

Postgraduate Diploma

Design of Physical Exercise Programs for Various Pathologies

Endorsed by the NBA





Postgraduate Diploma

Design of Physical Exercise Programs for Various Pathologies

Course Modality: **Online**

Duration: **6 months**

Certificate: **TECH Technological University**

Official N° of Hours: **450 h.**

Website: www.techtitute.com/sports-science/postgraduate-diploma/postgraduate-diploma-design-physical-exercise-programs-various-pathologies

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01

Introduction

There are many diseases in which significant improvements can be achieved by changing lifestyle. Healthier diets and adequate physical exercise are the keys to achieving physical change and, therefore, better health and quality of life. In this training program we want to specialize personal trainers in the design of specific routines for people with various pathologies, so that they increase their ability to succeed with their users.





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Designing exercise programs requires a high degree of specialization to adapt them to the needs of each user”

This Postgraduate Diploma has been created with the aim of training personal trainers who work with people with different pathologies, so that physical exercise can help them overcome their illness or, at least, improve their quality of life.

The design of training programs involves a series of decisions regarding several processes: planning, periodization, programming and prescription. This Postgraduate Diploma will present all the criteria, based on evidence, that should be used to make operational decisions in relation to these processes and, in this way, to design individualized training programs for each subject and their pathology.

Specifically, emphasis will be placed on the design of exercise programs for pregnancy, as well as for children, youth and the elderly. In this way, in the case of pregnant women, the different morphophysiological adaptations observed will be studied, with emphasis on their repercussions on physical exercise plans. Postural modifications and care as well as motor control adjustments will be essential as the pregnancy progresses.

In the case of children and adults, the main characteristics of each of these stages will be studied based on their morphofunctional changes, the incidence of Neurosciences and Nutrition with the objective of programming training sessions respecting the individuality of the physical workload.

To train you in this field, at TECH we have designed this Postgraduate Diploma, which has contents of the highest teaching and educational quality, which aims to turn our students into successful professionals, following the highest quality standards in teaching at international level. In addition, as it is an online training, 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 Diploma in Design of Physical Exercise Programs for Various Pathologies** contains the most complete and up-to-date educational program on the market. The most important features of the specialization are:

- ◆ The development of numerous case studies presented by specialists in personal training
- ◆ The graphic, schematic and eminently 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 decisionmaking
- ◆ Special emphasis on innovative methodologies in personal training
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



Immerse yourself in the study of this high-level Postgraduate Diploma and improve your skills as a personal trainer"

“

This Postgraduate Diploma is the best investment you can make when selecting a refresher program for two reasons: in addition to updating your knowledge as a personal trainer, you will obtain a Postgraduate Diploma by TECH”

The teaching staff includes professionals from the field of sports science, who bring their experience to this training 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 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 during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by recognized experts in the design of exercise programs for people with various pathologies and with great experience.

This Postgraduate Diploma offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations.

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



02

Objectives

The main objective of this program is the development of theoretical and practical learning, so that the sports science professional can master in a practical and rigorous way the application of therapeutic personal training.



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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

- ◆ Understand the different training variables and their application in people with pathologies
- ◆ Offer a broad vision of the pathology and its most relevant characteristics
- ◆ Obtain an overview of the most frequent pathologies in society
- ◆ Understand the most relevant disease triggers in order to prevent the onset of comorbidities or the disease itself
- ◆ Know the existing contraindications in the different pathologies in order to avoid possible counterproductive effects of physical exercise





Specific Objectives

Module 1. General Criteria for the Design of Physical Exercise Programs in Special Populations

- ◆ Understand in depth the most important variables of training in order to know how to apply them in an individualized way
- ◆ Manage the general criteria for the design of physical exercise programs for people with pathology
- ◆ Obtain the necessary tools to develop training planning tailored to the client's needs

Module 2. Physical Exercise and Pregnancy

- ◆ Manage the morphofunctional changes of the pregnancy process
- ◆ In-depth understanding of the biopsychosocial aspects of pregnancy
- ◆ Be able to plan and program training in an individualized way for a pregnant woman

Module 3. Physical Exercise in Children and Adolescents and Older Adults

- ◆ In-depth understanding of the biopsychosocial aspects of children, adolescents and older adults
- ◆ Know the particularities of each age group and their specific approach
- ◆ Be able to plan and program training in an individualized manner for children, adolescents and older adults

