Postgraduate Certificate
Deep Learning in Data Mining

tech technological university

Postgraduate Certificate
Deep Learning in Data Mining

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

Website: **www.techtitute.com/us/school-of-business/postgraduate-certificate/deep-learning-data-mining**

Index

01
Welcome

Artificial Intelligence will change the world and its impact will be greater than anything else in human history, even greater than the revolution brought about by the discovery of electricity. This is the opinion of Artificial Intelligence expert Kai-Fu-Lee. Precisely in this program an important part of Artificial Intelligence will be addressed: Machine Learning In the 21st century, when modern technology allows the generation of huge amounts of data, a source of incalculable business value. In order to truly take advantage of it, it is necessary to use techniques and tools capable of processing, analyzing and synthesizing it. An in-depth knowledge of it will provide the professional and the company with efficient solutions and a more sustainable environment.

Postgraduate Certificate in Deep Learning in Data Mining.
TECH Technological University

You will understand how to predict the future behavior or performance of processes, activities and operations related to data. With this Postgraduate Certificate"

02
Why Study at TECH?

TECH is the world's largest 100% online business school. It is an elite business school, with a model based on the highest academic standards. A world-class center for intensive managerial skills education.

TECH is a university at the forefront of technology, and puts all its resources at the student's disposal to help them achieve entrepreneurial success"

At TECH Technological University

Innovation

The university offers an online learning model that balances 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.

+100000
executives prepared each year

+200
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.

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

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 the most rigorous and up-to-date case analyses in academia"

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.

03
Why Our Program?

Studying this TECH program means increasing the chances of achieving professional success in senior business management.

It is a challenge that demands effort and dedication, but it opens the door to a promising future. Students will learn from the best teaching staff and with the most flexible and innovative educational methodology.

We have highly qualified teachers and the most complete syllabus on the market, which allows us to offer you education of the highest academic level"

This program will provide you with a multitude of professional and personal advantages, among which we highlight the following:

01

A Strong Boost to Your Career

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 students achieve positive career development in less than 2 years.

02

Develop a strategic and global vision of the company

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

Our global vision of companies will improve your strategic vision.

03

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.

04

You will 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.

05

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.

06

Thoroughly develop business projects

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

20% of our students develop their own business idea.

07

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.

08

You will be part of an exclusive community

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

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

04
Objectives

The objective of this Postgraduate Certificate is to approach the data mining process focusing on the learning part. Analyze the types of learning that exist: supervised, unsupervised, reinforcement learning. And to study the different algorithms used for each type of learning, according to the objective of the analysis process, whether classification, regression, clustering or other. For this, TECH has dedicated this program led by expert teachers that will allow learning in just 6 weeks through an online methodology.

If you want to stand out in your professional environment, you need to keep up-to-date. Learn online and with the best content developed by experts"

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

The **Postgraduate Certificate in Deep Learning in Data Mining** enables the student to:

01 Analyze the data mining process

02 Specify the types of machine learning

03 Identify data analytics scenarios using the appropriate techniques for each type of problem

04 Delve into the current paradigms on which much of Artificial Intelligence is based

05 Evaluate the skills acquired in the process of obtaining value and knowledge from data and the problems of classification, regression and clustering

06 Analyze metrics and validation methods for machine learning algorithms

07 Establish the fundamentals of probabilistic reasoning

08 Analyze the evolution of neural networks to deep learning

09 Demonstrate knowledge of different learning techniques

10 Determining the BI tool to be used in a company

11 Generate technical skills, statistical and quantitative knowledge

12 Obtain results related to the strategies implemented and the management of data

Structure and Content

The Postgraduate Certificate in Deep Learning in Data Mining has been designed for the agile learning of data mining processes, focusing on the learning part. Structured each topic from the precise to the descriptive. Special focus on the last topics, neural networks and their evolution to deep learning and its applications in the real world. An innovative digital learning system, based on directed reiteration, is applied. Combine pedagogical rigor, academic demand and the latest educational technology to the maximum, providing excellent results.

