

# Postgraduate Certificate Teaching and Knowledge of the Natural Sciences in Primary Education



## Postgraduate Certificate

### Teaching and Knowledge of the Natural Sciences in Primary Education

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/in/education/postgraduate-certificate/teaching-knowledge-natural-sciences-primary-education](http://www.techtute.com/in/education/postgraduate-certificate/teaching-knowledge-natural-sciences-primary-education)

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# 01

# Introduction

Primary school teachers who continue their training with this program will be introduced to the most exhaustive knowledge of Natural Sciences, as well as to the most appropriate didactics for teaching these lessons to students at this educational stage. A unique training opportunity that will allow professionals to reach a higher level of teacher training.







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*A unique training opportunity that will elevate you to the highest standards of training in the field of Natural Sciences for Primary Education”*

The objective of this Postgraduate Certificate is to provide future teachers with part of the scientific and didactic foundations necessary for their future professional teaching practice within the framework of Primary Education and in the field or area generically referred to as Knowledge of the Natural Environment. In this way, students are expected to acquire adequate and sufficient knowledge, both at a theoretical and practical level, which will contribute to their professional training as Primary Education teachers.

Specifically, it is intended that teachers not only have a comprehensive knowledge of the main contents worked on in Primary Education related to the natural environment (living beings, the environment and its conservation, health and personal development, matter and energy), but also acquire the necessary training and pedagogical strategies to effectively promote in their future students the competence in the knowledge and interaction with the physical environment, taking into account the specific obstacles associated with the learning of experimental sciences.

With this program, TECH has set out to train teachers to be fluent and accurate in the teaching of this educational stage. To this end, the order and distribution of the subjects and their topics is specially designed to allow students to decide their dedication and self-manage their time. Additionally, they will have at their disposal theoretical materials presented through enriched texts, multimedia presentations, exercises and guided practical activities, motivational videos, master classes and practical cases, where they will be able to evoke in an orderly way the knowledge and train the decision-making that demonstrates their training within the field of teaching.

This program is distinguished by the fact that it can be taken in a 100% online format, adapting to the needs and obligations of the student, in an asynchronous and completely self-manageable manner. The student will be able to choose which days, at what time and how much time to dedicate to the study of the contents of the program. Always in tune with the capabilities and skills dedicated to it.

This **Postgraduate Certificate in Teaching and Knowledge of the Natural Sciences in Primary Education** contains the most complete and up-to-date educational program on the market. The most important features include:

- ♦ The development of practical cases presented in simulated scenarios by experts in the field of study, where the student will evoke in an orderly manner the knowledge learned and demonstrate the acquisition of the competencies
- ♦ 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
- ♦ The latest news on the educational task of the primary education teacher
- ♦ Practical exercises where the students undergo the self-assessment process to improve learning, as well as activities at different skill levels
- ♦ His special emphasis on innovative methodologies and teaching research
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*TECH provides you with the main educational tools to train you to develop your work in the field of teaching"*

**“** *You will be able to access this Postgraduate Certificate from any fixed or mobile device with internet connection”*

Its teaching staff includes professionals belonging to the field of Primary Education, who bring to this training the experience of their work, as well as recognized 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 professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the specialist will be assisted by an innovative interactive video system developed by renowned and experienced experts in diversity care.

*To access our content you only need to have a fixed or mobile device with an internet connection.*

*The program invites us to learn and grow, to develop as teachers, to learn about educational tools and strategies in relation to the most common needs in our classrooms.*





# 02 Objectives

The Postgraduate Certificate in Teaching and Knowledge of the Natural Sciences in Primary Education is aimed at developing in students the skills required for the exercise of their profession. For this purpose, we offer you the most complete training from leading experts in the field.







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*Increase your training as a primary school teacher thanks to the opportunity offered by TECH, the world's leading online university”*



## General Objectives

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- ♦ Design, plan, deliver, and evaluate teaching and learning processes, both individually and in collaboration with other teachers and professionals of the center
- ♦ Recognize the importance of rules in all educational processes
- ♦ Promote participation and respect for the rules of coexistence
- ♦ Teach Nature Science lessons to primary school students



