Professional Master's Degree

Educational Robotics, Programming and 3D Design and Printing

tech global university

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Professional Master's Degree
Educational Robotics, Programming and 3D Design and Printing

- 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-educational-robotics-programming-design-3d-printing-teachers**

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01

Introduction

Robotics is much more than building a robot. Bringing this technology into the classroom helps children to develop other cognitive skills through gamification, such as logical mathematical thinking, the acquisition of physical, mechanical and computer concepts and team problem solving. These benefits have led to its inclusion in the educational system, together with programming or 3D design and printing. A leap that requires, in turn, more and more specialized teachers, capable of creating digital and technological projects adapted to each educational level. In this context, this program was born, exclusively online, taught by an experienced teaching staff, which will lead the professional through multimedia content to create robots and master programs such as Tinkercad, Scratch or Beebot.

Thanks to this university program, you will become an excellent teacher capable of demonstrating the programs and techniques necessary to create robots, design and perform 3D printing with your students"

Creativity, imagination, entrepreneurship, leadership, communication, critical thinking and self-esteem are just some of the benefits obtained by students who have developed projects based on educational robotics. In addition, the great attraction for children to build and design technological elements has led to the inclusion of this type of subject in the classroom, which has been widely accepted by the educational community and families. Learning that can be adapted to different educational levels, and that are also very useful in the progress of children with special needs.

Likewise, the advance of new technologies has turned them into the future of development in different sectors, which already require qualified personnel in this field. An ideal scenario for teachers who wish to improve their professional career and acquire intensive learning about robotics, programming, design and 3D printing oriented to the implementation of projects in the classroom.

That is why TECH has decided to offer teachers this Professional Master's Degree which delves into teaching through robotics for children and adolescents, the various software used successfully in the classroom, as well as the techniques and tools necessary for the design and 3D printing.

All this through a syllabus that has a theoretical-practical approach that will give teachers the opportunity to expand their STEAM skills as a learning model by applying it to the new physical environments to improve educational practice. Also, the expert team that teaches this program will provide simulations of real cases that will be of great use and direct application in the classroom, further enriching the comprehensive content that makes up this program.

A university program taught in 100% online mode in which students only need an electronic device to access the teaching resources whenever they wish. The teacher is, therefore, faced with a program offered in a convenient and flexible format, which adapts to the professional and/or personal responsibilities of the students.

This **Professional Master's Degree in Educational Robotics, Programming and 3D Design and Printing** provides you with the most complete and up-to-date program on the market. The most important features include:

- Case studies presented by experts in Educational Robotics, Programming and Design and 3D Printing
- 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

Grow professionally with a university program that provides you with the necessary tools to carry out 3D Design activities with your teenage students"

The multimedia resource library is available 24 hours a day. Access it from your computer or tablet and get into the field of programming"

3D technology, robotics and programming are the present and the future. Give your students the knowledge they need to grow professionally. Enroll now.

Work with Beebot as a robot to introduce your students to Robotics. Enroll now.

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

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

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

02

Objectives

The main objective of this Professional Master's Degree is the exhaustive learning of the teacher in the different methodologies and tools applicable to Educational Robotics. To do this, you will have multimedia teaching resources and a team of professionals with experience in this field, which will lead you to successfully incorporate robotics as an element of learning in childhood and adolescence, as well as to master the different software and electronic components.

Do you want a robot in your classroom? With this Professional Master's Degree, you will enable your students to create their own projects, work in teams and even participate in international competitions"

General Objectives

- Specialize teachers of Pre-school, Primary and Secondary Education in materials and methodologies that improve motivation, creativity and innovation through Educational Robotics, programming and 3D printing
- Learning how to plan in a transversal and curricular way in all educational stages, where education professionals can incorporate new technologies and methodologies in the classroom
- Raise teachers' awareness of the importance of a transformation in education, motivated by the new generations
- Learn about new learning models and the application of educational robotics to motivate students towards technological careers
- Hands-on learning about 3D design and 3D printing
- Facilitating skills and capabilities for the relationships of the new classrooms of the future

TECH provides you with the most advanced educational tools so that you can progress in your professional career in a much more agile way"

Specific Objectives

Module 1: Fundamentals and Evolution of Applied Technology in Education

- Raise teachers' awareness of new educational trends and the direction of their role in education
- Provide knowledge of new information and communication technology skills
- Train teachers to promote educational change within the classroom to create environments that improve student achievement
- Introduce learning theories related to Educational Robotics
- Understanding the laws of robotics

Module 2. Educational Robotics; Robots in the Classroom

- To substantiate the application of robotics pedagogy in the classroom
- Know the legal and ethical aspects of robotics and 3D printing
- Teaching STEAM skills as a learning model
- Transfer the teacher to new physical environments that improve the educational practice
- Knowledge of computational thinking skills
- Know the aspects of Robotics, educational robotics
- Learning the impact between Emotional Intelligence and Educational Robotics
- Explain the introduction of Robotics in early childhood education

Module 3. Working with Robots in Pre-School "not just to learn robotics, rather learn with robotics."

- Turn classrooms into workspaces for their own learning
- Provide teachers with knowledge related to the brain's functioning
- Train the teacher to transform the traditional methodology into a playful methodology
- Understand what a robot is, types and elements that make it up
- Working Beebot as a Robot for beginners
- Learn about BeeBot's contributions to education
- Analyze BeeBot's operation
- Set up sessions with Bee-Bot
- Learn about other BeeBot resources
- Integrate Robotics as a learning resource in the first cycles

Module 4. I'm a Grown-up Now! Knowledge of Educational Robotics in the Primary School Stage.

- Learn Do it Yourself techniques, to develop students' creativity
- Support the different pedagogical applications in educational intervention
- Know the fundamentals of computational thinking and use it as a problem-solving skill
- Analyze algorithmic thinking
- Assess the evolution of new technologies in the first cycles

