

# Postgraduate Certificate

## NLP / NLU





## Postgraduate Certificate NLP / NLU

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/engineering/postgraduate-certificate/nlp-nlu](http://www.techtitute.com/us/engineering/postgraduate-certificate/nlp-nlu)

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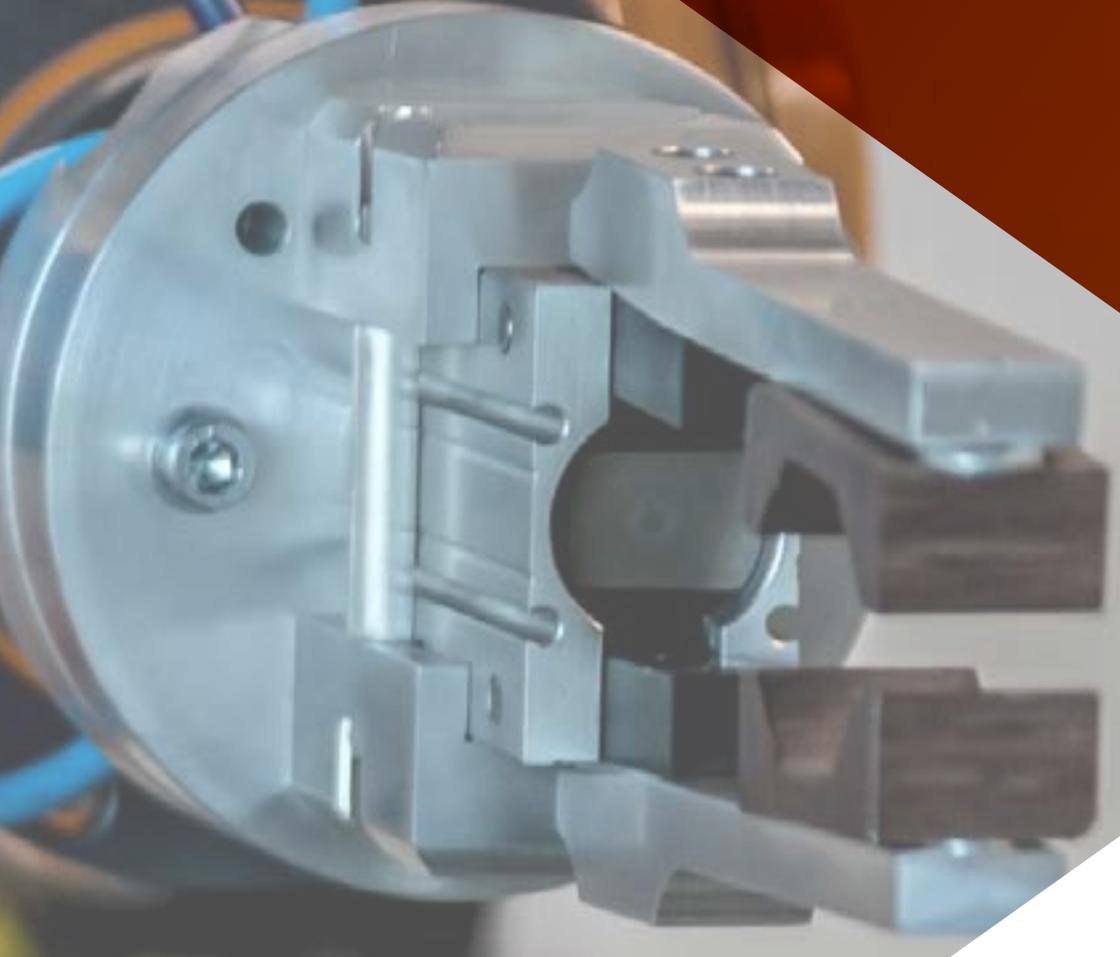
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# 01

# Introduction

NLP technology is not new, but it is true that its evolution in recent years has undergone exponential growth due to the large volumes of data, current computing power and advances in the field of algorithms. The adoption of Natural Language Processing (NLP) driven systems is a focus that more and more leaders in all types of industries are taking an interest in. This online degree prepares the engineer to work with this innovative technology, present in Industry 4.0, which combines linguistics with information technology to create effective mechanisms that enable agile and simple communication.





