

# Postgraduate Diploma

## Functional and Biomechanical Assessment of the Locomotor System

Endorsed by the NBA



**tech** global  
university



## Postgraduate Diploma Functional and Biomechanical Assessment of the Locomotor System

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Accreditation: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-functional-biomechanical-assessment-locomotor-system](http://www.techtute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-functional-biomechanical-assessment-locomotor-system)

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# 01

# Introduction

Sports rehabilitation requires an adequate management of the injured subject to avoid possible errors in the prescription of therapeutic exercise. Therefore, the superior knowledge of doctors in fitness, functional and biomechanical assessment is very useful to achieve a correct diagnosis and indicate the most appropriate therapy for each patient. If you want to specialize in this field, do not hesitate and train with us.







“

*Specialize with us in Medical Assessment of Sports Injuries and apply the most appropriate treatments for each of your patients. You will notice a great improvement in their recovery in a short time”*

Doctors specialized in sports rehabilitation must have a broad knowledge of the main injuries that may be faced by sports professionals, as well as of the anatomical structure, in order to be able to perform fitness, functional and biomechanical assessments that allow the patient's rapid recovery after the application of the appropriate therapies.

Therefore, distinguishing the different parts of the anatomical structure of the body becomes essential for the physician specialized in functional rehabilitation and recovery, because they have to know the tissue that is injured or dysfunctional. In this way, the anatomical position constitutes a first step when starting to work on the subject's readaptation and rehabilitation. The adoption of a standard anatomical position provides a better description of the different tissues, organs, systems and structures of the human body for their evaluation, assessment and study.

This Postgraduate Diploma will cover the most frequent pathologies of the locomotor system, among which are: cervical pain, back pain and lower back pain, widely suffered by most of the population once or several times throughout their lives, scoliosis, herniated discs, tendinitis in the shoulder and elbow, the latter called epicondylitis or "tennis elbow", osteoarthritis of the hip and knee, the well-known ankle sprains and problems such as plantar fasciitis and *hallux valgus*. Finally, assessment and evaluation in the process of prevention, readaptation and functional recovery is key, due to the number of variables involved in the process.

Professionals will also be offered a unique set of Masterclasses, led by two leading international experts in Sports Injury Rehabilitation and Rehabilitation. Thanks to the invaluable guidance of these specialists with extensive experience in the world of elite sports and the NBA, doctors will be kept up to date on the latest advances in the prevention and treatment of these injuries.

This **Postgraduate Diploma in Functional and Biomechanical Assessment of the Locomotor System** 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 sports rehabilitation
- ◆ 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 medical assessment
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Update your knowledge through exclusive Masterclasses, designed by renowned international coaches and therapists, recognized in the NBA and elite sport"*

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*This Postgraduate Diploma is the best investment you can make in selecting a refresher program for two reasons: in addition to updating your knowledge in sports rehabilitation, you will earn a qualification from the leading online university in the world: TECH”*

