Professional Master's Degree

Teaching Mathematics in High School

Accreditation/Membership

ATEE
Association for Teacher Education in Europe

tech global university

tech global university

Professional Master's Degree
Teaching Mathematics in High School

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Accreditation: **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 to the Program

According to the World Economic Forum, mathematical skills are essential for accessing the most in-demand jobs in the digital economy. In an environment marked by automation and computational thinking, the ability to solve problems, reason logically, and handle data is key to preparing critical and competent citizens. However, many educational systems still face challenges in developing these competencies from an early age. For this reason, TECH is launching a university program aimed at transforming the teaching of Mathematics through an innovative approach. A unique academic opportunity, 100% online, with no fixed schedules and backed by experts in education.

A comprehensive and 100% online program, exclusive to TECH, with an international perspective backed by our membership in the Association for Teacher Education in Europe"

Mathematical skills are essential for accessing the most in-demand professions in the digital economy, such as programming, data analysis, and software development. Algorithms, which form the basis of digital tools like video games, mobile applications, and artificial intelligence systems, have a clear mathematical root. In this context, teaching Mathematics becomes strategically relevant for the future academic and professional success of students, making this area of knowledge a global educational priority.

This Professional Master's Degree provides professionals with the most up-to-date knowledge and resources to engage students in the classroom. Through an approach focused on pedagogical innovation, the program covers key topics such as understanding the development of intelligence and mathematical thinking during adolescence, as well as the relationship between giftedness, talent, and performance in Mathematics. Additionally, the program explores the neural foundations linked to mathematical learning and the role of emotional intelligence in this educational stage.

With these tools, the specialist will be able to design meaningful activities, develop personalized lesson plans, and transform their classes into dynamic and participatory environments. The academic program includes the participation of a prestigious International Guest Director in its faculty team, who will offer students 10 detailed and exclusive Masterclasses, focused on the latest innovations in the field of Mathematics education.

Furthermore, thanks to TECH's membership in the **Association for Teacher Education in Europe (ATEE)**, professionals will have access to specialized academic journals and discounts on publications. They will also be able to attend webinars or conferences at no cost and receive linguistic support. Additionally, they will be included in the ATEE consultancy database, thereby expanding their professional network and gaining access to new opportunities.

This **Professional Master's Degree in Teaching Mathematics in High School** contains the most complete and up-to-date university program on the market. Its most notable features are:

- The development of practical cases presented by experts in Teaching Mathematics in High School
- 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 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

A university program offering 10 exclusive Masterclasses, delivered by a renowned International Guest Director"

Discover how to apply game dynamics in Mathematics to increase motivation and improve learning"

The program incorporates digital tools to assess processes, not just outcomes.

Access the most innovative teaching materials offered by this academic expert, available 24/7.

The faculty includes professionals from the field of Mathematics Teaching in High School, who bring their work experience to this program, along with 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 an immersive learning experience designed to prepare for real-life situations.

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

02

Why Study at TECH?

TECH is the world's largest online university. With an impressive catalog of more than 14,000 university programs, available in 11 languages, it is positioned as a leader in employability, with a 99% job placement rate. In addition, it has a huge faculty of more than 6,000 professors of the highest international prestige.

Study at the largest online university in the world and ensure your professional success. The future begins at TECH"

The world's best online university, according to FORBES

The prestigious Forbes magazine, specialized in business and finance, has highlighted TECH as "the best online university in the world" This is what they have recently stated in an article in their digital edition in which they echo the success story of this institution, "thanks to the academic offer it provides, the selection of its teaching staff, and an innovative learning method oriented to form the professionals of the future".

The best top international faculty

TECH's faculty is made up of more than 6,000 professors of the highest international prestige. Professors, researchers and top executives of multinational companies, including Isaiah Covington, performance coach of the Boston Celtics; Magda Romanska, principal investigator at Harvard MetaLAB; Ignacio Wistumba, chairman of the department of translational molecular pathology at MD Anderson Cancer Center; and D.W. Pine, creative director of TIME magazine, among others.

The world's largest online university

TECH is the world's largest online university. We are the largest educational institution, with the best and widest digital educational catalog, one hundred percent online and covering most areas of knowledge. We offer the largest selection of our own degrees and accredited online undergraduate and postgraduate degrees. In total, more than 14,000 university programs, in ten different languages, making us the largest educational institution in the world.

The most complete syllabuses on the university scene

TECH offers the most complete syllabuses on the university scene, with programs that cover fundamental concepts and, at the same time, the main scientific advances in their specific scientific areas. In addition, these programs are continuously updated to guarantee students the academic vanguard and the most demanded professional skills. and the most in-demand professional competencies. In this way, the university's qualifications provide its graduates with a significant advantage to propel their careers to success.

