

# Postgraduate Certificate Mathematics Teaching in High School Education





## Postgraduate Certificate Mathematics Teaching in High School Education

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

Website: [www.techtitute.com/pk/education/postgraduate-certificate/mathematics-teaching-high-school-education](http://www.techtitute.com/pk/education/postgraduate-certificate/mathematics-teaching-high-school-education)

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# 01

# Introduction

Today, the student becomes the center of the classroom, while the teacher's role as main speaker is relegated to the background. This change in the methodology is also driven by the digital transformation. It is in this context where the teaching professionals must adapt their teaching to the current times and achieve in an attractive way the learning of one of the subjects that presents the greatest resistance, Mathematics. For this, TECH has developed this 100% online program that delves into the main strategies, methods and techniques used to solve teaching difficulties. All this, in addition, with advanced content developed by a specialized teaching team with extensive experience in the field.





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*With this 100% online Postgraduate Certificate you will be able to improve your teaching of mathematics to adolescent students in only 150 teaching hours”*

The incorporation of digital tools in the classroom, gamification, project-based learning or cooperative learning are some of the trends in the education system. These changes directly affect teaching professionals in all areas, but especially in Mathematics. Mathematics is a fundamental discipline in the academic development of students in High School Education.

Given this reality, there is no doubt that teachers in this area must be aware of the latest developments in the most successful and effective methodologies, the theories articulated around their use, or the various ways to overcome barriers to student learning. In order to promote this objective, TECH has developed this university program of 150 hours of advanced knowledge in Mathematics Teaching in High School Education.

It is a program with a theoretical-practical approach that delves into the types of learning, educational methodologies (ePortfolio, gamification, Flipped Classroom, digital murals), pathologies associated with learning problems and evaluation systems. For this purpose, it is provided with the most innovative teaching material, which can be accessed at any time of the day, from an electronic device with an Internet connection.

In addition, teachers are faced with a program that is perfectly compatible with their most demanding responsibilities. This Postgraduate Certificate does not have classes with fixed schedules and reduces the long hours of study thanks to the *Relearning* system implemented by TECH.

A fantastic opportunity to progress as a professional in the education sector through an academic program that is at the forefront and is in accordance with the real needs of future teachers.

This **Postgraduate Certificate in Mathematics Teaching in High School Education** contains the most complete and up-to-date educational program on the market. The most important features include:

- ♦ The development of case studies presented by experts in teaching in High School Education
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and 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



*Access to the most relevant and scientific information about the causes that hinder the learning of Mathematics"*



“

*A program that brings you closer to learning evaluation systems and the detection of mathematical talent"*

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 course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*You have at your disposal a program that is fully compatible with your daily responsibilities. Enroll now.*

*Thanks to this program you will be able to teach mathematical thinking to your students in a much more attractive way.*



# 02

# Objectives

The objective of this Postgraduate Certificate is to provide the teaching professional with the most innovative and effective strategies for students learning Mathematics in High School Education. A goal that will be easier to achieve thanks to the teaching resources provided by TECH and the magnificent team of experts in this field, who teach this program.







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*You will be able to adapt the learning of mathematics by taking advantage of all the digital tools at your disposal”*

