

# Postgraduate Certificate Speed Training from Theory to Practice

Endorsed by the NBA



**tech** technological  
university



## Postgraduate Certificate

### Speed Training from Theory to Practice

- » Modality: online
- » Duration: 2 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/sports-science/postgraduate-certificate/speed-training-theory-practice](http://www.techtitute.com/us/sports-science/postgraduate-certificate/speed-training-theory-practice)

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# 01

# Introduction

This course will develop the mechanical and myoenergetic aspects of speed starting from the classic model of the 100m race to the analysis of the race in collective sports with intermittent dynamics. Special attention will be paid to the observation of faulty running patterns and how to optimize them.

*This course is a must for professionals who want to achieve success in the world of sports performance.*





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*The most up-to-date academic training provided by outstanding teachers experienced in the world of sports and academia”.*

In recent years, speed training, especially its acceleration phase, has become very popular, perhaps as a result of the great records of the best specialists in the sports arena or because of the enormous impact it has begun to have in team sports, especially in rugby and soccer. This is evidenced, above all, in the increased distances covered at high intensity, in sprints and in accelerations and decelerations that occur in matches. At the same time, due to the high intensity demands of the game, an increasing number of hamstring injuries are observed, 57% of which occur during sprints. It is therefore vital that athletes develop correct mechanics, not only to be more efficient and perform better, but also to reduce the risk of injury.

This course provides detailed training on key aspects of sports performance, treated with a unique didactic and depth in the current academic offer. Each subject will be taught by true specialists in the field, which guarantees the highest level of knowledge in the subject.

This course in Speed Training from Theory to Practice will provide the student with theoretical contents of the highest quality and depth. One of the characteristics that differentiate this course from others is the relationship between the different topics of the program at a theoretical level but, above all, at a practical level, making the student obtain real examples of teams and athletes of the highest sports performance worldwide, as well as from the professional world of sports, resulting in the student being able to build knowledge in the most complete way.

Another strong point of this course in Speed Training from Theory to Practice is the training of the student in the use of new technologies applied to Sports Performance. The student will not only learn about new technology in the field of performance, but will learn how to use it and, more importantly, how to interpret the data provided by each device to make better decisions regarding training programming.

The teaching team of this Course in Speed Training from Theory to Practice has made a careful selection of each of the topics of this training in order to offer the student a study opportunity as complete as possible and always linked to current events.

Thus, at TECH we have set out to create contents of the highest teaching and educational quality that will turn our students into successful professionals, following the highest quality standards in teaching at an international level. Therefore, we show you this course with a rich content that will help you reach the elite of High Performance Sports. In addition, as it is an online course, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Certificate in Speed Training from Theory to Practice** contains the most complete and up-to-date scientific program on the market. The most important features of the program include

- ◆ The study of numerous case studies presented by specialists in high-performance sports training.
- ◆ The graphic, schematic, and eminently practical contents with which they are created contain information that is indispensable for professional practice.
- ◆ It contains exercises where the self-assessment process can be carried out to improve learning.
- ◆ Algorithm-based interactive learning system for decision-making.
- ◆ Special emphasis on innovative methodologies in personal training.
- ◆ 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.



*Immerse yourself in the study of this high level Postgraduate Progression and improve your skills in High Performance Sports".*

“

*This course is the best investment you can make in selecting a refresher program for two reasons: in addition to updating your knowledge as a personal trainer, you will earn a degree from the leading online university in Spanish: TECH”*

Its teaching staff includes professionals belonging to the field of sports sciences, who bring to this training the experience of their work, as well as recognized specialists from leading companies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive teaching programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned , and experienced experts in High Performance in Sports with extensive experience.

*This course allows training in simulated environments, which provide immersive learning programmed to train for real situations.*

*This 100% online course will allow you to combine your studies with your professional work while increasing your knowledge in this field.*



# 02 Objectives

The main objective of this program is to conduct theoretical and practical learning, so that the sports science professional can master in a practical and rigorous way the novelties in High Performance in Sports.



