

# Master's Degree Professional Cycling

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## Master's Degree Professional Cycling

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/sports-science/master-degree/master-professional-cycling](http://www.techtitute.com/us/sports-science/master-degree/master-professional-cycling)

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# 01

# Introduction

From the demanding Cima Coppi to the complex stages of La Vuelta, passing through the hegemony of the coveted yellow jersey. Cycling is a sport that is as demanding as it is rewarding, which requires special mental and physical preparation on the part of the athlete. Such is the case that the teams of trainers and advisors are becoming broader, ranging from training and strength to biomechanics or nutrition. This TECH program delves into, precisely, the areas of greatest relevance for the coach and trainer, delving into the most advanced training profiles and adaptability plans. All this in a completely online format, giving the student the freedom to adapt it at their own pace.





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*Enroll in this Master's Degree and rise as a coach with a global vision, prepared for the most demanding challenges in the world of cycling”*

The demand in the cycling field is increasing. Being one of the most recognized sports and forming part of the Olympic Games since its inception, belonging to a cycling team is a boost of prestige both for the athletes themselves and for the staff that accompanies them. Precisely, innovation in the field of training and analysis of sports performance has driven all specialists in the area in recent decades.

Therefore, the highest level cycling teams are made up of a broad technical team, made up of professionals specialized in different areas such as power, strength, nutrition, planning or biomechanics. In this way, a coach who has extensive capabilities in all these areas will have a privileged position to occupy and even lead entire sections in elite cycling teams.

To respond to this need and demand, TECH has created this program, bringing together a top-level teaching staff. Experts in biomechanics, sports training, professional cyclists and nutritional advisers will provide the student with the necessary keys to stand out in such a competitive sector, where qualification and specialization are already a sine qua non requirement to access the best jobs.

Thus, a total tour of the most important issues in cycling is presented, addressing training *planning and programming*, *Velocity Based Training* and modern performance strategies, without neglecting other aspects such as nutrition, biomechanics or the organization and management of a cycling team. With all this, the student will start from an advantageous position to project his professional career towards the most prestigious and leading positions within the cycling field. In addition, we must highlight the completely online format of the program, without the need to attend face-to-face classes or follow pre-established schedules.

All the content is available on the Virtual Campus, being accessible from any device with an Internet connection. In this way, it is the student who guides the times and rhythm of study and not the other way around, being able to combine sports education with the most demanding professional and personal responsibilities.

This **Master's Degree in Professional Cycling** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of case studies presented by experts in Cycling and of high-level sport
- ◆ The graphic, schematic and practical contents with which it is designed provide advanced and practical information on those disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions for 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



*It delves into load quantification models, cyclist training according to their category and modern software with which to monitor all relevant parameters”*

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*Do not miss the opportunity to advance decisively in your professional career and pedal to the pinnacle of success, accompanied by the best possible faculty”*

The program includes a team of professionals in its teaching staff from the sector who pour the experience of their work into this training, as well as recognized specialists from leading societies and prestigious universities. The program includes a team of professionals in its teaching staff from the sector who bring the experience of their work to this program, in addition to recognized specialists from prestigious reference societies and universities.

Its 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 an immersive education designed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*Combine your school work and adapt the degree to your own schedules, deciding when, where and how to study.*

*You will be able to download all the contents of the Virtual Campus to study them later from your Tablet, Smartphone or computer of preference.*



# 02 Objectives

As there is a growing demand for increasingly qualified professionals linked to cycling, the essential objective of this Master's Degree is to provide both theoretical and practical tools that will catapult the student's career. For this very reason, all the contents have an eminently real approach, based on genuine cases and analysis of real examples with which to contextualize all the theory and documentation provided.





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*Thanks to this Master's Degree, you will be in a position to lead the most ambitious cycling projects”*



## General Objectives

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- ◆ Understand the performance factors of sport and, therefore, learn to assess the specific needs of each athlete
- ◆ Being able to plan, periodize and develop training programs for cyclists, in short, train students to practice the profession of coach
- ◆ Acquire specific knowledge related to the biomechanics of cycling
- ◆ Understand the operation of the new applications used in the quantification of loads and training prescription
- ◆ Understand the benefits of strength training and be able to apply them to concurrent training
- ◆ Acquire a specialization in cycling-oriented nutrition
- ◆ Understand the functioning of the cycling structures, as well as the modalities and categories of the competitions





## Specific Objectives

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### Module 1. Cyclist Exercise Physiology