Module 5. Focusing High School Students on the Careers of the Future

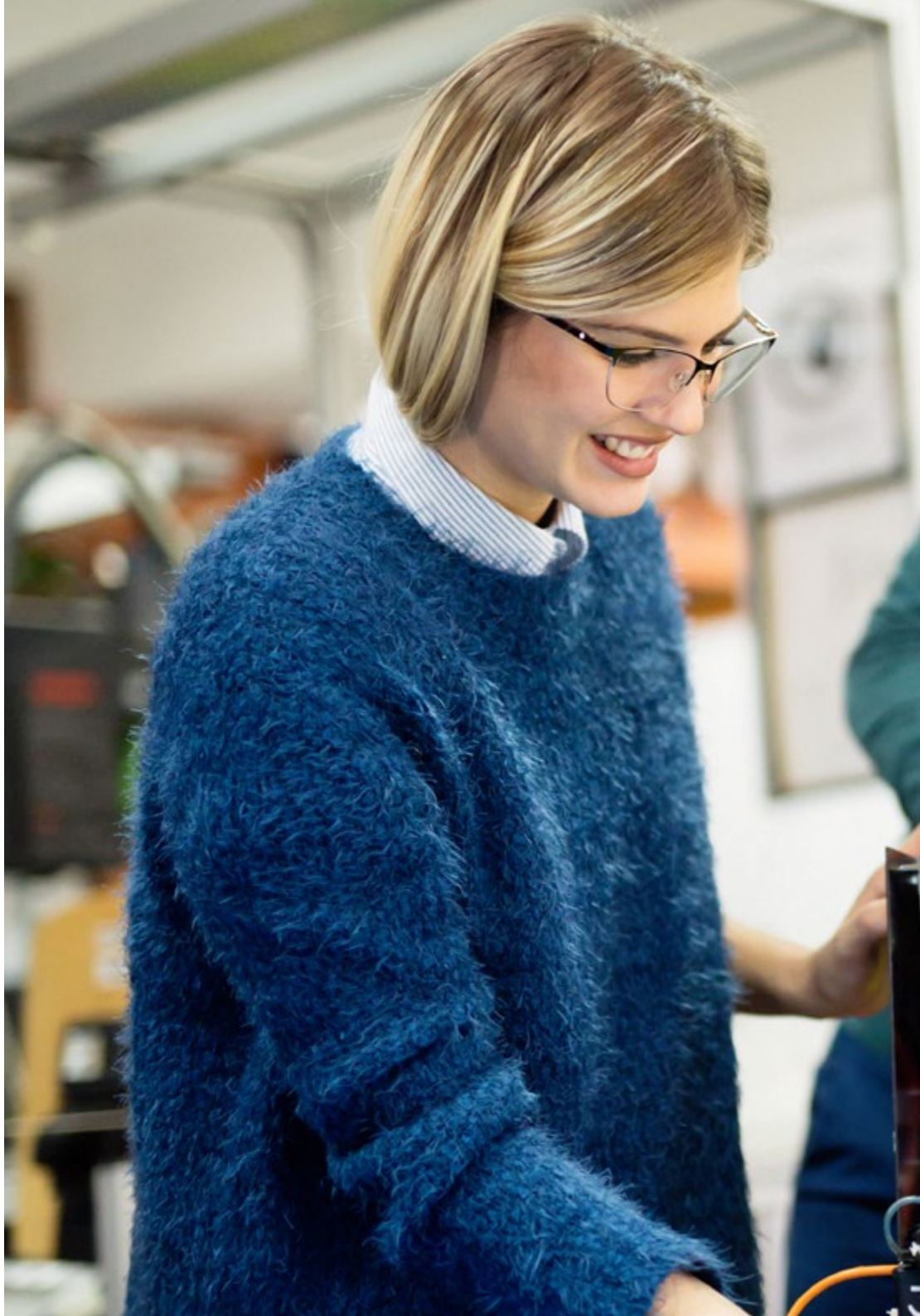
- Learn about Lego Robotic Kits and their electronic components
- Acquire first notions mechanics by building a robot
- Understand the different Sensors and applications for Robot motion
- Get to know the mBot Robot Mobile App
- Learn different problem-solving strategies to boost the student's investigative instinct
- Design different teaching materials for the classroom
- Introduce teachers to the use of advanced robotics to help students overcome challenges
- Working with Robotics as a motivating and focusing element in the careers of the future
- Application of Educational Robotics as a curricular subject in secondary school classrooms

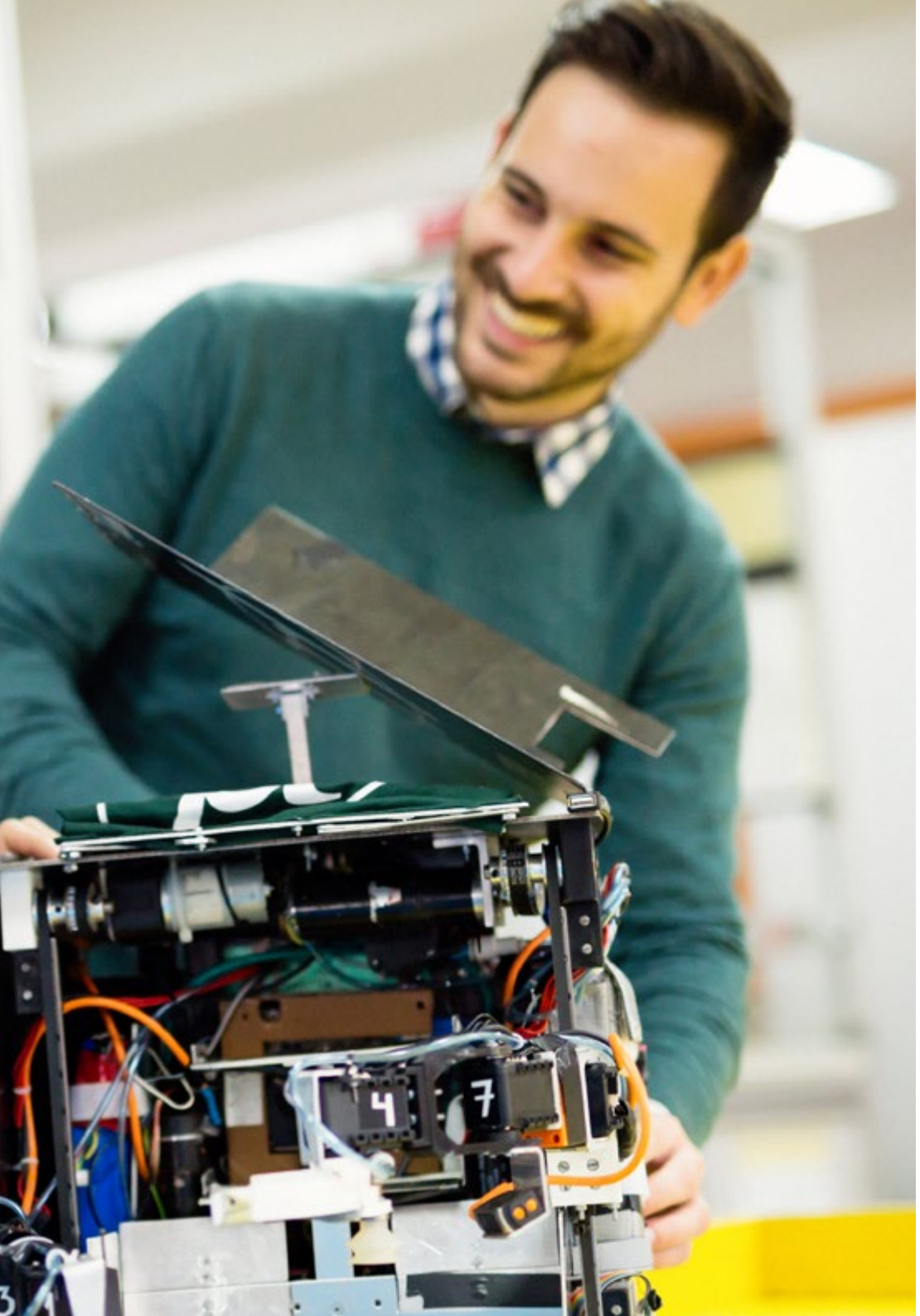
Module 6. Robotics Specifically for Children with SEN (Special Educational Needs)

