Professional Master's Degree
Teaching Mathematics in High School

tech global university

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Professional Master's Degree
Teaching Mathematics in High School

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: **www.techtitute.com/us/education/professional-master-degree/master-teaching-mathematics-high-school**

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01

Introduction

Mathematics has become a key subject for the future, given the multiple job opportunities that have opened up with the advent of new technologies. The underlying basis for the creation of software, hardware and programming codes are the algorithms that later become, for example, the video games that are enjoying such huge popularity. There is, therefore, no better time for teaching professionals to update their knowledge and capture the attention of students in the classroom. This 100% online program provides the latest knowledge on Teaching Mathematics in High School, delivered by an expert teaching team with experience in educational.

Become a teacher par excellence, capable of transforming teenagers' preconceived ideas about mathematics. Enroll now"

Teachers have the opportunity to transform mathematics into an attractive subject for adolescents, thanks to pedagogical innovation which can change perceptions of the subject. Mathematics teachers are aware that numbers are present in the world in many ways: in the natural world, in music, in medicine or in economics. Nowadays, the everyday use of electronic devices and digital creations have highlighted the importance of mathematics, without which they could not have been created.

This Professional Master's Degree, taught exclusively online, offers teachers the opportunity to further their professional careers thanks to a program taught by a team of professionals with experience in education and mathematics. Their extensive knowledge is reflected in a syllabus that will introduce students to the application of modern digital tools in the classroom, the use of games as a key element to bring mathematics closer to teenagers and the use of the Problem Based Learning (PBL) technique to make teaching sessions more appealing.

Multimedia content consisting of video summaries, detailed videos and case studies, will provide dynamism on the one hand, and on the other, will be useful for direct application by the teacher in the classroom.

This Professional Master's Degree will allow teachers to improve their competencies and skills through teaching created by TECH in a convenient format. Students will only need an electronic device with an Internet connection to access the program content. This content will be available 24 hours a day so that students can view or download it whenever they wish.

A flexible, non-classroom-based program, with no fixed schedules, ideal for people looking to broaden their professional horizons without neglecting other areas of their lives.

This **Professional Master's Degree in Teaching Mathematics in High School** contains the most complete and up-to-date program on the market. The most important features include:

- The examination of case studies presented by experts in Teaching Mathematics in High School
- Graphic, schematic, and practical contents which provide scientific and practical information on the disciplines that are essential for professional practice
- Practical exercises where self-assessment can be carried out to improve learning
- A 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

TECH provides you with a high-quality and flexible Professional Master's Degree. Study it comfortably from your computer or tablet"

You are looking at a university program that will improve planning for problem-based learning in mathematics"

From now on, you will be able to incorporate the latest technologies into your mathematics classes and make mathematics more appealing. Enroll now.

Enjoy 24-hour access to the most innovative educational material offered by this Professional Master's Degree. Enroll now.

The teaching staff includes professionals from the sector who contribute their 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 professionals with situated and contextual learning, i.e., a simulated environment that will provide immersive education designed to prepare them for 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 student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

This Professional Master's Degree offers teachers the opportunity to broaden their knowledge of mathematics teaching methods to be used with adolescents. Thus, upon completion of the 1,500 hours of this program, teachers will have mastered the different ICTs for the gamification of mathematics, the delivery of activities applying multiple intelligences and will be able to create a teaching unit with innovative elements.

Develop an e-Portfolio to work on mathematics curriculum content, applying all the essential educational elements"

General objectives

- Be familiar with the different innovative learning methodologies in education applied to mathematics
- Know how to apply the different innovative learning methodologies in education to mathematics
- Know how to discern which is the most appropriate innovative learning method for a group of students studying mathematics in High School
- Learn to design a teaching unit using the different methodologies for innovation in mathematics education
- Know how to apply the designed teaching unit to the classroom, so that students optimize their performance in mathematics

Specific objectives

Module 1. Learning Mathematics in Secondary School

- Discover the role of learning
- Be able to introduce mathematical language
- Understand the development of intelligence and mathematics
- Learn about the relationship between high abilities, giftedness and mathematics
- Explain the neural foundations of mathematics
- Identify the neural adjacent processes of mathematics
- Explore the emotional development of the adolescent
- Understand emotional intelligence applied to adolescents
- Examine adolescent mathematical development
- Learn about adolescent mathematical thinking
- Know what adolescents and students in the classroom are like
- Gain an understanding of the current educational system and its relationship with mathematics

Module 2. Pedagogical Innovation in Mathematics

- Be familiar with the methodologies for pedagogical innovation applied to mathematics
- Learn about the most important pedagogical innovation methodologies applied to mathematics in the educational system
- Learn about conductism in mathematics
- Learn about cognitivism in mathematics
- Learn about constructivism in mathematics
- Learn about Howard Gardner and his contribution to pedagogical innovation

Module 3. Gamification in Mathematics

- Understand the role of play in childhood
- Understand the role of play in adolescence
- Discern between the role of play in childhood and adolescence
- Learn what gamification in mathematics is
- Know about the advantages that gamification can bring to the mathematics learning process
- Learn the different elements of gamification applied to mathematics
- Know how to use gamification elements to transform a traditional mathematics activity into a gamified mathematics activity
- Learning to apply gamification to mathematics
- Know how to extrapolate an example of a gamified mathematical activity to any mathematics content
- Know how to design a gamified activity with content from the mathematics curriculum
- Be aware of the different ICT resources related to the gamification of mathematics
- Learn about the origins of games in humanity
- Be aware of the different ICT resources for Mathematics Portfolios/ e-Portfolios

Module 4. Mathematics Portfolios/ e-Portfolios

- Learn how to plan a Mathematics Portfolio/e-Portfolio
- Learn what a Mathematics Portfolio/e-Portfolio is
- Know how to differentiate between the mathematics Portfolio and e-Portfolio
- To know what evidence of work in mathematics is
- Know how a Portfolio/e-Portfolio aplies to education

- Know what types of Portfolio/e-Portfolio there are
- Know how to classify Portfolios/e-Portfolios
- Learn how to build a Mathematics Portfolio/e-Portfolio
- Know about the different elements of a mathematics Portfolio/e-Portfolio
- Learn how to introduce students to a mathematics Portfolio/e-Portfolio
- Know how to guide a Mathematics Portfolio/e-Portfolio in the classroom
- Know how to assess a mathematics Portfolio/e-Portfolio
- Learn how to use the Portfolio/e-Portfolio to work on the contents of the mathematics curriculum

Module 5. The Learning Landscape in Mathematics

- Be aware of the different ICT resources related to mathematical learning landscapes
- Learn about types of learning
- Explore the research group as a type of cooperative learning applied to mathematics
- Find out what mathematics learning landscapes are
- Study Bloom's taxonomy applied to mathematics
- Understand what the modified Bloom's taxonomy applied to mathematics is
- Learn about Howard Gardner's multiple intelligences applied to mathematics
- Know what linguistic intelligence is and its role in the mathematics learning system
- Know what logical-mathematical intelligence is and its role in the mathematics learning system
- Know what spatial intelligence is and its role in the mathematics learning system
- Know what musical intelligence is and its role in the mathematics learning system
- To know what bodily and kinesthetic intelligence is and its role in the mathematics learning system
- Know what intrapersonal intelligence is and its role in the mathematics learning system
- Know what interpersonal intelligence is and its role in the mathematics learning system
- Know what natural intelligence is and its role in the mathematics learning system
- Know what existential intelligence is and its role in the mathematics learning system
- Learning to design a mathematics learning landscape
- Learn to apply mathematical learning landscapes
- Oversee a mathematics activity using learning landscapes

Module 6. Problem-Based Learning (PBL) in Mathematics

- Learn what Problem-Based Learning (PBL) in mathematics is
- Know the features of mathematics PBL
- Learn how to plan a mathematics PBL
- Learn how to design mathematics PBL
- Know what the student's role is in mathematics PBL
- Know what the teacher's role is in mathematics PBL
- Learn how to assess mathematics PBL
- Learn how to design PBL applied to mathematics
- Know how to extrapolate a PBL example to any content of the mathematics curriculum
- Be aware of the different ICT resources for mathematics PBL