- ◆ Address the different energy pathways and their influence on human performance
- ◆ Know the physiological milestones and know how to determine them
- ◆ Analyze the role of lactate and HRV
- ◆ Understanding the physiology of women in sport

### Module 2. Cycling training planning and scheduling

- ◆ Know and apply different Education methods
- ◆ Learn to distribute volumes and intensities, in short, periodize
- ◆ Being able to design training sessions
- ◆ Study the training loads from lower categories, amateur, professional and master

### Module 3. Quantification of charges

- ◆ Know what the training load is and its applicability to cycling
- ◆ Know the relationship between training load and performance
- ◆ Learn and use new platforms to quantify and prescribe training

### Module 4. Cycling training for power

- ◆ Acquire knowledge about power training
- ◆ Address the different metrics necessary to prescribe and quantify through potency
- ◆ Learn about performance modeling

### Module 5. Biomechanics in the cyclist

- ◆ Know the importance of Biomechanics in cycling and apply different methods
- ◆ Differentiate kinematics from kinetics and the importance of the latter in performance
- ◆ Know the importance of functional assessment in the biomechanical process
- ◆ Know the benefits of aerodynamics in performance

### Module 6. Cyclist Strength Training

- ◆ Understand the concept of Velocity Based Training and its relationship with the character of the effort
- ◆ Address the different devices on the market to work based on VBT
- ◆ Study the benefits of concurrent training.

### Module 7. Special situations of Cycling Training

- ◆ Learn to differentiate different adverse situations that affect performance
- ◆ Develop and apply strategies to optimize performance in adverse situations

### Module 8. Nutrition in the cyclist

- ◆ Study the Concept of nutrition in depth
- ◆ Understand and apply periodization of nutrition
- ◆ Know which ergogenic aids are useful, which are not, and which are considered prohibited methods
- ◆ Delve into new trends in nutrition





### **Module 9. Structure and Functions of a Cyclist Team**

- ◆ Understand first-hand the structure and operation of professional teams
- ◆ Differentiate the roles and functions of the different team members
- ◆ Know how the day to day of a cycling structure develops

### **Module 10. Cycling Modalities**

- ◆ Learn about the different Modalities of Cycling and what are their characteristics, their idiosyncrasies and their performance limitations

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*You will exceed your most demanding expectations thanks to a detailed study plan, prepared so that you can get the most out of it”*

# 03 Skills

The skills of a trainer and coach in the world of sports are vital since the progression and success of the athlete depends on their own capacity and leadership. In cycling this becomes more latent, as details such as pedaling problems or nutritional decompensations must be detected by the trainer quickly, in order to correct them before they lead to performance drops. This program emphasizes all those skills and competencies that the highest-level coach and physical trainer must develop and perfect, always relying on the most rigorous sports practice itself.



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*With the skills that you will acquire in this Master's Degree, you will give a significant boost to your professional value proposition in the field of cycling”*



## General Skills

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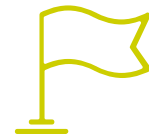
- ◆ Plan general training sessions that include the most important aspects to be taken into account by a cyclist
- ◆ Apply recovery strategies adapted to the needs of the athlete
- ◆ Evaluate and develop the abilities of the cyclist to take them to their maximum potential
- ◆ Lead the training area or cycling specialization in a high-level team

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*Perfect your determination when it comes to setting sports strategies, both for physical, nutritional and mental preparation”*







## Specific Skills

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- ◆ Differentiate and apply the different quantification models
- ◆ Calculate basal metabolism and measure body composition
- ◆ Quantize macros and micros
- ◆ Using strength as a capacity builder in cycling
- ◆ Interpreting hematology in the context of sport cycling
- ◆ Plan exercises in the room and on the bike to develop strength
- ◆ Determine the strengths and weaknesses of cyclists

# 04

# Course Management

With the best possible teachers, winners of multiple recognitions in the field of Cycling sports and with experience in elite teams, TECH has ensured that all the contents of the program are adequate to the highest level. Thus, the student ensures that they are receiving all the most important keys and advantages of Cycling from professionals who know them first-hand, also giving a unique practical perspective to each topic covered.





