Postgraduate Certificate
Logical-Mathematical Thinking in Pre-School Education

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Postgraduate Certificate

Logical-Mathematical Thinking in Pre-School Education

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

Website: **www.techtitute.com/us/education/postgraduate-certificate/logical-mathematical thinking-pre-school-education**

Index

01
Introduction

Logical-Mathematical Thinking is one of the most relevant skills in education, as it has been gaining interest in relation to the age and characteristics of technology. Children are naturally curious and full of questions, which makes them ideal candidates for the development of this thinking. Being so and according to the relevance in this field of study, TECH has opened this educational program focused on teachers, with the purpose of offering them advanced content in knowledge of logical-mathematical thinking and the contributions of psychology and didactics. All this, in a 100% online pedagogical format accompanied by an experienced teaching team, offering a first class educational experience.

" With TECH you will take your teaching career to the top, achieving a solid position in the sector.

Human beings are born with the ability to develop this type of intelligence at a very early age: identifying patterns, making predictions and testing different hypotheses, developing solid mathematical thinking skills that can be useful in everyday situations. In this way, it will allow the internalization of abstract concepts in a schematic and technical way, such as the ability to work and think in terms of numbers, and the capacity to use reasoning and deductive analysis.

Therefore, studies in this field have progressed in terms of learning mechanisms, achieving advances in new teaching methodologies, making it clear that teachers must be up to date in this area of knowledge that is constantly changing. That is why this Postgraduate Certificate will provide the professional with the most recent innovations in problem solving through the development of logical-mathematical thinking.

Graduates will strengthen their knowledge in specific aspects related to the formation of capacities framed in logical-mathematical development with emphasis on cognitive development and the division of thought. On the other hand, it is a program that has a highly qualified teaching staff with a wide range of experience. It also integrates a prestigious audiovisual content of the highest standards, offering a better experience to the professional for its dynamism and comfort with the online mode.

For this reason, TECH emphasizes educational excellence and comfort, offering first class and exclusive novelties, being a highly flexible program that requires only an electronic device with internet connection to access the virtual platform from the comfort of the place where you are.

This **Postgraduate Certificate in Logical-Mathematical Thinking in Pre-School Education** contains the most complete and up-to-date program on the market. The most important features include:

- The development of practical cases presented by experts in Arithmetic, Algebra, Geometry and Measurement.
- 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 self-assessment can be used 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.

Stand out in a booming sector with enormous potential and become as educators make them part of the global change based on excellence.

" *TECH makes your life easier by offering you the flexibility you are looking for, accessing the virtual platform from the comfort of your home at any time of the day.*

A qualification that integrates excellent high quality audiovisual content, which complements the knowledge acquired.

Update yourself with TECH in the area of Logical-Mathematical Thinking in a field that is constantly changing.

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

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

02
Objectives

This Postgraduate Certificate in Logical-Mathematical Thinking in Pre-school Education has been specially focused to provide the professional with the most recent updates in the field of Mathematics. For this reason, TECH provides incredible innovative didactic tools, guaranteeing success in the program process. Upon completion of the program, students will have developed their knowledge of the psycho-pedagogical foundations in the construction of mathematical knowledge.

> " *TECH provides you with advanced content in the sector so that you can achieve your professional goals in less time than you think*"

General Objectives

- Provide students with theoretical and instrumental knowledge that will allow them to acquire and develop the necessary competences and skills to perform their teaching work.
- Design didactic games for learning mathematics.
- Gamifying the classroom, a new resource for motivation and learning applied to mathematics

TECH is excellence and efficiency, offering you innovative tools and the most current content of the educational program"

Specific Objectives

- Understand the development of logical-mathematical thinking within the Pre-school and Elementary School Education syllabus

- Ensure that the children learn to deduce logically, to argue and to draw conclusions from the situations they are presented with.

- Learn to work with different learning techniques

- Learn mathematical concepts and vocabulary appropriate for a teaching unit.