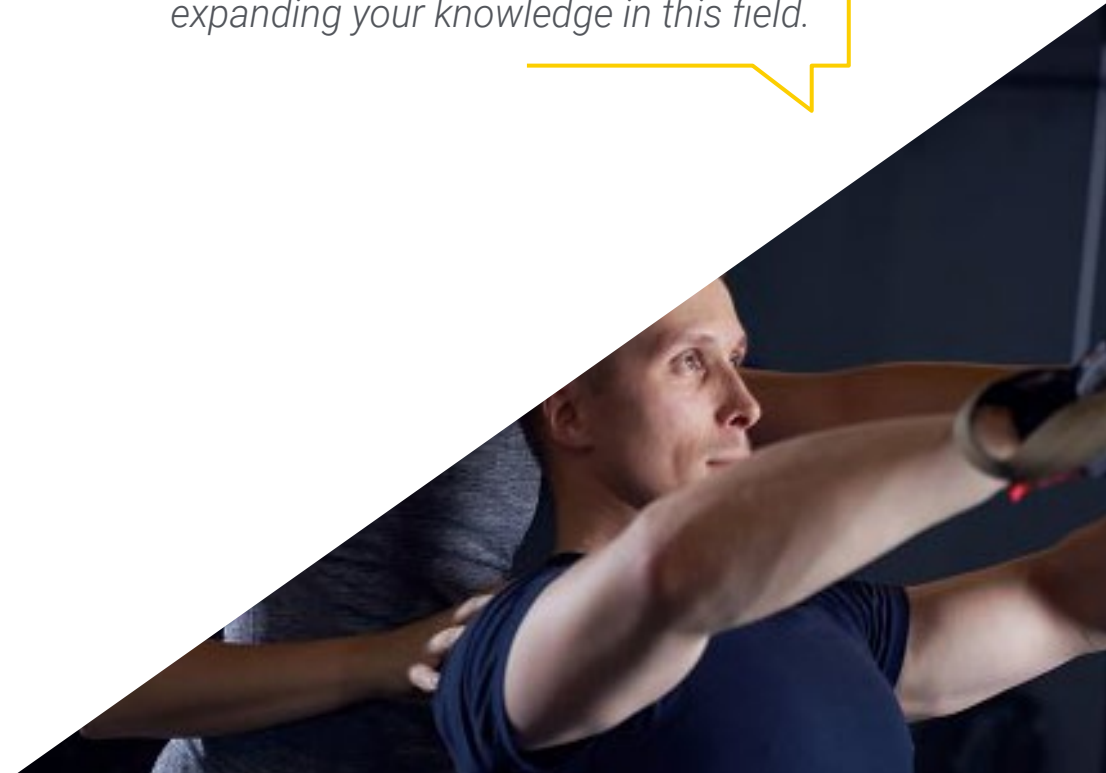
It includes, in its teaching staff, professionals belonging to the field of sports rehabilitation, who pour into this education the experience of their work, in addition to leading specialists from prestigious societies and universities.

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 learning programmed to study in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the physician must try to solve the different professional practice situations that arise throughout the course. For this, the professional will be assisted by an innovative interactive video system made by recognized experts in Functional Assessment and Biomechanics of the Locomotor System, and with great experience.

*The Postgraduate Diploma allows specialization in simulated environments that provide immersive learning programmed to prepare for real situations.*

*This 100% online Postgraduate Diploma will allow you to balance your studies with your professional work while expanding your knowledge in this field.*





# 02 Objectives

The main objective of this program is the development of theoretical and practical learning, so that the physician can master medical fitness, functional and biomechanical assessment in a practical and rigorous way.





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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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- ◆ Acquire specialized knowledge in sports rehabilitation, injury prevention and functional recovery
- ◆ Assess the athlete from the point of view of physical, functional and biomechanical condition to detect aspects that hinder recovery or favor relapses in the injury
- ◆ Design both specific readaptation and recovery work, as well as individualized integral work
- ◆ Acquire a specialization in the pathologies of the locomotor system with the highest incidence in the population as a whole
- ◆ Be able to plan prevention, readaptation and functional rehabilitation programs
- ◆ Delve in the characteristics of the different types of injuries most frequently suffered by athletes nowadays
- ◆ Assess the subject's nutritional needs and make nutritional recommendations and nutritional supplements to support the recovery process
- ◆ Evaluate and monitor the evolutionary process of recovery and/or rehabilitation of an athlete's or user's injury
- ◆ Acquire skills and abilities in readaptation, prevention and recovery of injuries
- ◆ Differentiate from an anatomical point of view the different parts and structures of the human body
- ◆ Improve the injured athlete's physical condition as part of the integral work with the objective of achieving a better and efficient recovery after the injury
- ◆ Use coaching techniques that allow to face general psychological aspects of the athlete or injured patient that favor an effective approach from the personal training work
- ◆ Understand marketing as a key tool for success in personal training in the field of rehabilitation, prevention and functional recovery







## Specific Objectives

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### Module 1. Structure of the Locomotor System

- ◆ Manage the different anatomical concepts: axes, planes and anatomical position
- ◆ Differentiate the different elements that make up the locomotor apparatus
- ◆ See the functioning processes of the integrated active and passive locomotor apparatus

### Module 2. Frequent Pathologies of the Locomotor System

- ◆ Analyze the severity of ligament diseases and their assessment for a better and more efficient rehabilitation
- ◆ Focus on the analysis of joint pathologies due to their high incidence in sports
- ◆ Examine the most common pathologies that usually occur in the spine
- ◆ Assess pain as an element to be taken into account in the diagnosis of a greater or lesser degree of injury