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*Get advice from a top-level teaching team, recognized for their career in the most important teams internationally”*

## Management



### Mr. Sola, Javier

- CEO of Training4ll
- WT UAE team coach
- Head of Performance Massi Tactic UCI Womens Team
- Specialist in the biomechanical area of Jumbo Visma UCI WT
- WKO adviser to World Tour cycling teams
- Trainer at Coaches4coaches
- Associate Professor at Loyola University
- Bachelor of Science in Physical Activity and Sport from the University of Seville
- Postgraduate in High Performance of Cyclic Sports from the University of Murcia
- Sports Director Level III
- Numerous Olympic medals and medals at European Championships, World Cups and National Championships

## Professors

### Mr. Artetxe Gezuraga, Xabier

- ◆ Head of Performance of the WT Ineos Grenadier team
- ◆ Professor and director of events of the company Fundación Ciclista Euskadi
- ◆ Coach of the WT Movistar, SKY and Ineos Grenadier team
- ◆ Sports director and coach of Seguros Bilbao, Caja Rural, Euskaltel Development Team
- ◆ Coach of winners of Grand Tours, World Championships, Olympic medals and national championships
- ◆ Trainer at Coaches4coaches
- ◆ High Performance Master in Biomedicine
- ◆ Certificate World Tour Level Sports Director (UCI Sports Director)
- ◆ Sports Director Level III

### Mr. Celdrán, Raúl

- ◆ CEO of Natur Training System
- ◆ Burgos BH ProConti Team Nutrition Manager
- ◆ Performance Manager of the professional MTB Klimatiza Team
- ◆ Trainer at Coaches4coaches
- ◆ Degree in Pharmacy from the University of Alcalá
- ◆ Master in Nutrition, Obesity and High Performance in Cyclic Sports from the University of Navarra

### Mr. Heijboer, Mathieu

- ◆ WT Jumbo-Visma Team Performance Manager
- ◆ High level cycling coach pro cyclist
- ◆ Former Professional Cyclist
- ◆ CAFD Graduate

### Mr. Moreno Morillo, Aner

- ◆ Performance Manager of the Kuwait National Cycling Team
- ◆ Assistant of the Euskaltel-Euskadi ProConti Team
- ◆ Graduated in Physical Activity and Sports Sciences from the Isabel I University
- ◆ Master's degree in CAFD research from the European University
- ◆ Master in High Performance of Cyclic Sports from the University of Murcia
- ◆ Sports Director National Level III

### Mr. Iriberry, Jon

- ◆ CEO of Custom4us
- ◆ Head of Biomechanics of the WT Jumbo Visma team
- ◆ Head of Biomechanics at Movistar Team
- ◆ Professor at the UCI World Center
- ◆ Bachelor of Science in Physical Activity and Sports from the University of the Basque Country
- ◆ Master in High Performance from the Colorado State University, in the U.S.

### Mr. Arguedas Lozano, Chema

- ◆ CEO of Plan your Pedalades
- ◆ Training and nutrition expert at Enduro Cycling
- ◆ Trainer, physical trainer and expert in sports nutrition
- ◆ Professor of Sports Nutrition at the University of Leioa
- ◆ Author of titles related to cycling: Plan your pedal strokes, Feed your pedal strokes, Plan your BTT pedal strokes, Power your pedal strokes

# 05

## Structure and Content

The entire agenda of the program has been prepared based on the *Relearning* pedagogical methodology, in which TECH is precisely a pioneer. This means that the content does not develop in a linear and incoherent way, but that the key concepts and terms that the Cycling coach needs are provided progressively and naturally. This results in a much more rewarding academic experience, saving numerous hours of study.





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*Download all the content to gain an essential reference guide in your professional career, being useful even once you have finished the degree”*

## Module 1. Cyclist Exercise Physiology

- 1.1. Energy Systems
  - 1.1.1. Phosphagen Metabolism
  - 1.1.2. Glycolysis
  - 1.1.3. Oxidative System
- 1.2. Heart Rate
  - 1.2.1. Basal FC
  - 1.2.2. Reverse FC
  - 1.2.3. Maximum FC
- 1.3. The Role of the Lactate
  - 1.3.1. Definition
  - 1.3.2. Lactate Metabolism
  - 1.3.3. The Role in Physical Activity and in Determining Thresholds
- 1.4. Determination of Ventilatory Thresholds (Physiological Milestones)
  - 1.4.1. VT1
  - 1.4.2. VT2
  - 1.4.3. VO2 MAX
- 1.5. Performance Markers
  - 1.5.1. FTP/CP
  - 1.5.2. VAM
  - 1.5.3. *Compound Score*
- 1.6. Frisby Test
  - 1.6.1. Laboratory Test
  - 1.6.2. Field Test
  - 1.6.3. Power Profile Test
- 1.7. HRV (Heart Rate Variability)
  - 1.7.1. Definition
  - 1.7.2. Measuring Methods
  - 1.7.3. HRV-Based Accommodations
- 1.8. Adaptation
  - 1.8.1. Generalities
  - 1.8.2. Central
  - 1.8.3. Peripherals

