

Postgraduate Certificate

Strength Training under the Paradigm of Complex Dynamic Systems

Endorsed by the NBA



tech technological
university



Postgraduate Certificate Strength Training Under the Paradigm of Complex Dynamic Systems

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/sports-science/postgraduate-certificate/strength-training-under-paradigm-complex-dynamic-systems

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Methodology

p. 20

06

Certificate

p. 28

01

Introduction

The evolution of sports training is determined by a constant advance in science, methodologies and techniques, but also by the gradual incorporation of both individual and collective interactions.

In this module we will analyze the fundamental components of complex dynamic systems in sports training, delving not only into each one of them, but also into each interaction and how they constantly modify our environment.





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This 100% online Postgraduate Certificate will allow you to balance your studies with your professional work while increasing your knowledge in this field”

The general theories of training have changed as the specific demands of each sport have become more pronounced; this specialization leads systems to perform different types of analysis that evaluate both the physical condition of athletes and the components that modify both decisional patterns and individual perception.

These patterns are fundamental when it comes to identifying sporting success, since human beings are no strangers to the context, which can modify decisions on the playing field at every moment.

Focusing on training as a unilateral path between action and response can be considered a mistake, since isolating the components to improve them individually may not end in the fulfillment of The objectives.

Strength training is no stranger to this reality, since over the decades the application of generic strength programs in situational athletes became popular, without taking into account the specific needs of this capacity in the sport in question.

This Postgraduate Certificate addresses the vital importance of strength in human performance in all its possible expressions with a unique level of theoretical and practical depth different from what has been seen so far.

The teaching team of this Postgraduate Certificate in Strength Training under the Paradigm of Complex Dynamic Systems has made a careful selection of each of the topics of this program to offer the student a study opportunity as complete as possible and always linked to the present time.

As such, TECH Technological University has set out to create contents of the highest teaching and educational quality that will turn students into successful professionals, following the highest quality standards in teaching at an international level. Therefore, this Postgraduate Certificate offers you a wide range of content that will help you to reach the elite of physical training. 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 Strength Training under the Paradigm of Complex Dynamic Systems** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of numerous case studies presented by specialists in personal training
- ♦ The graphic, schematic and practical contents of the course are designed to provide all the essential information required for professional practice
- ♦ 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 this
Postgraduate Certificate of high
scientific rigor and improve your
skills in strength training for 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 world's largest online university: TECH”

The teaching staff includes professionals from the field of sports science, who bring their experience to this specialization 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 education 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 during the course. For this, the professional will be assisted by an innovative interactive video system developed by recognized experts in Strength Training under the Complex Dynamic Systems Paradigm and with great experience.

Increase your knowledge in Strength Training under the Paradigm of Complex Dynamic Systems with this high-level specialization.

Specialize and stand out in a sector with high demand for professionals.



02 Objectives

The main objective of this program is the development of theoretical and practical learning, so that the sports science professional can master in a practical and rigorous way the Strength Training under the Paradigm of Complex Dynamic Systems.