Module 7. Cooperative Learning in Mathematics

- Learn how to assess cooperative learning applied to mathematics
- Learn how to design cooperative learning applied to mathematics
- Know how to extrapolate a cooperative learning example to any content of the mathematics curriculum
- Learn what cooperative learning applied to mathematics is

- Know how to differentiate between cooperative and collaborative work in mathematics
- Know the objectives of cooperative learning applied to mathematics
- Know the characteristics of cooperative learning applied to mathematics
- Explore the puzzle or jigsaw as a type of cooperative learning applied to mathematics
- Learn about team-achievement divisions as a type of cooperative learning applied to mathematics
- Explore the co-op as a type of cooperative learning applied to mathematics
- Learn about Team-Games-Tournaments as a type of cooperative learning
- Know how to plan cooperative learning in mathematics
- Know the different roles that students can have in cooperative learning for mathematics

Module 8. Comprehension Projects in Mathematics

- Be able to introduce differential learning in mathematics
- Distinguish the features of mathematics learning
- Understand cognitive processes in mathematics
- Know about Metacognitive processes in mathematics
- Identify the relationship between focused attention and mathematics learning
- Establish the relationship between sustained attention and mathematics learning
- Understand the relationship between short-term memory and mathematics learning
- Discover the role of long-term memory in mathematics learning
- Learn about language development and mathematics

Module 9. Metacognitive Learning and Mathematics

- Learn to consider multiple intelligences in the design of different mathematical activities
- Know what metacognition in mathematics is
- Know what mathematics learning is
- Learn about conductism applied to mathematics
- Learn about cognitivism applied to mathematics
- Learn about constructivism applied to mathematics
- Learn to teach mathematical thinking
- Know about the different learning strategies applicable to mathematics
- Learn to design applied mathematics activities incorporating metacognitive learning
- Know what the teacher's role is in this type of mathematical learning

Module 10. Other Innovative Methodologies in Mathematics

- Be aware of the different ICT resources related to cooperative learning applied to mathematics
- Be aware of the different ICT resources related to mathematics comprehension projects
- Learn to use other alternative innovative mathematics methodologies
- Know what the Flipped Classroom is
- Know about the advantages of the Flipped Classroom applied to mathematics
- Know about the advantages of the Flipped Classroom applied to mathematics
- Learn how to apply the Flipped Classroom to mathematics
- Learning to apply the digital mural to mathematics
- Know how to design a mathematics teaching unit

Module 11. Designing a Mathematics Teaching Unit

- Learning to select the factors that comprise a mathematics teaching unit
- Learn how to create the necessary documentation to work with the students in the mathematics teaching unit
- Know how to choose the most appropriate learning methodology for the subject and students in order to deliver a mathematics teaching unit
- Learn how to create the necessary documentation to work with the students in the mathematics teaching unit
- Know how to create the necessary documentation to assess students upon completion of the mathematics teaching unit
- To know how to use self-assessment and co-assessment to assess a mathematics teaching unit
- Know how to use self-assessment and co-assessment to assess a mathematics teaching unit

Boost your pedagogical skills in the digital classroom with this complete and up-to-date program offered by TECH"

03

Skills

This Professional Master's Degree will provide teaching professionals with the necessary tools and techniques to offer their students a more enjoyable approach to the main mathematical concepts. This will be possible thanks to the teaching material provided by the expert teaching team for this Professional Master's Degree, which you can access whenever and wherever you want with your computer or tablet.

This university program will show you how to integrate any innovative methodology in your classroom. Enroll now"

General skills

- Gain knowledge of educational technology and digital skills that will provide an opportunity for entry to or professional development in this field
- Apply the knowledge acquired in a practical way, with a good theoretical basis, in order to solve any problem arising in the work environment, adapting to new challenges related to their area of study
- Integrate the knowledge gained in the program with previous knowledge, and reflect upon the implications for professional practice, applying personal values, thereby improving the quality of the service provided
- Transmit the theoretical and practical knowledge acquired, and develop the capacity for criticism and reasoning before a specialist and non-specialist audience, in a clear and unambiguous manner
- Develop self-learning skills that will allow continuous professional development in order to optimize professional performance

At the end of this 12-month program you will have obtained the necessary teaching tools to further your career as a teacher"

Specific skills

- Know how to apply the practical and theoretical knowledge acquired in order to resolve any problem that may arise when putting mathematical knowledge into practice with high school students
- Be able to integrate previous knowledge of mathematics with the knowledge acquired on this program and, therefore, transmit knowledge to high school students in a more effective way
- Be able to integrate innovative methodology with the curricular content, adapting these contents to student needs
- Develop self-learning skills, so as to enable continuous professional development on new innovative methodologies to be applied in mathematics classrooms
- Know how to use multiple intelligences as a fundamental tool for attention of diversity in the classroom during the mathematics learning process
- Know how to show high school students that mathematics can be learned in different ways, adapting the methodology according to the student's learning style

04

Course Management

In line with a commitment to excellence, TECH carefully selects the teaching staff for its degrees, giving priority to excellent qualifications, professional experience and a human touch. Thus, on this online program the professional will have recourse to a faculty with experience in teaching and psychology, who will answer any questions that may arise on the contents.

Further your professional career with a team of mathematics teaching experts"

International Guest Director

Doctor Jack Dieckmann has been an outstanding Senior Mathematics Advisor, who has focused on the revision of curricular materials to strengthen language development in Mathematics. In fact, his expertise has encompassed the evaluation and improvement of educational resources, supporting the integration of effective classroom practices. In addition, he has held the position of Director of Research at Stanford University, where he has been dedicated to documenting the effectiveness of learning opportunities offered by Youcubed, including Jo Boaler's online courses on mathematical mindsets and other research-based materials.

In addition, throughout his career, he has held key roles at renowned institutions. Therefore, he has served as Associate Director of Curriculum at the Center for Assessment, Learning and Equity (SCALE), where he has led the Mathematics team in the development of performance assessments, demonstrating his ability to innovate in educational assessment and apply advanced teaching techniques.

In this sense, at the international level, Dr. Jack Dieckmann has been recognized for his impact on mathematics education, through his scientific participation in multiple activities. He has also obtained significant merits in his field, participating in conferences and consultancies in countries such as China, Brazil and Chile. As such, his work has been crucial for the implementation of best practices in mathematics teaching, and his experience has been instrumental in advancing mathematics education globally.

In this way, his further research has focused on "language for mathematical purposes", especially for students of English as a second language. In turn, he has continued to contribute to mathematics education through his work at Youcubed, as well as his consulting activities globally, demonstrating his position as an outstanding leader in the field.

Dr. Dieckmann, Jack

- Director of Research at Youcubed at Stanford University, San Francisco, United States
- Associate Director of Stanford's Center for Assessment, Learning and Equity (SCALE)
- Instructor at the Stanford Teacher Education Program (STEP)
- International Teaching Consultant in countries such as China, Brazil and Chile
- Ph.D. in Mathematics Education at Stanford GSE in 2009

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

Management

Mr. Jurado Blanco, Juan

- Mathematics teacher in Compulsory Secondary Education at Santa Teresa de Jesús School in Vilanova i la Geltrú
- Expert in High Abilities
- Industrial Technical Engineer, specializing in Industrial Electronics

Professors

Mr. De la Serna, Juan Moisés

- Psychologist specializing in Neurosciences and Behavioral Biology
- Director of the Open Chair of Psychology and Neurosciences and science communicator
- Postgraduate Diploma in Teaching Methodology
- Occupational Trainer
- Doctor in Psychology, Master's Degree in Neurosciences and Behavioral Biology
- Master's Degree in Neurosciences and Behavioral Biology
- University Specialist in Clinical Hypnosis
- Expert in Project Management

Dr. Sánchez García, Manuel

- Mathematics teacher in Compulsory Secondary Education at Santa Teresa de Jesús School in Vilanova i la Geltrú
- Vocational Training and Language Teaching
- Specializing in Health Biology
- Master's Degree in Teacher Training for Compulsory Secondary and High School Education
- Degree in Biology

05

Structure and Content

The *Relearning* system, used by TECH in all its programs, will allow students to progressively advance through this Professional Master's Degree while reducing the long hours of study so common in other teaching methods. Based on this method, a study plan has been developed consisting of a syllabus divided into 11 modules, in which students will explore the main techniques, tools and systems for teaching mathematics to adolescents. Visual and dynamic content will aid professional growth in their field.