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*Our goal is to achieve academic excellence  
and help you achieve professional success.  
Don't hesitate any longer and join us”*



## General Objectives

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- ◆ Master and apply with certainty the most current training methods to improve sports performance
- ◆ To effectively master statistics and thus be able to make a correct use of the data obtained from the athlete, as well as to initiate research processes
- ◆ Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- ◆ To master all the most advanced methods of sports performance evaluation
- ◆ Master the principles governing Exercise Physiology, as well as Biochemistry
- ◆ Master the principles governing Biomechanics applied directly to Sports Performance
- ◆ Master the principles governing Nutrition applied to sports performance
- ◆ Successfully integrate all the knowledge acquired in the different modules in real practice





## Specific Objectives

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- ◆ Interpret the key aspects of speed and change of direction technique
- ◆ Compare and differentiate the speed of situational sport with respect to the track and field model
- ◆ Incorporate elements of judgment of technical observation that make it possible to discriminate errors in the mechanics of the race and the procedures for their correction
- ◆ Become familiar with the myoenergetic aspects of single and repeated sprinting and how they relate to training processes
- ◆ Differentiate the mechanical aspects that may influence performance impairment and the mechanisms of injury occurrence when sprinting
- ◆ Apply in an analytical way the different means and methods of training for the development of the different phases of speed
- ◆ Program speed training in situational sports

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*The sports field requires trained professionals and we give you the keys to position yourself among the professional elite"*

03

# Course Management

Our teachers, made up of Progression in High Performance in Sports, are well known in the profession and are professionals with years of teaching experience who have come together to help you boost your career. To this end, they have developed this Postgraduate Progression with the latest developments in the field that will allow you to train and increase your skills in this sector.





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*Learn from the best professionals and  
become a successful professional  
yourself”*

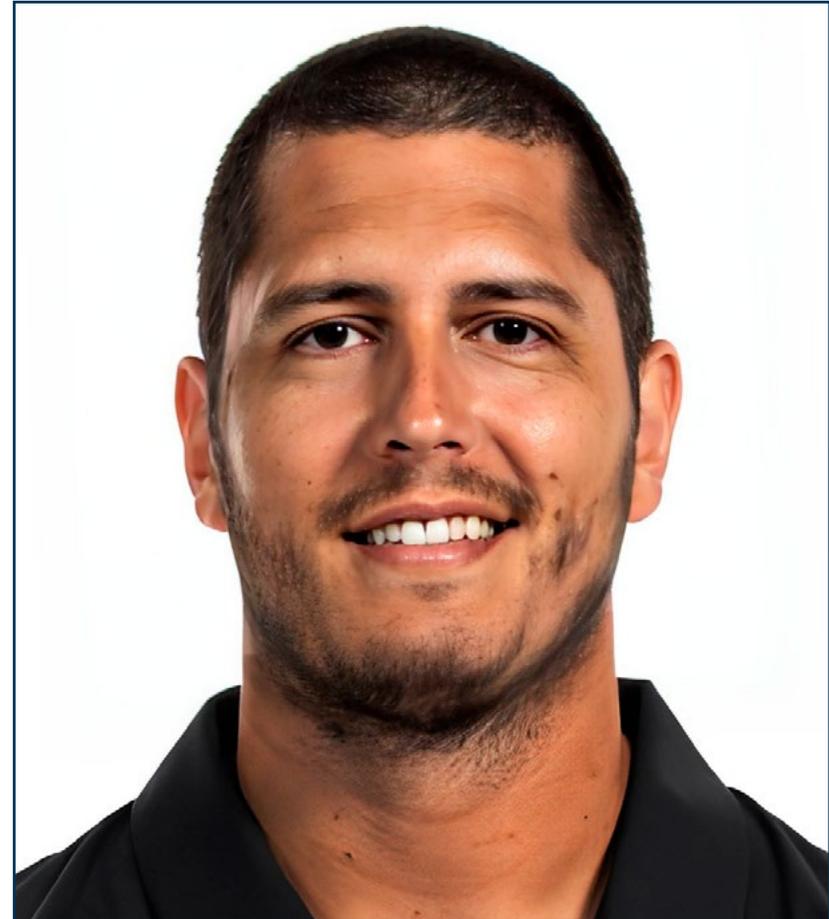
## International Guest Director

Tyler Friedrich, Ph.D., is a leading personality in the international field of Sports Performance and Applied Sports Science. With a strong academic background, he has demonstrated an exceptional commitment to excellence and innovation, and has contributed to the success of numerous elite athletes internationally.