03

Course Management

Our teaching team, experts in Personal Training, has a wide prestige in the profession and are professionals with years of teaching experience that have joined together to help you give a boost to your profession. To this end, they have developed this Postgraduate Diploma 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

- ◆ Coordinator of the performance stage at Escuela Deportiva Moratalaz, Club de Fútbol
- ◆ Physical trainer of cadet, youth and first teams in the Moratalaz Sports School
- ◆ CEO of Test and Training
- ◆ Personal trainer for athletes of all ages, high performance athletes, soccer players, etc. with more than 18 years of experience
- ◆ D. candidate in Sports Performance at the University of Castilla la Mancha
- ◆ Master's Degree in High Performance Sports, Spanish Olympic Committee, Autonomous University of Madrid
- ◆ Master coach by IFBB
- ◆ Strength Training Applied to Physical and Sports Performance Course by ACSM
- ◆ Specialist in Physiological Assessment and Interpretation of Physical Fitness by Biokinetics
- ◆ Level 2 soccer coach by the Royal Spanish Federation
- ◆ Expert in sports scouting and load quantification by the University of Melilla (specialization in soccer)
- ◆ Diploma in Advanced Research Studies from the University of Castilla La Mancha
- ◆ Expert in Advanced Bodybuilding by IFBB
- ◆ Expert in Advanced Nutrition from IFBB
- ◆ Postgraduate degree in Pharmacologynutrition and sports supplementation from the University of Barcelona.

Mr. Render, Juan Manuel

- ◆ Professor of Physical Education at the Metropolitan University for Education and Work
- ◆ Professor in the Bachelor's Degree in High Performance Sports at the National University of Lomas de Zamora
- ◆ Degree in physical education with orientation in physiology of physical work at the National University General San Martín
- ◆ Degree in Kinesiology and Physiatry at the University Institute H.A. Foundation Baceo
- ◆ Master's Degree in Physical Education at the National University of Lomas de Zamora

Ms. Ávila, María Belén

- ◆ Sports Psychologist at Club Atlético Vélez Sarsfield
- ◆ Specialist in the service of Nutrition and Diabetes in several centers such as the Hospital de Clínicas José de San Martín
- ◆ Specialist in the Integral Therapeutic Program for the treatment of Overweight and Obesity
- ◆ Degree in Psychology from the University of Salamanca
- ◆ Degree in High Performance Sports at the National University of Lomas de Zamora
- ◆ Specialization in Sport Psychology by APDA

Mr. Crespo, Guillermo Javier

- ◆ Coordinator of the Club Body gym
- ◆ Coordinator of the gym and training center Asociación Calabresa
- ◆ Assistant coach in the detection and development program for youth weightlifting at the Calabrian Association and San Carlos Gymnasium
- ◆ Degree in Nutrition from the HA Barceló University Institute of Health Sciences

Mr. Masabeu, Emilio José

- ◆ Professor at the Motor Learning Seminar of the National University of Villa María
- ◆ Professor of Motor Neurodevelopment at the National University of La Matanza
- ◆ Lecturer of the seminar on Physical Activity and Obesity at Favaloro University
- ◆ Head of practical work at the Kinephylactic Department of the University of Buenos Aires
- ◆ Graduated in Kinesiology at the University of Buenos Aires

Mr. Vallodoro, Eric

- ◆ Full Professor at the Lomas Model Higher Institute
- ◆ Coordinator of the Biomechanics and Exercise Physiology Laboratory of the Lomas Model Higher Institute
- ◆ Degree in High Performance Sports at the National University of Lomas de Zamora
- ◆ Graduated as a Physical Education Teacher at Lomas Model Higher Institute

Mr. Supital Alejandro, Raúl

- ◆ Professor of Physical Activity and Health at the Catholic University of Salta
- ◆ Professor of Physical Education and Sports at the National University of Rio Negro
- ◆ Professor of Functional Anatomy and Biomechanics at the National University of Villa María
- ◆ Head of the Department of Biological Sciences, ISEF 1 Romero Brest
- ◆ Degree in Kinesiology and Physiatry from the University of Buenos Aires

04

Structure and Content

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




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

Module 1. General Criteria for the Design of Physical Exercise Programs in Special Populations

