

# Postgraduate Certificate Logical-Mathematical Thinking in Primary Education





## Postgraduate Certificate

### Logical-Mathematical Thinking in Primary Education

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

Website: [www.techtitute.com/in/education/postgraduate-certificate/logical-mathematical-thinking-primary-education](http://www.techtitute.com/in/education/postgraduate-certificate/logical-mathematical-thinking-primary-education)

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# 01

# Introduction

Logical-mathematical intelligence contributes to the development of skills that allow children to understand and solve everyday activities not only at school, but also in life itself. That is, with the approach and implementation of these skills, children learn to learn and develop reasoning while discovering the world. According to the importance that this field of study has taken, this educational program has been designed with the intention of providing teachers with the most advanced content related to understanding the development of Logical-Mathematical Thinking within the curriculum of Pre-School and Primary Education. All this, with a pedagogical format in a 100% online modality together with a professional team widely experienced in Didactics of Mathematics.





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*This Postgraduate Certificate in  
Mathematical-Logical Thinking in  
Primary Education will contribute  
to the good development of your  
professional career as a teacher”*

It is important to know that not all children at an early age can engage in logical-mathematical reasoning. Those who can develop it tend to be better at problem solving than those who cannot. In this way, students will develop skills associated with mathematical concepts, logical reasoning, understanding and exploring the world through proportions, finding solutions and comparing results.

In this sense, studies and research in this field have advanced, revealing new teaching methods, confirming that mathematics educators must be at the forefront in this area of knowledge that is currently in constant change. That is why this Postgraduate Certificate will offer the professional great innovation regarding Bloom's Taxonomy in the development of Logical-Mathematical Thinking.

Students will broaden their competences in detailed areas related to the learning of mathematical concepts and vocabulary appropriate to carry out a didactic unit. On the other hand, it is an educational program with a highly qualified and experienced teaching staff. It also integrates an exclusive audiovisual content of the highest quality that offers a better experience for the professional due to its dynamism and comfort with the online modality.

For this reason, TECH focused educational excellence and efficiency, providing first class updates with the highest standards, being a program of great flexibility by only needing an electronic device with internet connection to access the Virtual Platform without difficulties from the comfort of the place where you are.

This **Postgraduate Certificate in Logical-Mathematical Thinking in Primary Education** contains the most complete and up-to-date educational 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 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



*With TECH you will develop skills to get your students to deduce and argue problems that are presented to them in the classroom"*

“*TECH emphasizes comfort and therefore provides you with the best experience from the flexible schedule, accessing the Virtual Platform at any time of the day*”

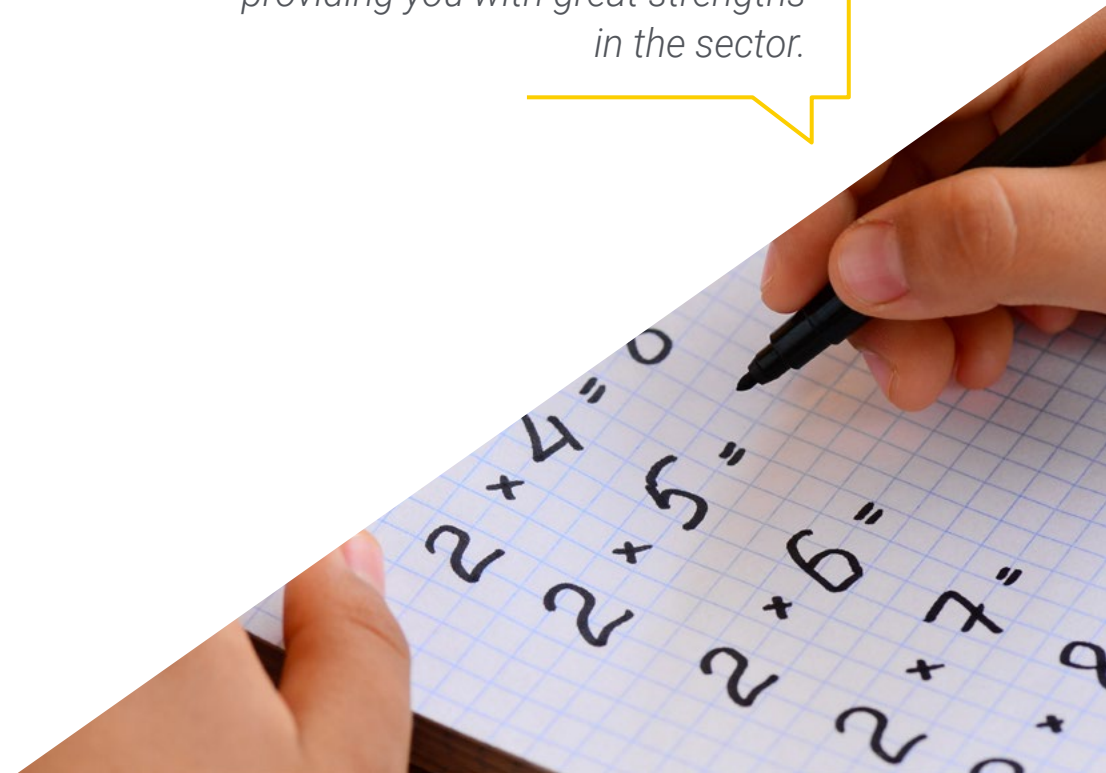
The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