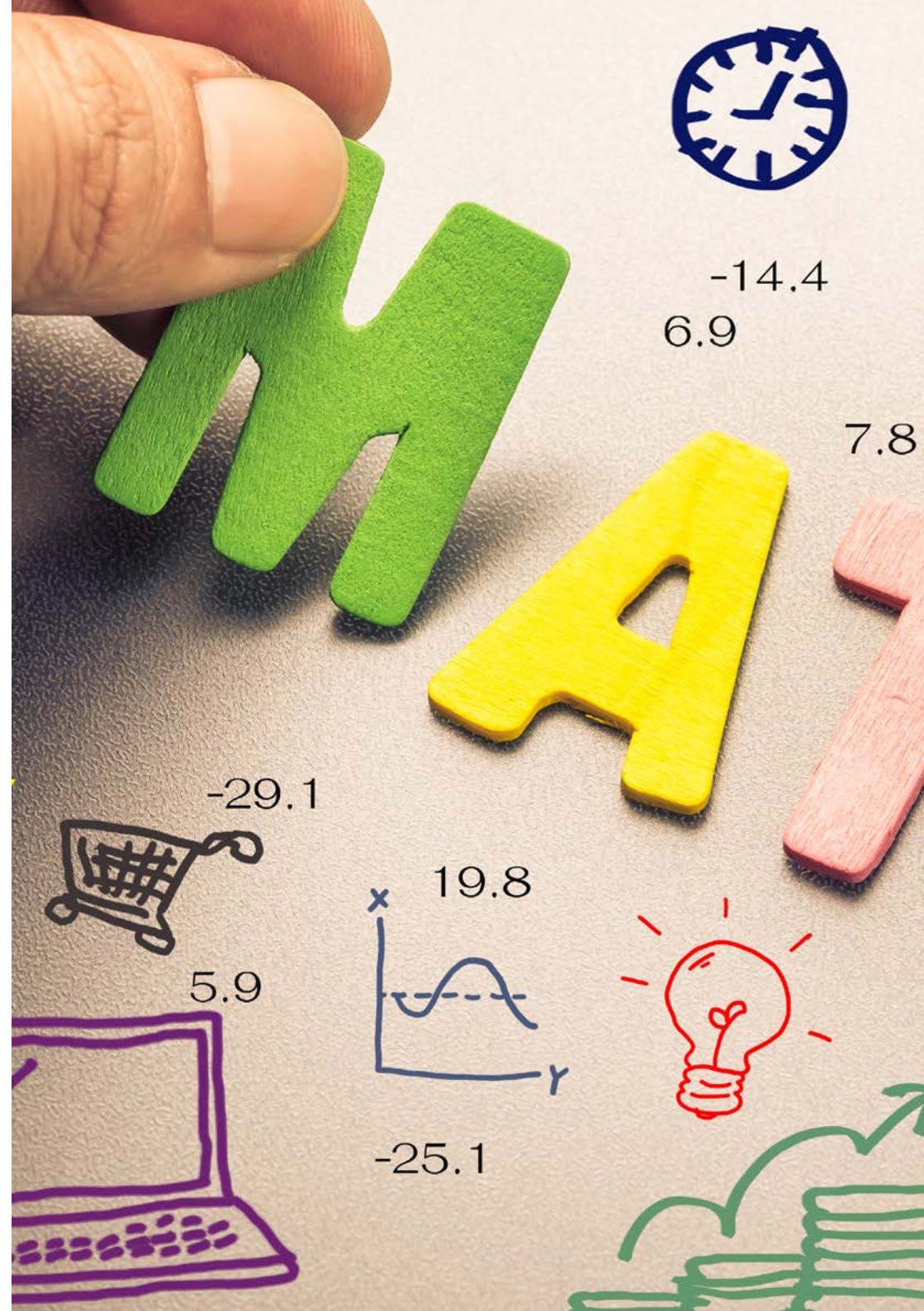


### General Objectives

- Introduce students to the world of teaching, from a broad perspective that provides them with the necessary skills for the performance of their work
- Know the new tools and technologies applied to teaching
- Show the different options and ways the teacher can work in their post
- Promote the acquisition of communication and knowledge transmission skills and abilities
- Encourage continuing education for students



*You will become an expert in conducting your classes based on the Flipped Classroom methodology applied to Mathematics"*