- Identify scientific technological principles to apply in the classroom
- Incorporate the use of robotic tools in the classroom
- Know the technological resources that we can work with in the classroom

Module 7. The Most Widespread Language in Primary School Classrooms: Scratch

- Working with software to initiate students in programming
- Learn to relate content to Robotics
- Learn to develop Robotics activities in the primary school stage
- Develop teamwork skills in teachers





Module 8. Programming to Learn through Play

- Understand the importance of Free Software in Education and how to use it
- Learn about Arduino software and other online applications
- Learn to work by challenges for classroom application
- Discover the different international contests in order to encourage students' participation and learning

Module 9. 3D Design and Printing "If You Can Dream It, You Can Create It"

- Learning to balance the flow state between the difficulty of the challenge and the learner's abilities
- Know the importance of the digital skills for teachers
- Distinguish different complementary tools
- Learn about different robotic resources as alternatives in the classroom

Module 10. Tinkercad, a Different Way of Learning Neuroeducation and Physical Education

- Acquire the methodology of work in educational robotics
- Transfer a new learning method to motivate students to research and entrepreneurship
- Know the relationship between Educational Robotics and the curriculum
- Identify the different Arduino components

03

Skills

Over the 12 months of this program, the teacher will be able to expand their skills in the creation of projects focused on collaborative work, problem-solving or the development of activities focused on overcoming challenges. All this will be possible thanks to the practical cases provided by the specialized team that teaches this university program.

With this online program, you will acquire the necessary skills to develop teaching content based on programming for children and teenagers"

General Skills

- Develop teaching contents for courses based on Robotics, Programming and 3D Printing in primary and secondary schools
- Develop cross-cutting content to enrich curricular subjects
- Develop extracurricular activities related to Robotics, Programming and 3D Printing
- Teach students where the use of these technologies is required
- Overcome daily challenges by putting into practice concepts and cognitive skills related to the different curricular areas and computational thinking

Specific Skills

- Identify the evolution of technology applied to education and the different learning models to prepare future professionals
- Learn about the beginnings of Educational Robotics, as well as the importance of transmitting computational thinking to students as a resource to promote Education in the 21st Century
- Carry out a first approach about Robotics in early childhood education and its use as a resource to work on entrepreneurial thinking with students
- Introduce Robotics knowledge to convey the importance of teamwork and methods that encourage learning in Primary Education, as well as the use and knowledge of Robots and their parts to be applied in the classroom through the development of didactic materials
- Working Educational Robotics as a resource to orient students towards technological careers, as well as learning the teaching application of the subject
- Learn about a new resource such as programming, its evolution over time, and the acquisition of teaching tools for its application
- Immerse yourself in a powerful tool for free use and students
- Understand 3D printing development and evolution, as well as the importance of its application in different professional areas, highlighting Education
- Introduce knowledge about 3D Design and 3D Printing through software that will allow them to incorporate it into their classes for student learning
- Learn about the importance of the resource of Specialized Educational Robotics for students with Special Educational Needs and learn how to develop it in order to work with it as a resource that favors inclusion

Study a program that will allow you to develop robots with students with Special Educational Needs. Enroll now"

04

Course Management

TECH offers all its students a quality education at the academic forefront. To fulfill this premise, TECH rigorously selects all the teaching staff that teaches each of its programs. Thus, students who studies this program will have at their disposal a specialized teaching team with experience in the educational field, in Educational Robotics, Design and 3D Printing and LEGO methodology. Thanks to their extensive knowledge in this area, the professional will have the most up-to-date content in this field, while being able to consult any doubts they may have about the syllabus of this 100% online program.

TECH has selected a multidisciplinary team with extensive experience and certified in the Lego Education methodology"

Management

Ms. Muñoz Gambín, Marina

- Teacher and Expert in Educational Technology
- Head of Educational Robotics and Programming at Robotuxc Academy for Kindergarten and Primary School
- Certified in Lego Education© methodology
- Degree in Early Childhood Education Teaching from CEU Cardenal Herrera University
- Educational Coach certified by the Alicante Chamber of Commerce
- Emotional Intelligence in the Classroom Trainer
- Neuroscience Teacher Training
- Expert in Neurolinguistic Programming certified by Richard Bandler
- Certified in Music Education as therapy

Professors

Mr. Coccaro Quereda, Alejandro

- Specialist in Educational Robotics
- Expert in Educational Robotics, Design and 3D Printing
- Robotuxc Academy Robotics National Competition Challenges Specialist
- Certified in Lego Education© methodology
- Head of Educational Robotics, Design and 3D Printing for Primary and
- High School at Robotuxc Academy