A syllabus containing theoretical-practical content that will allow you to enhance the teaching of mathematics to adolescents"

Module 1. Learning Mathematics in Secondary School

1.1. Defining Learning
- 1.1.1. The Role of Learning
- 1.1.2. Types of Learning

1.2. Learning Mathematics
- 1.2.1. Differential Learning of Mathematics
- 1.2.2. Characteristics of Mathematics

1.3. Cognitive and Metacognitive Processes in Mathematics.
- 1.3.1. Cognitive Processes in Mathematics.
- 1.3.2. Metacognitive Processes in Mathematics.

1.4. Attention and Mathematics
- 1.4.1. Focused Attention and the Learning of Mathematics
- 1.4.2. Sustained Attention and the Learning of Mathematics

1.5. Memory and Mathematics.
- 1.5.1. Short-Term Memory and the Learning of Mathematics
- 1.5.2. Long-Term Memory and the Learning of Mathematics

1.6. Language and Mathematics
- 1.6.1. Language Development and Mathematics
- 1.6.2. Mathematical Language

1.7. Intelligence and Mathematics
- 1.7.1. Development of Intelligence and Mathematics
- 1.7.2. Relationship of High Abilities and Giftedness with Mathematics

1.8. Neural Bases of Mathematics Learning
- 1.8.1. Neural Foundations of Mathematics
- 1.8.2. Adjacent Neural Processes of Mathematics

1.9. Characteristics of Secondary School Students
- 1.9.1. Adolescent Emotional Development
- 1.9.2. Emotional Intelligence Applied to Adolescents

1.10. Adolescence and Mathematics
- 1.10.1. Adolescent Mathematical Development
- 1.10.2. Adolescent Mathematical Thinking

Module 2. Pedagogical Innovation in Mathematics

2.1. Today's classrooms: High School and Baccalaureate Students
- 2.1.1. Intellectual Development
- 2.1.2. Physical Development
- 2.1.3. Psychological Development
- 2.1.4. Social Development
- 2.1.5. Ethics-Affective and Moral Development

2.2. Basis of Pedagogical Innovation
- 2.2.1. Behavioral Learning
- 2.2.2. Cognitive Learning
- 2.2.3. Constructivist Learning
- 2.2.4. Education in the 21st Century

2.3. Howard Gardner
- 2.3.1. Works
- 2.3.2. Projects
- 2.3.3. Awards
- 2.3.4. Quotes

2.4. Multiple Intelligences for High School Students
- 2.4.1. Linguistic Intelligence applied to Mathematics
- 2.4.2. Logical-Mathematical Intelligence applied to Mathematics
- 2.4.3. Spatial Intelligence applied to Mathematics
- 2.4.4. Musical Intelligence Applied to Mathematics
- 2.4.5. Body and Kinesthetic Intelligence applied to Mathematics
- 2.4.6. Intrapersonal Intelligence applied to Mathematics
- 2.4.7. Interpersonal Intelligence applied to Mathematics
- 2.4.8. Natural Intelligence applied to Mathematics
- 2.4.9. Existential Intelligence applied to Mathematics
- 2.4.10. Howard Gardner's Multiple Intelligences Test

2.5. Innovative Pedagogical Methodologies in Mathematics
- 2.5.1. Gamification in Mathematics
- 2.5.2. Portfolios/e-Portfolios applied to Mathematics
- 2.5.3. The Learning Landscape Applied to Mathematics
- 2.5.4. Problem-Based Learning (PBL) in Mathematics

2.5.5. Cooperative Learning in Mathematics
2.5.6. Comprehension Projects applied to Mathematics
2.5.7. Metacognitive Learning and Mathematics
2.5.8. Flipped Classroom applied to Mathematics
2.5.9. Peer Mentoring in Mathematics
2.5.10. Conceptual Jigsaw Puzzles applied to Mathematics
2.5.11. Digital Murals Applied to Mathematics

Module 3. Gamification in Mathematics

3.1. Play
3.1.1. Play
3.1.2. Play Since the Middle Ages
3.2. Games in Childhood
3.2.1. Areas Developed by Games
3.3. Games in Adolescence (High School Students)
3.3.1. Introduction
3.3.1.1. Elements which make Games are so Important for Adolescents
3.3.1.2. Adolescents and Video Games
3.3.1.3. Better Hand-Eye Coordination
3.3.1.4. Faster Thinking, Sharper Memory
3.3.1.5. Greater Creativity
3.3.1.6. Promote Learning
3.3.2. The Video Game as an Educational Tool
3.3.2.1. When to Act When is Video Gaming Detrimental?
3.4. Gamification
3.4.1. Motivation and "Continuous Feedback"
3.4.1.1. Personalized Education
3.4.2. Societal Change
3.4.3. Elements of Gamification
3.5. Gamification of Mathematics
3.5.1. Representation of all Types of Functions
3.5.2. Solving 1st and 2nd Degree Equations
3.5.3. Solving Systems of Equations
3.6. Application of Gamification in Mathematics
3.6.1. How Gamification Works
3.6.2. Gamification Model
3.6.3. Purpose of Gamification
3.6.4. Padlocks
3.6.5. Analysis of Gamification Elements
3.7. Application of Gamification in Mathematics (Part II)
3.7.1. Introduction to Augmented Reality
3.7.2. Creating Auras
3.7.3. Mobile Configuration

Module 4. Mathematics Portfolios/ e-Portfolios

4.1. What is a Portfolio/e-Portfolio?
4.1.1. Evidence of Mathematical Work
4.1.2. Portfolios/e-Portfolios in Education
4.1.3. Classification of Portfolios/e-Portfolios
4.1.3.1. According to Objective
4.1.3.2. According to Author
4.1.3.3. According to Technological Format
4.2. Preparation of the e-Portfolio applied to Mathematics
4.2.1. Planning
4.2.2. Define
4.2.3. Understand
4.2.4. Prepare
4.2.5. Assess
4.3. Structure of the Student's Mathematics e-Portfolio
4.3.1. Planning
4.3.2. Evidence Collection
4.3.3. Selection
4.3.4. Reflection
4.3.5. Publication and Evaluation
4.3.6. Timing

4.4. The Mathematics Portfolio: A Practical Example (Part I)
- 4.4.1. Portfolio Planning
  - 4.4.1.1. Portfolio Definition
  - 4.4.1.2. General Objectives
  - 4.4.1.3. Specific Objectives
  - 4.4.1.4. Core Competencies to be Worked On
  - 4.4.1.5. Work Methodologies and Rationale
  - 4.4.1.6. General and Specific Timing
  - 4.4.1.7. Student Reflection Strategies (How and When?)
  - 4.4.1.8. Teacher Feedback (How and When?)
  - 4.4.1.9. Type of Portfolio (on Paper or Digital)
  - 4.4.1.10. Activities to be Performed

4.5. The Mathematics Portfolio: A Practical Example (Part II)
- 4.5.1. Activities aimed at Improvement and Exploration
- 4.5.2. Necessary ICT Skills: How to Acquire Them
- 4.5.3. Evaluation. Types of evaluations
  - 4.5.3.1. Conclusions
- 4.5.4. How are students informed of what the portfolio is intended to achieve?
  - 4.5.4.1. Understanding the Portfolio
  - 4.5.4.2. Preparation
  - 4.5.4.3. Assessment
- 4.5.5. Portfolio Sections