*Our goal is to achieve academic excellence and to help you achieve it too"*





## Specific Objectives

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- ♦ Acquire basic knowledge, skills and attitudes that allow organizing and directing the learning of Natural Sciences
- ♦ Know the current trends in the teaching-learning of Natural Sciences
- ♦ Know and apply the scientific method both in their work as students and in their future work as teachers
- ♦ Analyze the basic concepts of Natural Sciences and the peculiarities of their teaching-learning
- ♦ Know how to choose, adapt and/or elaborate didactic units of Natural Sciences according to their own purposes
- ♦ Develop original and motivating activities related to Natural Sciences for primary school students
- ♦ Appropriately use (express and apply) basic scientific knowledge associated with the experimental sciences to explain the physical environment and the functioning of living organisms
- ♦ Recognize the contribution of experimental sciences to the formation of the individual in primary education
- ♦ To have a general idea of the distribution and sequencing of natural science contents throughout primary education
- ♦ Identify, pose and adequately solve problems associated with science in everyday life
- ♦ Know and appreciate the way science constructs knowledge and the evolution of scientific theories over time
- ♦ Identify and assess the influence of science on social and economic development (technological applications, scientific advances in the field of medicine, agriculture, industry)
- ♦ Acquire and promote relevant citizenship behaviors to ensure a sustainable future
- ♦ Recognize the human dimension of science and the influence of policies and ideologies on scientific development
- ♦ Design and assess curriculum content through appropriate didactic resources, adapting to different levels
- ♦ Apply appropriate resources and strategies to promote the acquisition of basic competencies in elementary school students



03

# Structure and Content

The structure of the contents has been designed by top level professionals within the educational panorama, with a wide trajectory and recognized prestige in the profession, endorsed by their experience, and with a wide command of the new technologies applied to teaching.







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*The best content to create  
the best teachers”*

## Module 1. Knowledge of Natural Sciences in Primary Education

- 1.1. Scientific Knowledge
  - 1.1.1. Scientific Knowledge
  - 1.1.2. Inductivism
  - 1.1.3. Falsificationism
  - 1.1.4. Kuhn: the scientific paradigm
- 1.2. Our planet. The Earth
  - 1.2.1. Our Solar System
  - 1.2.2. The Earth: movements
  - 1.2.3. The atmosphere that surrounds us
  - 1.2.4. The quantities of mass and weight
- 1.3. The energy
  - 1.3.1. Definition and concept of energy
  - 1.3.2. Simple manifestations of energy
  - 1.3.3. Energy Conservation
  - 1.3.4. Energy transfer through mechanisms
- 1.4. Electricity and Magnetism
  - 1.4.1. What is electrical energy?
  - 1.4.2. Static electricity through Coulomb's Law
  - 1.4.3. Electrical current through Ohm's Law
  - 1.4.4. Magnetism and its ways
- 1.5. Various energy sources
  - 1.5.1. What are energy sources?
  - 1.5.2. Renewable Energies
  - 1.5.3. Non-renewable energies
  - 1.5.4. Matter: Concept and Characteristics
- 1.6. What is matter?
  - 1.6.1. We pay attention to the structure of the material
  - 1.6.2. What are pure substances and mixtures?
  - 1.6.3. What are the properties of matter?
  - 1.6.4. Some chemical reactions we found
  - 1.6.5. Carbon Chemistry
- 1.7. Let's talk about Geology
  - 1.7.1. Research of the interior of the Earth: Methods used
  - 1.7.2. Minerals and rocks
  - 1.7.3. The theory of plate tectonics
  - 1.7.4. What is the cell?
- 1.8. The cell as a unit of life
  - 1.8.1. Let's talk about prokaryotic cells
  - 1.8.2. Let's talk about the eukaryotic cell
  - 1.8.3. What are the main differences between cell types?
- 1.9. What is biodiversity?
  - 1.9.1. Introduction
  - 1.9.2. What are the kingdoms of nature?
  - 1.9.3. The five kingdoms
  - 1.9.4. Monera Kingdom
  - 1.9.5. Protista Kingdom
  - 1.9.6. Fungi Kingdom
  - 1.9.7. Plant Kingdom
  - 1.9.8. Animal Kingdom
  - 1.9.9. What do we mean by ecology?
- 1.10. The human body and its evolution
  - 1.10.1. Introduction
  - 1.10.2. The human body and its functions
  - 1.10.3. The three vital functions
  - 1.10.4. Other non-vital functions
  - 1.10.5. What is genetics? Do we all have it?
  - 1.10.6. Evolution and its evidence
  - 1.10.7. Some evolutionary theories

