

# Postgraduate Certificate Fitness Instructor in Strength Training

Endorsed by the NBA



**tech** technological  
university





## Postgraduate Certificate Fitness Instructor in Strength Training

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/pk/sports-science/postgraduate-certificate/fitness-instructor-strength-trainig](http://www.techtitute.com/pk/sports-science/postgraduate-certificate/fitness-instructor-strength-trainig)

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# 01

# Introduction

For years, scientific evidence has been demonstrating the benefits of strength training for people of all ages. Specifically, this type of activity improves bone density while protecting the joints. It also prevents injuries, as muscles, tendons and ligaments are at less risk of damage if they are able to withstand more intensity. Being aware of this great scientific evidence, TECH professionals have designed this academic program that will seek to provide Sports Science professionals with the knowledge that will allow them to apply the most efficient methods when it comes to developing strength in their clients, so that the student feels that they have the best tools to successfully face this type of programs.





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*With this academic program you will be able to respond to the growing demand from gym users for a training plan that enhances their strength and improves their physical condition"*

In the last decade, Strength (as a physical capacity) acquired a high level of importance, so much so that in some areas it is referred to as "the mother quality" If the existing cases are analyzed, it can be noted that people almost always have a "strength" problem, this translates into, for example: they apply little strength, they apply strength slowly, they do not know how to apply strength.

In what gestures are the above examples reflected? Coincidentally in gestures that are common in 99% of sports: running, *sprinting*, accelerating, decelerating, braking, changing direction, jumping, landing after a jump, etc., as well as walking, climbing a ladder or going down it, sitting and standing up are activities of daily life where strength is the great protagonist of successfully carrying them out without compensations.

It is more than justified at a practical level and supported by a very powerful scientific evidence the clear determinant role of strength in high-performance sports .

When it comes to injury prevention and rehabilitation, strength also plays a key role. Thus, problems of lack of intra and intermuscular coordination, asymmetries between limbs, incorrect transmission of forces and many others, result in the ineffectiveness of generating tension, that is, of generating force in optimal conditions by the muscle, which causes an injury in most cases.

For this reason, in this course we will first develop a complete theoretical basis on which to base what has been explained in previous paragraphs, as well as a correct terminological definition. Then, the most efficient methods to develop strength-power will be addressed, so that the student will feel equipped with the best tools to face a successful strength program.

For this purpose, the student will be provided with the latest scientific and technological advances in load control, thus providing the most complete theoretical and practical information on the current market.

This **Postgraduate Certificate in Fitness Instructor in Strength Training** contains the most complete and up-to-date program on the market. The most important features include:

- ♦ Practical cases presented by experts in Physical Activity and Sport
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ♦ Practical exercises where self-assessment can be used 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



*If what you want is to increase your studies, without giving up the rest of your daily activities, then this Postgraduate Certificate is for you"*



*A Postgraduate Certificate course based on the latest scientific evidence and academic material"*

The program includes, in its teaching staff, professionals from the sector who bring their work experience to this refresher program, as well as renowned specialists from reference 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 training 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 throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Turn your professional career around with this Postgraduate Certificate of excellent curricular value.*

*Differentiate your professional profile from others in the sector thanks to this complete academic program.*



# 02 Objectives

The main objective of this Postgraduate Certificate in Fitness Instructor in Strength Training at TECH is to provide students with in-depth knowledge that will allow them to understand the importance of strength training as a means to develop an excellent physical condition and reduce possible injuries. This objective is materialized by providing the student with a high-quality academic program, based on the latest scientific evidence and with the most complete contents in the sector. In this way, the professional will be able to revalue their profile and position themselves at the forefront of a booming field.







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*If your goal is to grow within a booming industry, then this academic program is for you"*



## General Objectives

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- ♦ Acquire knowledge based on the most current scientific evidence with full applicability in the practical field
- ♦ Master all the most advanced methods of sports performance evaluation
- ♦ Master and apply with certainty the most current training methods to improve sports performance and quality of life, as well as to improve the most common pathologies
- ♦ Master the principles governing exercise physiology, as well as biochemistry
- ♦ Successfully integrate all the knowledge acquired in the different modules in real practice





## Specific Objectives

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- ◆ Know and correctly interpret all theoretical aspects that define force and its components
- ◆ Know and master the most effective strength training methods
- ◆ Develop sufficient criteria to be able to support the choice of different training methods in their practical application
- ◆ Be able to objectify the strength needs of each client/athlete whatever their needs may be
- ◆ Master the theoretical and practical aspects that define power development
- ◆ Correctly apply strength training in the prevention and rehabilitation of injuries



*Take your career to the next level and start achieving your professional goals. The limit to your knowledge is imposed by you"*

# 03

## Course Management

One of the aspects that make this program unique from others in the sector is the teaching staff. Thus, the professional who decides to take this program with TECH will learn with a faculty of excellence, with years of experience in the sector and with the greatest desire to graduate the best in this field. For this reason, this team has also designed the contents of the program, ensuring the student a complete learning experience, based on the highest scientific rigor and the latest developments in the sector.