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*The application of NLP and NLU as business solutions are the fruit of the digital transformation brought about by the Fourth Industrial Revolution"*

Natural Language Processing (NLP) is a very topical subject that is playing an increasingly important role in companies every day. NLP is used for various functions such as mail filters, wizards, search results e.g. in Google, machine translations, sentiment analysis, automatic subtitling, etc.

This Postgraduate Certificate program develops specialized knowledge about NLP and NLU. Therefore, the graduate will analyze the operation of Word Embeddings and the word2vec library. With Word Embeddings we will study the different techniques in which words or phrases are related to each other, which can be represented in mathematical vectors and constitute industrial solutions. At the same time, this degree develops in depth the Transformer Architecture, which has allowed in recent years to advance the NLP field.

Additionally, the student has the best study methodology 100% online, which eliminates the need to attend classes in person or have to comply with a predetermined schedule. Thus, in just 6 weeks you will deepen your understanding of the scope of NLP and NLU, understanding the competitive advantages they bring, so you will be positioned at the technological forefront and will be able to lead ambitious projects in the present and in the future.

This **Postgraduate Certificate in NLP / NLU** contains the most complete and up-to-date program on the market. The most important features include:

- ◆ The development of case studies presented by NLP/NLU experts
- ◆ The graphic, schematic, and practical contents with which they are created, provide 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



*This 100% online Postgraduate Certificate program will allow you to combine your studies with your professional work. You choose where and when to train"*

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*This branch of Artificial Intelligence can help you better understand your customers and make better decisions. Don't miss the opportunity”*

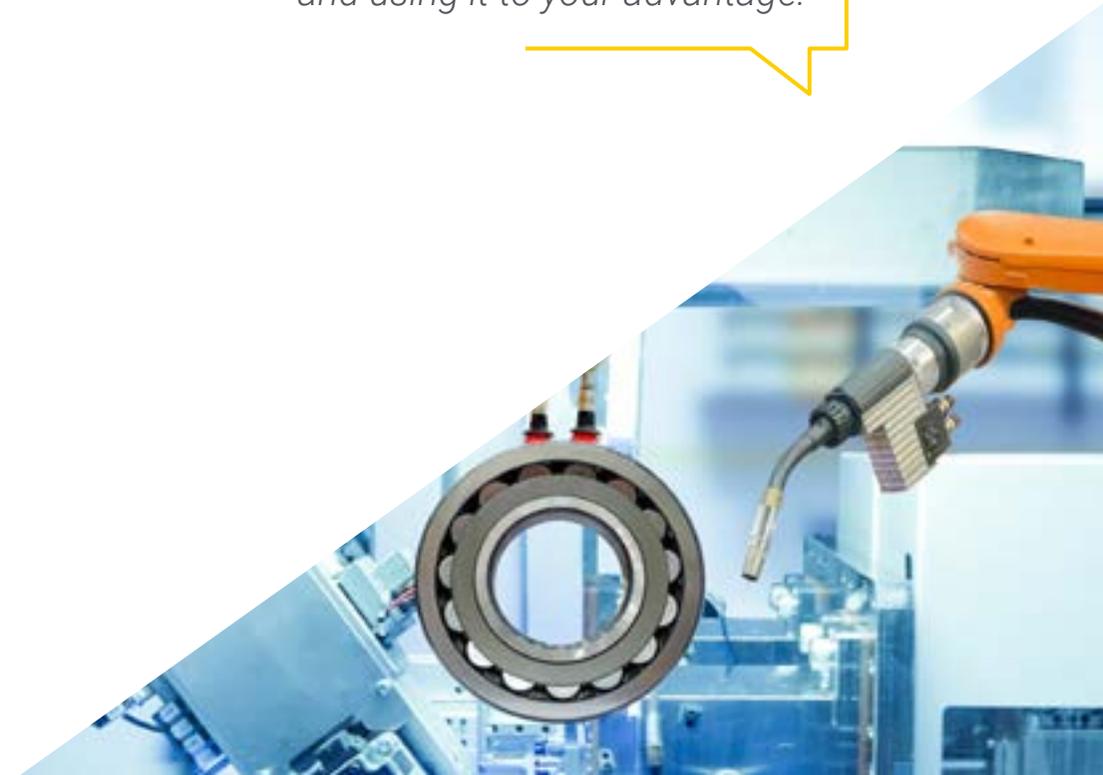
The program's teaching staff includes professionals from the sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.