- 1.9. Blood Analysis
  - 1.9.1. Biochemistry
  - 1.9.2. Hematology
  - 1.9.3. Hormones
- 1.10. Physiology of Women
  - 1.10.1. Characteristics of the Woman
  - 1.10.2. Training and Menstrual Cycle
  - 1.10.3. Specific Supplementation

## Module 2. Cycling training planning and scheduling

- 2.1. Cyclist Training Methods
  - 2.1.1. Continuous (Uniform and Variable)
  - 2.1.2. Interval Fractionator
  - 2.1.3. Split: Reps
- 2.2. Fashion Distribution
  - 2.2.1. Forms of Distribution
  - 2.2.2. Pyramidal
  - 2.2.3. Polarization
- 2.3. Periodization
  - 2.3.1. Traditional
  - 2.3.2. By Blocks
  - 2.3.3. Inverse
- 2.4. Recovery Strategies
  - 2.4.1. Activate
  - 2.4.2. Passive
  - 2.4.3. Recovery Media
- 2.5. Session Design
  - 2.5.1. Heating
  - 2.5.2. Main Partt
  - 2.5.3. The Return to Calmness



- 2.6. Development of the Capabilities
  - 2.6.1. VT1 Improvements
  - 2.6.2. VT2 Improvements
  - 2.6.3. VT2 Max Improvements
  - 2.6.4. Improvement of PMax and Anaerobic Capacity
- 2.7. Development of Long-Term cyclist
  - 2.7.1. Learning How to Train
  - 2.7.2. Learning to Compete
  - 2.7.3. Training to Compete
- 2.8. Master Cyclist Training
  - 2.8.1. Competitive Demands of Master's Degrees
  - 2.8.2. Competitive Calendar
  - 2.8.3. Load Distribution
- 2.9. Under -23 Cyclist Training
  - 2.9.1. Competitive Demands
  - 2.9.2. Competitive Calendar
  - 2.9.3. Load Distribution
- 2.10. Communication Management Cyclist Training
  - 2.10.1. Competitive Demands
  - 2.10.2. Competitive Calendar
  - 2.10.3. Load Distribution

### Module 3. Quantification of charges

- 3.1. Traditional Quantification Model
  - 3.1.1. Quantification Definition
  - 3.1.2. Triphasic Model
  - 3.1.3. Advantages and Disadvantages
- 3.2. Banister Model
  - 3.2.1. Definition
  - 3.2.2. Why this Model?
  - 3.2.3. Second Banister Model
- 3.3. TRIMP Model
  - 3.3.1. Definition
  - 3.3.2. Application Factors
  - 3.3.3. Advantages and Disadvantages
- 3.4. TRIMP Lucia
  - 3.4.1. Definition
  - 3.4.2. Application Factors
  - 3.4.3. Advantages and Disadvantages
- 3.5. CTL, ATL and TSB
  - 3.5.1. Definition
  - 3.5.2. Application Factors
  - 3.5.3. Advantages and Disadvantages
- 3.6. ECO Model
  - 3.6.1. Definition
  - 3.6.2. Application Factors
  - 3.6.3. Advantages and Disadvantages
- 3.7. Quantification Based on sRPE
  - 3.7.1. Definition
  - 3.7.2. Application Factors
  - 3.7.3. Advantages and Disadvantages
- 3.8. Training Peaks
  - 3.8.1. Explanation of the Platform
  - 3.8.2. Characteristics and Functions
  - 3.8.3. Advantages and Disadvantages
- 3.9. Quantification of Training in Professional Cycling
  - 3.9.1. Communication on a Daily Basis
  - 3.9.2. Quantification Models
  - 3.9.3. Limitations
- 3.10. Doctoral theses by Teun Van Erp and Dajo Sanders
  - 3.10.1. Quantification in Professional Competitions
  - 3.10.2. Correlations between Internal and External Load
  - 3.10.3. Limitations