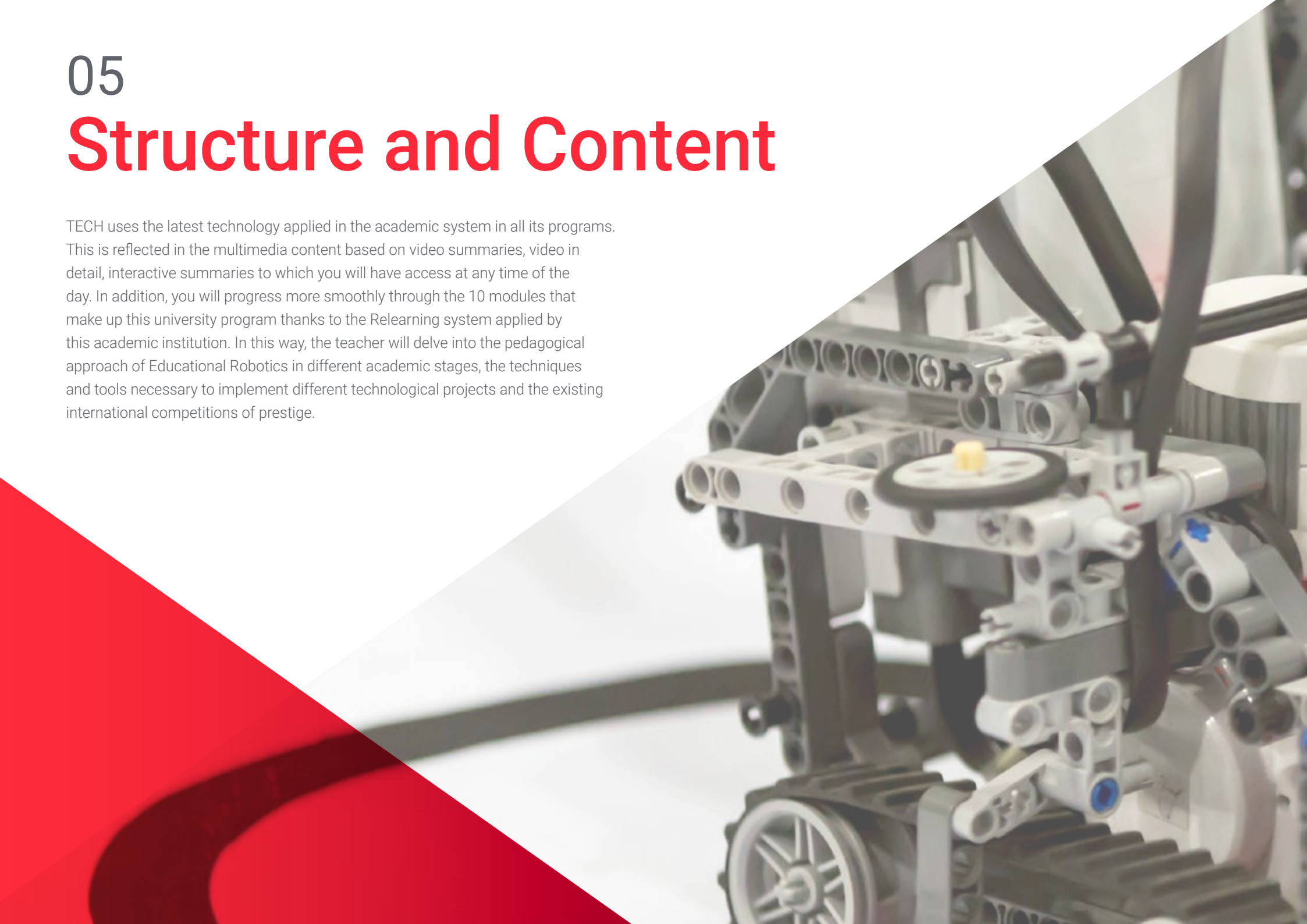
Ms. Gambín Pallarés, María del Carmen

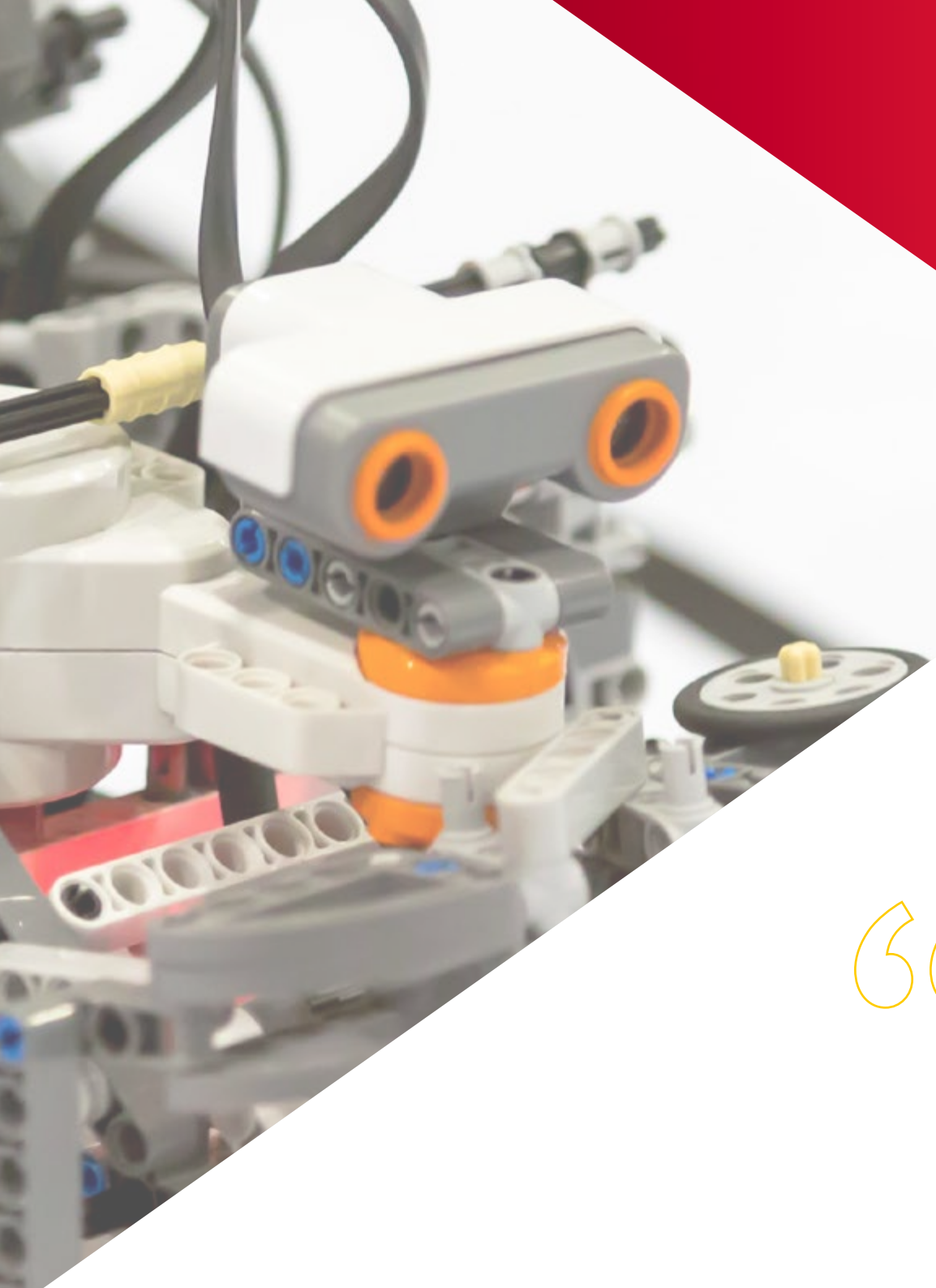
- Social Worker and Family Therapist
- Systemic Family Therapist
- Social Worker
- Founder and director of "Educa Diferente" Positive Discipline Alicante.
- Family and teacher educator in Positive Discipline
- Lego Serious Play methodology facilitator.
- Coaching training for professionals

05

Structure and Content

TECH uses the latest technology applied in the academic system in all its programs. This is reflected in the multimedia content based on video summaries, video in detail, interactive summaries to which you will have access at any time of the day. In addition, you will progress more smoothly through the 10 modules that make up this university program thanks to the Relearning system applied by this academic institution. In this way, the teacher will delve into the pedagogical approach of Educational Robotics in different academic stages, the techniques and tools necessary to implement different technological projects and the existing international competitions of prestige.