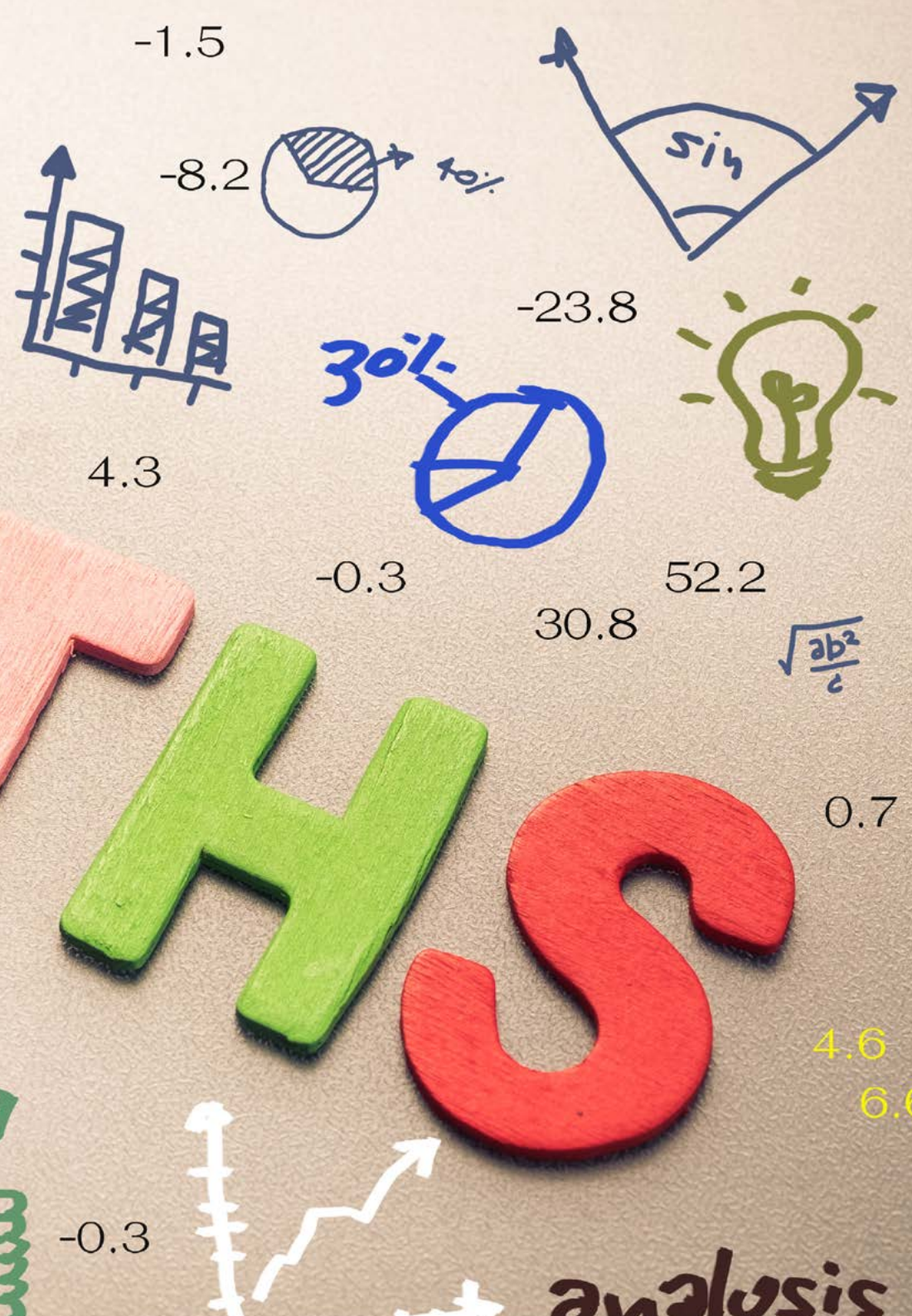






### Specific Objectives

- Discuss the most relevant learning theories in the world of education and the main authors related to them
- Differentiate these theories and know their main characteristics
- Talk about behaviorism, cognitivism and constructivism
- Gain knowledge about the concepts of classical conditioning and operant conditioning and their relationship in learning theories
- Explain what learning for the digital era and the theory of connectivism consist of
- Gain knowledge about the social theories of learning, their principles and their relation with digital learning
- Explain the concept of implicit theories and link them to the educational field



03

# Course Management

In this educational program, TECH has brought together a team of professionals with proven experience in teaching at various educational stages and with extensive knowledge of didactics. All this has been taken into account for their inclusion in this Postgraduate Certificate, as well as their human quality and proximity. Thanks to it, the students will be able to solve any doubts they may have about the syllabus of this program.





“

*You will find an excellent team of teaching professionals who will guide you at all times to help you achieve your goals in the industry”*

## Management



### Dr. Barboyón Combey, Laura

- ♦ Teacher of Primary Education and Postgraduate Studies
- ♦ Teacher in Postgraduate University Studies of High School Teacher Formation
- ♦ Teacher of Primary Education in several schools
- ♦ Doctor in Education from the University of Valencia
- ♦ Master's Degree in Psychopedagogy from the University of Valencia
- ♦ Degree in Primary School Education with a major in English Teaching from the Catholic University of Valencia San Vicente Mártir





# 04

## Structure and Content

The syllabus of this Postgraduate Certificate has been designed by a excellent team of professionals with extensive experience in teaching at High School. A broad knowledge that is reflected in a syllabus designed to provide, throughout the 150 hours of duration, a learning of great practical and direct application in the classroom. For this purpose, you will have access to an advanced syllabus and pedagogical tools that you will be able to access 24 hours a day, 7 days a week.





