



# Visualization Techniques and Tools

» Modality: online » Duration: 6 months

» Certificate: TECH Global University

» Credits: 24 ECTS

» Schedule: at your own pace

» Exams: online

» Target Group: Graduates or professionals of any specialty who want to be qualified in the application of data visualization technologies, Big Data and artificial intelligence for the development, boost or change of direction of their professional career

Website: www.techtitute.com/us/school-of-business/postgraduate-diploma/postgraduate-diploma-visualization-techniques-tools

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# 01 **Welcome**

Data analytics and Big Data are the future for many companies that are beginning to incorporate analytics as a key tool in the normal course of their business. Thanks to this analysis of your customer and market behavior, you can gain a competitive advantage over other companies in the sector and achieve better business results. Being a task of vital importance and with high expectations of economic growth, TECH has prepared this program, with which professionals will specialize in data visualization techniques and tools that will allow them to stand out in the labor market and gain access to bigger and better paid jobs.







# tech 08 | Why Study at TECH?

#### At TECH Global University



#### **Innovation**

The university offers an online learning model that combines the latest educational technology with the most rigorous teaching methods. A unique method with the highest international recognition that will provide students with the keys to develop in a rapidly-evolving world, where innovation must be every entrepreneur's focus.

"Microsoft Europe Success Story", for integrating the innovative, interactive multi-video system.



#### The Highest Standards

Admissions criteria at TECH are not economic. Students don't need to make a large investment to study at this university. However, in order to obtain a qualification from TECH, the student's intelligence and ability will be tested to their limits. The institution's academic standards are exceptionally high...

95%

of TECH students successfully complete their studies



#### Networking

Professionals from countries all over the world attend TECH, allowing students to establish a large network of contacts that may prove useful to them in the future.

100,000+

200+

executives trained each year

different nationalities



#### **Empowerment**

Students will grow hand in hand with the best companies and highly regarded and influential professionals. TECH has developed strategic partnerships and a valuable network of contacts with major economic players in 7 continents.

500+

collaborative agreements with leading companies



#### **Talent**

This program is a unique initiative to allow students to showcase their talent in the business world. An opportunity that will allow them to voice their concerns and share their business vision.

After completing this program, TECH helps students show the world their talent.



#### **Multicultural Context**

While studying at TECH, students will enjoy a unique experience. Study in a multicultural context. In a program with a global vision, through which students can learn about the operating methods in different parts of the world, and gather the latest information that best adapts to their business idea.

TECH students represent more than 200 different nationalities.



#### Learn with the best

In the classroom, TECH's teaching staff discuss how they have achieved success in their companies, working in a real, lively, and dynamic context. Teachers who are fully committed to offering a quality specialization that will allow students to advance in their career and stand out in the business world.

Teachers representing 20 different nationalities.



At TECH you will have access to Harvard Business School case studies"

### Why Study at TECH? | 09 tech

TECH strives for excellence and, to this end, boasts a series of characteristics that make this university unique:



#### **Analysis**

TECH explores the student's critical side, their ability to question things, their problem-solving skills, as well as their interpersonal skills.



#### **Academic Excellence**

TECH offers students the best online learning methodology. The university combines the Relearning methodology (the most internationally recognized postgraduate learning methodology) with Harvard Business School case studies. A complex balance of traditional and state-of-the-art methods, within the most demanding academic framework.



#### **Economy of Scale**

TECH is the world's largest online university. It currently boasts a portfolio of more than 10,000 university postgraduate programs. And in today's new economy, **volume + technology = a ground-breaking price**. This way, TECH ensures that studying is not as expensive for students as it would be at another university.





# tech 12 | Why Our Program?

This program will provide students with a multitude of professional and personal advantages, particularly the following:



#### A significant career boost

By studying at TECH, students will be able to take control of their future and develop their full potential. By completing this program, students will acquire the skills required to make a positive change in their career in a short period of time.

70% of participants achieve positive career development in less than 2 years.



# Develop a strategic and global vision of companies

TECH offers an in-depth overview of general management to understand how each decision affects each of the company's different functional areas.

Our global vision of companies will improve your strategic vision.



### Consolidate the student's senior management skills

Studying at TECH means opening the doors to a wide range of professional opportunities for students to position themselves as senior executives, with a broad vision of the international environment.

You will work on more than 100 real senior management cases.



### Take on new responsibilities

The program will cover the latest trends, advances and strategies, so that students can carry out their professional work in a changing environment.

45% of graduates are promoted internally.



#### Access to a powerful network of contacts

TECH connects its students to maximize opportunities. Students with the same concerns and desire to grow. Therefore, partnerships, customers or suppliers can be shared.