"With the most up-to-date, expertly chosen content you will understand how algorithms work in data mining"

Syllabus

When a company has large amounts of data that exceed the capacity of human analysis, it is necessary to make use of the technologies that are now available in order to interpret, understand and draw conclusions from data in an intelligent way. In other words, large volumes of data require artificial cognitive systems that can help professionals make the best decisions.

Artificial intelligence is the ideal complement to business intelligence in the enterprise environment. Address the process of data mining with a focus on the learning part is the objective of this certificate in Deep Learning in Data Mining.

The study of the different types of learning that exist. As well as the interpretation and evaluation of data for selection and preprocessing. Knowledge of the different types of assemblies, in addition to establishing the foundations of probabilistic reasoning, is part of the syllabus of this program.

Through a secure platform, with the implementation of a 100% online methodology, each of the topics will be developed in depth, chosen in a precise way by a team of expert teachers. Finally, the study of neural networks and their evolution until reaching deep learning and its applications in the real world.

This Postgraduate Certificate is developed over 6 week and is divided into 1 module:

Module 1   Data Mining: from Machine Learning to Deep Learning

Where, When and How is it Taught?

TECH offers the possibility of developing this Postgraduate Certificate in Data Mining Processing and Transformation completely online. During the 6 weeks of the specialization, the student will be able to access all the contents of this program at any time, which will allow the students to self-manage their study time.

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

Module 1. Data Mining: from Machine Learning to Deep Learning

1.1. Knowledge from Data (KDD)
1.1.1. Selection
1.1.2. Pre-processing
1.1.3. Transformation
1.1.4. Data Mining
1.1.5. Interpretation and evaluation

1.2. Machine Learning
1.2.1. Supervised Learning
1.2.2. Unsupervised Learning
1.2.3. Reinforcement Learning
1.2.4. Other Learning Paradigms

1.3. Classification of Supervised Learning
1.3.1. Decision Trees
1.3.2. Rules-Based Learning
1.3.3. Support Vector Machines(SVM)
1.3.4. Nearest neighbor algorithms
1.3.5. Metrics

1.4. Regression in Supervised Learning
1.4.1. Linear Regression
1.4.2. Logistic Regression
1.4.3. Non-linear models
1.4.4. Time Series
1.4.5. Metrics

1.5. Clustering in Supervised Learning
1.5.1. Hierarchical Clustering
1.5.2. Distance-based clustering. Partitional
1.5.3. Density-based clustering. Partitional
1.5.4. Metrics

1.6. Association Rules in Supervised Learning
1.6.1. Rules of Association. Measurements
1.6.2. Rule Extraction Methods
1.6.3. Metrics

1.7. Assemblies
1.7.1. Bagging
1.7.2. Random Forests
1.7.3. Boosting

1.8. Probabilistic reasoning
1.8.1. Probabilistic reasoning
1.8.2. Bayesian Networks
1.8.3. Hidden Markov Models

1.9. Artificial Neural Networks
1.9.1. Multilayer Perceptron
1.9.2. Regression and Classification
1.9.3. Gradient Descent
1.9.4. Backpropagation
1.9.5. Activation Functions
1.9.6. Example of feedforward type neural network

1.10. Deep Learning
1.10.1. Feedforward type Deep Neural Networks
1.10.2. Convolutional Neural Networks
1.10.3. Recurrent and Recursive Neural Networks
1.10.4. Tools for programming Deep Neural Networks

"Learn more about the advantages of Artificial Intelligence to examine data effectively. And apply it to your business models"

06

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"

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.

"

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

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

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.

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

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.

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. 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.

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.

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.