A unique learning method

TECH is the first university to use Relearning in all its programs. This is the best online learning methodology, accredited with international teaching quality certifications, provided by prestigious educational agencies. In addition, this innovative academic model is complemented by the "Case Method", thereby configuring a unique online teaching strategy. Innovative teaching resources are also implemented, including detailed videos, infographics and interactive summaries.

The official online university of the NBA

TECH is the official online university of the NBA. Thanks to our agreement with the biggest league in basketball, we offer our students exclusive university programs, as well as a wide variety of educational resources focused on the business of the league and other areas of the sports industry. Each program is made up of a uniquely designed syllabus and features exceptional guest hosts: professionals with a distinguished sports background who will offer their expertise on the most relevant topics.

Leaders in employability

TECH has become the leading university in employability. Ninety-nine percent of its students obtain jobs in the academic field they have studied within one year of completing any of the university's programs. A similar number achieve immediate career enhancement. All this thanks to a study methodology that bases its effectiveness on the acquisition of practical skills, which are absolutely necessary for professional development.

Google Premier Partner

The American technology giant has awarded TECH the Google Premier Partner badge. This award, which is only available to 3% of the world's companies, highlights the efficient, flexible and tailored experience that this university provides to students. The recognition not only accredits the maximum rigor, performance and investment in TECH's digital infrastructures, but also places this university as one of the world's leading technology companies.

The top-rated university by its students

Students have positioned TECH as the world's top-rated university on the main review websites, with a highest rating of 4.9 out of 5, obtained from more than 1,000 reviews. These results consolidate TECH as the benchmark university institution at an international level, reflecting the excellence and positive impact of its educational model.

03

Syllabus

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 in 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. Mathematics Learning in High School Education

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

1.2. Learning Mathematics
- 1.2.1. Differential Learning of Mathematics
- 1.2.2. Features 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 Mathematics Learning
- 1.4.2. Sustained Attention and Mathematics Learning

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

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 between High Abilities, Giftedness and 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 High 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 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/ePortfolios 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 Walls Applied to Mathematics

Module 3. Gamification in Mathematics

3.1. The Game
- 3.1.1. The Game in the Middle Ages

3.2. The Game in Childhood
- 3.2.1. Areas Developed by Play

3.3. Games in Adolescence
- 3.3.1. Introduction
  - 3.3.1.1. Elements which Make Games 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 (Part I)
- 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. The Portfolio/ePortfolio in Mathematics

4.1. What Is a Portfolio/ePortfolio?
- 4.1.1. Evidence of Mathematics Work
- 4.1.2. Portfolios/ePortfolios in Education
- 4.1.3. Classification of Portfolios/ePortfolios
  - 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 ePortfolio Applied to Mathematics
- 4.2.1. Planning
- 4.2.2. Definition
- 4.2.3. Comprehension
- 4.2.4. Preparation
- 4.2.5. Evaluation

4.3. Method of Working with the Mathematics 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. Evaluation
- 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. Complements 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. Double-Entry Matrix, Bloom's Intelligences
  - 5.4.3.2. Determination of Itineraries
  - 5.4.3.3. Designing Activities for Each Itinerary
  - 5.4.3.4. Evaluation
  - 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 Curriculum 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. Double-Entry Matrix, Bloom's Intelligences
  - 5.5.3.2. Designing Activities for Each Itinerary
  - 5.5.3.3. Evaluation
  - 5.5.3.4. Design of the Graphical Environment: Final Result

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

6.1. What Is 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. Characteristics
  - 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. Characteristics
  - 6.2.2.2. Positive Aspects
  - 6.2.2.3. Negative Aspects

6.3. Planning 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 PBL in Mathematics
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 Way 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. Puzzle or Jigsaws
- 7.4.2. Team Achievement Divisions
- 7.4.3. Research Groups
- 7.4.4. Co-op 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. The Teacher's 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. Assessment of the Individual Learning Process while Working Cooperatively in Mathematics
- 7.7.2. Assessment of the Group's Learning Process in Cooperative Mathematics Work
- 7.7.3. The Role of Observation in Assessment
- 7.7.4. Peer Evaluation in Cooperative Mathematics Work
- 7.7.5. Self-Assessment in Cooperative Mathematics Work

7.8. Examples of Cooperative Learning Applied to Mathematics
- 7.8.1. Reminder of Cooperative Work 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 Criteria for Success
  - 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 the 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 Played by the Teacher
- 8.2.8. Multiple Intelligences Applied to Mathematics