Module 5. The Learning Landscape in Mathematics

5.1. What are Learning Landscapes Applied to Mathematics?
- 5.1.1. The Horizontal Axis of the Learning Landscape Matrix: Bloom's Taxonomy
- 5.1.2. The Vertical Axis of the Learning Landscape Matrix: Multiple Intelligences
- 5.1.3. The Learning Landscape Matrix
- 5.1.4. Supplements to the Learning Landscape
- 5.1.5. Example of a Learning Landscape

5.2. Bloom's Taxonomy applied to Mathematics
- 5.2.1. Bloom's Taxonomy of Thinking Skills (1956) and Mathematics

5.2.2. Review of Bloom's Taxonomy (Anderson and Krathwohl, 2001) and Mathematics.
5.2.3. Bloom's Taxonomy for the Digital Age (Churches, 2008) and Mathematics
5.3. Multiple Intelligences applied to Mathematics
5.3.1. Linguistic Intelligence applied to Mathematics
5.3.2. Logical-Mathematical Intelligence applied to Mathematics
5.3.3. Spatial Intelligence applied to Mathematics
5.3.4. Musical Intelligence applied to Mathematics
5.3.5. Body and Kinesthetic Intelligence applied to Mathematics
5.3.6. Intrapersonal Intelligence applied to Mathematics
5.3.7. Interpersonal Intelligence applied to Mathematics
5.3.8. Natural Intelligence applied to Mathematics
5.3.9. Existential Intelligence applied to Mathematics
5.4. Designing a Learning Landscape in Mathematics
5.4.1. Context of the Curricular Content to be Worked On
5.4.2. Gamification
5.4.2.1. Game Elements
5.4.2.2. Narrative
5.4.3. Design of Activities
5.4.3.1. Bloom Double-Entry Intelligences Matrix
5.4.3.2. Determination of Itineraries
5.4.3.3. Designing Activities for Each Itinerary
5.4.3.4. Assessment
5.4.3.5. Design of the Genially Graphical Environment
5.5. Example of a Learning Landscape Applied to Mathematics
5.5.1. Context of the Curricular Content to be Worked On
5.5.2. Gamification
5.5.2.1. Narrative
5.5.2.2. Game Elements
5.5.3. Design of Activities
5.5.3.1. Bloom Double-Entry Intelligences Matrix
5.5.3.2. Designing Activities for Each Itinerary
5.5.3.3. Assessment
5.5.3.4. Design of the Graphical Environment Final Result

Module 6. Problem-Based Learning (PBL) in Mathematics

6.1. What is a PBL?
6.1.1. Problem-Based Learning or Project-Based Learning?
6.1.1.1. Problem-Based Learning
6.1.1.2. Project-Based Learning
6.2. Features of PBL in Mathematics
6.2.1. Features, Pros and Cons of Master Classes
6.2.1.1. Features
6.2.1.2. Positive Aspects
6.2.1.3. Negative Aspects
6.2.2. Features, Advantages and Disadvantages of PBL
6.2.2.1. Features
6.2.2.2. Positive Aspects
6.2.2.3. Negative Aspects
6.3. Planning of PBL in Mathematics
6.3.1. What is a Problem?
6.3.2. Criteria for Developing PBL problems
6.3.3. Variants of PBL
6.3.3.1. PBL for 60 Students (Hong Kong)
6.3.3.2. PBL 4x4
6.3.4. Methodology
6.3.4.1. Group Formation
6.3.4.2. Planning and Design of PBL
6.3.5. Design of Mathematics PBL
6.4. Development of PBL in Mathematics
6.4.1. Evolution of Group in the PBL
6.4.2. Steps to be Taken by Students in the Development of PBL
6.4.2.1. General Process for Students
6.4.2.2. Process Established by Morales and Landa (2004)
6.4.2.3. Process Established by Exley and Dennick (2007)
6.4.3. Use of Researched Information

6.5. Role of the Teacher and the Student
- 6.5.1. The Role Played by Teachers in PBL
- 6.5.2. Tutor's Manner of Guiding/Counselling
- 6.5.3. Use of Researched Information
- 6.5.4. The Role Played by Students in PBL
- 6.5.5. Student Roles in PBL

6.6. Assessment of PBL in Mathematics
- 6.6.1. Student Assessment
- 6.6.2. Teacher Evaluation
- 6.6.3. PBL Assessment (Process)
- 6.6.4. Assessment of Process Outcome
- 6.6.5. Assessment Techniques

6.7. Example of PBL Applied to Mathematics.
- 6.7.1. Planning or Design of PBL
  - 6.7.1.1. Phases of the PBL Design
  - 6.7.1.2. Application Phases of PBL Design
- 6.7.2. Group Determination
- 6.7.3. Role of the Teacher
- 6.7.4. Work Process with Students
- 6.7.5. Evaluation of PBL

Module 7. Cooperative Learning in Mathematics

7.1. What is Cooperative Learning? How is it Applied to Mathematics.?
- 7.1.1. Differentiation between Cooperative and Collaborative Work.

7.2. The Objectives of Cooperative Learning in Mathematics
- 7.2.1. The Objectives of Cooperative Learning
- 7.2.2. Benefits of this Learning Method
- 7.2.3. Objectives of Cooperative Learning in a Multicultural Context
- 7.2.4. Disadvantages of this Learning Method
- 7.2.5. In Mathematics

7.3. The Features of Cooperative Learning in Mathematics
- 7.3.1. Positive Interdependence
- 7.3.2. Mutual Support
- 7.3.3. Individual Responsibility
- 7.3.4. Social Skills
- 7.3.5. Self-Assessment of Group Performance

7.4. Types of Cooperative Learning in Mathematics
- 7.4.1. Puzzles or Jigsaws
- 7.4.2. Team Achievement Divisions
- 7.4.3. Research Groups
- 7.4.4. Co-op
- 7.4.5. Teams-Games-Tournaments

7.5. Planning and Guidance in Cooperative Work in Mathematics
- 7.5.1. Implementation Stages
- 7.5.2. Group Formation
- 7.5.3. Classroom Set-Up
- 7.5.4. Assignment of Student Roles
- 7.5.5. Explanation of the Task to be Performed
- 7.5.6. Teacher Intervention in Cooperative Groups

7.6. Teacher Role in Cooperative Work in Mathematics
- 7.6.1. Roles of the Teacher
- 7.6.2. The Role of the Teacher

7.7. The Assessment of Cooperative Learning in Mathematics
- 7.7.1. Evaluation of the Individual Learning Process while Working: Mathematics Cooperative
- 7.7.2. Evaluation of the of Group Learning Process while Working: Mathematics Cooperative
- 7.7.3. The Role of the Assessment Observation
- 7.7.4. Co-Evaluation of Cooperative Work in Mathematics
- 7.7.5. Self-evaluation of Cooperative Work in Mathematics

7.8. Examples of Cooperative Learning Applied to Mathematics
- 7.8.1. Review of Cooperative Project Planning
- 7.8.2. First Phase: Preliminary Decision-Making
  - 7.8.2.1. Learning Objectives
  - 7.8.2.2. Cooperative Methodology to be Used
  - 7.8.2.3. Group Size

7.8.2.4. Learning Materials
7.8.2.5. Assignment of Students to Groups
7.8.2.6. Preparation of the Physical Space
7.8.2.7. Role Distribution
7.8.3. Second Phase: Task Structuring: Positive Interdependence
7.8.3.1. Explanation of the Task
7.8.3.2. Explanation of Success Criteria
7.8.3.3. Structuring Positive Interdependence
7.8.3.4. Structuring of Individual Responsibility
7.8.3.5. Interpersonal Skills and Social Skills
7.8.4. Third Phase: Execution and Control of the Process
7.8.5. Fourth Phase: Evaluation of the Learning Process and Group Interaction
7.8.5.1. Activity Closure
7.8.5.2. Assessment of Quantity and Quality of Learning
7.8.5.3. Evaluation of Group Performance