### Module 3. Fitness, Functional and Biomechanical Assessment

- ◆ Use biomechanics of movement as a key tool in the prevention and rehabilitation process
- ◆ Clarify the importance of nutritional, biochemical, genetic and quality of life assessment from the initial period to the end of the process
- ◆ Evaluate the different parameters related to physical fitness: strength, speed, flexibility, endurance
- ◆ Detect anomalies that hinder or prevent a correct recovery/rehabilitation process

03

# Course Management

Our teaching team, experts in sports rehabilitation, have a wide prestige in the profession and are professionals with years of teaching experience who have come together to help you give a boost to your profession. To this end, they have developed this Postgraduate Diploma 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”*

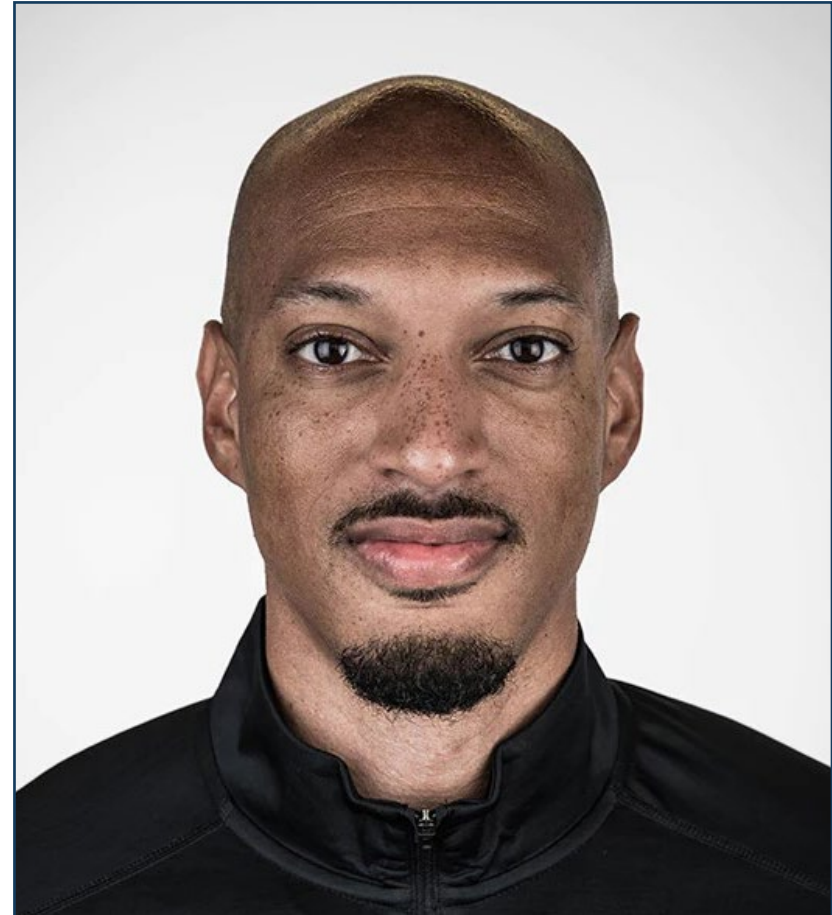
## International Guest Director

Dr. Charles Loftis is a renowned specialist who serves as a **sports performance therapist** for the **Portland Trail Blazers** in the **NBA**. His impact on the world's premier basketball league has been significant, bringing distinguished expertise in creating strength and conditioning programs.

Prior to joining the Trail Blazers, he was the head strength and conditioning coach for the Iowa Wolves, implementing and overseeing the development of a comprehensive player program. In fact, his experience in the sports performance field began with the establishment of XCEL Performance and Fitness, of which he was the founder and head coach. There, Dr. Loftis worked with a wide range of athletes to develop strength and conditioning programs, as well as working on the **prevention and rehabilitation of sports injuries**.

His academic background in the field of chemistry and biology gives him a unique perspective on the science behind sports performance and physical therapy. As such, he holds CSCS and RSCC designations from the National Strength and Conditioning Association (NSCA), which recognize his knowledge and skills in the field. He is also certified in PES (Performance Enhancement Specialist), CES (Corrective Exercise Specialist) and dry needling.

All in all, Dr. Charles Loftis is a vital member of the NBA community, working directly with both the strength and performance of elite athletes as well as the necessary prevention and rehabilitation of various sports injuries.