03
Course Management

TECH offers elite teaching for the students who take its programs thanks to the didactic tools that successfully carry out the development of each of its programs. In this sense, students will have access to a content designed and carried out by a qualified and specialized teaching staff in Management and Administration of Educational Centers, Mathematics, new learning methodologies and special education and didactics of Mathematics. The robust experience of the teaching staff and their knowledge bases will allow the graduate to solve and respond to the questions that arise during the course of the program.

Acquire the knowledge and competences necessary to embark on a career in the field of mathematics didactics.

International Guest Director

Doctor Noah Heller is a leading professional in the field of **Education**, specializing in the teaching of **Mathematics** and **Science**. With a focus on **teaching innovation,** he has dedicated his career to improving **educational practices in the K-12 system**. In addition, his main interests include the **professional development of teachers** and the creation of **teaching strategies** to improve the understanding of **Mathematics**, in **Primary** and **High School** students, through **innovative didactic approaches**.

Throughout his career, he has held positions of great relevance, for example, as **Faculty Chair** of the **Leadership Institute** at the Harvard **Graduate School of Education**. He has also directed the **"Master Math for America" Teacher Fellowship Program,** where he has overseen the instruction and expansion of a program that has impacted over 700 math and **science** teachers in **New York** City, working closely with senior **mathematics and science professionals.**

At the same time, he has collaborated as a researcher in several publications on the **teaching of mathematics** and **new didactics** applied to **primary education**. He has also given conferences and seminars in which he has promoted **pedagogical approaches** that encourage critical thinking in students, making mathematics teaching a dynamic and accessible process.

Internationally, Dr. Noah Heller has been recognized for his ability to implement innovative strategies in **STEM education.** In fact, his leadership in **"Master Math for America"** has positioned him as a key figure in teacher training, receiving accolades for his ability to connect academia with classroom practice. His work has also been instrumental in the creation of one of the most prestigious **professional development programs in education.**

Dr. Heller, Noah

- Faculty Chair at the Harvard Graduate School of Education, Cambridge, United Kingdom
- Director of the "Master Math for America" Teacher Fellowship Program
- Doctor of Philosophy from New York University
- B.S. in Science, Physics and Mathematics from The Evergreen State College

Thanks to TECH, you will be able to learn with the best professionals in the world"

Course Management

Ms. Delgado Pérez, María José

- TPR and Mathematics teacher at Peñalar College
- Secondary and High School Teacher
- Expert in management of educational centers
- Co-author of technology books with McGraw Hill Publishers.
- Master's Degree in Educational Center Management and Administration.
- Leadership and management in Elementary, Middle School and High School
- Graduate in teaching with a specialization in English.
- Industrial Engineer

Professors

Ms. Hitos, María

- Pre-school and Elementary School Education Teacher Specialized in Mathematics.
- Pre-school and Primary Education Teacher
- Coordinator of the English Department in Pre-school
- Linguistic Qualification in English for the Community of Madrid

Ms. Iglesias Serranilla, Elena

- Teacher of Pre-school and Elementary School Education with specialization in Music.
- Elementary School Education First Cycle Coordinator.
- Training in New Learning Methodologies.

D. López Pajarón, Juan

- Secondary and High School Science Teacher.
- Secondary and High School Science Teacher at the Montesclaros School of the Educare Group.
- Coordinator and Head of Educational Projects in Secondary and High School.
- Technician at Tragsa
- Biologist with experience in the field of environmental conservation.
- Master's Degree in Direction and Management of Educational Centers by the International
- University of La Rioja

Ms. Vega, Isabel

- Specialized Teacher in mathematics didactics and learning disorders.
- Elementary Education Teacher
- Elementary School Education Cycle Coordinator.
- Specialized in Special Education and Mathematics teaching
- Graduate in Teaching

Structure and Content

This Postgraduate Certificate has been oriented to the graduate in accordance with the most current studies in the architectural field, concretizing a syllabus that provides an innovative content related to prenumerical knowledge: classification and enumeration. This educational program is focused on providing advanced knowledge on the development of logical-mathematical thinking through the senses. All of this, according to the different audiovisual tools that provide dynamism in the development of the educational qualification.