*TECH will lead you to develop efficient and self-taught NLP applications.*

*NPL will become your indispensable tool when it comes to obtaining information and using it to your advantage.*



# 02

# Objectives

The main objective of this innovative Postgraduate Certificate is to perform a technical immersion in Natural Language Processing (NLP), one of the most relevant technologies that will play a major role in technological advances in the coming years. The contents of this degree are not classic subjects; this program specializes the computer scientist in the application of future technologies, but with real applications in the present.



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*To be successful in this position, this program provides you with statistical analysis capabilities, machine learning methods, and text representation techniques”*



## General Objectives

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- ◆ Develop specialized knowledge of NLP and NLU
- ◆ Examine the operation of Word Embeddings
- ◆ Analyze the mechanism of the Transformers
- ◆ Develop Use Cases of where to apply NLP



*Our goal is to make you become the best NLP the best NLP Engineer and for that we have the best methodology and content"*





## Specific Objectives

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- ◆ Develop specialized knowledge on NLP Natural Language Processing
- ◆ Identify NLU (Natural Language Understanding)
- ◆ Differences between NLP and NLU
- ◆ Word Embeddings and examples using Word2vec
- ◆ Analyze Transformers
- ◆ Examine examples of various Applied Transformers
- ◆ Delve into the NLP/NLU field through common Case Studies

# 03

# Course Management

Engineers with extensive experience in the field of Natural Language Processing come together in this Postgraduate Certificate to teach the graduate their newest areas of study and the most disruptive and surprising practical applications that can be found. The teachers will give the keys and tools that are in their hands to lead the engineer to use cases to identify in which fields NLP can be applied.





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*TECH has professionals specialized in the area of NPL, who pour into this program the experience of their work”*

## Management



### Mr. Jerónimo Molina Molina

- ♦ Head of Artificial Intelligence at Helphone
- ♦ AI Engineer & Software Architect at NASSAT, Internet Satellite in Motion
- ♦ Senior Consultant at Hexa Engineer
- ♦ Artificial Intelligence Introducer (ML and CV)
- ♦ Expert in Artificial Intelligence Based Solutions in the fields of Computer Vision, ML/DL and NLP
- ♦ Postgraduate Diploma in Business Creation and Development at Bancaixa and Fundeun
- ♦ Computer Engineer by the University of Alicante
- ♦ Professional Master's Degree in Artificial Intelligence from the Catholic University of Avila
- ♦ MBA Executive at the European Business Campus Forum

## Professors

### Mr. Pi Morell, Oriol

- ♦ Functional Analyst at Fihoca
- ♦ Hosting and Mail Product Owner at CDmon
- ♦ Functional Analyst and Software Engineer at Atmira and Capgemini
- ♦ Teacher at Capgemini, Forms Capgemini and Atmira
- ♦ Degree in Technical Engineering in Computer Management from the Autonomous University of Barcelona
- ♦ Master's Degree in Artificial Intelligence from the Catholic University of Avila
- ♦ MBA in Business Management and Administration from IMF Smart Education
- ♦ Professional Master's Degree in Information Systems Management from IMF Smart Education
- ♦ Postgraduate degree in Design Patterns from the Universitat Oberta de Catalunya (Open University of Catalonia)



# 04

## Structure and Content

The Postgraduate Certificate in NLP/NLU has been developed for professionals in the computer industry who, with proven experience, wish to be trained in the set of disruptive technologies that will be used in the global digitization process. For this purpose, specialized knowledge on the different options offered by NLP and NLU technology is gathered in one module from a practical and innovative business perspective, thus giving an eminently practical approach to the contents.