## Dr. Loftis, Charles

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- Physical Trainer at the Portland Trail Blazers, Portland, United States
- Head Strength and Conditioning Coach for the Iowa Wolves
- Founder and Head Coach at XCEL Performance and Fitness
- Head Performance Coach for Oklahoma Christian University men's basketball team
- Physical Therapist at Mercy
- Doctorate in Physical Therapy from Langston University
- Bachelor's Degree in Chemistry and Biology from Langston University

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

## International Guest Director

Isaiah Covington is a highly skilled performance coach, with extensive experience in treating and addressing a variety of injuries in elite athletes. In fact, his professional career has been directed towards the **NBA**, one of the most important sports leagues in the world. He is the **performance coach of the Boston Celtics**, one of the most important teams in the Eastern Conference and with the greatest projection in the United States.

His work in such a demanding league has made him specialize in maximizing the **physical** and **mental potential** of the players. Key to this has been his past experience with other teams, such as the Golden State Warriors and the Santa Cruz Warriors. This has also allowed him to work on sports injuries, focusing on the **prevention** and **rehabilitation** of the most common injuries in elite athletes.

In academia, his interests have been in the fields of **kinesiology**, **exercise science** and **high performance sport**. This has led him to excel prolifically in the NBA, working day-to-day with some of the most important basketball players and coaching staffs in the world.





## Mr. Covington, Isaiah

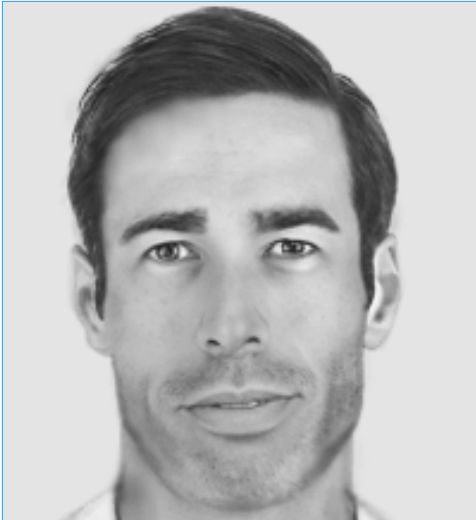
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- Performance Coach and Fitness Trainer for the Boston Celtics, Boston, USA
- Performance Coach of the Golden State Warriors
- Head Performance Coach, Santa Cruz Warriors, Santa Cruz, USA
- Performance Coach at Pacers Sports & Entertainment
- Bachelor's Degree in Kinesiology and Exercise Science from the University of Delaware
- Specialization in Training Management
- Master's Degree in Kinesiology and Exercise Science from Long Island University
- Master's Degree in Performance Sport from the Australian Catholic University



*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

## Management



### Dr. González Matarín, Pedro José

- ♦ Researcher and Chair in Health Sciences
- ♦ Technical researcher in Health Education in Murcia
- ♦ Professor and researcher at the University of Almeria
- ♦ Technician of the Active Program of the Health Department of Murcia
- ♦ High-Performance Coach
- ♦ Doctor in Health Sciences
- ♦ Degree in Physical Education
- ♦ Master's Degree in Functional Recovery in Physical Activity and Sport
- ♦ Master's Degree in Regeneration Medicine
- ♦ Master's Degree in Physical Activity and Health
- ♦ Master's Degree in Dietetics and Diet Therapy
- ♦ Member of: SEEDO and AEEM



04

# Structure and Content

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



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PERSONAL  
RAINER

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

## Module 1. Structure of the Locomotor System

- 1.1. Anatomical Position, Axes and Planes
- 1.2. Bone
- 1.3. Joints
  - 1.3.1. Etiology
  - 1.3.2. Synarthrosis
  - 1.3.3. Amphiarthrosis
  - 1.3.4. Diarthrosis
- 1.4. Cartilage
- 1.5. Tendons and Ligaments
- 1.6. Skeletal Muscle
- 1.7. Development of the Musculoskeletal System
- 1.8. Components of the Musculoskeletal System
- 1.9. Nervous Control of Skeletal Muscles
- 1.10. Muscle Contraction
  - 1.10.1. Functioning of Muscle Contraction
  - 1.10.2. Type of Muscle Contraction
  - 1.10.3. Muscle Bioenergetics