Do you want your students to create their first robot? Learn everything you need through the comprehensive syllabus offered by this Professional Master's Degree"

Module 1. Fundamentals and Evolution of Applied Technology in Education

1.1. Align with HORIZON 2020
- 1.1.1. Early Advances in ICTs and Teacher Participation
- 1.1.2. Horizon 2020 European Plan Progress
- 1.1.3. UNESCO: ICT Skills for Teachers
- 1.1.4. The Teacher as a Coach

1.2. Pedagogical Foundations of Educational Robotics
- 1.2.1. MIT - a Pioneering Center of Innovation
- 1.2.2. Jean Piaget - Forerunner of Constructivism
- 1.2.3. Seymour Papert - Transformer of Technology Education
- 1.2.4. George Siemens' Connectivism

1.3. Regularization of a Technological-legal Environment
- 1.3.1. Curricular Aspects of the LOMCE in the Learning of Educational Robotics and 3D Printing
- 1.3.2. Ethical Agreement on Applied Robotics European Report
- 1.3.3. Robotiuris: 1st Congress on Legal Robotics in Spain

1.4. Importance of the Curricular Implementation of Robotics and Technology
- 1.4.1. Educational Skills
  - 1.4.1.1. What Is a Skill?
  - 1.4.1.2. What Is an Educational Skill?
  - 1.4.1.3. Core Skills in Education
  - 1.4.1.4. Application of Educational Robotics to Educational Skills
- 1.4.2. STEAM. New learning Approach. Innovative Education to Train Future Professionals
- 1.4.3. Technological Classroom Designs
- 1.4.4. Creativity and Innovation Included in the Curricular Model
- 1.4.5. The Classroom as a Makerspace
- 1.4.6. Critical Thinking

1.5. Another Way of Teaching
- 1.5.1. Why Should We Innovate in Education?
- 1.5.2. Neuroeducation; Emotion as Success in Education
  - 1.5.2.1. Some Neuroscience to Understand How do we Produce Learning in Children?
- 1.5.3. The 10 Keys to Gamify your Classroom
- 1.5.4. Educational Robotics; The Flagship Methodology of the Digital Age
- 1.5.5. Advantages of Robotics in Education
- 1.5.6. Design with 3D Printing and Its Impact on Education
- 1.5.7. Flipped Classroom y Flipped Learning

1.6. Gardner and Multiple Intelligences
- 1.6.1. The 8 Types of Intelligence
  - 1.6.1.1. Logical-Mathematical Intelligence
  - 1.6.1.2. Linguistic Intelligence
  - 1.6.1.3. Spatial Intelligence
  - 1.6.1.4. Musical Intelligence
  - 1.6.1.5. Body and Kinesthetic Intelligence
  - 1.6.1.6. Intrapersonal Intelligence
  - 1.6.1.7. Interpersonal Intelligence
  - 1.6.1.8. Naturalistic Intelligence
- 1.6.2. The 6 Keys to Apply the Different Intelligences

1.7. Knowledge Analytical Tools
- 1.7.1. Applying Big Data in Education

Module 2. Educational Robotics; Robots in the Classroom

2.1. Beginnings of Robotics
2.2. Robo... what?
  2.2.1. What Is a Robot? What Isn't a Robot?
  2.2.2. Robot Types and Classification
  2.2.3. Components of a Robot
  2.2.4. Asimov and the Laws of Robotics
  2.2.5. Robotics, Educational Robotics and Pedagogic Robotics
  2.2.6. DIY (Do It Yourself) Techniques
2.3. Educational Robotics Learning Systems
  2.3.1. Meaningful and Active Learning
  2.3.2. Project-Based Learning (PBL)
  2.3.3. Play Based Learning
  2.3.4. Learning to Learn and Problem Solving
2.4. Computational Thinking (CT) Comes to the Classrooms
  2.4.1. Nature
  2.4.2. The PC Concept
  2.4.3. Computational Thinking Techniques
  2.4.4. Algorithmic Thinking and Pseudocode
  2.4.5. Computational Thinking Tools
2.5. Educational Robotics Work Formula
2.6. Four C methodology to Boost Your Students
2.7. General Educational Robotics Advantages

Module 3. Working with Robots in Pre-School "Not to Learn Robotics, But to Learn with Robotics"

3.1. The Revolution of New Technologies in Pre-School Education
- 3.1.1. How Have New Technologies Evolved in Pre-School Education?
- 3.1.2. Digital Teaching Skill
- 3.1.3. The Importance of Merging Emotional Intelligence and Educational Robotics
- 3.1.4. Teaching Children to Innovate from an Early Age

3.2. Robotics in the Pre-School Classroom Educating for the Future
- 3.2.1. Emergence of Educational Robotics in the Pre-School Classroom
- 3.2.2. Why Introduce Computational Thinking Development in Pre-School Education?
- 3.2.3. Use of Educational Robotics as a Learning Strategy
- 3.2.4. Curricular integration of Educational Robotics

3.3. Robots in the Classroom!
- 3.3.1. Which Robots Can We Introduce in Pre-School Education?
- 3.3.2. LEGO DUPLO as a Complementary Tool
- 3.3.3. Software to Get Started in Programming

3.4. Getting to Know Bee-Bot!
- 3.4.1. The Bee-Bot Programmable Robot
- 3.4.2. Contributions of Bee-Bot Robots in Education
- 3.4.3. Software Study and Performance
- 3.4.4. Bee-Bot Cards
- 3.4.5. Classroom Resources and Beyond

3.5. Classroom Tools
- 3.5.1. How Do I implement Robotics in the Classroom?
- 3.5.2. Working with Educational Robotics in the Pre-School Curriculum
- 3.5.3. Relationship of Robotics with the contents
- 3.5.4. Bee-Bot Session Development in the Classroom

Module 4. I'm a Grown-up Now! Knowledge of Educational Robotics in the Primary School Stage

4.1. Learning Robotics, Building Apprenticeships
- 4.1.1. Pedagogical Approach in Elementary Classrooms
- 4.1.2. Importance of Collaborative Work
- 4.1.3. Enjoying By Doing Method
- 4.1.4. From ICTs (New Technologies) to LKT (Learning and Knowledge Technology)
- 4.1.5. Correlating Robotics and Curricular Contents

4.2. We Become Engineers!
- 4.2.1. Robotics as an Educational Resource
- 4.2.2. Robotic Resources to Introduce in the Primary School Stage

4.3. About LEGO©
- 4.3.1. LEGO WeDo 9580 Kit
  - 4.3.1.1. Kit Contents
  - 4.3.1.2. LEGO 9580 Software
- 4.3.2. LEGO WeDo 2.0 Kit
  - 4.3.2.1. Kit Contents
  - 4.3.2.2. WeDo 2.0 Software
- 4.3.3. First Notions in Mechanics
  - 4.3.3.1. Scientific and Technological Principles of Levers
  - 4.3.3.2. Scientific and Technological Principles of Wheels and Axles
  - 4.3.3.3. Scientific and Technological Gear Principles
  - 4.3.3.4. Scientific and Technological Pulley Principles

4.4. Teaching Practice. Building my First Robot
- 4.4.1. Introduction to mBot, Getting Started
- 4.4.2. Robot Movement
- 4.4.3. IR Sensor (Light Sensor)
- 4.4.4. Ultrasonic Sensor: Obstruction Detector
- 4.4.5. Line Follow Sensor
- 4.4.6. Additional Sensors not Included in the Kit
- 4.4.7. mBot Face
- 4.4.8. Robot Operation with the APP

4.5. How to Design your Teaching Materials?
- 4.5.1. Skill Development with Technology
- 4.5.2. Working on Projects Linked to the School Curriculum
- 4.5.3. How Is a Robotics Session Held in the Primary School Classroom?