10%

8%

3%

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%

15%

4%
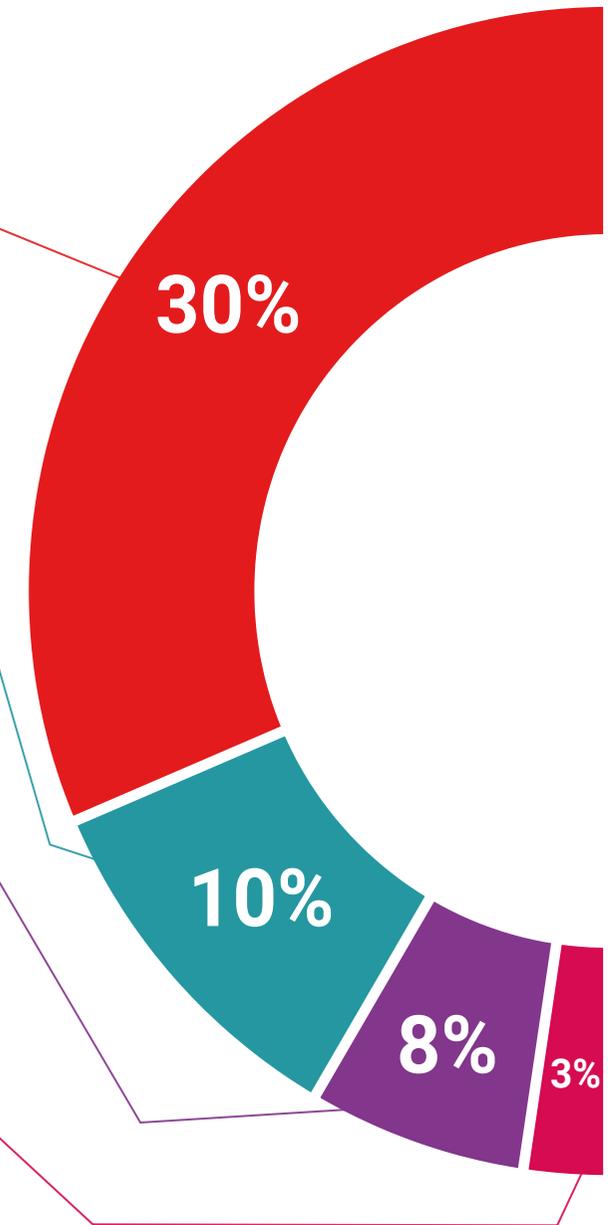
Case Studies

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 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

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.

Our Students' Profiles

This Postgraduate Certificate in Deep Learning in Data Mining is aimed at all professionals in the area of engineering and computer science. As well as the business world who wish to reorient their work and results optimally. Using the analysis of data in favor of the achievement of objectives with the knowledge of the most up-to-date technologies.

*Become an expert in deep neural networks. With this Postgraduate Certificate in Deep Learning in Data Mining"*