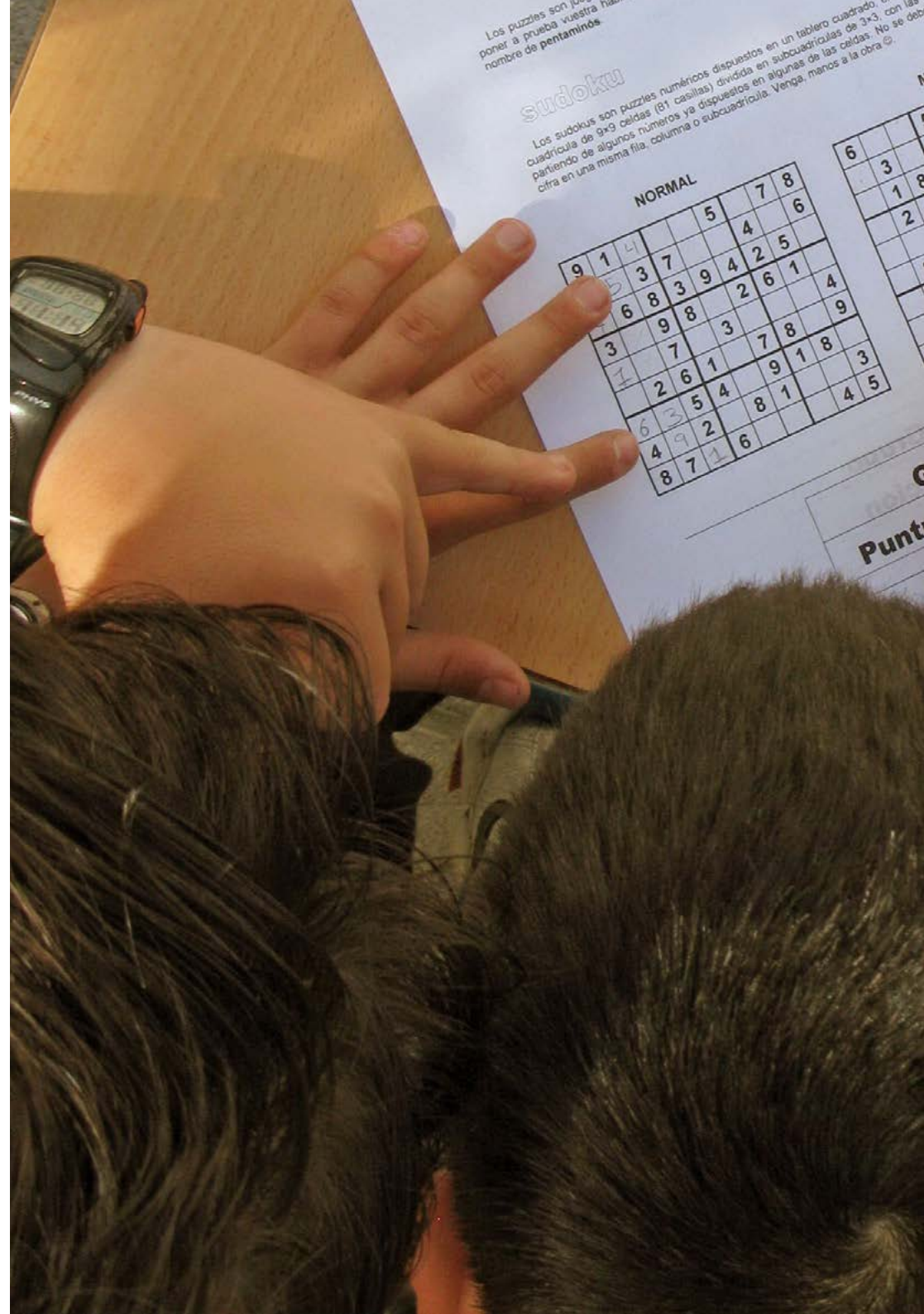


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*A study plan with a theoretical-practical approach that will help you to integrate in your classroom the new methodologies used in the teaching of Mathematics to High School students"*