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*TECH provides students with the most complete and reputable teaching staff in the sector”*

## Management



### Mr. Rubina, Dardo

- ◆ CEO of Test and Training
- ◆ EDM Physical Training Coordinator
- ◆ Physical trainer of the EDM First Team
- ◆ Master's Degree in High Performance in Sports(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 in High Performance Sports(ARD)



# 04

## Structure and Content

In order for the professional to acquire high-level knowledge, the structure and contents of this Postgraduate Certificate have been conceived, designed and created by a group of professionals of reference in the physical activity sector. This team, aware of the relevance and timeliness of education in this field, has made a major effort to generate the most complete and up-to-date syllabus on the market. A compendium of contents that is complemented by the work of other experts, who provide the syllabus with a highly didactic multimedia format that provides the student with an immersive, complete and contextual learning experience.







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*Quality content that prepares professionals to face their profession with greater guarantees of success”*

## Module 1. Strength Training

- 1.1. Strength
  - 1.1.1. Strength from Mechanics
  - 1.1.2. Strength from Physiology
  - 1.1.3. Applied Strength
  - 1.1.4. Time-Strength Curve
    - 1.1.4.1. Interpretation
  - 1.1.5. Maximum Strength Training
  - 1.1.6. RFD
  - 1.1.7. Useful Strength
  - 1.1.8. Strength- Speed-Power Curves
    - 1.1.8.1. Interpretation
  - 1.1.9. Strength Deficit
- 1.2. Training Load
  - 1.2.1. Strength Training Load
  - 1.2.2. The Load
  - 1.2.3. The Load: Volume
  - 1.2.4. The Load: Intensity
  - 1.2.5. The Load: Density
  - 1.2.6. Nature of the Effort
- 1.3. Strength Training in the Prevention and Rehabilitation of Injuries
  - 1.3.1. Prevention and Rehabilitation of Injuries
    - 1.3.1.1. Terminology.
    - 1.3.1.2. Concepts
  - 1.3.2. Strength Training and Injury Prevention and Rehabilitation Based on Scientific Evidence
  - 1.3.3. Methodological Process of Strength Training in Injury Prevention and Functional Recovery
    - 1.3.3.1. The Method
    - 1.3.3.2. Applying the Method in Practice
  - 1.3.4. Role of Core Stability (CORE) in Injury Prevention
    - 1.3.4.1. CORE
    - 1.3.4.2. CORE Training
- 1.4. Plyometric Method
  - 1.4.1. Physiological Mechanisms
  - 1.4.2. Muscle Actions in Plyometric Exercises
  - 1.4.3. The Stretch- Shortening Cycle (SSC)
    - 1.4.3.1. Use of Energy or Elastic Capacity
    - 1.4.3.2. Reflex Involvement Series and Parallel Elastic Energy Accumulation
  - 1.4.4. SSC Classification Scheme
    - 1.4.4.1. Short SSC
    - 1.4.4.2. Long SSC
  - 1.4.5. Properties of the Muscle and Tendon
  - 1.4.6. Central Nervous System
    - 1.4.6.1. Recruitment
    - 1.4.6.2. Frequency (F)
    - 1.4.6.3. Synchronization
- 1.5. Power Training
  - 1.5.1. Power
    - 1.5.1.1. Power
    - 1.5.1.2. Importance of Power in the Context of Sports Performance
    - 1.5.1.3. Clarification of Power-Related Terminology
  - 1.5.2. Factors Contributing to Peak Power Development
  - 1.5.3. Structural Aspects Conditioning Power Production
    - 1.5.3.1. Muscle Hypertrophy
    - 1.5.3.2. Muscle Structure
    - 1.5.3.3. Ratio of Fast and Slow Fibers in a Cross Section
    - 1.5.3.4. Muscle Length and its Effect on Muscle Contraction
    - 1.5.3.5. Quantity and Characteristics of Elastic Components



- 1.5.4. Neural Aspects Conditioning Power Production
  - 1.5.4.1. Action Potential
  - 1.5.4.2. Speed of Motor Unit Recruitment
  - 1.5.4.3. Muscle Coordination
  - 1.5.4.4. Intermuscular Coordination
  - 1.5.4.5. Previous Muscle Status (PAP)
  - 1.5.4.6. Neuromuscular Reflex Mechanisms and Their Incidence
- 1.5.5. Theoretical Aspects for Understanding the Strength-Time Curve
  - 1.5.5.1. Strength Impulse
  - 1.5.5.2. Phases of the Strength-Time Curve
  - 1.5.5.3. Phases of Acceleration in the Strength-Time Curve
  - 1.5.5.4. Maximum Acceleration Area of the Strength-Time Curve
  - 1.5.5.5. Deceleration Phase of the Strength-Time Curve
- 1.5.6. Theoretical Aspects for Understanding Power Curves
  - 1.5.6.1. Energy-Time Curve
  - 1.5.6.2. Energy-Displacement Curve
  - 1.5.6.3. Optimal Workload for Maximum Power Development
- 1.6. Vector Strength Training
  - 1.6.1. The Force Vector
    - 1.6.1.1. Axial Vector
    - 1.6.1.2. Horizontal Vector
    - 1.6.1.3. Rotational Vector
  - 1.6.2. Benefits of Using this Terminology
  - 1.6.3. Basic Vectors in Training
    - 1.6.3.1. The Main Sporting Gestures
    - 1.6.3.2. The Main Overload Exercises
    - 1.6.3.3. The Main Training Exercises