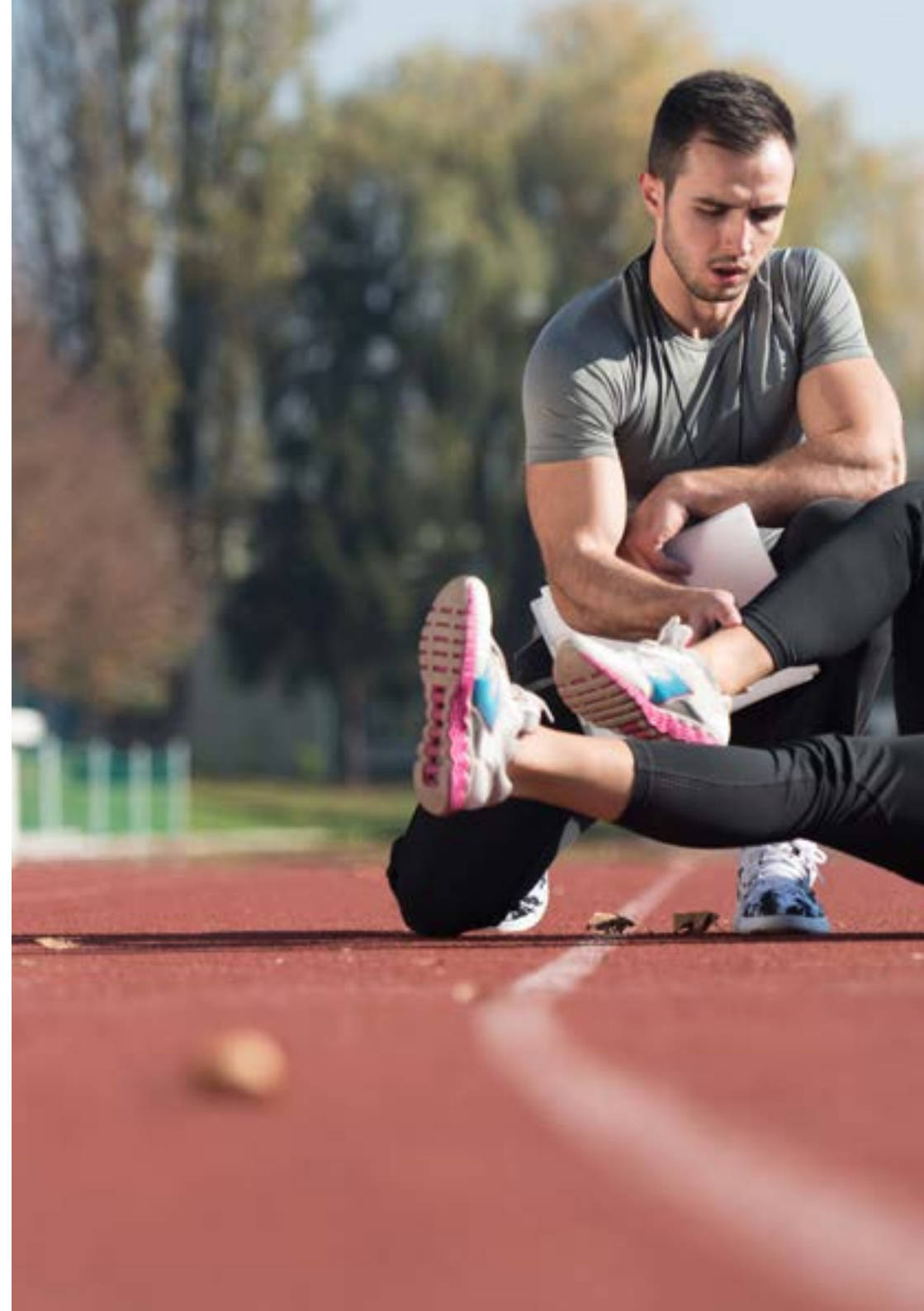
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Our goal is to achieve academic excellence and help you achieve professional success. Don't hesitate any longer and join us”



General Objectives

- ♦ Delve into the knowledge based on the most current scientific evidence with full applicability in the practical field regarding Strength training
- ♦ Master all the most advanced methods of strength training
- ♦ Apply with certainty the most current educational methods to improve sports performance regarding strength
- ♦ Effectively master strength training for performance enhancement in time and mark sports as well as situational sports
- ♦ Master the principles governing exercise physiology and biochemistry
- ♦ Delve into the principles governing the theory of complex dynamic systems as they relate to strength training
- ♦ Successfully integrate strength training for the improvement of motor skills immersed in sport
- ♦ Successfully master all the knowledge acquired in the different modules in real practice





Specific Objectives

- ♦ Master specific knowledge about the theory of systems in sports training
- ♦ Analyze the different components that are interrelated in strength training and their application in situational sports
- ♦ Guide strength training methodologies towards a perspective that addresses the specific demands of sport
- ♦ Develop a critical view of the reality of strength training for athletic and non-athletic populations



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

03

Course Management

The teaching staff, experts in Personal Training, enjoys considerable prestige in the profession and are professionals with years of teaching experience who have come together to help Students to give a boost to their career. To this end, they have developed this Postgraduate Certificate with recent updates on the subject 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”*

Management



Mr. Rubina, Dardo

- CEO of Test and Training
- Physical Trainer at Moratalaz Sports School
- Teacher of Physical Education in Football and Anatomy. CENAFE Schools Carlet
- Coordinator of Physical Preparation in Field Hockey. Club Gimnasia y Esgrima de Buenos Aires
- Doctorate in High Performance Sports
- Postgraduate Certificate in Advanced Research Studies (DEA), University of Castilla la Mancha.
- Master's Degree in High Performance Sports by the Autonomous University of Madrid
- Postgraduate in Physical Activity in Populations with Pathologies by the University of Barcelona
- Competitive Bodybuilding Technician. Extremadura Federation of Bodybuilding and Fitness
- Expert in Sports Scouting and Quantification of Training Load (specialization in Soccer) Sports Sciences. University of Melilla
- Expert in Advanced Weight Training by IFBB
- Expert in Advanced Nutrition by IFBB
- Specialist in Physiological Assessment and Interpretation of Physical Fitness by Bio
- Certification in Technologies for Weight Control and Physical Performance. Arizona State University



Professors

Mr. Rossanigo, Horacio

- ◆ Strength and Conditioning Coach at FC Barcelona
- ◆ Sports Director of Activarte Sport Barcelona
- ◆ Co-founder of Build Academy
- ◆ Physical trainer at Acumen Sports
- ◆ Physical Education teacher at Washington School
- ◆ Rugby Coach at Uncas Rugby Club
- ◆ Physical Education Teacher at the Instituto Superior Tandil
- ◆ Bachelor's Degree in Physical Education and Physiology of Physical Labor
- ◆ Master's Degree in Physical Preparation in Team Sports at INEF Barcelona

04

Structure and Content

The structure of the syllabus has been designed by a team of professionals with knowledge of the implications of training in daily practice, who are aware of the relevance of the up-to-date quality education in the field of personal training, and are committed to quality teaching using new educational technologies.