Module 8. Comprehension Projects in Mathematics

8.1. What are Comprehension Projects Applied to Mathematics?
8.1.1. Elements of the Mathematics Comprehension Project.
8.2. Review of Multiple Intelligences Applied to Mathematics.
8.2.1. Types of Multiple Intelligences
8.2.2. Biological Criteria
8.2.3. Developmental Psychology Criteria
8.2.4. Experimental Psychology Criteria
8.2.5. Psychometric Studies Criteria
8.2.6. Logical Analysis Criteria
8.2.7. The Role of the Teacher
8.2.8. Multiple Intelligences applied to Mathematics
8.3. Presentation of the Comprehension Project Applied to Mathematics.
8.3.1. What can you Expect to Find in a Classroom Where you are Teaching for Understanding?
8.3.2. What is the Role of the Teacher in Classes Aimed at Comprehension?
8.3.3. What do Students do in Classes Aimed at Comprehension?
8.3.4. How to Motivate Students to Learn Science
8.3.5. Developing a Comprehension Project
8.3.6. Thinking about the Class from Back to Front
8.3.7. Relationship between the Elements of the Comprehension Project
8.3.8. Some Reflections on Working with the Teaching for Understanding Framework
8.3.9. Curricular Unit on the Concept of Probability
8.4. The Generative Topic in the Comprehension Project applied to Mathematics.
8.4.1. Generative Topics
8.4.2. Key Features of Generative Topics
8.4.3. How to Plan Generative Topics
8.4.4. How to Improve Brainstorming on Generative Topics
8.4.5. How to Teach with Generative Topics
8.5. Threads in the Comprehension Project Applied to Mathematics
8.5.1. Key Features of Comprehension Goals
8.6. Comprehension Activities in the Comprehension Project Applied to Mathematics
8.6.1. Preliminary Activities in the Comprehension Project Applied to Mathematics
8.6.2. Research Activities in the Comprehension Project as Applied to Mathematics
8.6.3. Synthesis Activities in the Comprehension Project Applied to Mathematics
8.7. Continuous Assessment in the Comprehension Project Applied to Mathematics
8.7.1. Continuous Diagnostic Assessment
8.8. Documentation Creation in the Comprehension Project Applied to Mathematics
8.8.1. Documentation for the Teacher's Own Use
8.8.2. Documentation to be Given to Students

Module 9. Metacognitive Learning and Mathematics

9.1. Learning and Mathematics
9.1.1. The Learning Process.
9.1.2. Learning Styles
9.1.3. Factors of Learning
9.1.4. Mathematics Teaching and Learning

9.2. Types of Learning.
- 9.2.1. Behaviorist Theory
- 9.2.2. Cognitivist Theory
- 9.2.3. Constructivist Theory
- 9.2.4. Sociocultural Theory

9.3. What is Metacognition in Mathematics.
- 9.3.1. What is Metacognition?
- 9.3.2. Metacognitive Knowledge
- 9.3.3. Strategies
- 9.3.4. Metacognitive Strategies in Mathematics

9.4. Teaching to Think in Mathematics
- 9.4.1. Teaching to Learn and Think
- 9.4.2. Keys to Teaching Learning and Thinking
- 9.4.3. Mental Strategies for Learning and Thinking
- 9.4.4. Methodology for Learning to Learn
- 9.4.5. Factors Influencing Study and Work
- 9.4.6. Study Planning
- 9.4.7. Intellectual Work Techniques

9.5. Learning Strategies in Mathematics.
- 9.5.1. Metacognition in Problem Solving
- 9.5.2. What is a Problem in Mathematics?
- 9.5.3. Types of Problems
- 9.5.4. Problem-Solving Models
  - 9.5.4.1. Pólya's Model
  - 9.5.4.2. Mayer's Model
  - 9.5.4.3. A. H. Schoenfeld's Model
  - 9.5.4.4. Mason- Burton-Stacey's Model
  - 9.5.4.5. Miguel de Guzmán's Model
  - 9.5.4.6. Manoli Pifarré and Jaume Sanuy's Model

9.6. Example of Metacognitive Learning Applied to Mathematics.
- 9.6.1. Learning Tools
  - 9.6.1.1. Underlining
  - 9.6.1.2. Drawing
  - 9.6.1.3. Summary
  - 9.6.1.4. Schematics
  - 9.6.1.5. Conceptual Maps
  - 9.6.1.6. Mind Maps
  - 9.6.1.7. Teaching to Learn
  - 9.6.1.8. Brainstorming
- 9.6.2. Application of Metacognition in Problem Solving

Module 10. Other Innovative Methodologies in Mathematics

10.1. Flipped Classroom Applied to Mathematics
- 10.1.1. The Traditional Class
- 10.1.2. What Is the Flipped Classroom?
- 10.1.3. Advantages of the Flipped Classroom applied to Mathematics
- 10.1.4. Disadvantages of the Flipped Classroom applied to Mathematics
- 10.1.5. Example of a Flipped Classroom applied to Mathematics

10.2. Peer Mentoring in Mathematics
- 10.2.1. Definition of Mentoring
- 10.2.2. What is Peer Mentoring?
- 10.2.3. Advantages of Peer Mentoring in Mathematics
- 10.2.4. Disadvantages of Peer Mentoring in Mathematics
- 10.2.5. Example of Peer Mentoring Applied to Mathematics.

10.3. Conceptual Jigsaw Puzzles applied to Mathematics
- 10.3.1. Definition of Jigsaw Puzzles
- 10.3.2. What is a Conceptual Jigsaw Puzzle?
- 10.3.3. Advantages of Conceptual Jigsaw Puzzles in Mathematics
- 10.3.4. Disadvantages of Conceptual Jigsaw Puzzles in Mathematics
- 10.3.5. Example of Conceptual Jigsaw Puzzle Applied to Mathematics.

10.4. Digital Murals applied to Mathematics
- 10.4.1. Definition of a Mural
- 10.4.2. Digital Murals in Mathematics
- 10.4.3. Tools for Making Digital Murals in Mathematics
- 10.4.4. Advantages of Digital Murals in Mathematics
- 10.4.5. Disadvantages ofDigital Murals in Mathematics
- 10.4.6. An Example of a Digital Mural applied to Mathematics

Module 11. Designing a Mathematics Teaching Unit

11.1. What does the Design of a Mathematics Teaching Unit Entail?
- 11.1.1. Elements of a Teaching Unit
  - 11.1.1.1. Description
- 11.1.2. Curriculum
  - 11.1.2.1. General Objectives for the Stage
  - 11.1.2.2. General Objectives for the Subject
    - 11.1.2.2.1. Linguistic Communication Skills
    - 11.1.2.2.2. Mathematical Skills and Core Skills in Science and Technology
    - 11.1.2.2.3. Digital Competence
    - 11.1.2.2.4. Learning to Learn
    - 11.1.2.2.5. Social and Civic Skills
    - 11.1.2.2.6. Sense of Initiative and Entrepreneurship
    - 11.1.2.2.7. Cultural Awareness and Expressions
- 11.1.3. Contents
  - 11.1.3.1. Minimum Contents
  - 11.1.3.2. Cross-cutting Contents
  - 11.1.3.3. Interdisciplinary Contents
- 11.1.4. Methodology
  - 11.1.4.1. Sequence of Activities
  - 11.1.4.2. Material Resources
  - 11.1.4.3. Organization of Space and Timing
  - 11.1.4.4. Attention to Diversity