Throughout his career, Tyler Friedrich has deployed his expertise in a wide range of sporting disciplines, from football to swimming, volleyball to field hockey. His work in performance data analysis, especially through the Catapult athlete GPS system, and his integration of sports technology into performance programs, has established him as a leader in athletic performance optimization.

As Director of Sports Performance and Applied Sports Science, Dr. Friedrich has led strength and conditioning training, as well as the implementation of specific programs for several Olympic sports, including volleyball, rowing and gymnastics. Here, he has been responsible for integrating equipment services, sports performance in soccer and sports performance in Olympic sports. In addition, incorporating DAPER sports nutrition within an athlete performance team.

Also certified by USA Weightlifting and the National Strength and Conditioning Association, he is recognized for his ability to combine theoretical and practical knowledge in the development of high performance athletes. In this way, Dr. Tyler Friedrich has left an indelible mark on the world of Sports Performance, being an outstanding leader and driver of innovation in his field.



## Dr. Friedrich, Tyler

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- Director of Sports Performance and Applied Sports Science at Stanford University
- Sports Performance Specialist
- Associate Director of Athletics and Applied Performance at Stanford University
- Director of Olympic Sport Performance at Stanford University
- Sports Performance Coach at Stanford University
- Ph.D. in Philosophy, Health and Human Performance from Concordia University Chicago
- Master of Science in Exercise Science from the University of Dayton
- Bachelor of Science, Exercise Physiology from the University of Dayton

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

## Management



### Rubina, Dardo

- CEO of Test and Training
- EDM Physical Training Coordinator
- Physical trainer of the EDM First Team
- Master's Degree in ARD COE
- EXOS Certification
- Specialist in Strength Training for the Prevention of Injuries, Functional and Physical-Sports Rehabilitation
- Specialist in Strength Training Applied to Physical and Sports Performance
- Certification in Weight Management and Physical Performance Technologies
- Postgraduate course in Physical Activity in Populations with Pathologies
- Diploma in Advanced Studies (DEA) University of Castilla la Mancha
- PhD Candidate in ARD

## Professors

### Añon, Pablo

- ◆ Degree in Physical Activity and Sport
- ◆ Postgraduate diploma in Sports Medicine and Sciences Applied to Sport
- ◆ Physical trainer of the National Volleyball team that will attend the next Olympic Games
- ◆ Certified strength and conditioning specialist, NSCA certification.
- ◆ NSCA National Conference

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*Our teaching team will provide you with all their knowledge so that you are up to date with the latest information on the subject”.*



04

# Structure and Content

The content structure has been designed by a team of professionals knowledgeable about the implications of training in daily practice, aware of the relevance of the current relevance of quality training in the field of High Performance Sports; and committed to quality teaching through new educational technologies.





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*We have the most complete and updated scientific program on the market. We want to provide you with the best training”*

## Module 1. Speed Training from Theory to Practice

- 1.1. Speed
  - 1.1.1. Definition
  - 1.1.2. General concepts
    - 1.1.2.1. Manifestations of Speed
    - 1.1.2.2. Factors that Determine Performance
    - 1.1.2.3. Difference Between Speed and Quickness
    - 1.1.2.4. Segmental Speed
    - 1.1.2.5. Angular Speed
    - 1.1.2.6. Reaction Time
- 1.2. Dynamics and Mechanics of Linear Sprint (100m Model)
  - 1.2.1. Kinematic Analysis of the Take-off
  - 1.2.2. Dynamics and Strength Application During Take-off
  - 1.2.3. Kinematic Analysis of the Acceleration Phase
  - 1.2.4. Dynamics and Strength Application During Acceleration
  - 1.2.5. Kinematic Analysis of Running at Maximum Speed
  - 1.2.6. Dynamics and Strength Application During Maximum Speed
- 1.3. Phases of Sprinting (Technique Analysis)
  - 1.3.1. Technical Description of the Take-off
  - 1.3.2. Technical Description of the Race During the Acceleration Phase
    - 1.3.2.1. Technical Model of the Kinogram for the Acceleration Phase
  - 1.3.3. Technical Description of the Race During the Maximum Speed Phase
    - 1.3.3.1. Technical Kinogram Model (ALTIS) for Technique Analysis
  - 1.3.4. Speed Endurance
- 1.4. Speed Bioenergetics
  - 1.4.1. Bioenergetics of Single Sprints
    - 1.4.1.1. Myoenergetics of Single Sprints
    - 1.4.1.2. ATP-PC System
    - 1.4.1.3. Glycolytic System
    - 1.4.1.4. Adenylate Kinase Reaction