"With TECH you have a syllabus that is focused on providing you with the most advanced content in sensory-motor intelligence."

Module 1. Logical-Mathematical Thinking in Pre-School Education

1.1.   Logical-Mathematical Thinking
  1.1.1.   What is Mathematical Logic?
  1.1.2.   How is Mathematical Knowledge Acquired?
  1.1.3.   The Formation of Logical-Mathematical Concepts at an Early Age
  1.1.4.   Mathematical Concepts
  1.1.5.   Characteristics of Logical-Mathematical Thinking

1.2.   Training Logical-Mathematical Development Skills
  1.2.1.   Cognitive Development (Piaget)
  1.2.2.   Evolutionary Stages
  1.2.3.   Division of Thought in Knowledge (Piaget)
  1.2.4.   Evolution of Logical-Mathematical Knowledge
  1.2.5.   Physical Knowledge vs. Logical-Mathematical Knowledge
  1.2.6.   Knowledge of Space and Time

1.3.   Development of Logical-Mathematical Thinking
  1.3.1.   Introduction
  1.3.2.   Knowledge and Reality
  1.3.3.   Development of Mathematical Knowledge
  1.3.4.   Development of Logical Thinking by Age
  1.3.5.   Components of Logical Development
  1.3.6.   Mathematical Language
  1.3.7.   Logical-Mathematical Development and Core Curriculum

1.4.   Psychopedagogical Foundations in the Construction of Mathematical Knowledge
  1.4.1.   Sensorimotor Intelligence
  1.4.2.   Formation of Objective Symbolic Thinking
  1.4.3.   Formation of Concrete-Logical Thinking
  1.4.4.   Reasoning and its Types
  1.4.5.   Bloom's Taxonomy in the Development of Logical-Mathematical Thinking

The quality content you find in this Postgraduate Certificate is the key to your learning success, as well as your professional career.

05
Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.

"TECH will prepare you to face new challenges in uncertain environments and achieve success in your career"

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.
The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