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*You are facing a multidisciplinary program that will allow you to excel in your profession, following the latest advances in digital transformation and industry 4.0"*

## Module 1. R&D and AI NLP/NLU. Embeddings and Transformers

- 1.1. Natural Language Processing (NLP)
  - 1.1.1. Natural Language Processing. Uses of NLP
  - 1.1.2. Natural Language Processing (NLP). Libraries
  - 1.1.3. Stoppers in NLP Application
- 1.2. Natural Language Understanding/Natural Language Generation. (NLU/NLG)
  - 1.2.1. NLG. I.A. NLP/NLU. Embeddings and Transformers
  - 1.2.2. NLU/NLG. Uses
  - 1.2.3. NLP/NLG. Differences
- 1.3. Word Embeddings
  - 1.3.1. Word Embeddings
  - 1.3.2. Word Embeddings Uses
  - 1.3.3. Word2vec. Libraries
- 1.4. Embeddings. Practical Application
  - 1.4.1. Word2vec Code
  - 1.4.2. Word2vec. Real Cases
  - 1.4.3. Corpus for Word2vec Use. Examples:
- 1.5. Transformers
  - 1.5.1. Transformers
  - 1.5.2. Models Created with Transformers
  - 1.5.3. Pros and Cons of Transformers
- 1.6. Sentiment Analysis
  - 1.6.1. Sentiment Analysis
  - 1.6.2. Practical Application of Sentiment Analysis
  - 1.6.3. Uses of Sentiment Analysis
- 1.7. GPT Open AI
  - 1.7.1. GPT Open AI
  - 1.7.2. GPT 2. Free Disposal Model
  - 1.7.3. GPT 3. Payment Model



- 1.8. Hugging Face Community
  - 1.8.1. Hugging Face Community
  - 1.8.2. Hugging Face Community Possibilities
  - 1.8.3. Hugging Face Community Examples:
- 1.9. Barcelona Super Computing Case
  - 1.9.1. BSC Case
  - 1.9.2. MARIA Model
  - 1.9.3. Existing Corpus
  - 1.9.4. Importance of Having a Large Spanish Language Corpus
- 1.10. Practical Applications
  - 1.10.1. Automatic Summary
  - 1.10.2. Text Translation
  - 1.10.3. Sentiment Analysis
  - 1.10.4. Speech Recognition

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*If you are looking to achieve professional excellence, you have before you the right Postgraduate Certificate"*

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.





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*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.

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*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.*



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

### 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 is the most widely used learning system in the best faculties in the world. 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 program, the studies 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.

## Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 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.



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.

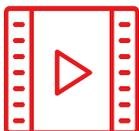
*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

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.