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We have the most complete and up-to-date educational program on the market. We want to provide you with the best specialization"

Module 1. Strength Training under the Paradigm of Complex Dynamic Systems

- 1.1. Introduction to Complex Dynamical Systems
 - 1.1.1. Models Applied to Physical Preparation
 - 1.1.2. The Determination of Positive and Negative Interactions
 - 1.1.3. Uncertainty in Complex Dynamical Systems
- 1.2. Motor Control and its Role in Performance
 - 1.2.1. Introduction to Motor Control Theories
 - 1.2.2. Movement and Function
 - 1.2.3. Motor Learning
 - 1.2.4. Motor Control Applied to Systems Theory
- 1.3. Communication Processes in the Theory of Systems
 - 1.3.1. From Message to Movement
 - 1.3.1.1. The Efficient Communication Process
 - 1.3.1.2. The Stages of Learning
 - 1.3.1.3. The Role of Communication and Sport Development in Early Ages
 - 1.3.2. VAKT Principle
 - 1.3.3. Performance Knowledge vs. Outcome Knowledge
 - 1.3.4. Verbal feedback in System Interactions
- 1.4. Strength as an Essential Condition
 - 1.4.1. Strength Training in Team Sports
 - 1.4.2. Manifestations of Strength Within the System
 - 1.4.3. The Strength-Speed Continuum. Systemic Review
- 1.5. Complex Dynamical Systems and Training Methods
 - 1.5.1. Periodization. Historical Review
 - 1.5.1.1. Traditional Periodization
 - 1.5.1.2. Contemporary Periodization
 - 1.5.2. Analysis of Periodization Models in Training Systems
 - 1.5.3. Evolution of Strength Training Methods
- 1.6. Strength and Motor Divergence
 - 1.6.1. Developing Strength at Early Ages
 - 1.6.2. The Manifestations of Strength in Child and Adolescent Ages
 - 1.6.3. Efficient Programming at Youth Ages





- 1.7. The Role of Decision-Making in Complex Dynamical Systems
 - 1.7.1. The Decision-Making Process
 - 1.7.2. Decisional Timing
 - 1.7.3. The Development of Decision Making
 - 1.7.4. Programming Training Based on Decision Making
- 1.8. Perceptual Abilities in Sports
 - 1.8.1. Visual Abilities
 - 1.8.1.1. Visual Recognition
 - 1.8.1.2. Central and Peripheral Vision
 - 1.8.2. Motor Experience
 - 1.8.3. Attentional Focus
 - 1.8.4. The Tactical Component
- 1.9. Systemic Vision of Programming
 - 1.9.1. The Influence of Identity on Programming
 - 1.9.2. The System as a Path to Long-Term Development
 - 1.9.3. Long-Term Development Program
- 1.10. Global Programming: from System to Need
 - 1.10.1. Program Design
 - 1.10.2. Practical System Assessment Workshop



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

05 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"

Case Study to contextualize all content

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

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At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world"



You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.



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

A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career*”

The case method is the most widely used learning system in 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.

What should a professional do in a given situation? This is the question we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

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.

In 2019, we obtained the best learning results of all 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 Relearning.

Our university is the only one in the world authorized to employ 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 online university indicators.



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.

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.

Relearning 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 for success.

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to 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.



This program offers the best educational material, prepared with professionals 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.

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.



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.