You will find a network of contacts that will be instrumental for professional development.



### Thoroughly develop business projects

Students will acquire a deep strategic vision that will help them develop their own project, taking into account the different areas in companies.

20% of our students develop their own business idea.



#### Improve soft skills and management skills

TECH helps students apply and develop the knowledge they have acquired, while improving their interpersonal skills in order to become leaders who make a difference.

Improve your communication and leadership skills and enhance your career.



#### Be part of an exclusive community

Students will be part of a community of elite executives, large companies, renowned institutions, and qualified professors from the most prestigious universities in the world: the TECH Global University community.

We give you the opportunity to train with a team of world renowned teachers.





# tech 16 | Objectives

TECH makes the goals of their students their own goals too. Working together to achieve them.

The Postgraduate Diploma in Visualization Techniques and Tools prepares students to:







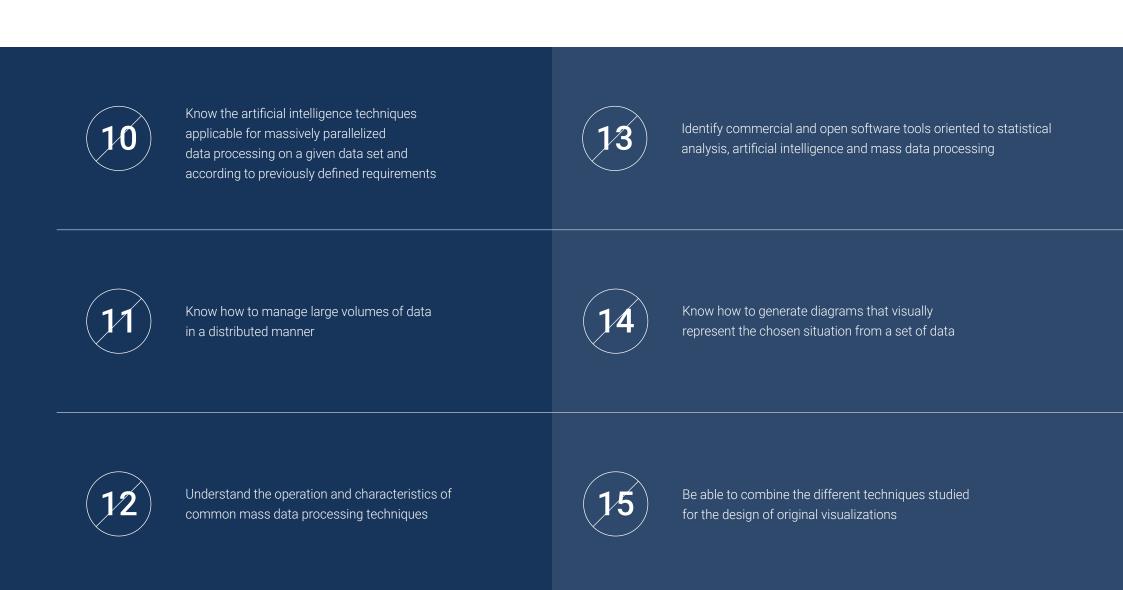
Learn the need to ensure data accuracy prior to data processing



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







Understand how, starting from a design and a set of previous data, a visualization implementation that meets the defined requirements can be carried out



Identify the usability and interactivity needs of data visualization methods 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





### tech 22 | Structure and Content

#### **Syllabus**

This Postgraduate Diploma teaches students all kinds of data analysis techniques and tools, with extensive knowledge of the main management systems so that they master all the aspects required of professional managers in this branch of business.

It is, therefore, a syllabus that focuses on students' professional improvement through successful teaching. Supported by the team of professionals that TECH has assembled, students will be advised at all times on any questions or doubts that may arise, even generating future useful contacts in their business career.

In addition, over the 600 hours of the program, students are also involved in real case studies where they can learn about the exact application of the analytical methodologies learned during the program, which helps them to have a much better and more contextual understanding of all the knowledge imparted.

This Postgraduate Diploma takes place over 6 months and is divided into 4 modules:

Module 1.	Data and Al Analysis Techniques
Module 2.	Data Analysis Tools
Module 3.	Database Management and Data Parallelization Systems
Module 4.	Visualization Tools



### Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Diploma completely online. Over the course of 6 months, you will be able to access all the contents of this program at any time, allowing you to self-manage your study time.

A unique, key, and decisive educational experience to boost your professional development and make the definitive leap.