**Module 2. Didactics of Natural Sciences in Primary Education**

- 2.1. Talking about Scientific Knowledge
  - 2.1.1. Introduction to the Subject
  - 2.1.2. The Current Situation of Science
  - 2.1.3. Features of Experimental Sciences
  - 2.1.4. What is the Scientific Method?
- 2.2. Relationship between Science Education and Primary Education
  - 2.2.1. The Need for Science in Primary Education
  - 2.2.2. Strategies for Science Education
  - 2.2.3. Strategies for Teaching Science: Experiences
  - 2.2.4. Strategies for Teaching Science: Project Work
  - 2.2.5. Strategies for Teaching Science: Educational Videos
  - 2.2.6. Strategies for Teaching Science: Adapted Language
  - 2.2.7. The Analogy
  - 2.2.8. Metaphors
  - 2.2.9. Similes
  - 2.2.10. Transpositions
- 2.3. The Practical Part of Science
  - 2.3.1. Fundamental Strategies of Science
  - 2.3.2. Observation
  - 2.3.3. Experimentation
  - 2.3.4. Measurement
  - 2.3.5. Estimation
  - 2.3.6. Inquiry
  - 2.3.7. Scientific Activities: Importance, Classification and Design
  - 2.3.8. A Laboratory Work
  - 2.3.9. Field Work: Excursions, Itineraries, Visits to Museums, Industries and Workshops
- 2.4. Elements that Mark the Teaching of Science in Primary Education
  - 2.4.1. Introduction
  - 2.4.2. Learning objectives
  - 2.4.3. Learning Planning
  - 2.4.4. Assessment Criteria and their Representation
- 2.5. Design of a Didactic Unit (Part 1)
  - 2.5.1. Assessment Criteria
  - 2.5.2. Establishment of Objectives
  - 2.5.3. Selection, Organization and Sequencing of Contents
  - 2.5.4. Selection, Creation and Sequencing of Activities
  - 2.5.5. Selection, Creation and Sequencing of Assessment Activities
- 2.6. Design of a Didactic Unit (Part 2)
  - 2.6.1. Classroom Organization
  - 2.6.2. Final Conclusions
  - 2.6.3. Resources Used Material Resources, Technological Resources, Teaching Resources, etc
- 2.7. Pedagogical Approaches
  - 2.7.1. The Use of Classical Approaches
  - 2.7.2. Model-Based Teaching
  - 2.7.3. Global Perspective on Science-Technology and Society
- 2.8. Concepts from Which Science Starts
  - 2.8.1. Definition of Previous Concepts. What are they?
  - 2.8.2. Non-Heterogeneity of Previous Concepts
  - 2.8.3. Strategies for Extracting Previous Concepts from Learners' Starting Points
  - 2.8.4. Conceptual Change
- 2.9. Cognitive Development of Children from 6 to 12 Years of Age
  - 2.9.1. To Be Taken into Account
  - 2.9.2. Characteristics of Children from 6 to 7 Years of Age
  - 2.9.3. Characteristics of Children from 8 to 9 Years of Age
  - 2.9.4. Characteristics of Children from 10 to 11 Years of Age
- 2.10. ICT as a Teaching Resource
  - 2.10.1. What are ICTs?
  - 2.10.2. Characteristics of ICT
  - 2.10.3. Web Resources: Webquest, Treasure Hunt, Wikis, Educablog, Digital Comics



04

# Methodology

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

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





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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH Education School we use the Case Method

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

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



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



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

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

1. Educators who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. The learning process is solidly focused on practical skills that allow educators to better integrate the knowledge into daily practice.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life teaching.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

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

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

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





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

With this methodology we have trained more than 85,000 educators with unprecedented success in all specialties. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

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

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



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



#### Study Material

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

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Educational Techniques and Procedures on Video

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



#### Interactive Summaries

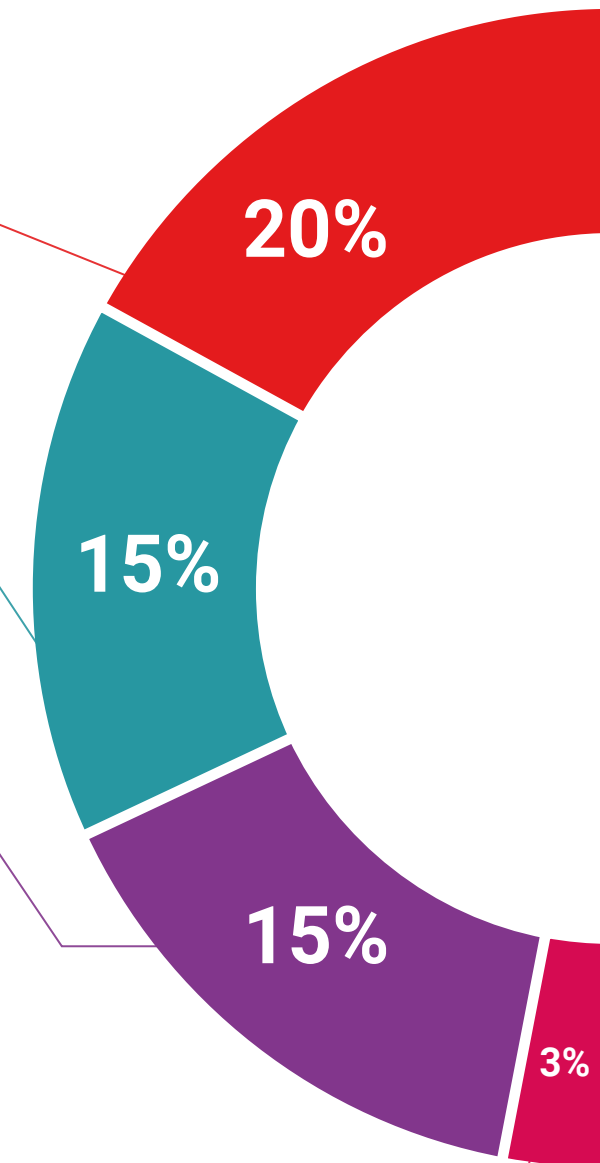
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