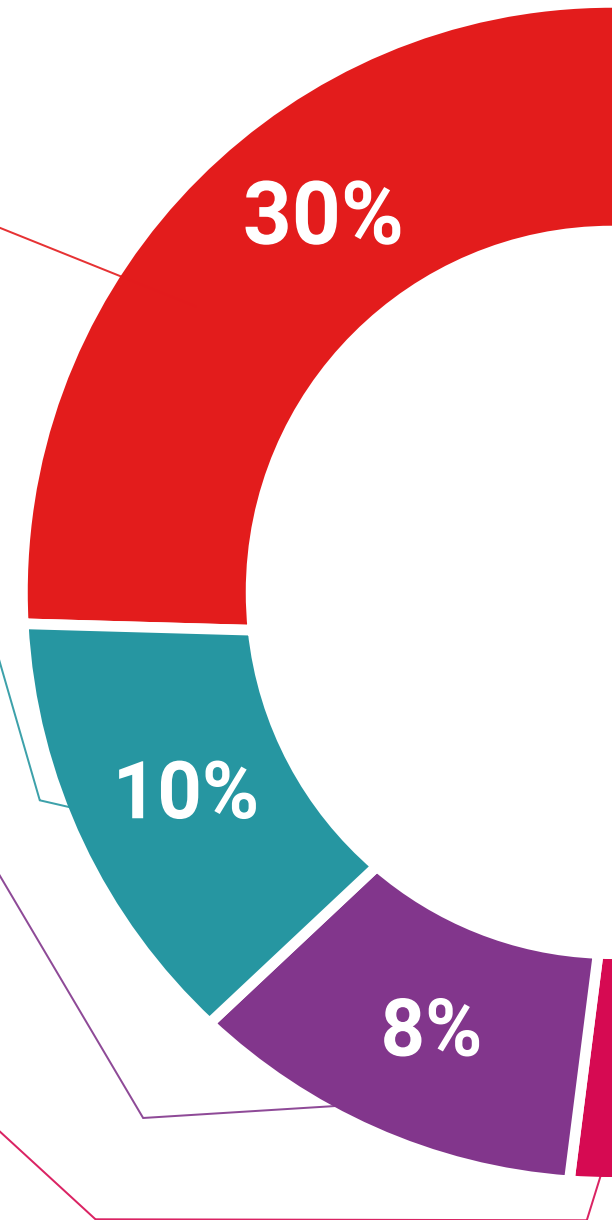
Practising Skills and Abilities

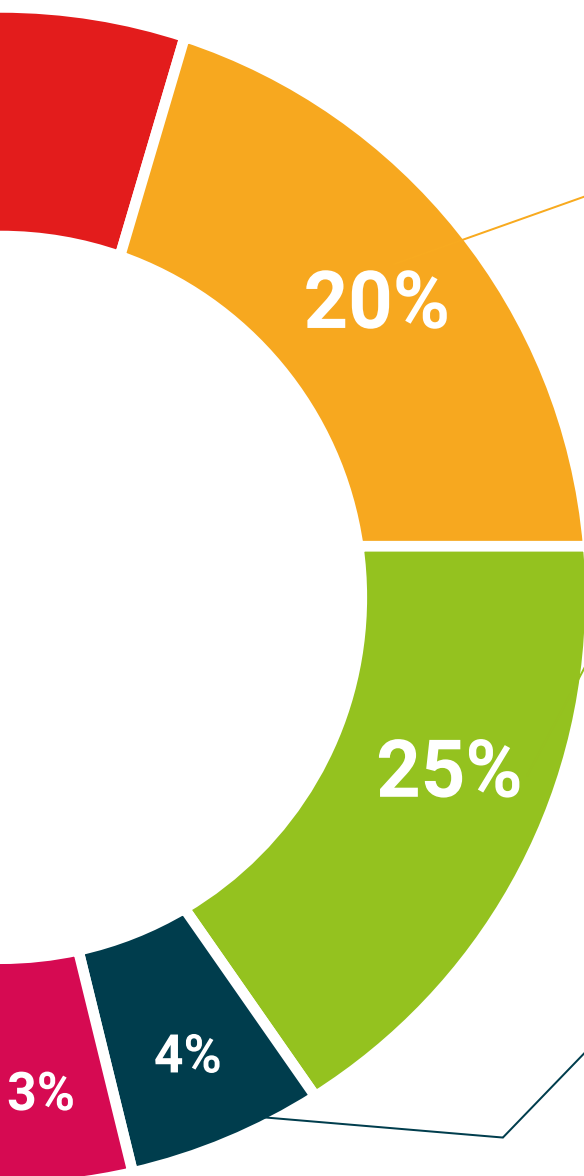
They will carry out activities to develop specific competencies and skills in each thematic area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



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.





Case Studies

Students will complete a selection of the best case studies chosen specifically for this situation. Cases that are presented, analyzed, and supervised by the best specialists in the world.



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".



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.



06 Certificate

This Postgraduate Certificate in Strength Training under the Paradigm of Complex Dynamic Systems guarantees, in addition to the most rigorous and up-to-date education, the access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Strength Training under the Paradigm of Complex Dynamic Systems** 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 Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Strength Training under the Paradigm of Complex Dynamic Systems**

Modality: **online**

Duration: **6 weeks**

Endorsed by the NBA





Postgraduate Certificate
Strength Training Under
the Paradigm of Complex
Dynamic Systems

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Schedule: at your own pace
- » Exams: online

Postgraduate Certificate

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