Module 5. Focusing High School Students on the Careers of the Future

5.1. Robotics as a Motivator
- 5.1.1. Motivation as a Learning Strategy
- 5.1.2. Educational Robotics Against School Dropout. OECD Report
- 5.1.3. The Road to the Careers of the Future
- 5.1.4. Robotics as a Subject in High-School Education
- 5.1.5. Robotics for Youth Entrepreneurship

5.2. How Can We Introduce Resources in High School Classrooms?

5.3. Be Electronic
- 5.3.1. Importance of Open-Source Hardware (SSO)
- 5.3.2. Educational Uses of Open-Source Technology
- 5.3.3. What Is Arduino?
- 5.3.4. Arduino Components
- 5.3.5. Arduino Types
- 5.3.6. Arduino Software
- 5.3.7. How the Protoboard Works
- 5.3.8. Fritzing As a Training Platform

5.4. LEGO Mindstorms Education EV3
- 5.4.1. LEGO Mindstorms Development. MIT + Lego©
- 5.4.2. Mindstorms Generations
- 5.4.3. LEGO Mindstorms Robotics Kit Components
- 5.4.4. EV3 Software
- 5.4.5. Coding blocks

5.5. Taking up mBot
- 5.5.1. Challenge: Wall-Tracking Robot
- 5.5.2. The Robot Solves Maze Challenges
- 5.5.3. Follow the Advanced Lines Challenge
- 5.5.4. Autonomous Vehicle Challenge
- 5.5.5. SumoBot Challenge

5.6. Skills: The Challenge of the Best
- 5.6.1. Types of Educational Robotics Competitions
- 5.6.2. RoboCup
- 5.6.3. Robotics Competition
- 5.6.4. First LEGO League (FLL)
- 5.6.5. World Robot Olympiad (WRO)
- 5.6.6. Robotlypic

Module 6. Robotics Specifically for Children with SEN (Special Educational Needs)

6.1. Robotics as a Pedagogical Resource for Children with SEN
- 6.1.1. What Is Meant by Students with Special Educational Needs?
- 6.1.2. The Educator's Role when Faced with SEN Students
- 6.1.3. Robotics as a Pedagogical Resource for Children with SEN

6.2. Educational Robotics the Educational Answer to ADHD
- 6.2.1. What Is Attention Deficit Hyperactivity Disorder (ADHD)? Teaching-Learning Process, Attention and Motivation
- 6.2.2. Why Does Educational Robotics Benefit Children with ADHD? Teaching Strategies for Working with Students with ADHD
- 6.2.3. The Most Important Part: Having Fun and Motivation

6.3. Robotics as Therapy for Children with ASD and Asperger's Disease
- 6.3.1. What Is Autism Spectrum Disorder?
- 6.3.2. What Is Asperger Syndrome?
- 6.3.3. What Are the Differences Between ASD and Asperger's?
- 6.3.4. Benefits of Robotics for Children with ASD and Asperger's Disease
- 6.3.5. Can a Robot Help a Child with Autism to Socialize?
- 6.3.6. APPS to Support Oral Learning, Writing, Mathematics, etc.
- 6.3.7. APPS to Support Daily Life

6.4. Robotics, an Alternative for High-Capacity Children
- 6.4.1. Intelligence and High-Capacity Children
- 6.4.2. Learning Style of High-Capacity Children
- 6.4.3. How Does Educational Robotics Help High-Capacity Children?
- 6.4.4. Robotic Resources for Working with High-Capacity Children

Module 7. The Most Widespread Language in Primary School Classrooms: Scratch

7.1. Introd uction to Scratch
- 7.1.1. What Is Scratch?
- 7.1.2. Free Knowledge
- 7.1.3. Educational Use of Scratch

7.2. Getting to Know Scratch
- 7.2.1. Stage
- 7.2.2. Object and Scenario Editing
- 7.2.3. Menu Bar and Tools
- 7.2.4. Switch to Costume and Sound Editing
- 7.2.5. View and Share Projects
- 7.2.6. Program Block Editing
- 7.2.7. Help
- 7.2.8. Backpack

7.3. Programming Blocks Development
- 7.3.1. According to Shape
- 7.3.2. According to the Color
  - 7.3.2.1. Motion Blocks (Navy blue)
  - 7.3.2.2. Appearance Blocks (Purple)
  - 7.3.2.3. Sound blocks (Pink)
  - 7.3.2.4. Pencil Blocks (Green)
  - 7.3.2.5. Data Blocks (Orange)
  - 7.3.2.6. Event Blocks: (Brown)
  - 7.3.2.7. Control Blocks (Ochre)
  - 7.3.2.8. Sensor Blocks (Light Blue)
  - 7.3.2.9. Operator Blocks (Light Green)
  - 7.3.2.10. More Blocks (Violet and Dark Gray)

7.4. Stacking Blocks. Practical Part

7.5. Scratch Community for Students

7.6. ScratchED. Learn, Share and Connect. Teachers' Community

Module 8. Programming to Learn through Play

8.1. The Future of Education Lies in Teaching How to Code
- 8.1.1. The Origins of Programming for Children: the LOGO Language
- 8.1.2. Impact of Learning Programming in the Classroom.
- 8.1.3. Small Creators Without Fear of Error

8.2. Teaching Tools for Introducing Programming in the Classroom
- 8.2.1. From Where Do We Start Teaching Programming?
- 8.2.2. How Can It Be Introduced in the Classroom?

