

Postgraduate Certificate Fitness Instructor in Strength Training

Endorsed by the NBA



tech global
university





Postgraduate Certificate

Fitness Instructor in Strength Training

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

Website: www.techtute.com/us/sports-science/postgraduate-certificate/fitness-instructor-strength-training

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 16

05

Study Methodology

p. 22

06

Certificate

p. 32

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.





“

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.



“

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



General Objectives

- 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

- ♦ 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.



“

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.



“

*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 Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



“

TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”

The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes
(which you might not be able to attend)”*



The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

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.



A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"

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

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that assess real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
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.

The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.

You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.



As such, the best educational materials, thoroughly prepared, will be available in this program:



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.



Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



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.

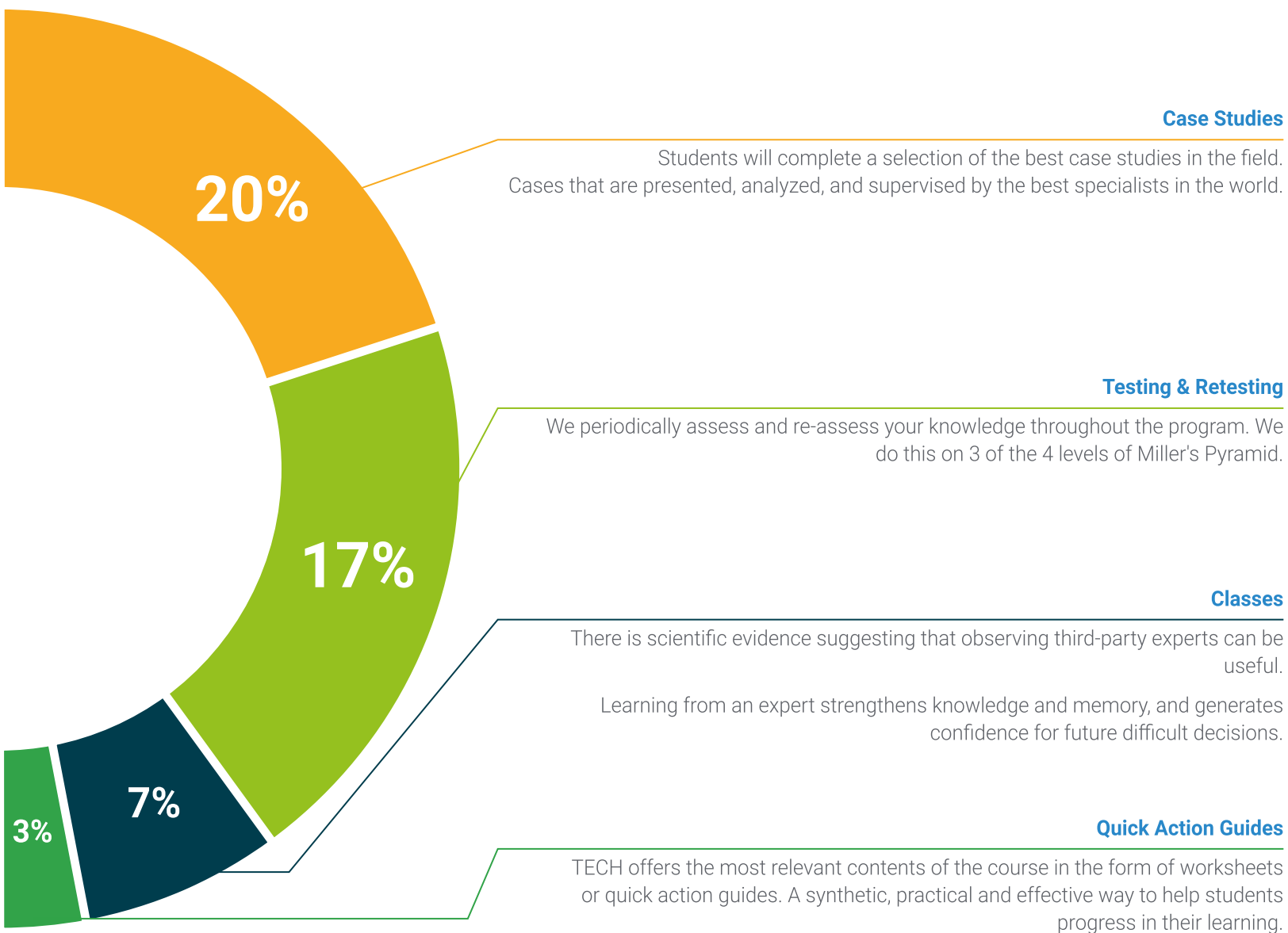
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

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





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 diploma for the Postgraduate Certificate issued by TECH Global University.



“

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

This private qualification will allow you to obtain a diploma for the **Postgraduate Certificate in Fitness Instructor in Strength Training** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University, is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Fitness Instructor in Strength Training**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**

Endorsed by the **NBA**



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



Postgraduate Certificate

Fitness Instructor in
Strength Training

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

Postgraduate Certificate

Fitness Instructor in Strength Training

Endorsed by the NBA



tech global
university