Module 1. Teaching Methods of Mathematics

- 1.1. Types of Learning.
  - 1.1.1. Conductism Applied to Mathematics
  - 1.1.2. Cognitivism Applied to Mathematics
  - 1.1.3. Constructivism Applied to Mathematics
- 1.2. Learning Strategies in Mathematics
- 1.3. *Flipped Classroom* applied to Mathematics
  - 1.3.1. The Traditional Class
  - 1.3.2. What Is the *Flipped Classroom*?
  - 1.3.3. Advantages of the *Flipped Classroom* applied to Mathematics
  - 1.3.4. Disadvantages of the *Flipped Classroom* applied to Mathematics
  - 1.3.5. Example of a *Flipped Classroom* applied to Mathematics
- 1.4. Innovative Pedagogical Methodologies in Mathematics
  - 1.4.1. Gamification in Mathematics
  - 1.4.2. *Portfolios/e-Portfolios* Applied to Mathematics
  - 1.4.3. The Learning Landscape Applied to Mathematics
  - 1.4.4. Problem-Based Learning (PBL) in Mathematics
  - 1.4.5. Cooperative Learning in Mathematics
  - 1.4.6. Comprehension Projects Applied to Mathematics
  - 1.4.7. Metacognitive Learning and Mathematics
  - 1.4.8. *Flipped Classroom* Applied to Mathematics
  - 1.4.9. Peer Mentoring in Mathematics
  - 1.4.10. Conceptual Jigsaw Puzzles Applied to Mathematics
  - 1.4.11. Digital Murals Applied to Mathematics
- 1.5. Math and Its Difficulties
  - 1.5.1. Definition of Learning Difficulties in Mathematics
  - 1.5.2. Learning Difficulties in Mathematics Related to: The Nature of Math Itself, The Organization and Methodology of Teaching, Related to the Student
  - 1.5.3. Common Errors: Problem Solving, In the Steps of the Algorithm,
  - 1.5.4. Dyscalculia as a Specific Learning Difficulty: Semativ, Perceptive, Procedural
  - 1.5.5. Causes of Mathematical Learning Difficulty (MLD)
    - 1.5.5.1. Contextual Factors
    - 1.5.5.2. Cognitive Factors
    - 1.5.5.3. Neurobiological Factors







- 1.6. Structure of the Student's Mathematics *e-Portfolio*
  - 1.6.1. Introduction
  - 1.6.2. Objectives and Goals to be Achieved
  - 1.6.3. Evidence of Learning in Mathematics
  - 1.6.4. Selected Mathematics Work Samples
    - 1.6.4.1. Mathematics Digital Works
    - 1.6.4.2. Non-Digital Mathematics Work
    - 1.6.4.3. Selection of Opinions
    - 1.6.4.4. Mathematics Exams and Tests
    - 1.6.4.5. Mathematics Notes
    - 1.6.4.6. Mathematics Footnotes
    - 1.6.4.7. Journal of Reflection on the Mathematics Learning Process
  - 1.6.5. Personal Reflection on Mathematics Work Completed
  - 1.6.6. Assessment of Portfolio in Mathematics
- 1.7. Conceptual Jigsaw Puzzles applied to Mathematics
  - 1.7.1. Definition of Jigsaw Puzzles
  - 1.7.2. What is a Conceptual Jigsaw Puzzle?
  - 1.7.3. Advantages of Conceptual Jigsaw Puzzles in Mathematics
  - 1.7.4. Disadvantages of Conceptual Jigsaw Puzzles in Mathematics
  - 1.7.5. Example of Conceptual Jigsaw Puzzle Applied to Mathematics
- 1.8. Games in Adolescence (High School Students)
- 1.9. Evaluation and the Teaching-Learning Process
  - 1.9.1. Evaluation and Teaching-Learning
  - 1.9.2. Concept of Learning Evaluation
  - 1.9.3. Headings
  - 1.9.4. Evaluation of the Mathematical Methodology
  - 1.9.5. Evaluation of Mathematical Talent
- 1.10. Teaching to Think in Mathematics

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.*

“

*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 Mathematics Teaching in High School Education guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



The image features two black graduation caps (mortarboards) against a blue sky with light clouds. The caps are positioned diagonally, with one in the foreground and another slightly behind it. The background is split into a white diagonal section on the bottom right and a red section on the top right. The text is located in the white section.

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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 **Mathematics Teaching in High School 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 Mathematics Teaching in High School 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  
development language  
virtual classroom



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