11.1.5. Evaluation
11.1.5.1. Assessment Criteria
11.1.5.2. Assessable Learning Standards
11.1.5.3. Teaching Methodology
11.1.5.4. Skills
11.2. Introduction of the Mathematics Teaching Unit
11.2.1. Mathematics Field
11.2.2. General Objectives for the Stage
11.2.3. General Objectives for the Subject
11.2.4. Key Competencies
11.2.5. Cross-cutting Elements
11.3. Recipients of the Mathematics Teaching Unit
11.3.1. Students with Special Educational Needs(SEN)
11.3.1.1. Definition of Students with SEN (Special Educational Needs)
11.3.1.2. Definition of Students with SEND (Special Educational Needs and Disabilities)
11.3.2. Students with High Abilities
11.3.2.1. The School
11.3.2.2. The Role of the Teacher in the Classroom
11.3.3. Students with Attention Deficit Hyperactivity Disorder (ADHD)
11.3.3.1. In School
11.3.3.2. The Role of the Teacher in the Classroom
11.3.4. Students with Autism Spectrum Disorder (ASD)
11.3.4.1. Characteristics
11.3.4.2. The Role of the Teacher in the Classroom
11.3.5. Students with Learning Difficulties
11.3.5.1. Dyslexia
11.3.5.2. Dysgraphia
11.3.5.3. Dyscalculia
11.4. Choice of Methodology for the Delivery of the Teaching Unit
11.4.1. Gamification in Mathematics
11.4.2. The Portfolio Applied to Mathematics
11.4.3. The Learning Landscape Applied to Mathematics
11.4.4. Problem-Based Learning (PBL) in Mathematics
11.4.5. Cooperative Learning in Mathematics
11.4.6. Comprehension Projects Applied to Mathematics
11.4.7. Metacognitive Learning and Mathematics
11.4.8. Flipped Classroom Applied to Mathematics
11.4.9. Conceptual Jigsaw Puzzles applied to Mathematics
11.4.10. Digital Murals applied to Mathematics
11.5. Selection of the Work Topic for the Mathematics Teaching Unit
11.5.1. Mathematics- High School Years 1 and 2
11.5.1.1. Mathematical Processes, Methods and Attitudes
11.5.1.2. Numbers and Algebra
11.5.1.3. Geometry
11.5.1.4. Functions
11.5.1.5. Statistics and Probability
11.5.2. Mathematics Aimed at Year 3 High School Students
11.5.2.1. Mathematical Processes, Methods and Attitudes
11.5.2.2. Numbers and Algebra
11.5.2.3. Geometry
11.5.2.4. Functions
11.5.2.5. Statistics and Probability
11.5.3. Mathematics Aimed at Year 4 High School Students
11.5.3.1. Mathematical Processes, Methods and Attitudes
11.5.3.2. Numbers and Algebra
11.5.3.3. Geometry
11.5.3.4. Functions
11.5.3.5. Statistics and Probability
11.5.4. Mathematics Aimed at Applied Teaching for Year 3 High School Students
11.5.4.1. Mathematical Processes, Methods and Attitudes
11.5.4.2. Numbers and Algebra
11.5.4.3. Geometry
11.5.4.4. Functions
11.5.4.5. Statistics and Probability

11.5.5. Mathematics Aimed at Applied Teaching for Year 4 High School Students
11.5.5.1. Mathematical Processes, Methods and Attitudes
11.5.5.2. Numbers and Algebra
11.5.5.3. Geometry
11.5.5.4. Functions
11.5.5.5. Statistics and Probability
11.5.6. Mathematics for Year 1 Baccalaureate Students
11.5.6.1. Mathematical Processes, Methods and Attitudes
11.5.6.2. Numbers and Algebra
11.5.6.3. Analysis
11.5.6.4. Geometry
11.5.6.5. Statistics and Probability
11.5.7. Mathematics for Year 2 Baccalaureate Students
11.5.7.1. Mathematical Processes, Methods and Attitudes
11.5.7.2. Numbers and Algebra
11.5.7.3. Analysis
11.5.7.4. Geometry
11.5.7.5. Statistics and Probability
11.5.8. Mathematics Applied to Social Sciences- Year1 Baccalaureate
11.5.8.1. Mathematical Processes, Methods and Attitudes
11.5.8.2. Numbers and Algebra
11.5.8.3. Analysis
11.5.8.4. Statistics and Probability
11.5.9. Mathematics Applied to Social Sciences- Year 2 Baccalaureate
11.5.9.1. Mathematical Processes, Methods and Attitudes
11.5.9.2. Numbers and Algebra
11.5.9.3. Analysis
11.5.9.4. Statistics and Probability
11.6. Creation of the Mathematics Teaching Unit
11.6.1. Elements of a Teaching Unit
11.6.1.1. Description
11.6.1.2. Curriculum
11.6.1.2.1. General Objectives for the Stage
11.6.1.2.2. General Objectives for the Subject
11.6.1.2.3. Key Competencies
11.6.1.3. Contents
11.6.1.4. Methodology
11.6.1.5. Sequence of Activities
11.6.1.6. Material Resources
11.6.1.7. Organization of Space and Timing
11.6.1.8. Attention to Diversity
11.6.1.9. Assessment
11.7. Introduction of the Mathematics Teaching Unit
11.7.1. The Cover
11.7.2. The Index
11.7.3. Previous Knowledge
11.7.4. The Theme
11.8. Classroom Application of the Mathematics Teaching Unit
11.8.1. Documentation Delivery
11.8.2. Creation of Cooperative Groups
11.8.3. Cooperative Theoretical Work
11.8.4. Synthesis Activity: Digital Mural
11.8.5. Presentation of the Digital Mural
11.9. Assessment of a Mathematics Teaching Unit
11.9.1. Assessment of the Teaching Unit
11.9.2. Student Assessment
11.9.3. Assessment of the Teaching Unit
11.9.4. Grade

An online program that will allow you to teach mathematics in a more appealing way for students. Enroll now"

06

Methodology

This training program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**

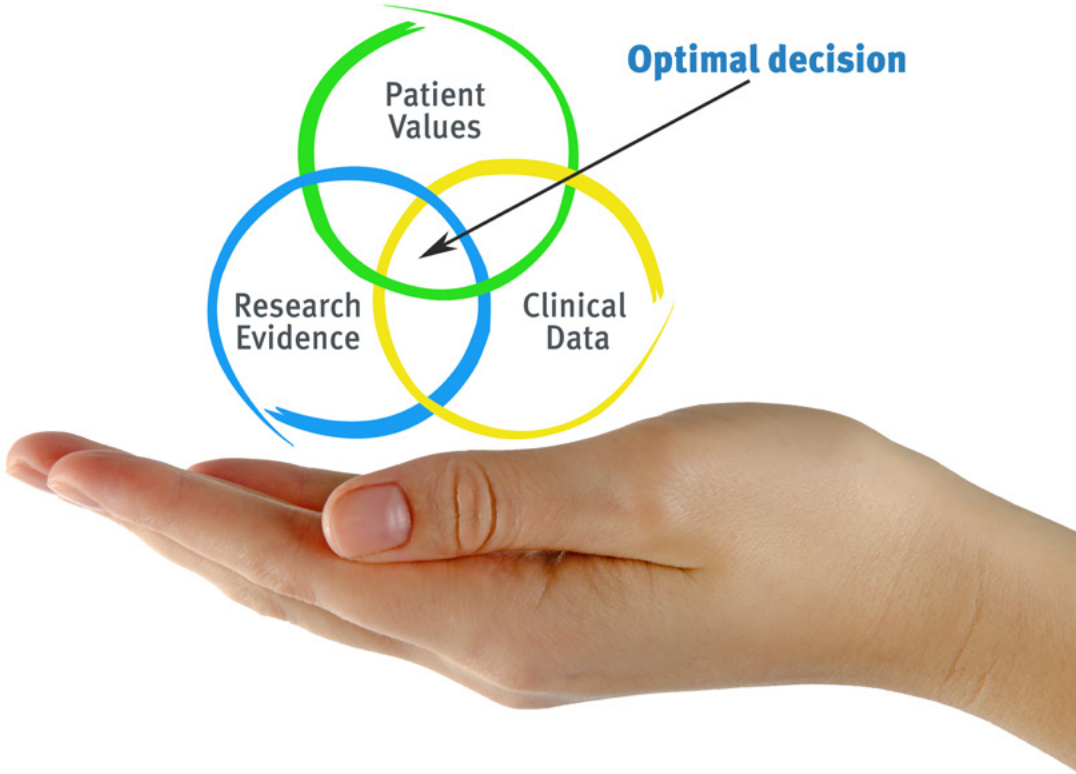
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