8.3. Presentation of the Mathematics Comprehension Project
- 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 Understanding?
- 8.3.3. What Do Students Do in Classes Aimed at Understanding?
- 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 Based on Working with the Teaching Framework for Understanding
- 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. Driving Threads in the Comprehension Project Applied to Mathematics
- 8.5.1. Key Features of Comprehension Goals

8.6. Comprehension Activities in the Mathematics Comprehension Project
- 8.6.1. Preliminary Activities in the Mathematics Comprehension Project
- 8.6.2. Research Activities for a Mathematics Comprehension Project
- 8.6.3. Synthesis Activities in the Mathematics Comprehension Project

8.7. Continuous Assessment in the Mathematics Comprehension Project
- 8.7.1. Continuous Diagnostic Assessment

8.8. Documentation Creation in the Mathematics Comprehension Project
- 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. Learning
- 9.1.2. Learning Styles
- 9.1.3. Factors of Learning
- 9.1.4. Teaching and Mathematics Learning

9.2. Learning Theories
- 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: Problem Solving
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. The Scheme
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 Classroom
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 Walls Applied to Mathematics
10.4.1. Definition of a Wall
10.4.2. Digital Walls in Mathematics
10.4.3. Tools for Making Digital Walls in Mathematics
10.4.4. Advantages of Digital Walls in Mathematics
10.4.5. Disadvantages of Digital Walls in Mathematics
10.4.6. An Example of a Digital Wall Applied to Mathematics

Module 11. Design of 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 by Stage
  - 11.1.2.2. General Objectives by Area
    - 11.1.2.2.1. Linguistic Communication Competences
    - 11.1.2.2.2. Mathematical Skills and Basic Skills in Science and Technology
    - 11.1.2.2.3. Digital Competences
    - 11.1.2.2.4. Learning To Learn
    - 11.1.2.2.5. Social and Civic Competences
    - 11.1.2.2.6. Sense of Initiative and Entrepreneurship
    - 11.1.2.2.7. Cultural Awareness and Expressions
- 11.1.3. Content Strategy
  - 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. Evaluation Criteria
  - 11.1.5.2. Assessable Learning Standards
  - 11.1.5.3. Teaching Methodology
  - 11.1.5.4. Competences

11.2. Introduction of the Mathematics Teaching Unit
- 11.2.1. Mathematics Area
- 11.2.2. General Objectives by Stage
- 11.2.3. General Objectives by Area
- 11.2.4. Key Competencies
- 11.2.5. Transversal Elements

11.3. Recipients of the Mathematics Teaching Unit
- 11.3.1. Students with Special Educational Needs (SEN)
  - 11.3.1.1. Definition of Children with SEN
  - 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 Implementation 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 Walls Applied to Mathematics

11.5. Selection of the Work Topic for the Mathematics Teaching Unit
- 11.5.1. Mathematics1 and 2 in High School
  - 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 Academic Teachings of 3rd Year High School
  - 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 Academic Teachings of 4th Year High School
  - 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 Teachings of 3rd Year High School
  - 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 of 4th Year High School
  - 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 I: High School 1
  - 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 II: High School 2
  - 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: High School 1
  - 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: High School 2
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 by Stage
11.6.1.2.2. General Objectives by Area
11.6.1.2.3. Key Competencies
11.6.1.3. Content Strategy
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. Evaluation
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. Themes
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 Wall
11.8.5. Presentation of the Digital Wall
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. Grading

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

04

Teaching Objectives

This university program offers educators the opportunity to expand their knowledge in teaching Mathematics from an innovative perspective. Throughout the program, they will understand the development of intelligence and mathematical thinking at this stage, learn the relationship between giftedness and talent in Mathematics, and apply active methodologies such as gamification. Additionally, the program will address the emotional development of adolescents, emotional intelligence applied in the classroom, and the foundations of the current educational system, enabling educators to design creative teaching proposals that meet the real needs of students.

Develop an ePortfolio to work on Mathematics curriculum content by applying all necessary elements in the educational field"

General Objectives

- Understand the different types of innovative learning methodologies in education applied to Mathematics
- Apply various innovative learning methodologies in education to Mathematics
- Discern which innovative learning method is most suitable for a group of students in High School applied to Mathematics
- Design a Didactic Unit using different innovation methodologies in education in Mathematics

Specific Objectives

Module 1. Mathematics Learning in High School Education

- Discover the function of learning
- Introduce mathematical language
- Understand the development of intelligence and mathematics
- Understand the relationship between giftedness, talent, and Mathematics
- Classify the neural foundations of Mathematics
- Identify the adjacent neural processes in Mathematics
- Establish the emotional development of adolescents
- Understand emotional intelligence applied to adolescents