8.3. What Programming Tools Can We Find?
- 8.3.1. Platform for Learning to Program Starting from Early Childhood Org Code
- 8.3.2. Video Game Programming in 3D. Kodu Game Lab
- 8.3.3. Learn to Program in High School with JavaScript, C+, Phyton. Code Combat
- 8.3.4. Other Alternatives for Programming at School

Module 9. Design and 3D Printing "If You Can Dream It, You Can Create It"

9.1. Origins and Development of 3D Design and 3D Printing
- 9.1.1. What Is It?
- 9.1.2. NMC Horizon Project EDUCAUSE Learning Report
- 9.1.3. Evolution of 3D Printing

9.2. 3D Printers, Which Ones Can We Find?
- 9.2.1. SLA - Stereolithography
- 9.2.2. SLS - Selective Laser Sintering
- 9.2.3. Injection
- 9.2.4. FDM - Fused Deposition Modeling

9.3. What Types of Materials Are Available for 3D Printing?
- 9.3.1. Abs
- 9.3.2. Pla
- 9.3.3. Nylon
- 9.3.4. Flex
- 9.3.5. Pet
- 9.3.6. Hips

9.4. Applications in Different Fields
- 9.4.1. Art
- 9.4.2. Feeding
- 9.4.3. Textile and Jewelry
- 9.4.4. Medicine
- 9.4.5. Construction
- 9.4.6. Education

Module 10. Tinkercad: A Different Way of Learning Neuroeducation and Physical Education

10.1. Worki ng with TinkerCad in the Classroom
- 10.1.1. About Tinkercad
- 10.1.2. 3D Perception
- 10.1.3. Cube, Hello World!

10.2. First Steps with TinkerCad
- 10.2.1. Using "Hole" Command
- 10.2.2. Grouping and Ungrouping

10.3. Clone Creation
- 10.3.1. Copy, Paste and Duplicate
- 10.3.2. Design Scaling; Modifying Clones

10.4. Fine-Tuning Our Creations
- 10.4.1. Align
- 10.4.2. "Mirror" (Mirror Effect)

10.5. Printing First Designs
- 10.5.1. Import and Export Designs
- 10.5.2. Which Software Can We Use for Our Printing?
- 10.5.3. From TinkerCad to CURA. Making Our Designs Come True!

10.6. Guidance for Design and 3D Printing in the Classroom
- 10.6.1. How to Work with Design in the Classroom?
- 10.6.2. Linking Design and Contents
- 10.6.3. Thingiverse as a Teacher Support Tool

06

Methodology

This academic program offers students 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 wi 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:

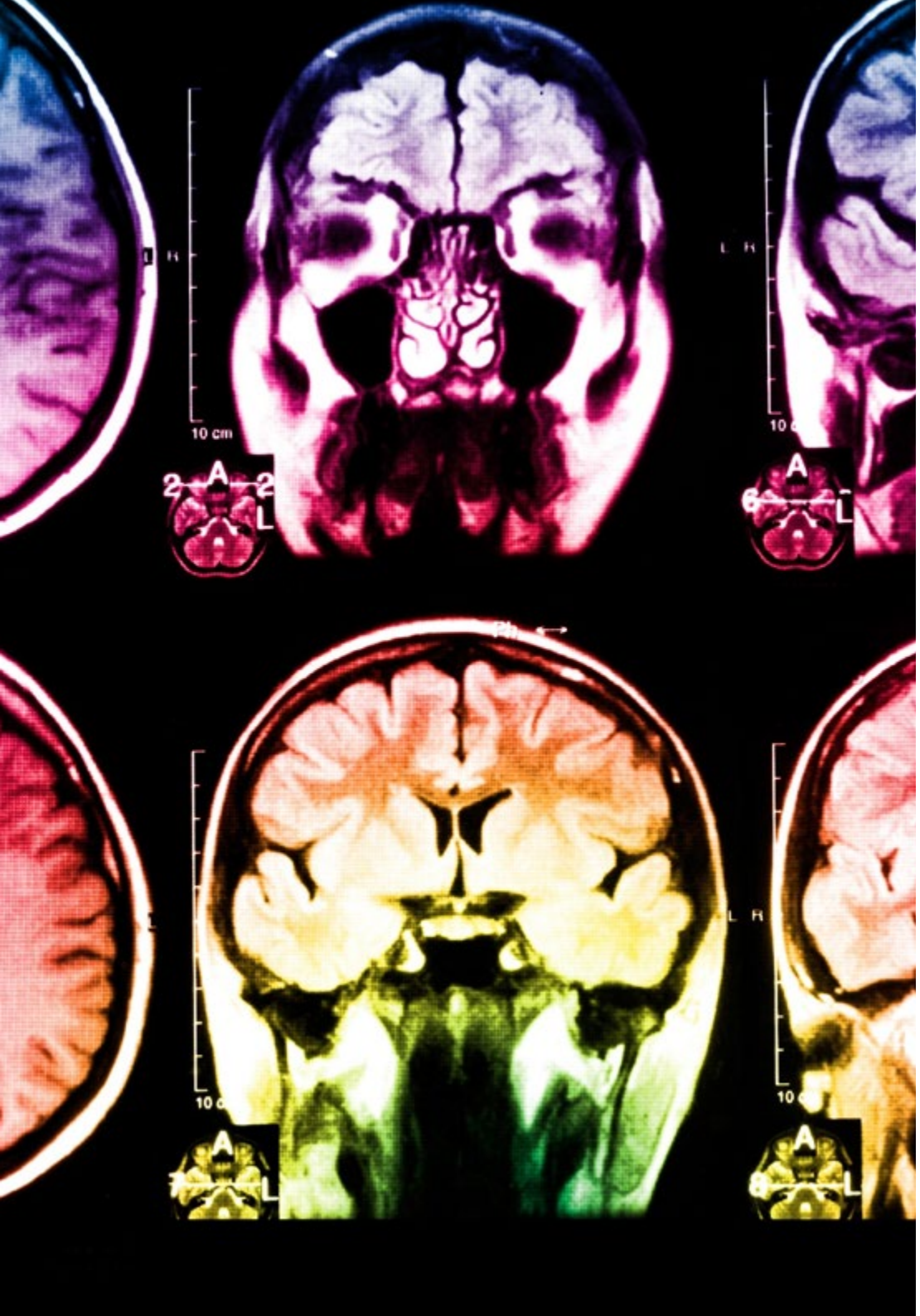
1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3.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

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

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 adapted in 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, students can watch them as many times as they want.