- 1.4.2. Bioenergetics of Repeated Sprints
  - 1.4.2.1. Energy Comparison Between Single and Repeated Sprints
  - 1.4.2.2. Behavior of Energy Production Systems During Repeated Sprints
  - 1.4.2.3. Recovery of PC
  - 1.4.2.4. Connection Between Aerobic Power and Recovery Processes of CP
  - 1.4.2.5. Determinants of Performance in Repeated Sprints
- 1.5. Analysis of Acceleration Technique and Maximum Speed in Team Sports
  - 1.5.1. Description of the Technique in Team Sports
  - 1.5.2. Comparison of Sprinting Technique in Team Sports vs. Athletic Events
  - 1.5.3. Timing and Motion Analysis of Speed Events in Team Sports
- 1.6. Methodological Approach to Teaching the Technique
  - 1.6.1. Technical Teaching of the Different Phases of the Race
  - 1.6.2. Common Errors and Ways to Correct Them
- 1.7. Means and Methods for Speed Development
  - 1.7.1. Means and Methods for Acceleration Phase Training
    - 1.7.1.1. Connection of Force to Acceleration
    - 1.7.1.2. Sled
    - 1.7.1.3. Slopes
    - 1.7.1.4. Jumpability
      - 1.7.1.4.1. Building the Vertical Jump
      - 1.7.1.4.2. Building the Horizontal Jump
    - 1.7.1.5. Training the ATP/PC System
  - 1.7.2. Means and Methods for Top Speed Training
    - 1.7.2.1. Plyometry
    - 1.7.2.2. Overspeed
    - 1.7.2.3. Interval-Intensive Methods
  - 1.7.3. Means and Methods for Speed Endurance Development
    - 1.7.3.1. Interval-Intensive Methods
    - 1.7.3.2. Repetition Method
- 1.8. Agility and Change of Direction
  - 1.8.1. Definition of Agility
  - 1.8.2. Definition of Change of Direction.
  - 1.8.3. Determinants of Agility and COD
  - 1.8.4. Change of Direction Technique
    - 1.8.4.1. Shuffle
    - 1.8.4.2. Crossover
    - 1.8.4.3. Agility and COD Training Drills
- 1.9. Assessment and Control of Speed Training
  - 1.9.1. Strength-Speed Profile
  - 1.9.2. Test With Photocells and Variants With Other Control Devices
  - 1.9.3. RSA
- 1.10. Programming Speed Training



*A unique, key, and decisive Training experience to boost your professional development”*

# 05 Methodology

This training provides you with a different way of learning. Our methodology uses a cyclical learning approach: **Re-learning**.

This teaching system is used 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 Re-learning, 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 we use the Case Method