Module 2. Pedagogical Innovation in Mathematics

- Understand behaviorism in Mathematics
- Distinguish cognitivism in Mathematics
- Study constructivism in Mathematics
- Delve into the life of Howard Gardner and his contribution to pedagogical innovation

Module 3. Gamification in Mathematics

- Learn what gamification in Mathematics is
- Distinguish the advantages gamification can bring to the Mathematics learning process
- Study the different elements of gamification applied to Mathematics
- Use gamification elements to transform a traditional Mathematics activity into a gamified one

Module 4. The Portfolio/ePortfolio in Mathematics

- Learn how to plan a Mathematics Portfolio/ePortfolio
- Know how to differentiate between a Mathematics Portfolio and ePortfolio
- Understand what constitutes evidence of work in Mathematics
- Understand the application of a Portfolio/ePortfolio in education

Module 5. The Learning Landscape in Mathematics

- Explore different ICT resources related to Mathematics learning landscapes
- Learn about types of learning
- Understand the research group as a type of cooperative learning applied to Mathematics
- Distinguish what learning landscapes in Mathematics are

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

- Learn what Problem-Based Learning (PBL) in Mathematics is
- Understand the characteristics of PBL in Mathematics
- Know the role of the student in PBL for Mathematics
- Distinguish different ICT resources related to PBL in Mathematics

Module 7. Cooperative Learning in Mathematics

- Design cooperative learning applied to Mathematics
- Apply the example of cooperative learning to any content in the Mathematics curriculum
- Understand what cooperative learning applied to Mathematics is
- Know the objectives of cooperative learning applied to Mathematics

Module 8. Comprehension Projects in Mathematics

- Introduce differential learning in mathematics
- Distinguish the characteristics of Mathematics learning
- Understand the cognitive processes in Mathematics
- Understand the metacognitive processes in Mathematics

Module 9. Metacognitive Learning and Mathematics

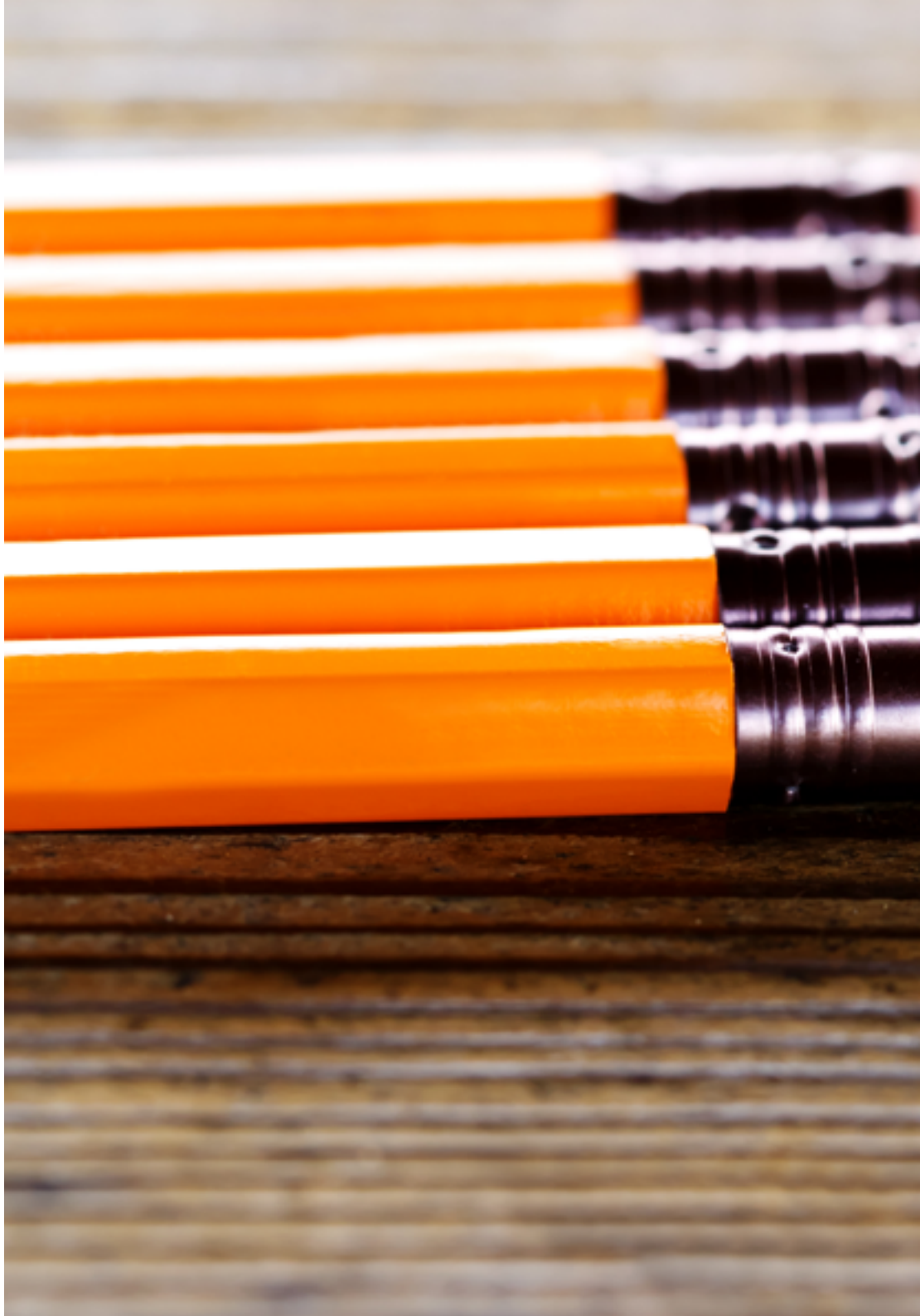
- Use Multiple Intelligences in designing different Mathematics activities
- Study what metacognition in Mathematics is
- Understand what Mathematics learning is
- Know behaviorism applied to Mathematics