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.

*To be at the forefront in your field, do it with TECH and you will have the most current developments in Logical-Mathematical Thinking.*

*This educational program has innovative multimedia material achieving the dynamism you need, providing you with great strengths in the sector.*



# 02

# Objectives

This Postgraduate Certificate in Logical-Mathematical Thinking in Primary Education has been developed primarily to offer the professional the most recent updates in the field of Didactics of Mathematics. In this way, TECH provides incredible resources of educational innovation, ensuring success in the course of the program. At the end of the program, students will have increased their knowledge in Mathematics learning difficulties and in the concept of number from Experimental Psychology.





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*With TECH you will reach the top of your professional career by obtaining solid skills in Montessori, Reggio Emilia and Waldorf Pedagogy”*



## General Objectives

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- ♦ Provide students with theoretical and practical knowledge that will allow them to acquire and develop essential competencies and skills for their role as teachers
- ♦ Design didactic games for learning mathematics
- ♦ Gamifying the classroom, a new resource for motivation and learning applied to mathematics





### Specific Objectives

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- ♦ Learn about mathematical-logical thinking and the contributions of psychology and teaching
- ♦ Learn about problem solving through the development of logical-mathematical thinking
- ♦ Learn to use logical-mathematical material resources

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*TECH provides different tools for educational innovation to work with different learning techniques”*

03

# Course Management

TECH offers a first class education for students who take the programs. This, by means of didactic tools that successfully carry out the development of each of its programs. Therefore, graduates will have access to material developed by a teaching staff specialized in Primary School Management and Administration, new learning methodologies and Mathematics. Their extensive experience and solid knowledge will allow the graduate to solve and respond to questions that may arise during the course of the program.



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*Reach your goals with highly experienced teachers and the best didactic tools in the current educational panorama”*

## Address



### 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 Primary, Middle School and High School
- ♦ Graduate in teaching with a specialization in English
- ♦ Industrial Engineer

## Professors

### Mr. López Pajarón, Juan

- ♦ 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 University International of La Rioja

### Ms. Vega, Isabel

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

**Ms. Hitos, María**

- ♦ Pre-school and Elementary 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, specialization in Music
- ♦ Elementary School Education First Cycle Coordinator
- ♦ Training in New Learning Methodologies