Average Age

Between **35** and **45** years old

Years of Experience

More than 15 years **17.8%**

Up to 5 years **15.5%**

5 to 10 years **32.5%**

10 to 15 years **34.2%**

Training

Business Economics **30%**

Engineering **38%**

Social Sciences **14%**

Other **18%**

Educational Profile

Industry **41%**

Services **19%**

Entrepreneurs **28%**

Other **12%**
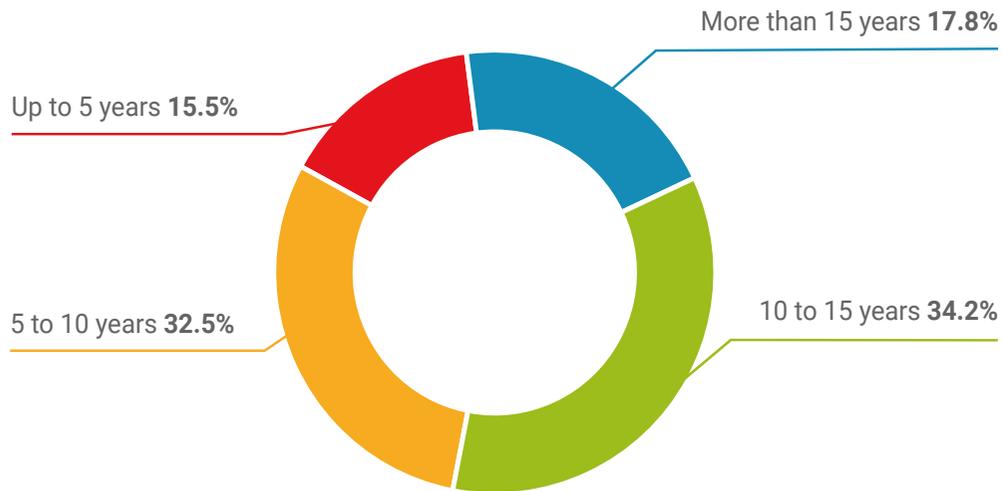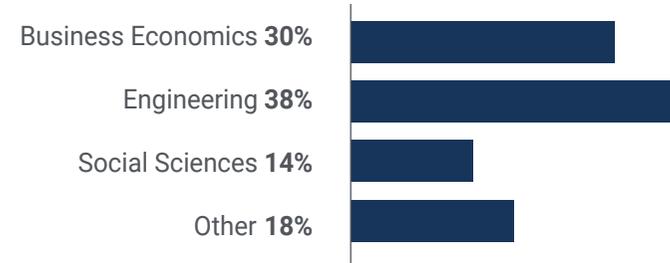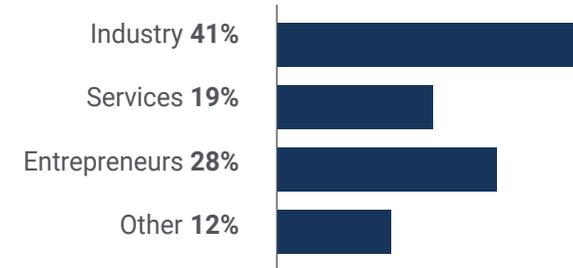
Geographical Distribution

USA **19%**

Spain **37%**

Mexico **30%**

Colombia **14%**
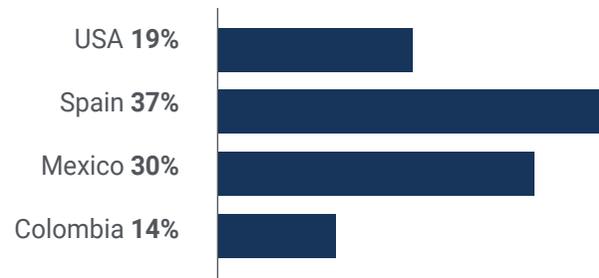
Carol Mejías Contreras

Data Analyst

"I never thought of achieving a program with such advanced technical knowledge, remotely. The support of the teachers was key and now I am very satisfied with the results that I continue to obtain day by day in my professional career"

08
Course Management

In order for the professionals who take this program to find all the necessary tools and the most up-to-date content, TECH Technological University has chosen the most specialized team of teachers knowledgeable in the world of information technology, business and finance. They will accompany you throughout the learning process, ensuring excellence and an elite education. Thanks to their knowledge and experience taught through an innovative methodology, with the most advanced technology that year after year reaches new successful graduates.

You will study online but never alone. The team of teachers will be with you every step of the way"

Management

Dr. Peralta Martín-Palomino, Arturo

- CEO and CTO at Prometeus Global Solutions
- CTO en Corporate Technologies in Corporate Technologies
- CTO in AI Shephers GmbH
- Doctorate in Psychology from the University of CastillaLa
- PhD in Economics, Business and Finance from the Camilo José Cela University. Outstanding Award in her PhD
- Master's Degree in Advanced Information Technologies from the University of Castilla la Mancha
- Master MBA+E (Master's Degree in Business Administration and Organisational Engineering) from the University of Castilla la Mancha
- Associate lecturer, teaching undergraduate and master's degrees in Computer Engineering at the University of Castilla la Mancha
- Professor of the Master in Big Data and Data Science at the International University of Valencia
- Lecturer of the Master's Degree in Industry 4.0 and the Master's Degree in Industrial Design and Product Development
- Member of the SMILe Research Group of the University of Castilla la Mancha