- 1.1. Design of Exercise Programs for Special Populations
 - 1.1.1. Competencies and Protocols: from Diagnosis to Intervention
 - 1.1.2. Multidisciplinarity and Interdisciplinarity as the Basis of the Intervention Process through Physical Exercise in Special Populations
- 1.2. General Principles of Training and Their Application to the Health Field
 - 1.2.1. Principles of Adaptation (Initiation and Development)
 - 1.2.2. Principles of Adaptation Guarantees
 - 1.2.3. Adaptation Specificity Principles
- 1.3. Training Planning for Special Populations
 - 1.3.1. Planning Phase I
 - 1.3.2. Planning Phase II
 - 1.3.3. Planning Phase III
- 1.4. Training Objectives in Health Fitness Training Programs
 - 1.4.1. Strength Training
 - 1.4.2. Resistance Training
 - 1.4.3. Flexibility/ADM Training
- 1.5. Applied Assessment
 - 1.5.1. Diagnostic Evaluation and as a Tool for Training Load Control
 - 1.5.2. Morphological and Functional Evaluations
 - 1.5.3. The Protocol and Its Importance Data Register
 - 1.5.4. Processing of Data Obtained, Conclusions and Practical Application to Training
- 1.6. Training Programming in Special Populations: Intervention Variables (I)
 - 1.6.1. Definition of the Training Load Concept
 - 1.6.2. Training Frequency
 - 1.6.3. Volume in Training
- 1.7. Training Programming in Special Populations: Intervention Variables (II)
 - 1.7.1. Objective Training Intensity
 - 1.7.2. Subjective Training Intensity
 - 1.7.3. Recovery and Training Density
- 1.8. Training Prescription in Special Populations: Intervention Variables (I)
 - 1.8.1. Selection of Training Exercises
 - 1.8.2. Ordering Training Exercises



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- 1.8.3. Training Systems
 - 1.9. Training Prescription in Special Populations: Intervention Variables (II)
 - 1.9.1. Methods for Strength Training
 - 1.9.2. Methods for Resistance Training
 - 1.9.3. Concurrent Training Methods in the Health Care Field
 - 1.9.4. HIIT Training Method in the Fitness Field
 - 1.9.5. Flexibility/ADM Training Methods
 - 1.9.6. Internal and External Training Load Control
 - 1.10. The Design of Training Sessions
 - 1.10.1. Training Preparation Phase
 - 1.10.2. Main Phase of Training
 - 1.10.3. Recovery Phase of Training
 - 1.10.4. Final Conclusions and Closing of Module 2

Module 2. Physical Exercise and Pregnancy

- 2.1. Morphofunctional Changes in Women During Pregnancy
 - 2.1.1. Body Mass Modification
 - 2.1.2. Modification of the Center of Gravity and Relevant Postural Adaptations
 - 2.1.3. Cardiorespiratory Adaptations
 - 2.1.4. Hematological Adaptations
 - 2.1.5. Adaptations of the Locomotor System
 - 2.1.6. Gastrointestinal and Renal Modifications
- 2.2. Pathophysiology Associated with Pregnancy
 - 2.2.1. Gestational *Diabetes Mellitus*
 - 2.2.2. Supine Hypotensive Syndrome
 - 2.2.3. Anaemia
 - 2.2.4. Low Back Pain
 - 2.2.5. Diastasis Recti
 - 2.2.6. Varicose Veins
 - 2.2.7. Pelvic Floor Dysfunction
 - 2.2.8. Nervous Compression Syndrome
- 2.3. Kinefilaxia and Benefits of Physical Exercise in Pregnant Women
 - 2.3.1. Care to Be Taken During Activities of Daily Living
 - 2.3.2. Preventive Physical Work

- 2.3.3. Biological and Psycho-Social Benefits of Physical Exercise
- 2.4. Risks and Contraindications in the Performance of Physical Exercise in Pregnant Women
 - 2.4.1. Absolute Contraindications to Physical Exercise
 - 2.4.2. Relative Contraindications to Physical Exercise
 - 2.4.3. Precautions to Be Taken Throughout the Pregnancy Period
- 2.5. Nutrition in Pregnant Women
 - 2.5.1. Body Mass Weight Gain with Pregnancy
 - 2.5.2. Energy Requirements Throughout Pregnancy
 - 2.5.3. Nutritional Recommendations for Physical Exercise
- 2.6. Training Planning for Pregnant Women
 - 2.6.1. First Quarter Planning
 - 2.6.2. Second Quarter Planning
 - 2.6.3. Third Quarter Planning
- 2.7. Musculoskeletal Training Programming
 - 2.7.1. Motor Control
 - 2.7.2. Stretching and Muscle Relaxation
 - 2.7.3. Muscle Fitness Work
- 2.8. Programming of Resistance Training
 - 2.8.1. Modality of Low-impact Physical Work
 - 2.8.2. Weekly Workload
- 2.9. Postural and Preparatory Labor for Childbirth
 - 2.9.1. Pelvic Floor Exercises
 - 2.9.2. Postural Exercises
- 2.10. Return to Physical Activity after Childbirth
 - 2.10.1. Medical Discharge and Recovery Period
 - 2.10.2. Care for the Beginning of Physical Activity
 - 2.10.3. Conclusions and Closing of Module 9