❝ *At TECH you will NOT have live classes (which you might not be able to attend)"*
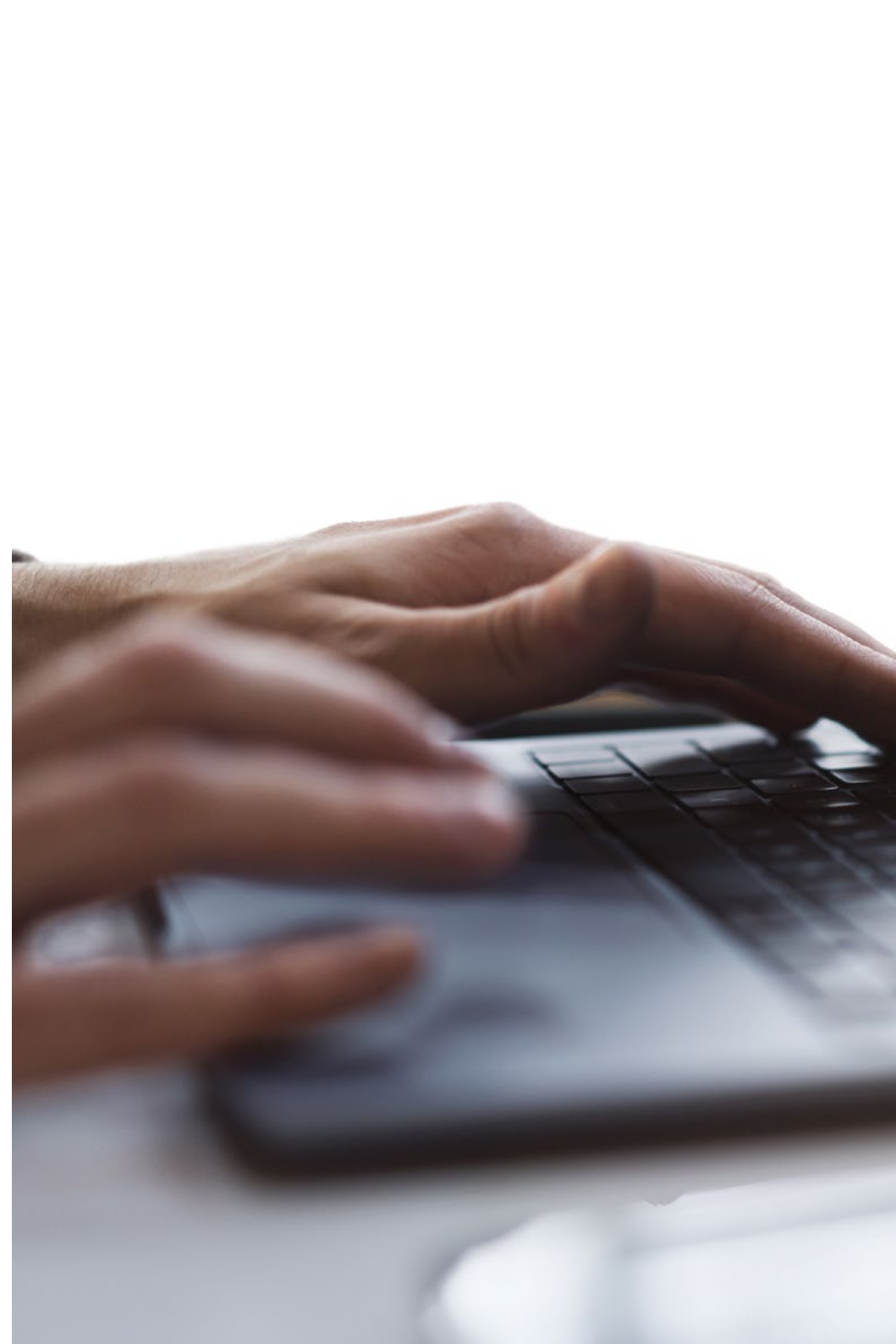
The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want"

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.

Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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.

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)

A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.

> " The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.

2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the quality of teaching, quality of materials, course structure and objectives is excellent. Not surprisingly, the institution became the best rated university by its students on the Trustpilot review platform, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.

As such, the best educational materials, thoroughly prepared, will be available in this program:

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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.

Interactive Summaries

We present 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".

Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.