## Module 4. Cycling training for Power

- 4.1. What is Power?
  - 4.1.1. Definition
  - 4.1.2. What is a W?
  - 4.1.3. What is a Jule?
- 4.2. Power Measurements
  - 4.2.1. Meter Operation
  - 4.2.2. Types
  - 4.2.3. Dual
  - 4.2.4. Pseudodual
- 4.3. What is FTP?
  - 4.3.1. Definition
  - 4.3.2. Estimation Methods
  - 4.3.3. Application to Training
- 4.4. Determination of Strengths
  - 4.4.1. Competition Analysis
  - 4.4.2. Data Analysis
- 4.5. Power Profile
  - 4.5.1. Classic Power Profile
  - 4.5.2. Advanced Power Profile
  - 4.5.3. Power Profile Test
- 4.6. Performance Monitoring
  - 4.6.1. What is Performance?
  - 4.6.2. MMP Monitoring
  - 4.6.3. Monitoring of Physiological Parameters
- 4.7. Power Management Chart (PMC)
  - 4.7.1. External Load Monitoring
  - 4.7.2. Internal Load Monitoring
  - 4.7.3. Integration of all Systems
- 4.8. Metrics
  - 4.8.1. CP
  - 4.8.2. FRC/W'
  - 4.8.3. PMax
  - 4.8.4. Stamina/Durability

- 4.9. Fatigue Resistance
  - 4.9.1. Definition
  - 4.9.2. Based in KJ
  - 4.9.3. Based in kJ/kg
- 4.10. Pacing
  - 4.10.1. Definition
  - 4.10.2. Normative Values for Time Trials
  - 4.10.3. Estimation Software

## Module 5. Biomechanics in the cyclist

- 5.1. What is Biomechanics ? Educational Objective
  - 5.1.1. Definition
  - 5.1.2. History
  - 5.1.3. Application for Performance and Injury Prevention
- 5.2. Methods for Biomechanics
  - 5.2.1. Static
  - 5.2.2. Dynamics
  - 5.2.3. Accelerometers
- 5.3. Foot, Plantar Arch, ROM and Discrepancy Assessment
  - 5.3.1. Plantar Arch (ALI)
  - 5.3.2. First Radius
  - 5.3.3. Types of Feet
- 5.4. Functional Assessment
  - 5.4.1. ROM
  - 5.4.2. Dysmetria
  - 5.4.3. Compensation
- 5.5. Choice of shoes and bike size (*stack andreach*)
  - 5.5.1. Type of Shoes
  - 5.5.2. Choice of Frame Size
  - 5.5.3. Differences between Road Bikes, MTB and Time Trial
- 5.6. Goniometry (Optimal Angulations)
  - 5.6.1. Saddle Height
  - 5.6.2. Recoil
  - 5.6.3. Complementary Angles

- 5.7. Q factor and Cleat Adjustment
  - 5.7.1. Advances
  - 5.7.2. Q Factor
  - 5.7.3. Twist of the Cove
- 5.8. Torque
  - 5.8.1. Definition
  - 5.8.2. Application to Training
  - 5.8.3. Evaluation of the Pedal
- 5.9. Electromyography
  - 5.9.1. Definition
  - 5.9.2. Muscles Involved in Pedaling
  - 5.9.3. Pedal Assessment with from EMG Systems
- 5.10. Most Common Injuries
  - 5.10.1. Lower Back Injuries
  - 5.10.2. Knee Injuries
  - 5.10.3. Hand and Feet Injuries

## Module 6. Cyclist Strength Training

- 6.1. Introduction to Strength
  - 6.1.1. Definition
  - 6.1.2. Concepts Related to Strength Expressions
  - 6.1.3. Strength and Cyclism
- 6.2. Benefits of Cyclist Strength Training
  - 6.2.1. Molecular and Physiological Adaptation
  - 6.2.2. Neural Adaptations
  - 6.2.3. Efficiency Improvement
  - 6.2.4. Improvement of Body Composition
- 6.3. Strength Measurement Methods
  - 6.3.1. Lineal Measurement Systems
  - 6.3.2. Dynamometer
  - 6.3.3. Strength and Contact Platforms
  - 6.3.4. Optical Platforms and Apps