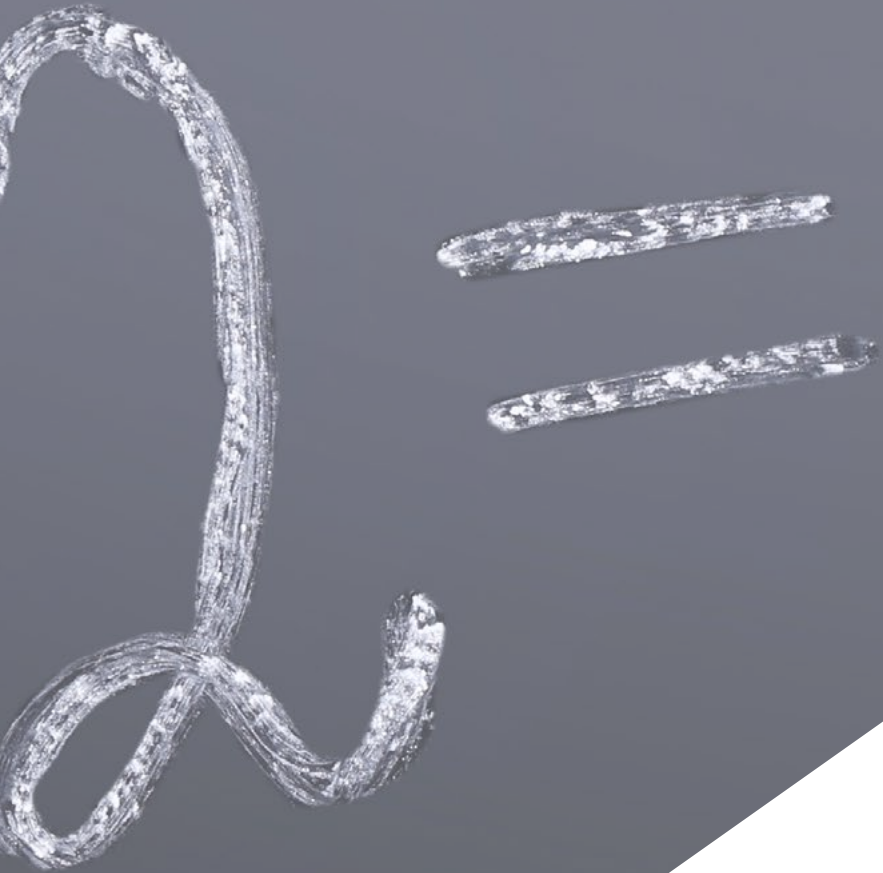
# 04

# Structure and Content

This program has been designed and guided according to the latest research in the mathematical field, establishing a syllabus that provides a broad content on Logical-Mathematical Thinking in Primary Education. This Postgraduate Certificate is oriented to provide exclusive and prestigious material related to the development of Logical-Mathematical Thinking through problem solving. All this, by means of detailed video summaries that offer dynamism and a greater attractiveness to this program.







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*A syllabus with an advanced content on Logical-Mathematical Thinking in Primary Education”*

## Module 1. Logical-Mathematical Thinking in Primary Education

- 1.1. Nature and Development of Logical-Mathematical Thinking
  - 1.1.1. Conceptualization
  - 1.1.2. Piaget and Logical-Mathematical Thinking
  - 1.1.3. Definition of Basic Concepts of Piaget's Theories
  - 1.1.4. Logical-Mathematical Thinking in the Pre-school Education Curriculum
  - 1.1.5. Logical-Mathematical Thinking in the Primary Education Curriculum
  - 1.1.6. Logical-Mathematical Thinking in the NCTM
  - 1.1.7. Ausubel's Significant Learning
  - 1.1.8. Logical-Mathematical Relationships in the Montessori Method
- 1.2. Bloom's Taxonomy in the Development of Logical-Mathematical Thinking
  - 1.2.1. Benjamin Bloom
  - 1.2.2. Concept
  - 1.2.3. Dimensions
  - 1.2.4. Cognitive Domain Development
  - 1.2.5. Renewal of the Theory
  - 1.2.6. Digital Application
  - 1.2.7. Digital Applications
  - 1.2.8. Criticism
- 1.3. Prenumerical Knowledge
  - 1.3.1. Introduction
  - 1.3.2. Logical-Mathematical Contents in Pre-school Education
  - 1.3.3. Classification
  - 1.3.4. Centration and Decanting Processes
  - 1.3.5. The Series
  - 1.3.6. Enumeration
  - 1.3.7. Correspondence
  - 1.3.8. Quantity Conservation
- 1.4. Numerical Knowledge
  - 1.4.1. Number Concept
  - 1.4.2. Numbering Systems
  - 1.4.3. Concept of Number from the Psychology of Development
  - 1.4.4. Concept of Number from the Experimental Psychology
  - 1.4.5. Current Situation in the Teaching of Arithmetic and the Concept of Number
  - 1.4.6. Counting Skills
  - 1.4.7. Classroom Application
  - 1.4.8. The Spelling
- 1.5. Development of Logical-Mathematical Thinking Through Problem Solving
  - 1.5.1. What is a Problem? Problem Definition
  - 1.5.2. Typology
  - 1.5.3. Problem Solving in Curricular Proposals
  - 1.5.4. Problem Solving Difficulties
  - 1.5.5. Problem-Based Learning
- 1.6. Difficulties in Learning Mathematics
  - 1.6.1. Learning Difficulties in Primary Education
  - 1.6.2. Difficulties in the Field of Mathematics
  - 1.6.3. Dyscalculia
  - 1.6.4. Classification
  - 1.6.5. Symptoms
  - 1.6.6. Affected Functions
  - 1.6.7. Suggestions for Working with Children with Dyscalculia
  - 1.6.8. Methods and Instruments to Detect Mathematics Difficulties
- 1.7. Flipped Classroom and Gamification
  - 1.7.1. Flipped Classroom
  - 1.7.2. Methodology
  - 1.7.3. Phases
  - 1.7.4. Advantages and Disadvantages
  - 1.7.5. Guidelines
  - 1.7.6. Conclusions
  - 1.7.7. Gamification in the Classroom
  - 1.7.8. Gamification and Motivation
  - 1.7.9. Classroom Application