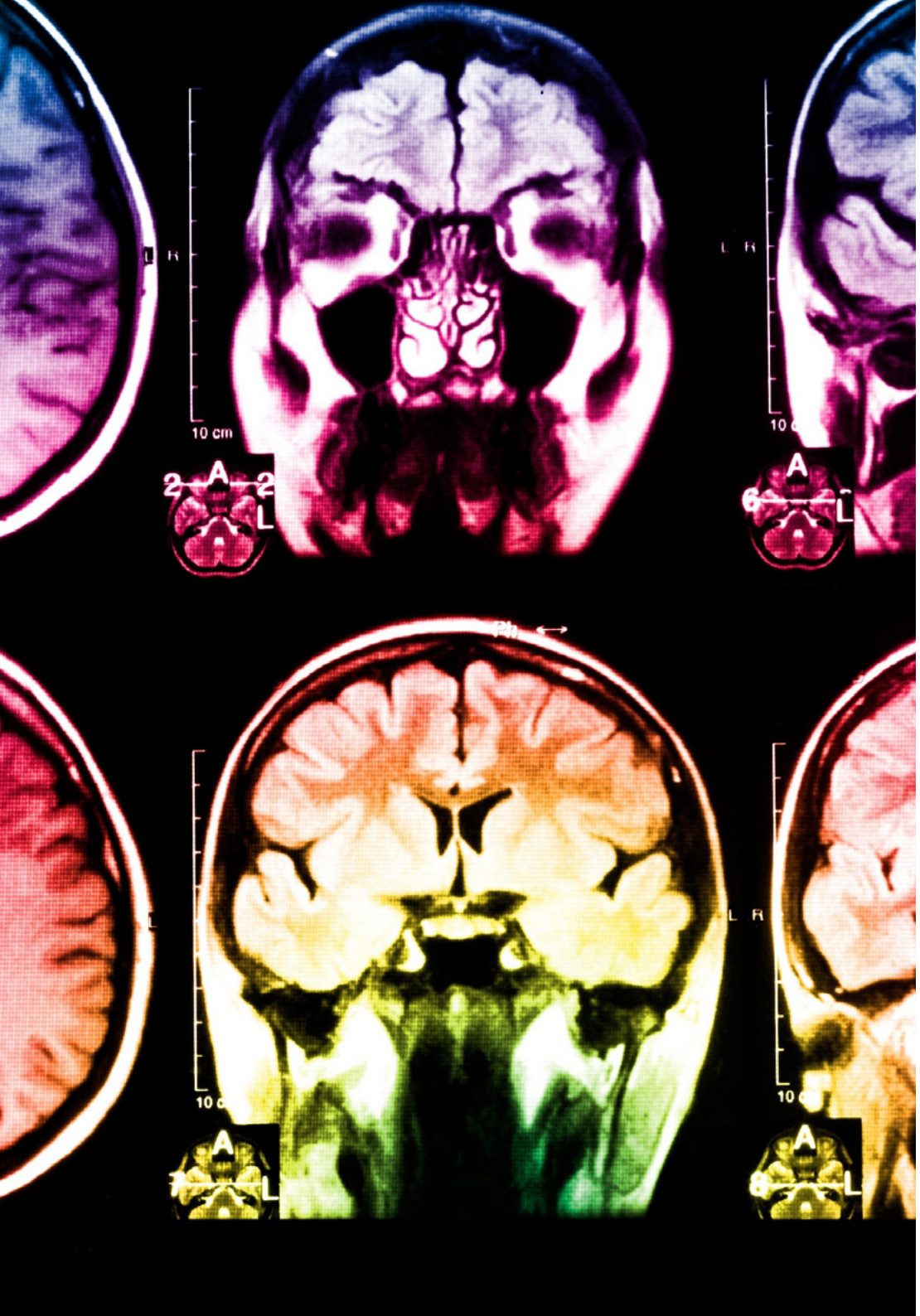
1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3.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

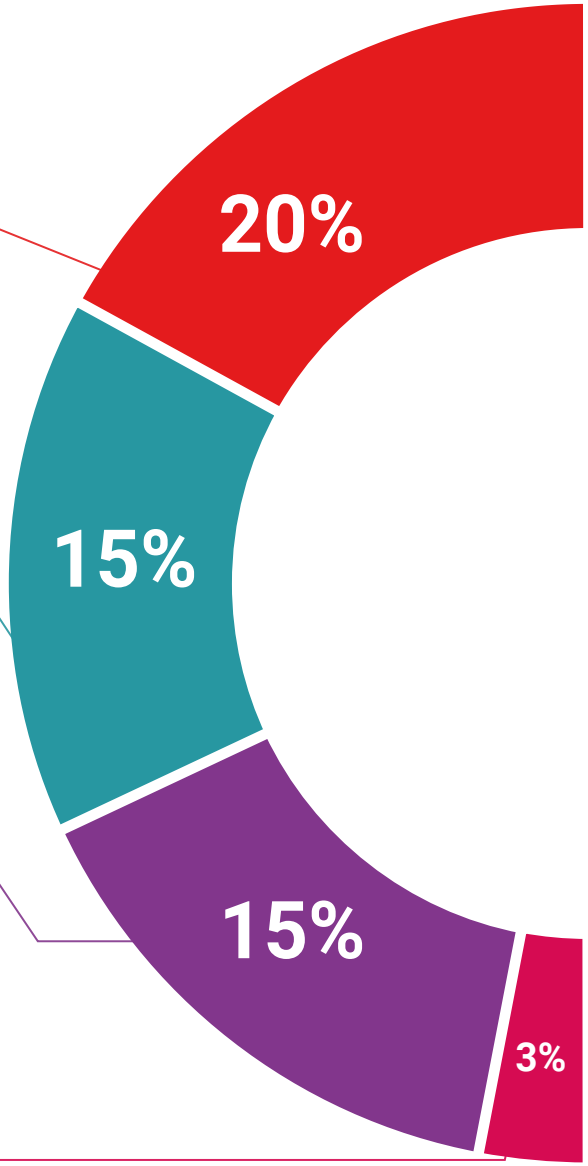
Interactive Summaries

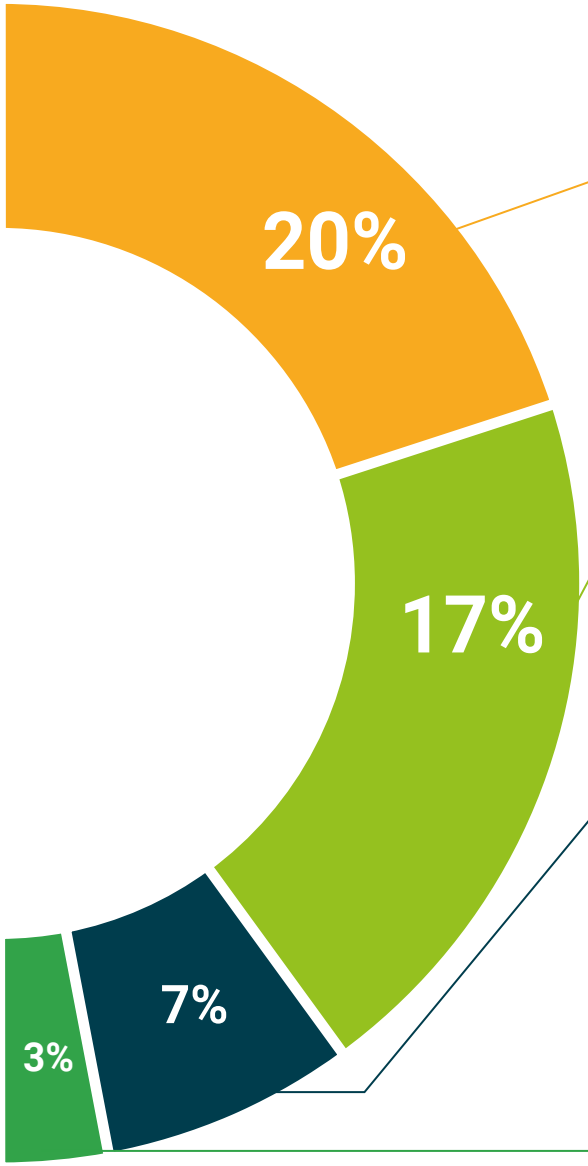
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.