- 6.4. Limitations
  - 6.4.1. Concept of RM
  - 6.4.2. Concept of NRM
  - 6.4.3. Effort Character Concept
- 6.5. Speed of Execution
  - 6.5.1. CE Defined by Speed of Execution
  - 6.5.2. Isoinertial Force Evaluation
  - 6.5.3. Strength- / Speed- / Power Curves
- 6.6. Planning and Programming of Strength Training
  - 6.6.1. Strength Programming
  - 6.6.2. Exercise Programming
  - 6.6.3. Session Programming
- 6.7. Strength Training on the Bike
  - 6.7.1. Speeding Up
  - 6.7.2. Sprints
  - 6.7.3. Neruomuscular Work
  - 6.7.4. Is Torque Work Equal to Strength Training?
- 6.8. Concurrent Training
  - 6.8.1. Definition
  - 6.8.2. Strategies to Maximize Adaptations
  - 6.8.3. Advantages and Disadvantages
- 6.9. Recommended Exercises
  - 6.9.1. Generalities
  - 6.9.2. Specific
  - 6.9.3. Session Example
- 6.10. Core Training
  - 6.10.1. Definition
  - 6.10.2. Benefits
  - 6.10.3. Mobility Exercises
  - 6.10.4. Types of Exercise

## Module 7. Special situations of Cycling Training

- 7.1. Heat
  - 7.1.1. Heat Performance
  - 7.1.2. Responses to Training and Adaptation Protocols
  - 7.1.3. Moist Heat vs. Dry Heat
  - 7.1.4. Strategies to Foster Benefits
- 7.2. Altitude
  - 7.2.1. Performance and Altitude
  - 7.2.2. *Responders and no responders*
  - 7.2.3. Benefits of Altitude
- 7.3. *Train High-Live Low*
  - 7.3.1. Definition
  - 7.3.2. Advantages
  - 7.3.3. Inconveniences
- 7.4. *Live High-Train Low*
  - 7.4.1. Definition
  - 7.4.2. Advantages
  - 7.4.3. Inconveniences
- 7.5. *Live High-Compete High*
  - 7.5.1. Definition
  - 7.5.2. Advantages
  - 7.5.3. Inconveniences
- 7.6. Hypoxia
  - 7.6.1. Definition
  - 7.6.2. Advantages
  - 7.6.3. Inconveniences
- 7.7. Intermittent Hypoxia
  - 7.7.1. Definition
  - 7.7.2. Advantages
  - 7.7.3. Inconveniences
- 7.8. Atmospheric Pollutants
  - 7.8.1. Pollution and Performance
  - 7.8.2. Adaptation Strategies
  - 7.8.3. Training Inconveniences





- 7.9. *Jet Lag* and performance
  - 7.9.1. *Jet Lag* and performance
  - 7.9.2. Adaptation Strategies
  - 7.9.3. Supplementation
- 7.10. Adaptability to Nutritional Changes
  - 7.10.1. Definition
  - 7.10.2. Performance Loss
  - 7.10.3. Supplementation

## Module 8. Nutrition in the cyclist

- 8.1. Concept of Sports Nutrition
  - 8.1.1. What is Sports Nutrition?
  - 8.1.2. Clinical Nutrition vs Sports Nutritio
  - 8.1.3. Nutrition and supplementation
- 8.2. MB Calculation
  - 8.2.1. Components of Energy Expenditure
  - 8.2.2. Factors Influencing Energy Expenditure in Childhood
  - 8.2.3. Measuring Energy Consumption
- 8.3. Body composition
  - 8.3.1. BMI and Traditional Ideal Weight Is There an Ideal Weight?
  - 8.3.2. Subcutaneous Fat and Skinfold Thickness
  - 8.3.3. Other Methods to Determine Body Composition
- 8.4. Macro and Micronutrients
  - 8.4.1. Definition of Macro and Micronutrients
  - 8.4.2. Macronutrient Needs
  - 8.4.3. Micronutrient Needs
- 8.5. Macro and Micro Periodization
  - 8.5.1. Nutritional Periodization
  - 8.5.2. Periodization in Macrocycles
  - 8.5.3. Periodization in Microcycle

- 8.6. Sweat Rate and Hydration
  - 8.6.1. Sweating Rate Measurement
  - 8.6.2. Hydration Needs
  - 8.6.3. Electrolytes
- 8.7. Stomach and Digestive System Training
  - 8.7.1. Necessity Stomach and Digestive System Training
  - 8.7.2. EEySD Phases
  - 8.7.3. Application in Training and Race
- 8.8. Supplementation and Prohibited Supplements
  - 8.8.1. Supplementation and Ergonutritional Aids
  - 8.8.2. ABCD System of Supplements and Ergonutritional Aids
  - 8.8.3. Individual Supplementation Needs
- 8.9. Trends in Sports Nutrition
  - 8.9.1. Trends
  - 8.9.2. *Low-Carb, High-Fat*
  - 8.9.3. High Carbohydrate Diet
- 8.10. Software and Applications
  - 8.10.1. Macronutrients Control Methods
  - 8.10.2. Nutrition Control Software
  - 8.10.3. Applications for the Athlete