**Module 2. Frequent Pathologies of the Locomotor System**

- 2.1. Cervicalgia, Dorsalgia and Lumbago
- 2.2. Scoliosis
- 2.3. Herniated Disc
- 2.4. Shoulder Tendinitis
- 2.5. Epicondylitis
  - 2.5.1. Epidemiology
  - 2.5.2. Pathologic Anatomy
  - 2.5.3. Clinical Symptoms
  - 2.5.4. Diagnosis
  - 2.5.5. Treatment
- 2.6. Hip Osteoarthritis
- 2.7. Gonarthrosis
- 2.8. Plantar Fasciitis
  - 2.8.1. Conceptualization
  - 2.8.2. Risk Factors
  - 2.8.3. Symptoms
  - 2.8.4. Treatment
- 2.9. Hallux Valgus and Flat Feet
- 2.10. Sprained Ankle

**Module 3. Fitness, Functional and Biomechanical Assessment**

- 3.1. Anatomy and Kinesiology
- 3.2. Human Movement Science
- 3.3. Applied Biomechanics
- 3.4. Initial Patient Consultation
- 3.5. Physical Fitness Testing Protocols and Standards
- 3.6. Functional Movement Assessment
  - 3.6.1. Motion Detection, Testing and Assessment
  - 3.6.2. Functional Movement Screen (FMS)
  - 3.6.3. Selective Assessment of Functional Movement
  - 3.6.4. Specific Functional Performance Tests
- 3.7. Nutritional Assessment, Genetic Evaluation, Biochemistry and Quality of Life
- 3.8. Biomechanics
  - 3.8.1. Biomechanical Fundamentals
  - 3.8.2. Biomechanics of Human Movement
  - 3.8.3. Muscular Control of Movement
  - 3.8.4. Biomechanics of Resistance Exercise
- 3.9. Evaluation of Physical Fitness
- 3.10. Risk Detection and Stratification



*A unique, crucial and decisive learning experience to boost your professional development"*



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.





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

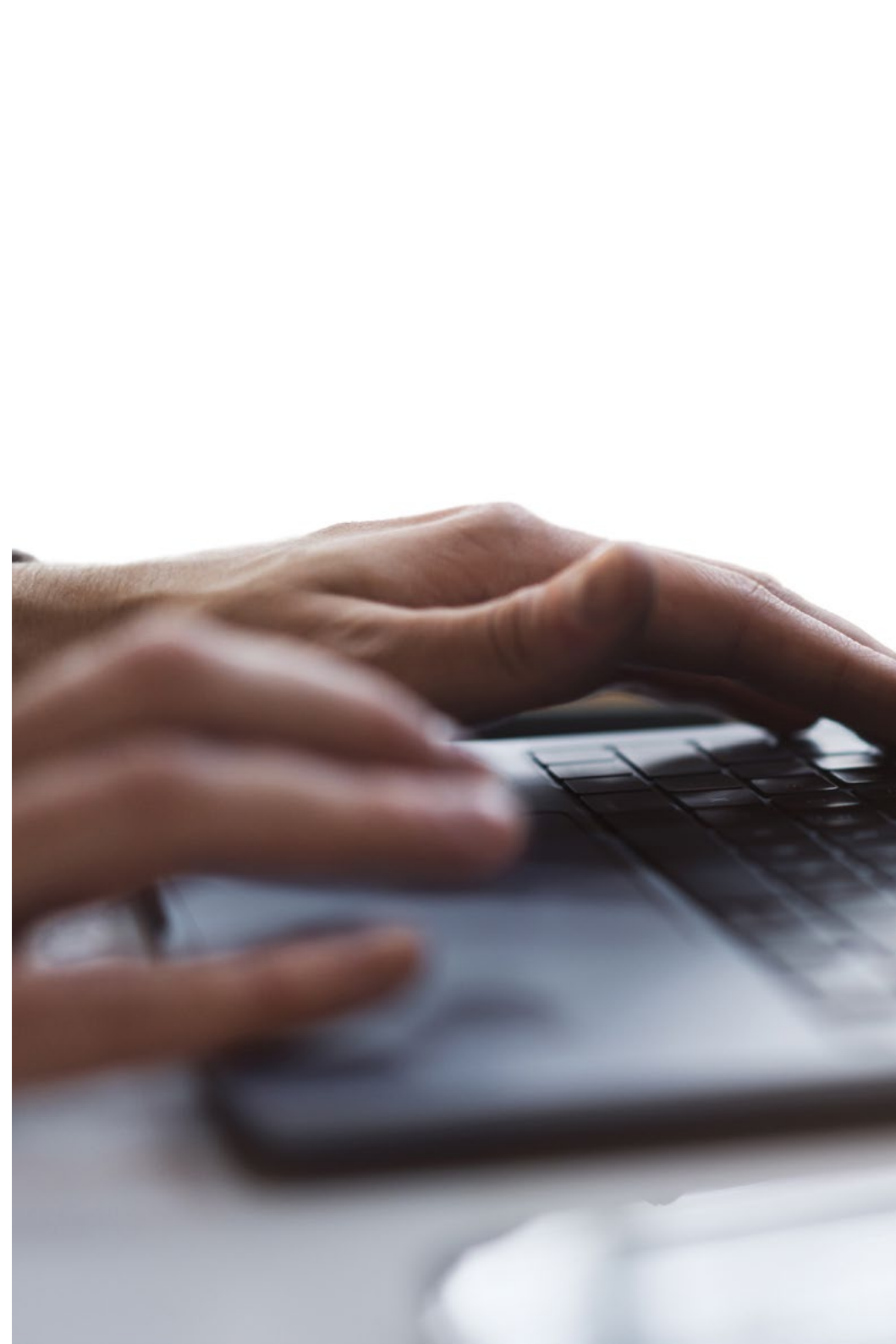
## The student: the priority of all TECH programs