- 1.7. Main Methods for Strength Training
  - 1.7.1. Own Body Weight
  - 1.7.2. Free Exercises
  - 1.7.3. PAP
    - 1.7.3.1. Definition
    - 1.7.3.2. Application of PAP Prior to Energy-Related Sports Disciplines
  - 1.7.4. Exercises with Machines
  - 1.7.5. Complex Training
  - 1.7.6. Exercises and Their Transfer
  - 1.7.7. Contrasts
  - 1.7.8. Cluster Training
- 1.8. VBT
  - 1.8.1. Applying VBT
    - 1.8.1.1. Degree of Stability of Execution Speed with Each Percentage of 1MR
  - 1.8.2. Scheduled Load and Actual Load
    - 1.8.2.1. Variables Involved in the Difference Between Programmed Load and Actual Training Load
  - 1.8.3. VBT as a Solution to the Problem of Using 1MR and nMR to Program Loads
  - 1.8.4. VBT and Degree of Fatigue
    - 1.8.4.1. Connection to Lactate
    - 1.8.4.2. Connection to Ammonium
  - 1.8.5. VBT in Relation to the Loss of Speed and Percentage of Repetitions Performed
    - 1.8.5.1. Define the Different Degrees of Effort in the Same Series
    - 1.8.5.2. Different Adaptations According to the Degree of Speed Loss in the Series
  - 1.8.6. Methodological Proposals According to Different Authors
- 1.9. Strength in Connection to Hypertrophy
  - 1.9.1. Hypertrophy-Inducing Mechanism: Mechanical Stress
  - 1.9.2. Hypertrophy-Inducing Mechanism: Metabolic Stress
  - 1.9.3. Hypertrophy-Inducing Mechanism: Muscle Damage
  - 1.9.4. Hypertrophy Programming Variables
    - 1.9.4.1. Frequency (F)
    - 1.9.4.2. Volume
    - 1.9.4.3. Intensity
    - 1.9.4.4. Cadence
    - 1.9.4.5. Series and Repetitions
    - 1.9.4.6. Density
    - 1.9.4.7. Order in the Execution of Exercises
  - 1.9.5. Training Variables and Their Different Structural Effects
    - 1.9.5.1. Effect on Different Types of Fiber
    - 1.9.5.2. Effects on the Tendon
    - 1.9.5.3. Fascicle Length
    - 1.9.5.4. Peneation Angle
- 1.10. Eccentric Strength Training
  - 1.10.1. Eccentric Training
    - 1.10.1.1. Eccentric Training
    - 1.10.1.2. Different Types of Eccentric Training
  - 1.10.2. Eccentric Training and Performance
  - 1.10.3. Eccentric Training in the Prevention and Rehabilitation of Injuries
  - 1.10.4. Technology Applied to Eccentric Training
    - 1.10.4.1. Conical Pulleys
    - 1.10.4.2. Isoinertial Devices



*You will study a unique academic program that will allow you to experience your profession from a different perspective"*



# 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.





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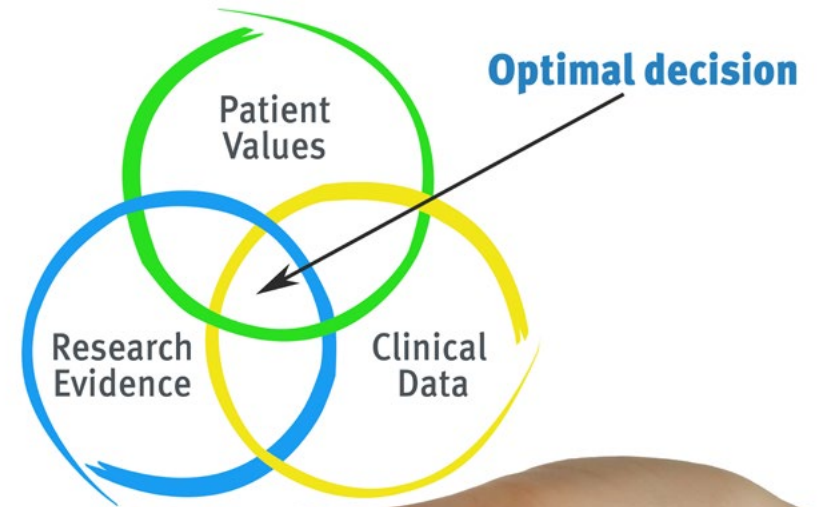
*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

### 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.



*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

The Postgraduate Certificate in Fitness Instructor in Strength Training 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 Fitness Instructor in Strength Training** 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 Fitness Instructor in Strength Training**

Official N° of Hours: **150 hours**.

Endorsed by the NBA



\*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.



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



**Postgraduate Certificate**  
Fitness Instructor in  
Strength Training

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Postgraduate Certificate

## Fitness Instructor in Strength Training

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