## Module 9. Structure and Functions of a Cyclist Team

- 9.1. Team Categories
  - 9.1.1. Professional Categories (WT and ProContinental)
  - 9.1.2. Continental Category
  - 9.1.3. Elite and Sub-23 Categories
- 9.2. Competition Categories
  - 9.2.1. Competition by Stages
  - 9.2.2. Classics
  - 9.2.3. Categories According to Participation Levels
- 9.3. Inferior Categories
  - 9.3.1. Schools
  - 9.3.2. Cadets
  - 9.3.3. Juvenile

- 9.4. Manager Role
  - 9.4.1. Manager of Cyclist Structure
  - 9.4.2. Sponsorships
  - 9.4.3. Manager/ Cyclist Representative
- 9.5. Director Role
  - 9.5.1. Function of Director as Coordinator
  - 9.5.2. Function of Director as Organizer
  - 9.5.3. Function of Director during Competition
- 9.6. Mechanics' Role
  - 9.6.1. Professional Equipment Material
  - 9.6.2. Highway Mechanic Role
  - 9.6.3. Highway Mechanic Role
- 9.7. Role of Assistants, Masseurs and Physiotherapists
  - 9.7.1. Auxiliaries
  - 9.7.2. Physiotherapist
  - 9.7.3. Masseurs
- 9.8. Role of the Rest of the Staff
  - 9.8.1. Office
  - 9.8.2. Ship
  - 9.8.3. Press
- 9.9. How to Structure Competition
  - 9.9.1. Competition Analysis
  - 9.9.2. Defining Competition Objectives
  - 9.9.3. *Planning* Development for Competition
- 9.10. Each Day of the Competition Within a Team
  - 9.10.1. Precompetition
  - 9.10.2. During Competition
  - 9.10.3. Post-Competition

## Module 10. Cycling Modalities

- 10.1. Tracks
  - 10.1.1. Definition
  - 10.1.2. Track Tests
  - 10.1.3. Competition Demands
- 10.2. Highway
  - 10.2.1. Definition
  - 10.2.2. Modalities and Categories
  - 10.2.3. Competitive Demands
- 10.3. CX (cyclocross)
  - 10.3.1. Definition
  - 10.3.2. Competition Demands
  - 10.3.3. CX Techniques
- 10.4. Time Trial
  - 10.4.1. Definition
  - 10.4.2. Individual Therapy
  - 10.4.3. Equipment
  - 10.4.4. Preparing a Time Trial
- 10.5. MTB (Mountain Bike) / BTT (All Terrain Bicycle)
  - 10.5.1. Definition
  - 10.5.2. MTB Tests
  - 10.5.3. Competition Demands
- 10.6. Gravel
  - 10.6.1. Definition
  - 10.6.2. Competition Demands
  - 10.6.3. Specific Materials
- 10.7. BMX
  - 10.7.1. Definition
  - 10.7.2. BMX Tests
  - 10.7.3. BMX Demands
- 10.8. Adapted Cyclism
  - 10.8.1. Definition
  - 10.8.2. Eligibility Criteria
  - 10.8.3. Competition Demands
- 10.9. New Modalities Regulated by the UCI
  - 10.9.1. E-Bike
  - 10.9.2. E-Sports
  - 10.9.3. Artistic Cycling
- 10.10. Cycle Tourism
  - 10.10.1. Definition
  - 10.10.2. Bicycle Tourism Demands
  - 10.10.3. Strategies for Coping with Trials



*You will have at your disposal a multitude of videos in detail, analysis of real cases, interactive guides and many more high-quality multimedia resources”*

06

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.







“

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

### Case Study to contextualize all content

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

“

*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.