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.

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*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.

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*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 quality of teaching, quality of materials, course structure and objectives is excellent. Not surprisingly, the institution became the best rated university by its students on the Trustpilot review platform, 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

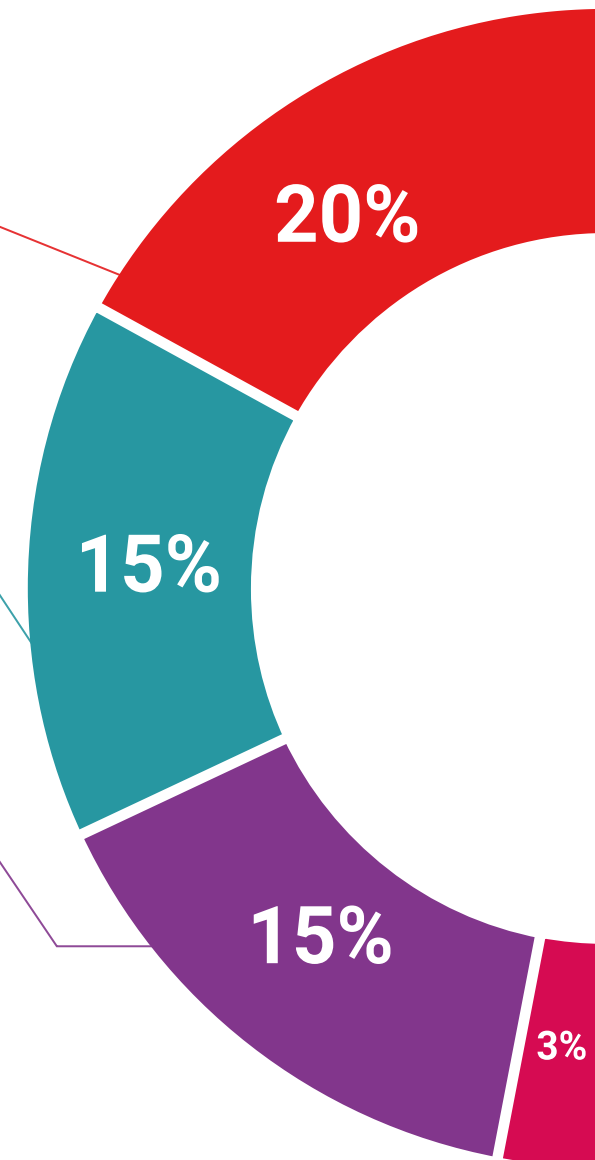
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