20%

15%

15%

3%

20%

17%

7%

3%
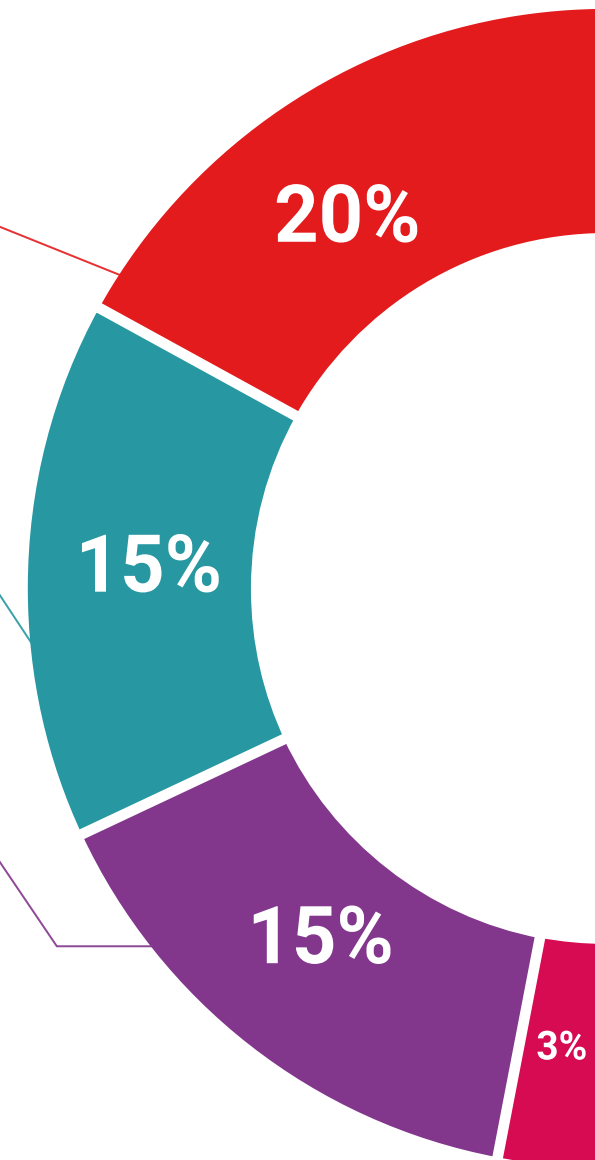
Case Studies
Students will complete a selection of the best case studies in the field.
Cases that are presented, analyzed, and supervised by the best specialists in the world.
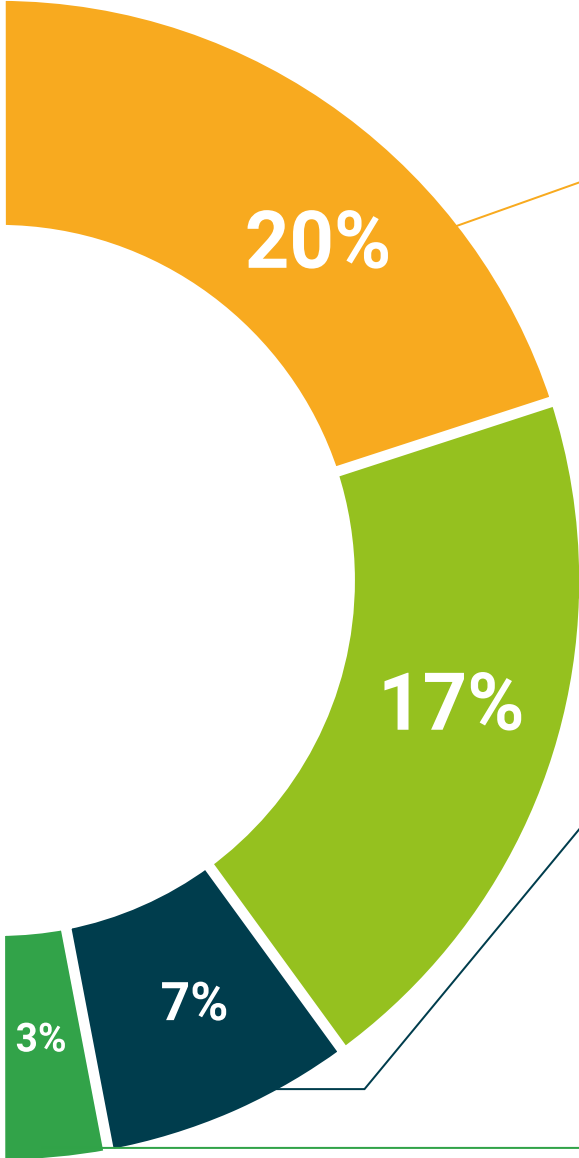
Testing & Retesting
We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

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 for future difficult decisions.

Quick Action Guides
TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.

06
Certificate

The Postgraduate Certificate in Logical-Mathematical Thinking in Pre-School Education guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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

This private qualification will allow you to obtain a **Postgraduate Certificate in Logical-Mathematical Thinking in Pre-School Education** 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** private qualification 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 Logical-Mathematical Thinking in Pre-School Education**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

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

Postgraduate Certificate in Logical-Mathematical Thinking in Pre-School Education

This is a private qualification of 180 hours of duration equivalent to 6 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

Dr. Pedro Navarro Illana
Dean

Unique TECH Code: AFWORD23S   techtitute.com/certificates

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*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.

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