# tech 24 | Structure and Content

Module 1. Data and Al Analysis Techniques							
1.1.	Predictive Analytics	1.2.	Evaluation Techniques and Model Selection	1.3.	Lineal Optimization Techniques	1.4.	Montecarlo 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				
Mod	l <b>ule 2.</b> Data Analysis Tools						
Mod	are 2. Bata / maryolo 10010						
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				

4.8. Tableau

3.1.	Conventional Databases	3.2.	Non-Conventional Databases	3.3.	Cloud Computing: Distributed Data 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
3.9.1. 3.9.2. 3.9.3. 3.9.4.	Apache Kafka Introduction to Apache Kafka Architecture Data Structure API Kafka Case Uses	3.10.	Cloudera Impala				
Mod	<b>ule 4.</b> Visualization Tools						
4.1.	Introduction to Data Visualization Tools	4.2.	Many Eyes	4.3.	Google Charts	4.4. j	Query

4.7. Matlab

Module 3. Database Management and Data Parallelization Systems

4.5. Data-Driven Documents I

4.9. SAS Visual Analytics



4.6. Data-Driven Documents II

4.10. Microsoft Power BI



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.





# tech 28 | Methodology

# TECH Business School uses the 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.





This program prepares you to face business challenges in uncertain environments and achieve business success.



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

#### A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch to present executives with challenges and business decisions at the highest level, whether at the national or international level. 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 business reality is taken into account.



You will learn, through collaborative activities and real cases, how to solve complex situations in real business environments"

The case method has been the most widely used learning system among the world's leading business 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 we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They must integrate all their knowledge, research, argue and defend their ideas and decisions.

# tech 30 | Methodology

#### 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.

Our online system will allow you to organize your time and learning pace, adapting it to your schedule. You will be able to access the contents from any device with an internet connection.

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 online business school is the only one in the world licensed to incorporate 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.



### Methodology | 31 tech

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 specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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.



#### **Management Skills Exercises**

They will carry out activities to develop specific executive competencies in each thematic area. Practices and dynamics to acquire and develop the skills and abilities that a high-level manager 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.





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 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 educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

#### **Testing & Retesting**

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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.

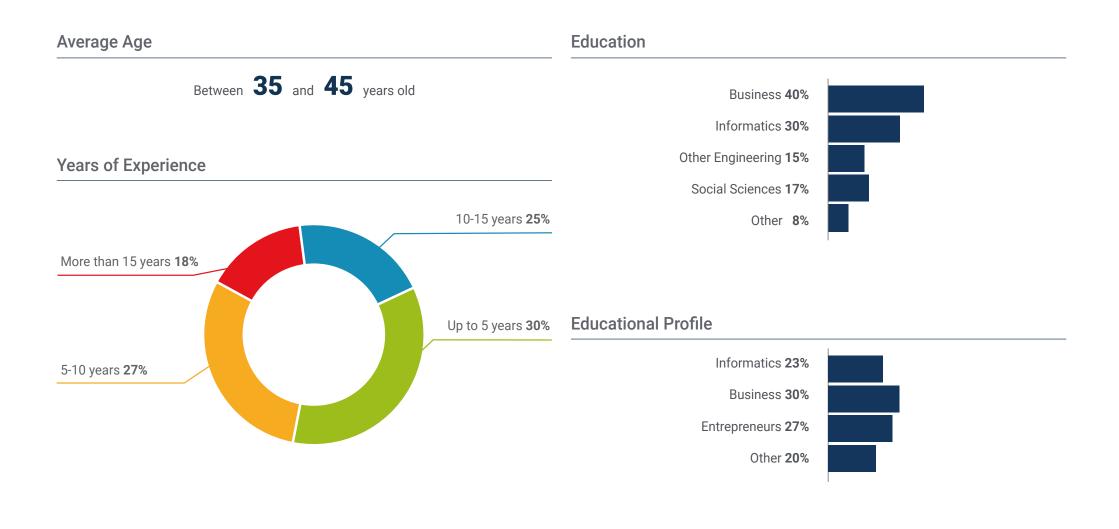


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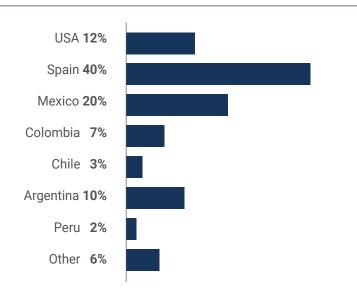




## tech 36 | Our Students' Profiles



### **Geographical Distribution**





# Sofía Ruiz López

#### **Visual Analytics Expert**

"Specializing with TECH in Visualization Techniques and Tools has been a wonderful experience due to the program's teaching staff, composed of professionals in the sector, and the innovative and quality syllabus that has allowed me to update my resources and apply them in the day-to-day of my profession"





#### **International Guest Director**

Recognized as one of the best experts in Data Science by Forbes magazine, Robert Morgan is a distinguished mathematician highly specialized in the field of Computational Statistics. His extensive knowledge in this field has allowed him to be part of international reference institutions, such as the multinational Unilever.