Module 3. Physical Exercise in Children, Adolescents and Older Adults

- 3.1. Approach to Physical Exercise for Children and Adolescents
 - 3.1.1. Growth, Maturation and Development
 - 3.1.2. Development and Individuality: Chronological Age vs. Biological Age
 - 3.1.3. Sensitive Phases
 - 3.1.4. *Long Term Athlete Development*
- 3.2. Assessment of Physical Fitness in Children and Adolescents
 - 3.2.1. Main Evaluation Batteries
 - 3.2.2. Assessment of Coordinative Capacities
 - 3.2.3. Assessment of Conditional Capacities
 - 3.2.4. Morphological Evaluations
- 3.3. Physical Exercise Program for Children and Youngsters
 - 3.3.1. Muscle Strength Training
 - 3.3.2. Aerobic Fitness Training
 - 3.3.3. Speed Training
 - 3.3.4. Flexibility Training
- 3.4. Neurosciences and Child and Adolescent Development
 - 3.4.1. Neurolearning in Childhood
 - 3.4.2. Motor Skills Basis of Intelligence
 - 3.4.3. Attention and Emotion Early Learning
 - 3.4.4. Neurobiology and Epigenetic Theory in Learning
- 3.5. Approach to Physical Exercise in Older Adults
 - 3.5.1. Aging Process
 - 3.5.2. Morphofunctional Changes in the Older Adult
 - 3.5.3. Objectives of Physical Exercise in the Elderly
 - 3.5.4. Benefits to Physical Exercise in Older Adults
- 3.6. Comprehensive Gerontological Assessment
 - 3.6.1. Coordination Skills Test
 - 3.6.2. Katz Index of Independence in Activities of Daily Living
 - 3.6.3. Test of Conditioning Capacities
 - 3.6.4. Fragility and Vulnerability in Older Adults

- 3.7. Instability Syndrome
 - 3.7.1. Epidemiology of Falls in the Elderly
 - 3.7.2. Detection of Patients at Risk without Previous Fall
 - 3.7.3. Risk Factors for Falls in the Elderly
 - 3.7.4. Post Fall Syndrome
- 3.8. Nutrition in Children and Adolescents and Older Adults
 - 3.8.1. Nutritional Requirements for Each Age Stage
 - 3.8.2. Increased Prevalence of Childhood Obesity and Type II Diabetes in Children
 - 3.8.3. Association of Degenerative Diseases with Saturated Fat Intake
 - 3.8.4. Nutritional Recommendations for Physical Exercise
- 3.9. Neurosciences and Older Adults
 - 3.9.1. Neurogenesis and Learning
 - 3.9.2. Cognitive Reserve in Older Adults
 - 3.9.3. We Can Always Learn
 - 3.9.4. Aging Is Not Synonymous with Disease
 - 3.9.5. Alzheimer's and Parkinson's Disease, the Value of Physical Activity
- 3.10. Physical Exercise Programming in Older Adults
 - 3.10.1. Muscle Strength and Power Training
 - 3.10.2. Aerobic Fitness Training
 - 3.10.3. Cognitive Training
 - 3.10.4. Training of Coordinative Capacities
 - 3.10.5. Conclusions and Closing of Module 10



*A unique specialization experience,
key and decisive 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.





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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.



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

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.