- 1.8. Cooperative Learning
  - 1.8.1. Cooperative Learning
  - 1.8.2. Methodology
  - 1.8.3. Outline of the Classroom Work
  - 1.8.4. Cooperative Work Groups
  - 1.8.5. Internal Organization of the Groups
  - 1.8.6. Simple Learning Structures 1.º and 2.º
  - 1.8.7. Simple Learning Structures 2.º and 4.º
  - 1.8.8. Simple Learning Structures 5.º and 6.º
- 1.9. Montessori Pedagogy, Reggio Emilia, Waldorf
  - 1.9.1. Alternative Pedagogies
  - 1.9.2. Montessori Pedagogy
  - 1.9.3. Montessori Method
  - 1.9.4. Curriculum
  - 1.9.5. Reggio Emilia Pedagogy
  - 1.9.6. Advantages and Disadvantages of Reggio Emilia Pedagogy
  - 1.9.7. Waldorf Pedagogy
  - 1.9.8. Difference Between Waldorf Education and Traditional Education
- 1.10. Multiple Intelligences, EntusiasMat, ABN
  - 1.10.1. Theoretical Framework
  - 1.10.2. Linguistic-Verbal Intelligence
  - 1.10.3. Logical-mathematical Intelligence
  - 1.10.4. Spatial or Visual Intelligence
  - 1.10.5. Musical Intelligence
  - 1.10.6. Body-Kinesthetic Intelligence
  - 1.10.7. Intrapersonal Intelligence
  - 1.10.8. Interpersonal Intelligence
  - 1.10.9. Naturalistic Intelligence

05

# Methodology

This training program offers 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"*

## At TECH Education School we use the Case Method

In a given situation, what should a professional do? Throughout the program students will be presented with multiple simulated cases based on real situations, where they will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method.

*With TECH, educators can experience a learning methodology that is shaking the foundations of traditional universities around the world.*



*It is a technique that develops critical skills and prepares educators to make decisions, defend their arguments, and contrast opinions.*

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

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

1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
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.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

Our University is the first in the world to combine case studies with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



*Educators will learn through real cases and by solving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology we have trained more than 85,000 educators with unprecedented success in all specialties. 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.*

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.

The overall score obtained by our learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialist educators who teach the course, specifically for the course, so that the teaching content is really 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.



#### Educational Techniques and Procedures on Video

TECH introduces students to the latest techniques, with the latest educational advances, and to the forefront of Education. All this, first-hand, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



#### 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 multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".



#### 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.





### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



### 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 your goals.



### 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.



### 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 Primary Education guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Logical-Mathematical Thinking in Primary Education** 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 Certificate 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 Logical-Mathematical Thinking in Primary Education**

Official N° of Hours: **150 h.**



\*Apostille Convention. In the event that the student wishes to have their paper Certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

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



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