07

Certificate

The Professional Master's Degree in Teaching Mathematics in High School guarantees you, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree issued by TECH Global University.

Successfully complete this program and receive your university degree without travel or laborious paperwork"

This program will allow you to obtain your **Professional Master's Degree diploma in Teaching Mathematics in High School** 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: **Professional Master's Degree in Teaching Mathematics in High School**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**


tech global university

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

Professional Master's Degree in Teaching Mathematics in High School

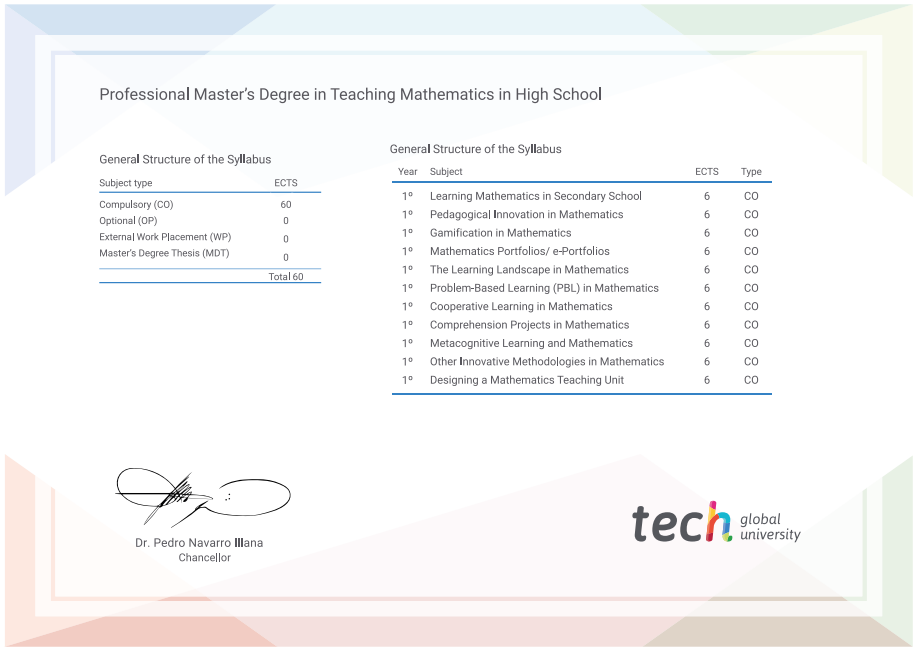
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Chancellor

Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Teaching Mathematics in High School

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Learning Mathematics in Secondary School	6	CO
1º	Pedagogical Innovation in Mathematics	6	CO
1º	Gamification in Mathematics	6	CO
1º	Mathematics Portfolios/ e-Portfolios	6	CO
1º	The Learning Landscape in Mathematics	6	CO
1º	Problem-Based Learning (PBL) in Mathematics	6	CO
1º	Cooperative Learning in Mathematics	6	CO
1º	Comprehension Projects in Mathematics	6	CO
1º	Metacognitive Learning and Mathematics	6	CO
1º	Other Innovative Methodologies in Mathematics	6	CO
1º	Designing a Mathematics Teaching Unit	6	CO

Dr. Pedro Navarro Illana
Chancellor

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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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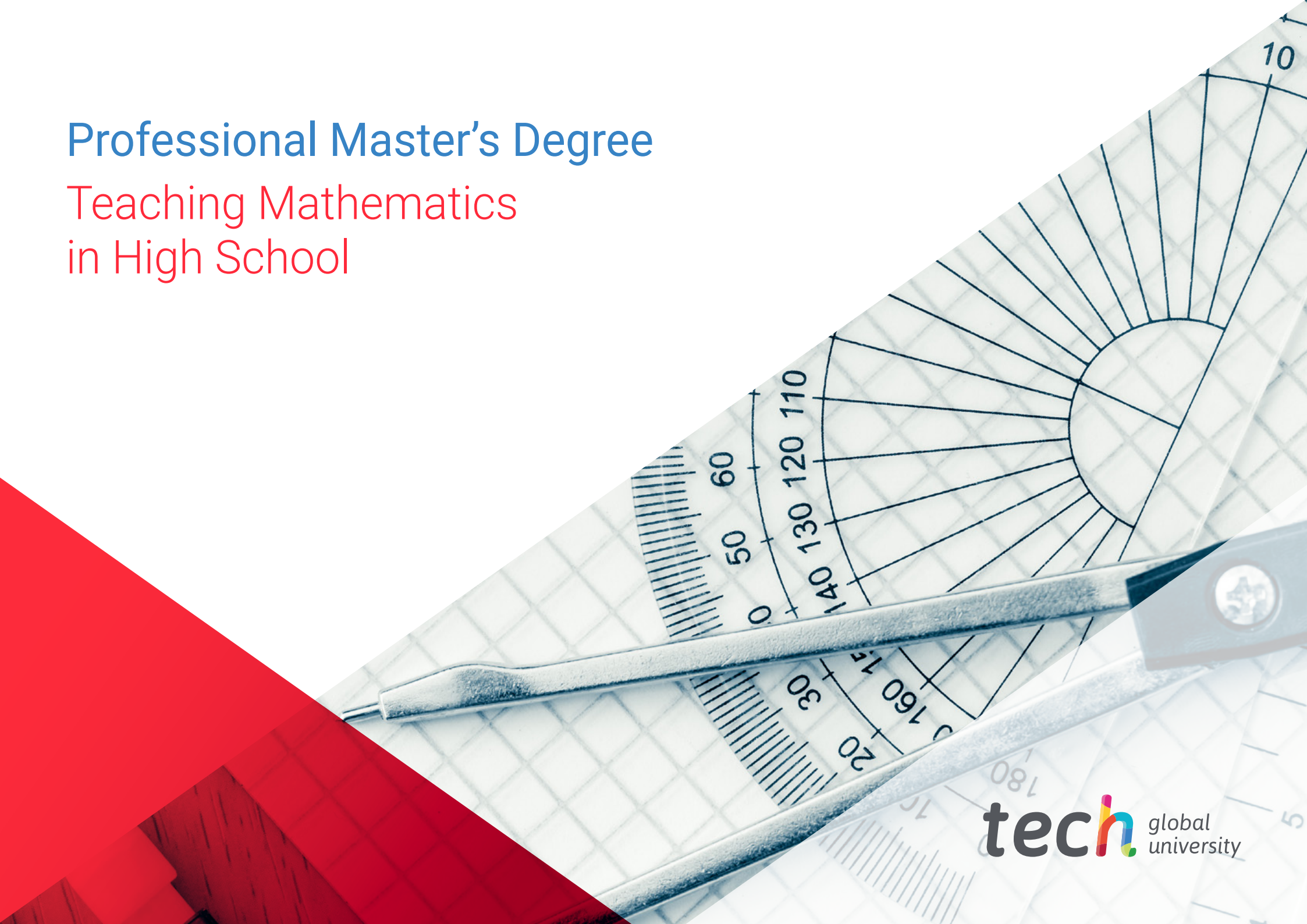
Professional Master's Degree

Teaching Mathematics in High School

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Teaching Mathematics in High School



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