In this way, he has led the Data Science strategy at a global level. In this sense, he has supervised multiple projects that use advanced analysis to optimize the strategic operations of companies. Among his major achievements, he has improved the shopping experience of multiple customers by offering them personalized product recommendations based on their preferences. As a result, it has enabled users to establish loyal relationships with brands. It has also employed Digital Twins in the manufacturing network, managing to monitor soap production in real time and significantly improving its quality.

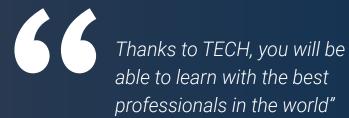
Moreover, his philosophy focuses on the use of data systems to solve complex problems in the business environment and drive innovation. In the same vein, in his spare time he develops software and participates in open source projects. As such, he stays at the forefront of the latest trends in subjects such as Bayesian Statistics, Big Data or Artificial Intelligence, among others.

In addition, his work has been rewarded on multiple occasions in the form of awards. For example, he recently received the "Business Achievement" award from Unilever for his contribution to the digital transformation of the company. In this regard, it is worth noting that the integration of technologies has enabled companies to improve their operational efficiency by automating repetitive tasks. This has considerably reduced human errors in the logistics chain, resulting in both time and cost savings.



## Mr. Morgan, Robert

- Global Director of Data Science at Unilever in New York, United States
- Head of Analytics and Data Science at Dunnhumby, New York
- Statistician at Unilever, New York
- M.Sc. in Computational Statistics from Bacth University
- M.Sc. in Statistical Research from Bristol University
- B.Sc. in Mathematics, Cardiff University
- Certificate in Statistical Learning from Stanford University
- Certificate in Programming from Johns Hopkins University



## tech 42 | Course Management

#### 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

#### Mr. García, Felipe

- Degree in IT from the Polytechnic University of Madrid
- Doctoral Thesis on "Wisdom Collective Intelligence"
- Founding Partner and President of KNOWDLE AI TECHNOLOGIES GROUP
- $\bullet\,$  President promoter of the KNOWDLE CONSORTIUM GROUP ASSOCIATION
- Promoter and president of the KNOWDLE FOUNDATION & RESEARCH INSTITUTE with an ecosystem of startups in acceleration under the same technology of Collective Artificial Intelligence







# Are you ready to take the leap? Excellent professional development awaits you

The effort made by students to take this program is rewarded in an improvement that not only affects them professionally, but also personally, by giving them access to a network of contacts and potential business partners with whom to build a better future thanks to data analysis and visualization.

An excellent professional development awaits you.

The best way to achieve professional change is to increase your skills. So don't stop studying at TECH.

Thanks to this program, you will receive a large number of job offers with which you will be able to start your professional growth.

#### Time of change



#### Type of change



## Salary increase

This program represents a salary increase of more than 25.22% for our students

\$32,900

A salary increase of

25.22%

\$41,200





## tech 50 | Benefits for Your Company

Developing and retaining talent in companies is the best long-term investment.



#### **Intellectual Capital and Talent Growth**

The professional will introduce the company to new concepts, strategies, and perspectives that can bring about significant changes in the organization.



# Retaining high-potential executives to avoid talent drain

This program strengthens the link between the company and the professional and opens new avenues for professional growth within the company.



#### **Building agents of change**

The graduates will be able to make decisions in times of uncertainty and crisis, helping the organization to overcome obstacles.



### Increased international expansion possibilities

Thanks to this program, the company will come into contact with the main markets in the world economy.





### **Project Development**

The professionals can work on a real project or develop new projects in the field of R&D or Business Development of their company.



## **Increased Competitiveness**

This Postgraduate Diploma will equip professionals with the skills to take on new challenges and therefore drive the organization forward.







## tech 54 | Diploma

This program will allow you to obtain your **Postgraduate Diploma in Visualization Techniques** and **Tools** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra (*official bulletin*). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: Postgraduate Diploma in Visualization Techniques and Tools

Modality: online

Duration: 6 months

Accreditation: 24 ECTS



Mr./Ms. \_\_\_\_\_, with identification document \_\_\_\_\_ has successfully passed and obtained the title of:

#### Postgraduate Diploma in Visualization Techniques and Tools

This is a program of 600 hours of duration equivalent to 24 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024



<sup>\*</sup>Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.



## Postgraduate Diploma Visualization Techniques and Tools

» Modality: online

» Duration: 6 months

» Certificate: **TECH Global University** 

» Credits: 24 ECTS

» Schedule: at your own pace

» Exams: online