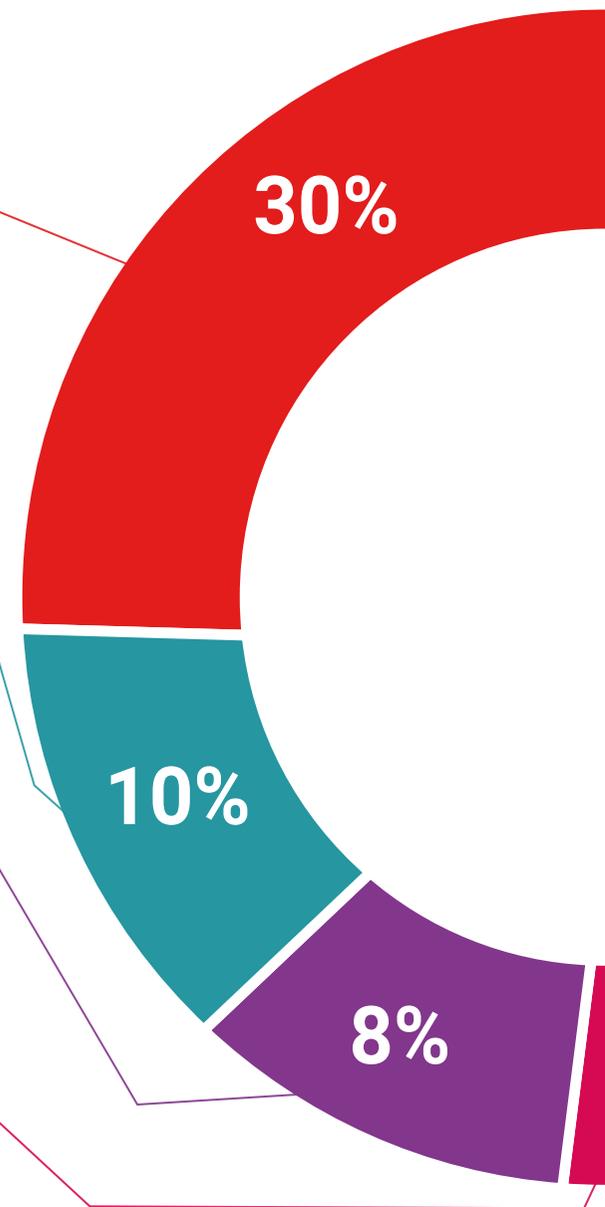
### Practising Skills and Abilities

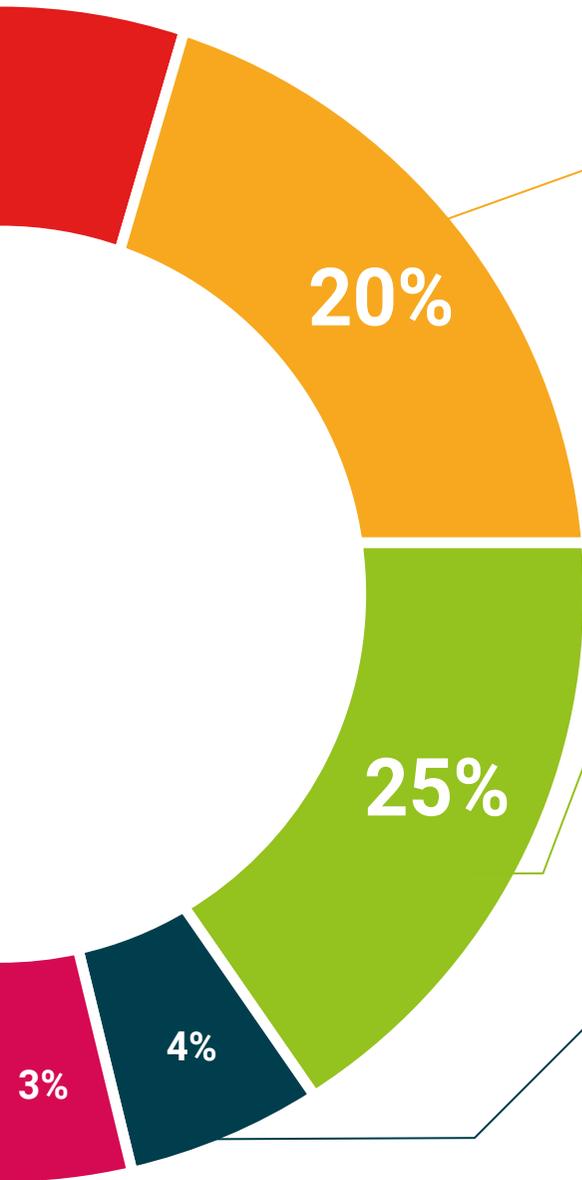
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



### 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.





**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.



**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.



06

# Certificate

The Postgraduate Certificate in NLP / NLU guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This program will allow you to obtain your **Postgraduate Certificate in NLP / NLU** 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 Certificate in NLP / NLU**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*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.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



## Postgraduate Certificate NLP / NLU

- › Modality: online
- › Duration: 6 weeks
- › Certificate: TECH Global University
- › Credits: 6 ECTS
- › Schedule: at your own pace
- › Exams: online

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