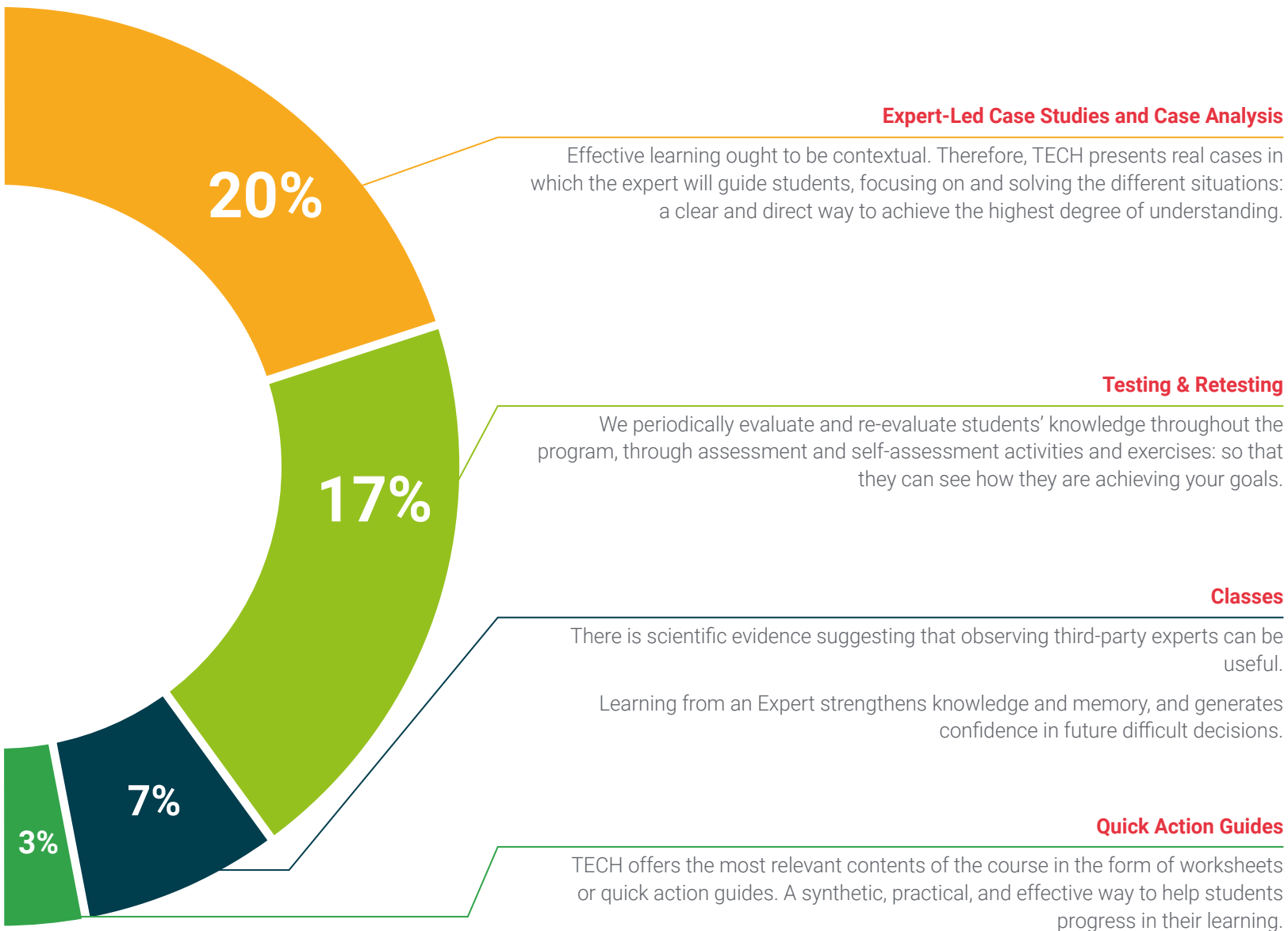


#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.







05

# Certificate

The Postgraduate Certificate in Teaching and Knowledge of the Natural Sciences in Primary Education guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Teaching and Knowledge of the Natural Sciences in Primary Education** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Teaching and Knowledge of the Natural Sciences in Primary Education**

Official N° of Hours: **300 h.**



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





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