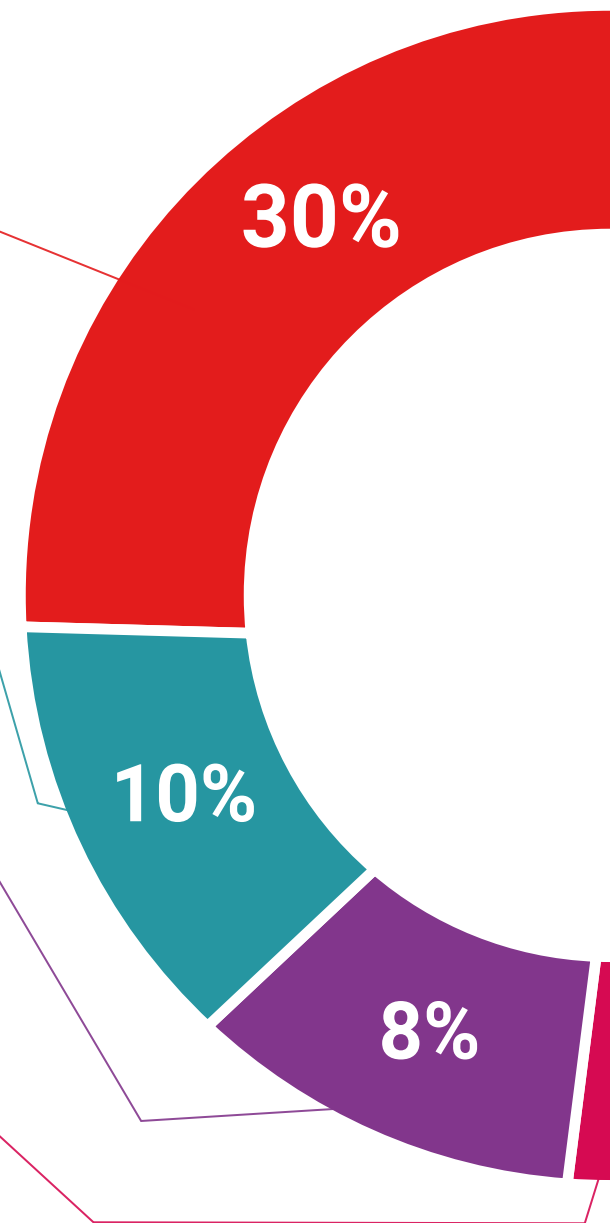
Practising Skills and Abilities

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 Diploma in Physical Exercise Programs for Various Pathologies guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Design of Physical Exercise Programs for Various Pathologies** contains the most complete and up-to-date educational program on the market.

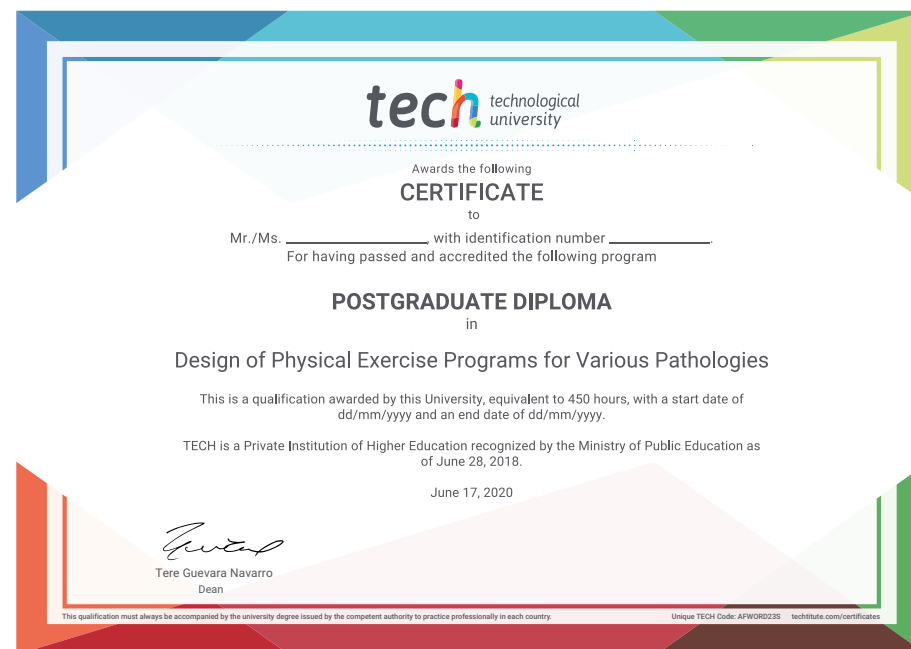
After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional from career evaluation committees.

Title: **Postgraduate Diploma in Design of Physical Exercise Programs for Various Pathologies**

Official N° of Hours: **450 h.**

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 languages
virtual classroom



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Course Modality: **Online**

Duration: **6 months**

Certificate: **TECH Technological University**

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tech technological
university