Module 10. Other Innovative Methodologies in Mathematics

- Learn about different ICT resources related to cooperative learning applied to Mathematics
- Expand different ICT resources related to Mathematics understanding projects
- Learn how to use other innovative alternative methodologies applied to Mathematics
- Deepen the study of the term Flipped Classroom

Module 11. Design of a Mathematics Teaching Unit

- Learn how to document the necessary materials for working with students on a Mathematics Didactic Unit
- Know how to choose the most appropriate learning methodology depending on the topic and students to create a Mathematics Didactic Unit

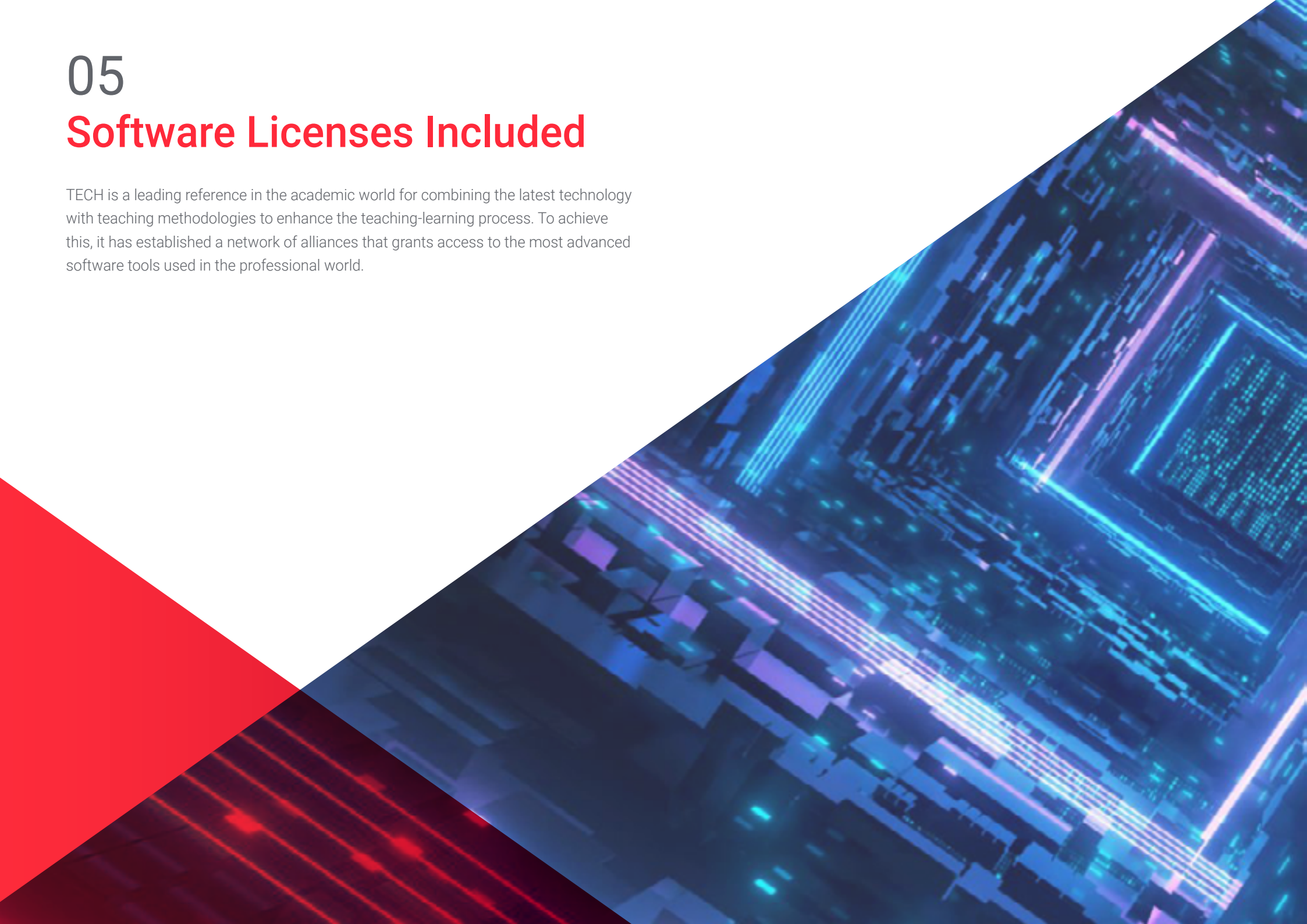


Achieve the design of a perfect Teaching Unit thanks to the guidance of the professors teaching this program"

05

Software Licenses Included

TECH is a leading reference in the academic world for combining the latest technology with teaching methodologies to enhance the teaching-learning process. To achieve this, it has established a network of alliances that grants access to the most advanced software tools used in the professional world.



Upon enrolling, you will receive, completely free of charge, academic credentials for the following professional software applications"

TECH has established a network of professional alliances with the leading providers of software applied to various professional fields. These alliances allow TECH to access hundreds of software applications and licenses, making them available to its students.

The academic software licenses will allow students to use the most advanced applications in their professional field, so they can become familiar with them and master their use without incurring additional costs. TECH will handle the contracting process, allowing students to use these resources without limitation throughout their studies in the Professional Master's Degree in Teaching Mathematics in High School, and they will be able to do so completely free of charge.

TECH will provide free access to the following software applications:

Mathematica

Mathematica is an integrated system for scientific calculation, modeling, and data visualization in engineering, physics, and finance. With an estimated cost of 230 dollars, it is included free of charge during the university program at TECH, providing professional tools to solve complex problems.

This platform integrates advanced algorithms with an intuitive interface, facilitating mathematical analysis and the creation of predictive models. Its symbolic engine processes multivariable equations and generates automated reports, making it ideal for research projects or technical development.

Key Features:

- **Wolfram Language:** Unified syntax for symbolic, numerical, and statistical operations
- **Dynamic Visualization:** Build interactive 2D/3D graphs with real-time customization
- **Database Integration:** Import and process information from SQL, Excel, and scientific formats
- **Cloud Deployment:** Compile and run notebooks on the web for remote collaboration
- **Intelligent Optimization:** Algorithms to minimize costs or maximize efficiency in industrial designs

In conclusion, **Mathematica** redefines technical work by combining computational power with usability, becoming the standard in universities and R&D centers for projects that require precision and scalability.

Thanks to TECH, you will be able to use the best professional software applications in your field for free"

06

Study Methodology

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

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

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

The student: the priority of all TECH programs

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

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

"At TECH you will NOT have live classes (which you might not be able to attend)"