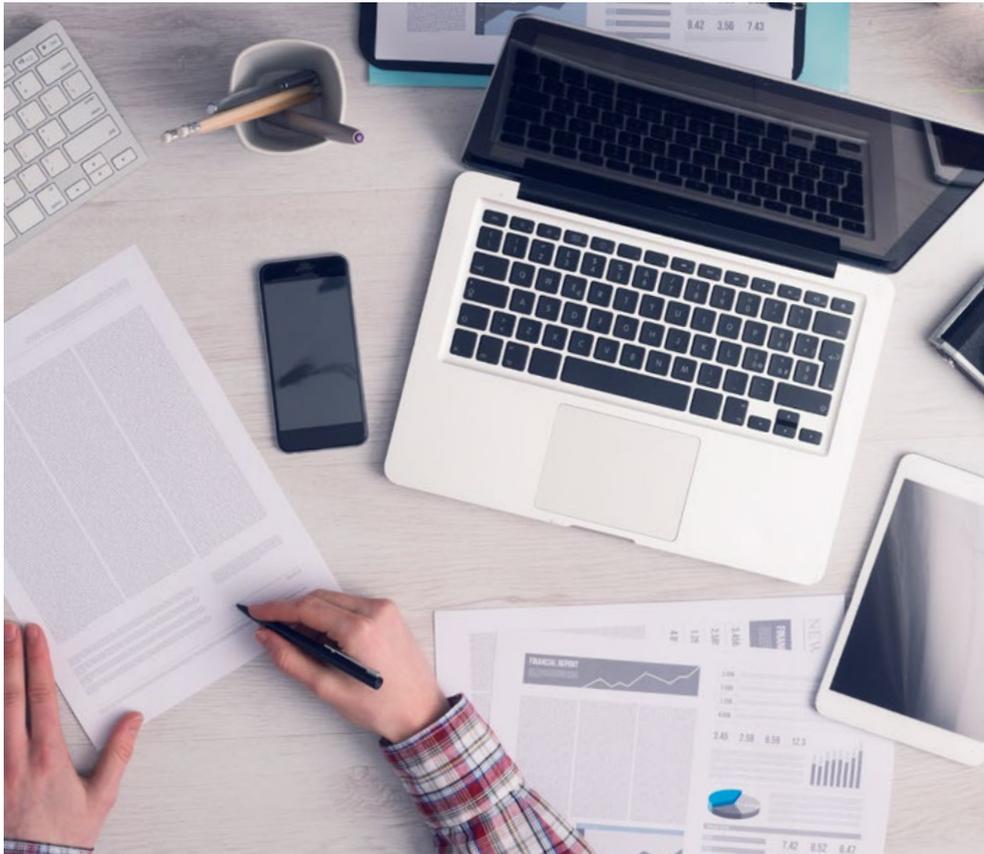
Our program offers you a revolutionary approach to developing your skills and knowledge. Our goal is to strengthen your skills in a changing, competitive, and highly demanding environment.

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*With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world”*



*Our University is the first in the world to combine Harvard Business School case studies with a 100%-online learning system based on repetition.*



A learning method that is different and innovative.

This Sports Science program at TECH Technological University is an intensive program that prepares you to face all the challenges in this field, both nationally and internationally. We are committed to promoting your personal and professional growth, the best way to strive for success, that is why at TECH you will use Harvard case studies, with which we have a strategic agreement that allows us to offer you material from the best university in the world.

**“** *We are the only online university that offers Harvard materials as teaching materials on its courses”*

The case method is the most widely used learning system by the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

In a given situation, what would you do? This is the question that you are presented with in the case method, an action-oriented learning method. Throughout the course, you will be presented with multiple real cases. You will have to combine all your knowledge, and research, argue, and defend your ideas and decisions.

*The student will learn, through collaborative activities and real cases, how to solve complex situations in real business environments.*

## Re-Learning Methodology

Our University is the first in the world to combine Harvard University case studies with a 100%-online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance Harvard case studies with the best 100% online teaching method: Re-learning.

*In 2019 we obtained the best learning results of all Spanish-language online universities in the world.*

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Re-learning.

Our University is the only one in Spanish-speaking countries licensed to incorporate this successful method. In 2019 we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best Spanish online university indicators.



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

With this methodology we have trained more than 650,000 university graduates with unprecedented success. In fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

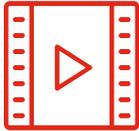
*Re-learning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

Based on the latest evidence in neuroscience, not only do we know how to organize information, ideas, images, memories, but we also know that the place and context where we have learned something is crucial for us to be able to remember it and store it in the hippocampus, and retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.



In this program you will have access to the best educational material, prepared with you in mind:



### 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.



### 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 our future difficult decisions.



### Practising Skills and Abilities

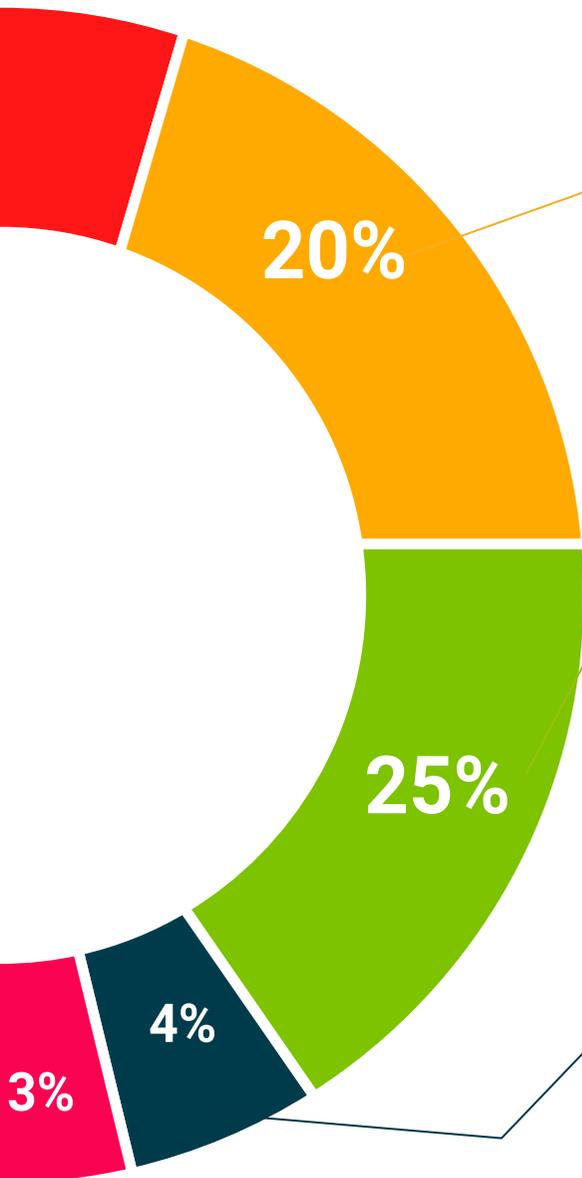
You will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization we live in.



### Additional Reading

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





#### Case Studies

You will complete a selection of the best case studies in the field used at Harvard. Cases that are presented, analyzed, and supervised by the best senior management specialists in Latin America.



#### 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 unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### Testing & Re-testing

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



# 06

# Certificate

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.



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*Add to your CV a degree in Speed Training from Theory to Practice in a highly competitive professional”.*

This **Postgraduate Certificate in Speed Training from Theory to Practice** contains the most complete and up-to-date scientific program on the market.

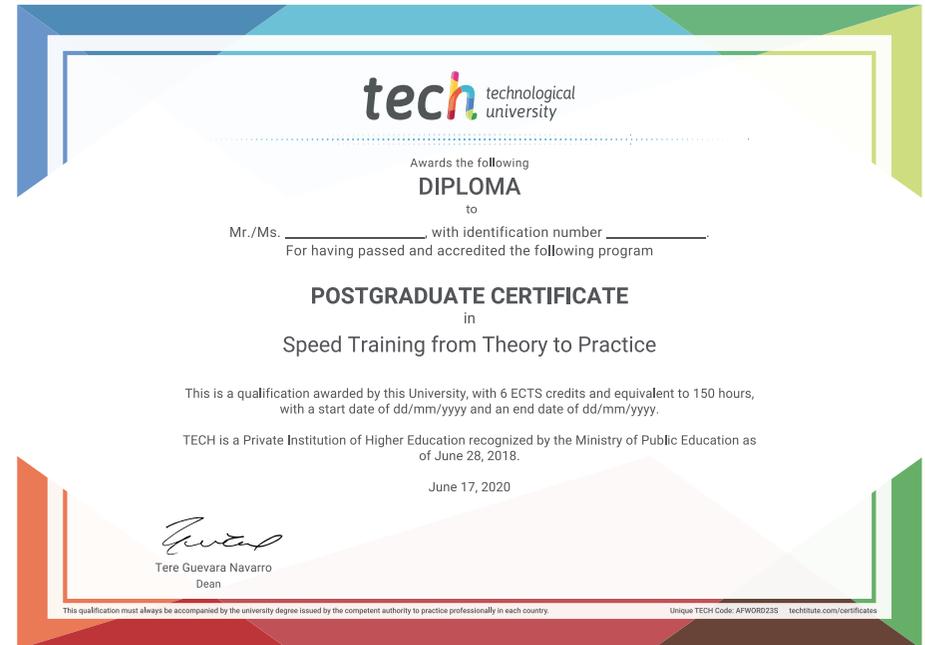
After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH - Technological University via tracked delivery**.

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

Title: **Postgraduate Certificate in Speed Training from Theory to Practice**

Official Number of Hours: **150**

Endorsed by the NBA



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

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service  
knowledge present  
development  
virtual classroom



## Postgraduate Certificate Speed Training from Theory to Practice

- » Modality: online
- » Duration: 2 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
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**tech** technological  
university