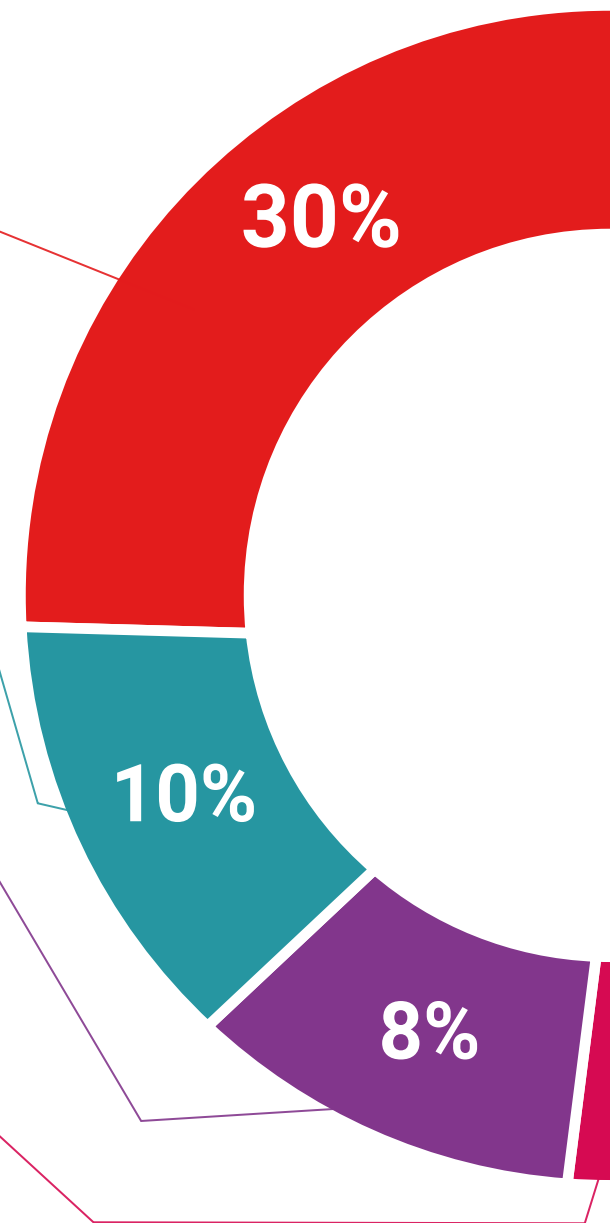
### Practising Skills and Abilities

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.



# 07 Certificate

The Master's Degree in Professional Cycling guarantees students, in addition to the most rigorous and up-to-date education, access to a Master's Degree diploma issued by TECH Global University.





“

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

This program will allow you to obtain your **Master's Degree diploma in Professional Cycling** 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.

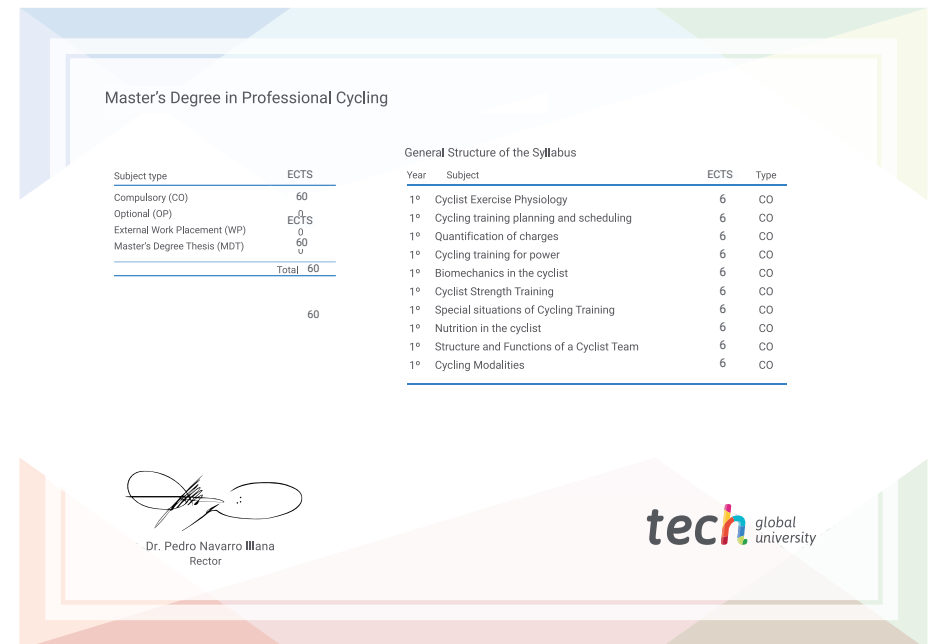
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Master's Degree in Professional Cycling**

Modality: **online**

Duration: **12 months**

Accreditation: **60 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.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

development language

virtual classroom

**tech** global  
university

## Master's Degree Professional Cycling

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

# Master's Degree Professional Cycling

Endorsed by the NBA