The most comprehensive study plans at the international level

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

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

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

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

Case Studies and Case Method

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

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

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

Relearning Methodology

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

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

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

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

A 100% online Virtual Campus with the best teaching resources

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

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

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

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

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

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

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

The university methodology top-rated by its students

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

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

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

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

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

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

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

Practicing Skills and Abilities

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

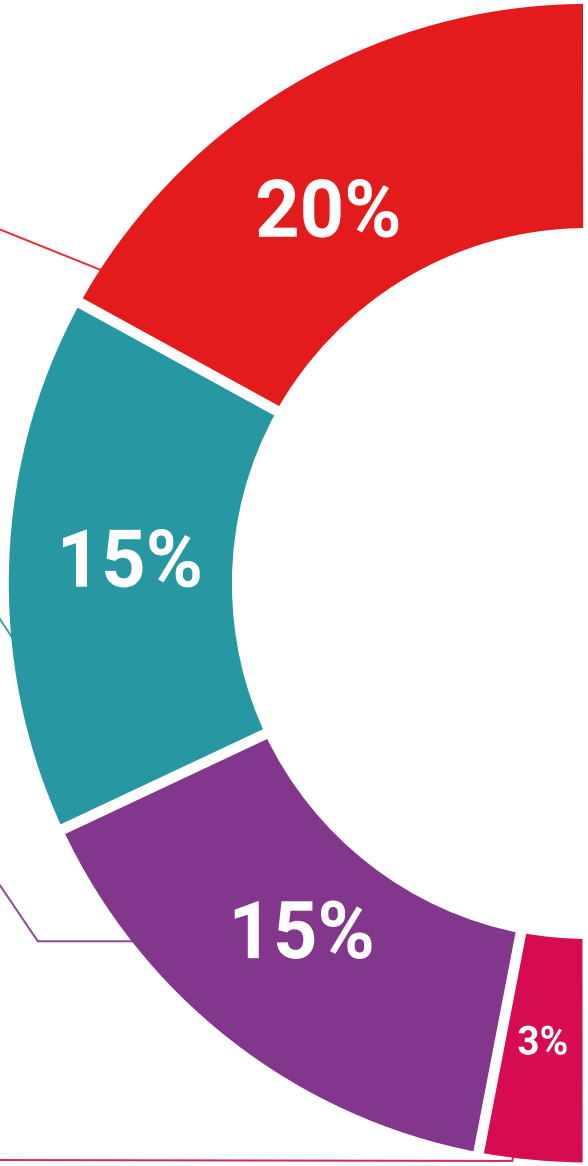
Interactive Summaries

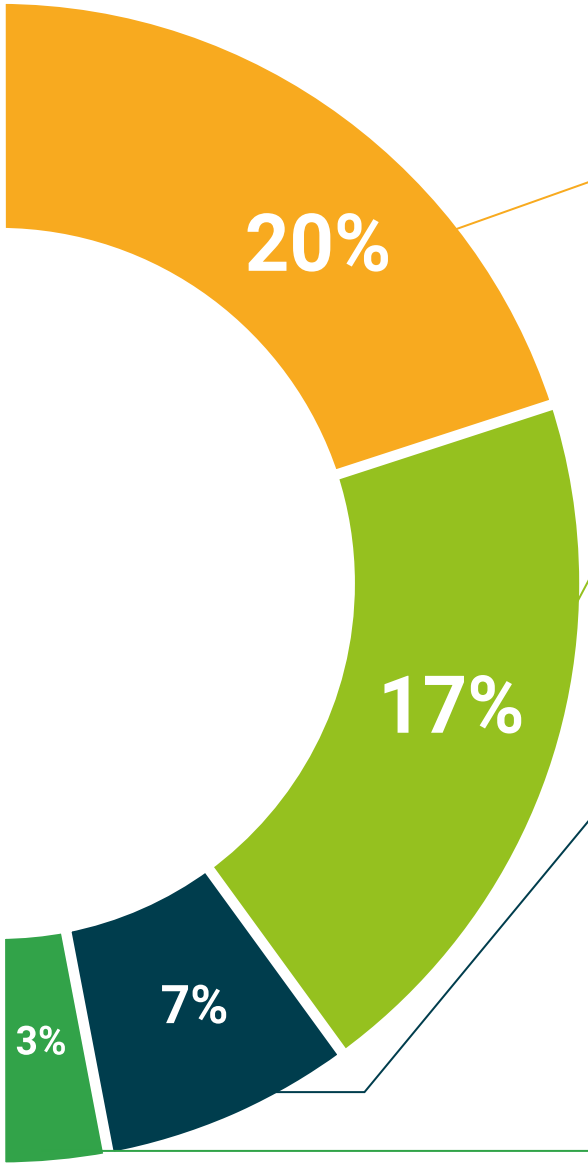
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

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





Case Studies

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.

Testing & Retesting

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence for future difficult decisions.

Quick Action Guides

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

07

Teaching Staff

In its pursuit of providing quality education to students, TECH carefully selects the entire faculty that integrates its programs, prioritizing excellent qualifications, professional experience, and human quality. As such, in this online program, the professional will have access to faculty with experience in both teaching and psychology, who will address any questions regarding the key topics of the Professional Master's Degree.

Advance your professional career alongside a specialized team in Mathematics education"

International Guest Director

Dr. Jack Dieckmann is 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. As such, 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. 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

- Secondary Education Teacher and Industrial Electronics Expert
- Mathematics and Technology teacher in Compulsory High School at Santa Teresa de Jesús School in Villanueva y Geltrú Spain
- Expert in High Abilities
- Industrial Technical Engineer with Specialization in Industrial Electronics