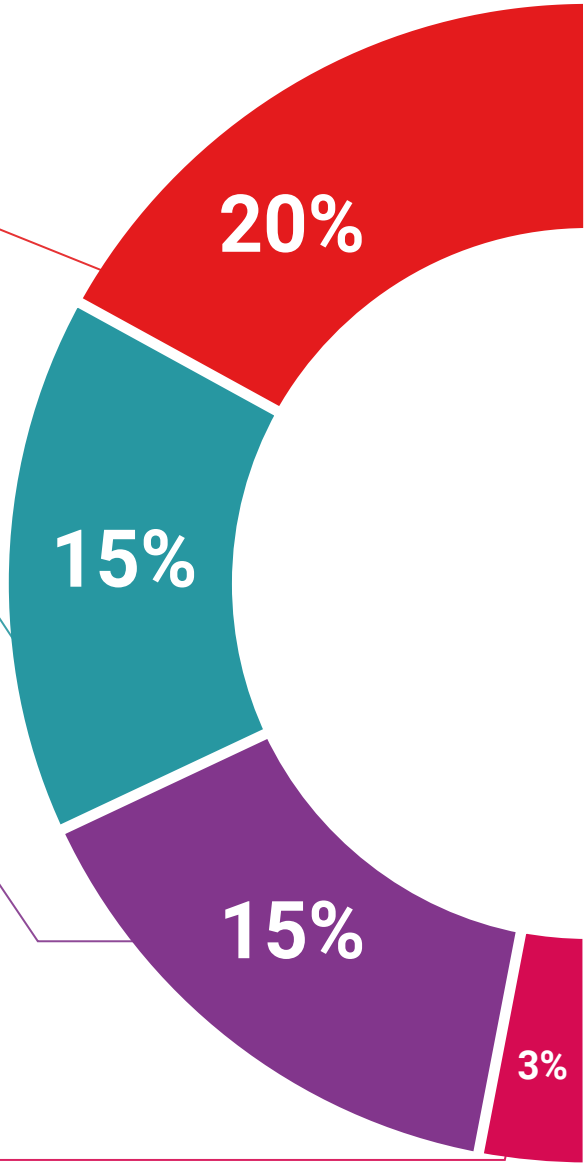
Interactive Summaries

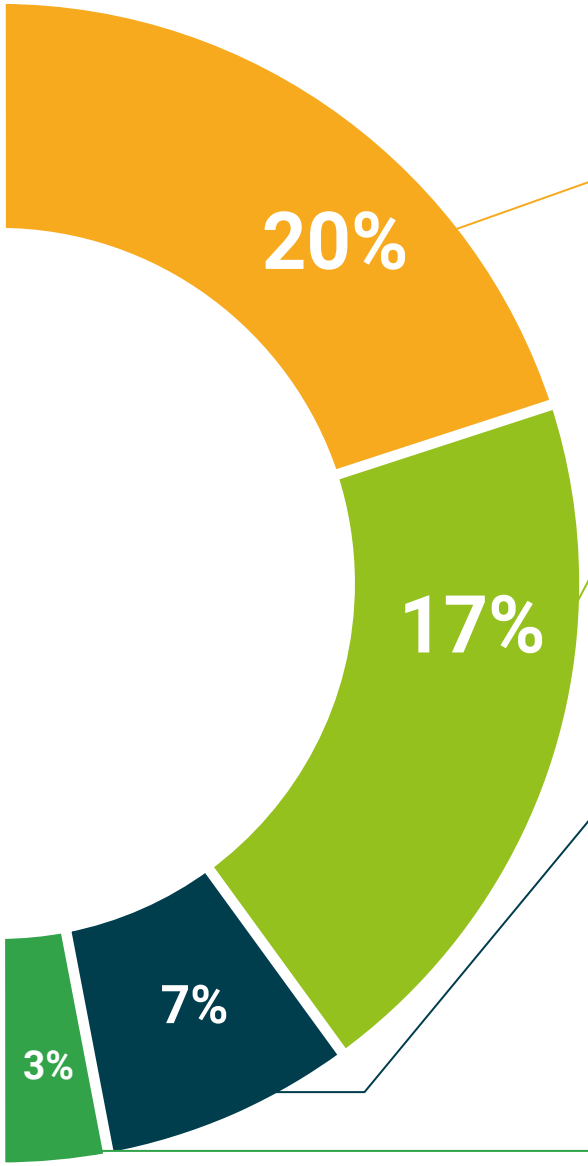
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content 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 their 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 Educational Robotics, Programming and 3D Design and Printing guarantees students, in addition to the most rigorous and updated education, access to a Professional Master's Degree issued by the 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 Educational Robotics, Programming and 3D Design and Printing** 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 Educational Robotics, Programming and 3D Design and Printing**

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 Educational Robotics, Programming and 3D Design and Printing

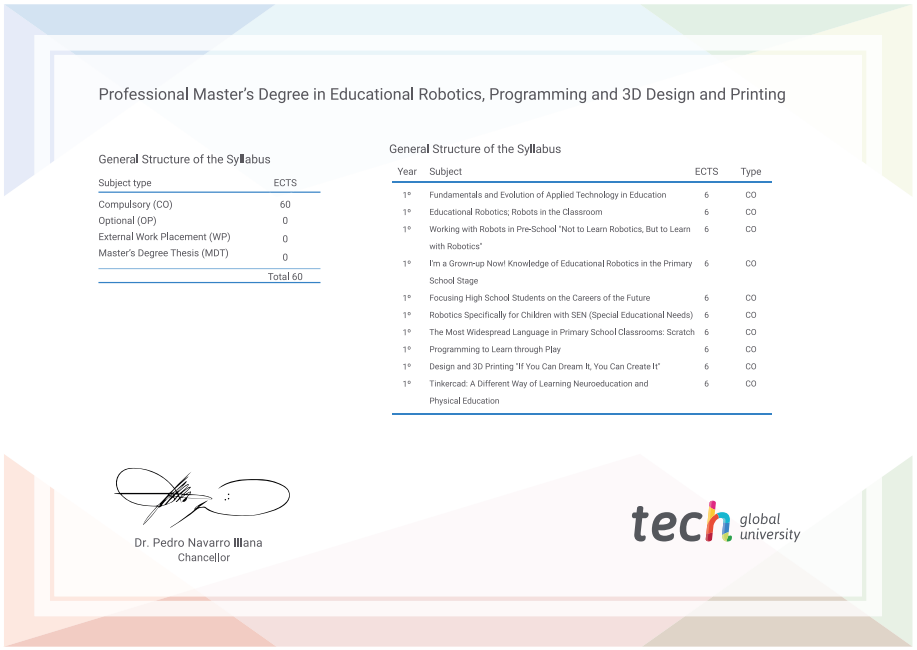
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Rector

Unique TECH Code: AFWORD23S techtitute.com/certificates


Professional Master's Degree in Educational Robotics, Programming and 3D Design and Printing

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	Fundamentals and Evolution of Applied Technology in Education	6	CO
1º	Educational Robotics; Robots in the Classroom	6	CO
1º	Working with Robots in Pre-School "Not to Learn Robotics, But to Learn with Robotics"	6	CO
1º	I'm a Grown-up Now! Knowledge of Educational Robotics in the Primary School Stage	6	CO
1º	Focusing High School Students on the Careers of the Future	6	CO
1º	Robotics Specifically for Children with SEN (Special Educational Needs)	6	CO
1º	The Most Widespread Language in Primary School Classrooms: Scratch	6	CO
1º	Programming to Learn through Play	6	CO
1º	Design and 3D Printing "If You Can Dream It, You Can Create It"	6	CO
1º	Tinkercad: A Different Way of Learning Neuroeducation and Physical Education	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

Educational Robotics, Programming and 3D Design and Printing

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

Professional Master's Degree

Educational Robotics, Programming and 3D Design and Printing

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