed the assessments, they will receive their corresponding Postgraduate Diploma, issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Visualization Techniques and Tools**

Official Nº of Hours: **600 hours.**

tech technological university

Awards the following

CERTIFICATE
to

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

POSTGRADUATE DIPLOMA
in

Visualization Tools and Techniques

This is a qualification awarded by this University, equivalent to 600 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 certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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tech *technological university*