Teachers

Dr. De la Serna, Juan Moisés

- Writer specialized in Psychology and Neurosciences
- Author of the Open Chair of Psychology and Neurosciences
- Scientific Disseminator
- Doctorate in Psychology
- Bachelor's Degree in Psychology. University of Seville
- Master's Degree in Neurosciences and Behavioral Biology. Pablo de Olavide University, Seville
- Expert in Teaching Methodology. La Salle University
- University Specialist in Clinical Hypnosis, Hypnotherapy. National University of Distance Education - UNED.
- Diploma in Social Graduate, Human Resources Management, Personnel Administration. University of Seville
- Expert in Project Management, Administration and Business Management. Federation of Services U.G.T
- Trainer of Trainers. Official College of Psychologists of Andalusia

Ms. Sánchez García, Manuel

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

08

Certificate

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

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

This private qualification will allow you to obtain a **Professional Master's Degree 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** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

TECH is a member of the prestigious**Association for Teacher Education in Europe (ATEE)**, the leading international association dedicated to teacher training. This partnership highlights its commitment to academic advancement and quality.

Accreditation/Membership

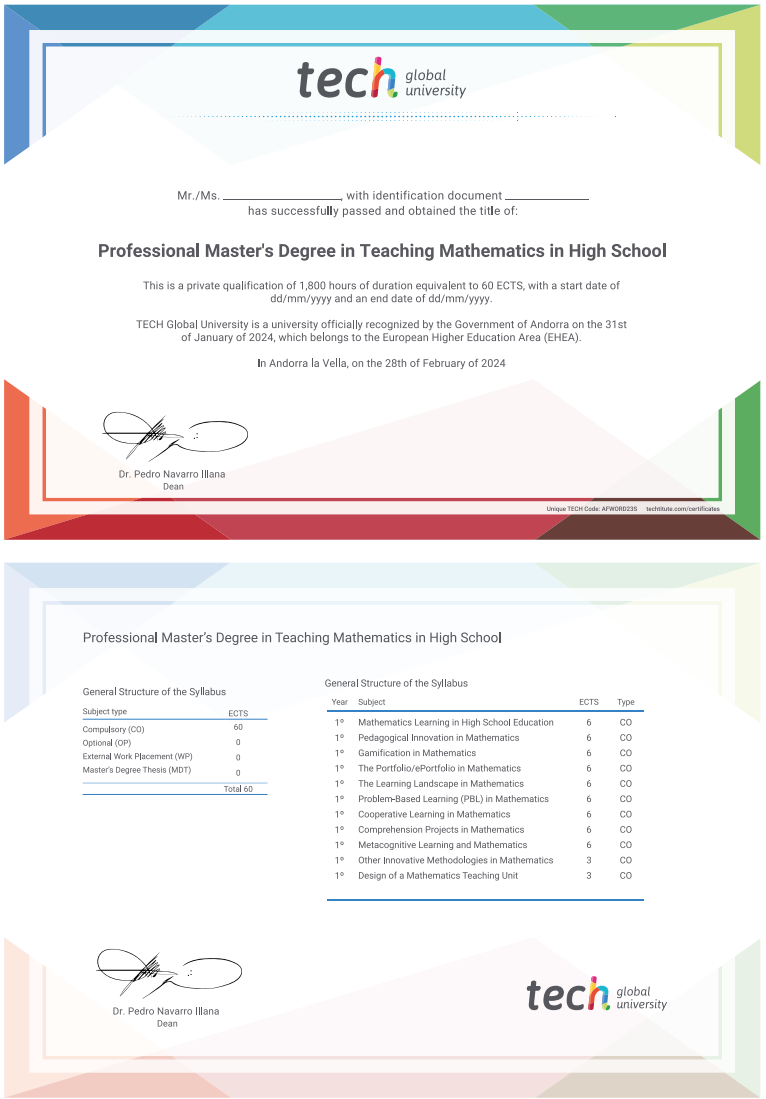
ATEE
Association for Teacher Education in Europe

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 private qualification of 1,800 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
Dean

Unique TECH Code: AFWOR023S 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
1°	Mathematics Learning in High School Education	6	CO
1°	Pedagogical Innovation in Mathematics	6	CO
1°	Gamification in Mathematics	6	CO
1°	The Portfolio/ePortfolio in Mathematics	6	CO
1°	The Learning Landscape in Mathematics	6	CO
1°	Problem-Based Learning (PBL) in Mathematics	6	CO
1°	Cooperative Learning in Mathematics	6	CO
1°	Comprehension Projects in Mathematics	6	CO
1°	Metacognitive Learning and Mathematics	6	CO
1°	Other Innovative Methodologies in Mathematics	3	CO
1°	Design of a Mathematics Teaching Unit	3	CO

Dr. Pedro Navarro Illana
Dean

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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**
- Accreditation: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Professional Master's Degree

Teaching Mathematics in High School

Accreditation/Membership

ATEE
Association for Teacher Education in Europe

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