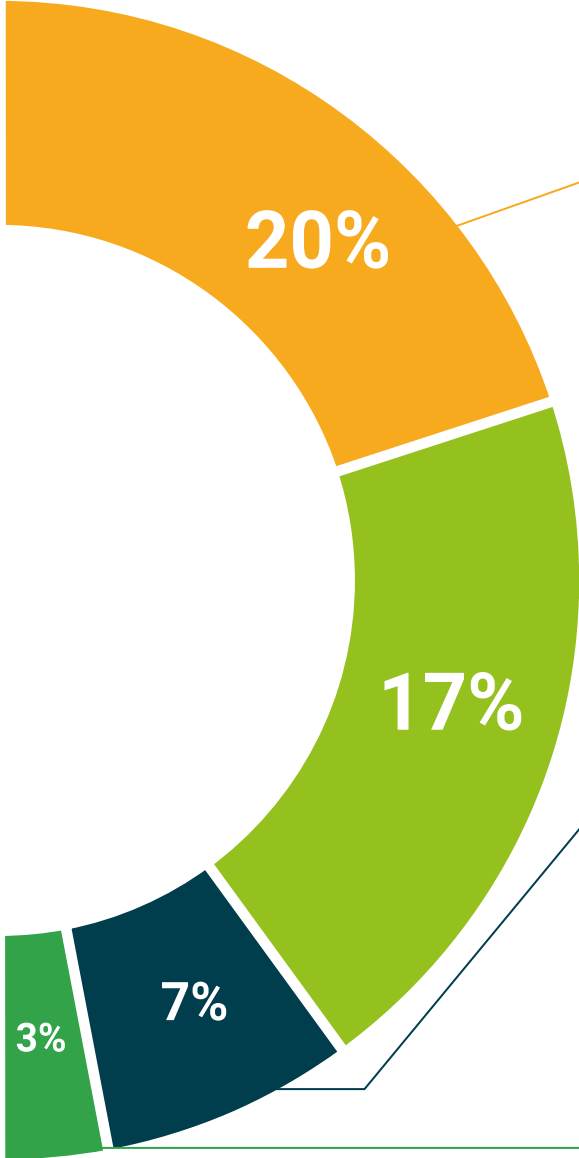


#### Additional Reading

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







**Case Studies**

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.



**Testing & Retesting**

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



**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 for future difficult decisions.



**Quick Action Guides**

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical and effective way to help students progress in their learning.



06

# Certificate

The Postgraduate Diploma in Functional and Biomechanical Assessment of the Locomotor System guarantees students, in addition to the most rigorous and up to date education, access to a Postgraduate Diploma issued by TECH Global University.



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*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 **Postgraduate Diploma in Functional and Biomechanical Assessment of the Locomotor System** 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.

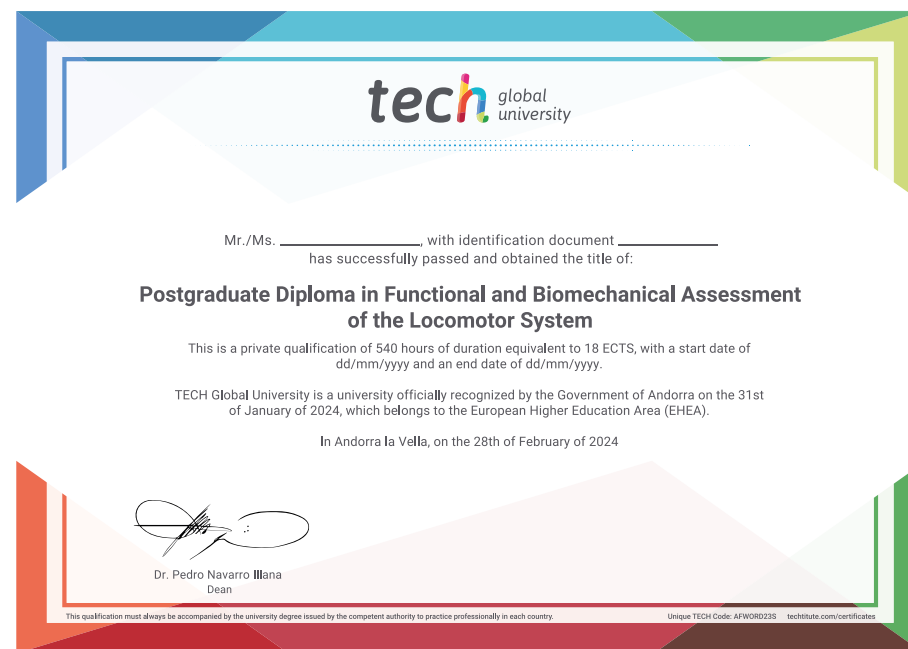
This **TECH Global University** private qualification is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Functional and Biomechanical Assessment of the Locomotor System**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



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



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