Professors

Mr. Montoro Montarroso, Andrés

- Researcher in the SMILe Group at the University of Castilla-La Mancha
- Data Scientist at Prometeus Global Solutions
- Graduate in Computer Engineering from the University of Castilla-La Mancha
- Master's Degree in Data Science and Computer Engineering from the University of Granada
- Guest lecturer in the subject of Knowledge-Based Systems at the Escuela Superior de Informática de Ciudad Real, Giving the Lecture "Advanced Artificial Intelligence Techniques: Search and Analysis of Potential Social Media Radicals"
- Guest lecturer in the subject of Data Mining at the Escuela Superior de Informática de Ciudad Real giving the lecture: "Applications of Natural Language Processing: Fuzzy Logic to the analysis of messages in social networks"
- Speaker at the Seminar on Corruption Prevention in Public Administrations and Artificial Intelligence. Faculty of Law and Social Sciences of Toledo. Conference entitled "Artificial Intelligence Techniques". Speaker at the first International Seminar on Administrative Law and Artificial Intelligence (DAIA). Organised by Centro de Estudios Europeos Luis Ortega Álvarez and Institut de Recerca TransJus. Conference entitled "Sentiment Analysis for the prevention of hate speech on social media"

Impact on Your Career

With the rise of process automation, companies are striving to improve its implementation in each production stage, in order to obtain better overall performance. Professionals must be aware of this need, as they are part of a market that leads them to constantly update and train themselves in order to obtain better opportunities. That is why this program enables the worker or entrepreneur to achieve their goals and achievements in the short and medium term.

" In order to have better results, you have to adapt to market innovations. The world demands constant learning and TECH offers you the tools"

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

The Postgraduate Certificate in Deep Learning in Data Mining from TECH is an intensive program that prepares you to develop specialized knowledge of the different learning systems in data mining, in addition to identifying data analytics scenarios using the appropriate techniques for each type of problem, among other AI tools.

For those who like to innovate, evolve and be a competitive professional, this program is the right one to achieve success.

With this Postgraduate Certificate you will master new skills. Focus on being the best professional of the future, now.

Get the most out of this Deep Learning in Data Mining course. And walk towards the progress for sure.

Time of Change

During the program	During the first year	After 2 years
13%	**62.5%**	**24.5%**

Type of Change

Internal Promotion **45.4%**

Change of Company **41.2%**

Entrepreneurship **13.4%**
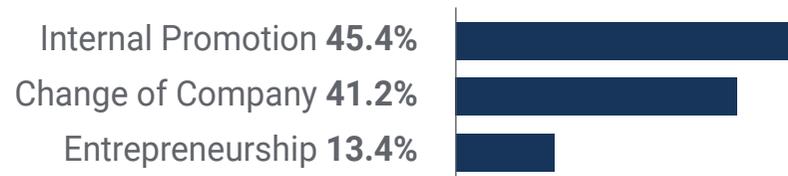
Salary Increase

This program represents a salary increase of more than **28%** for our students.

Salary before	A salary increase of	Salary after
$40,600	**28%**	**$51,968**

10
Benefits for Your Company

The Postgraduate Certificate in Deep Learning in Data Mining prepares the professional in data analysis techniques from the dynamics of learning and artificial intelligence. This modality contributes to make the process of study and decision making more agile. Yielding better results for business planning. Therefore, participating in this program means only opportunities for growth of new leaders and a better organizational structure.

Data is considered an important commodity in today's marketplace. Handling the basics of its analytics comprises the domain of business success. Learn everything you need to know with this Postgraduate Certificate"

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

01

Growth of talent and intellectual capital

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

02

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.

03

Building agents of change

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

04

Increased international expansion possibilities

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

05

Project Development

The professional can work on a real project or develop new projects in the field of R & D or business development of your company.

06

Increased competitiveness

This program will equip students with the skills to take on new challenges and drive the organization forward.

Certificate

The Postgraduate Certificate in Deep Learning in Data Mining 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 Deep Learning in Data Mining** 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 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 Deep Learning in Data Mining**

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
Deep Learning in Data Mining

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 diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

Postgraduate Certificate
Deep Learning in Data Mining

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

Postgraduate Certificate
Deep Learning in Data Mining

0,96

0,96

0,82

0,82

0,82

0,58

0,82

0,58

0,49

0,58

0,49

0,49

0,49

0,37

0,37

0,37

0,37