



## Study Plan

**School:** School of Sciences and Technology

**Degree:** Bachelor

**Course:** Sports Sciences (cód. 470)

### 1st Year - 1st Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10645L	Systematic Sports and Expressive Activities I	Human Kinetics	12	Year	312
DES10646L	Human Functional Anatomy	Biological Sciences	6	Semester	156
DES10647L	Initiation to Equitation	Human Kinetics	3	Semester	78
QUI7211L	Fundamentals of Biochemistry	Biochemistry	6	Semester	156
SOC10648L	Elements of Sociology of Sport	Sociology	3	Semester	78
DES0383L	Introduction to the Sciences of Human Physical Activity	Human Physical Activity	3	Semester	78
DES10649L	Organization of Sport	Human Kinetics	3	Semester	78

### 1st Year - 2nd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10650L	Physiological Basis of Physical Activity	*** TRANSLATE ME: Exercício e Saúde ***	3	Semester	78
DES10651L	Kinesiology	Human Kinetics	3	Semester	78
PED10652L	General Didactics of Physical Activity	Education Sciences	6	Semester	156
MAT0917L	Statistics Applied to Physical Activity	Mathematics	6	Semester	156
PSI10653L	Psychology of Development	Psychology	6	Semester	156

### 2nd Year - 3rd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10654L	Systematic Sports and Expressive Activities II	Human Kinetics	9	Year	234
DES10655L	Kinanthropometry	Human Kinetics	6	Semester	156
DES10656L	Motor Development	Human Kinetics	3	Semester	78
DES10657L	Sports Facilities	Human Kinetics	3	Semester	78
DES10658L	Introduction to Neuroscience	Human Kinetics	3	Semester	78
DES10659L	Nutrition and Sportive Dietetics	*** TRANSLATE ME: Exercício e Saúde ***	3	Semester	78
DES0404L	General Theory of Sports Training	Human Physical Activity	3	Semester	78



### 2nd Year - 3rd Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10660L	Traumatology and Means of Intervention	*** TRANSLATE ME: Exercício e Saúde ***	3	Semester	78

### 2nd Year - 4th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10661L	Motor Control and Learning	Human Kinetics	6	Semester	156
PED10662L	Didactics of Sports and Expressive Activities I	Education Sciences	3	Semester	78
DES10663L	Effort Physiology	*** TRANSLATE ME: Exercício e Saúde ***	6	Semester	156
DES10664L	Theory and Method of Specific Sport Training I	Human Kinetics	6	Semester	156

#### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10676L	Field Activities	Human Kinetics	3	Semester	78
DES10677L	Mountain Activities	Human Kinetics	3	Semester	78
DES10678L	Sea Activities	Human Kinetics	3	Semester	78
DES10679L	Assessment and Control of Sports Performance	Human Kinetics	3	Semester	31
DES10680L	Sports Development	Human Kinetics	3	Semester	78
DES10681L	Regional Development and Sports	Human Kinetics	3	Semester	78
DES10682L	Sport Events	Human Kinetics	3	Semester	156
FIL10683L	Philosophy of Sport	Philosophy	3	Semester	78
HIS10684L	History of Physical Activity and Sport	History	3	Semester	78
DES10685L	Olympism and Paralympism	Human Kinetics	3	Semester	78
DES10686L	Postural Re-education Techniques	Human Kinetics	3	Semester	78

#### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT10687L	Technical English	Foreign Languages	3	Semester	78

#### Group of Free Options

### 3rd Year - 5th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10665L	Theory and Method of Specific Sport Training II	Human Kinetics	12	Year	312
DES10666L	Nature Exploration Activities II	Human Kinetics	3	Semester	78
DES10667L	Didactics of Sports and Expressive Activities II	Education Sciences	3	Semester	78



### 3rd Year - 5th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10668L	Introduction to Research Methods in Human Kinetics	Human Kinetics	3	Semester	78
PSI1405L	Psychology of Physical Activity	Psychology	3	Semester	78
DES10669L	Health and Physical Condition	*** TRANSLATE ME: Exercício e Saúde ***	6	Semester	156

#### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10676L	Field Activities	Human Kinetics	3	Semester	78
DES10677L	Mountain Activities	Human Kinetics	3	Semester	78
DES10678L	Sea Activities	Human Kinetics	3	Semester	78
DES10679L	Assessment and Control of Sports Performance	Human Kinetics	3	Semester	31
DES10680L	Sports Development	Human Kinetics	3	Semester	78
DES10681L	Regional Development and Sports	Human Kinetics	3	Semester	78
DES10682L	Sport Events	Human Kinetics	3	Semester	156
FIL10683L	Philosophy of Sport	Philosophy	3	Semester	78
HIS10684L	History of Physical Activity and Sport	History	3	Semester	78
DES10685L	Olympism and Paralympism	Human Kinetics	3	Semester	78
DES10686L	Postural Re-education Techniques	Human Kinetics	3	Semester	78

#### Group of Options

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT10687L	Technical English	Foreign Languages	3	Semester	78

#### Group of Free Options

### 3rd Year - 6th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10670L	Movement-Biomechanical Analysis	Human Kinetics	6	Semester	156
DES10671L	Adapted Physical Activity	*** TRANSLATE ME: Exercício e Saúde ***	3	Semester	78
DES10672L	Nature Exploration Activities II	Human Kinetics	3	Semester	78
DES10673L	Equitation Didactics	Human Kinetics	3	Semester	78
DES10674L	Practices of Physical Activity in Basic Education	Human Kinetics	3	Semester	78
DES10675L	Practices in Exercise and Health	*** TRANSLATE ME: Exercício e Saúde ***	3	Semester	78



3rd Year - 6th Semester

Component code	Name	Scientific Area Field	ECTS	Duration	Hours
<b>Group of Options</b>					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
DES10676L	Field Activities	Human Kinetics	3	Semester	78
DES10677L	Mountain Activities	Human Kinetics	3	Semester	78
DES10678L	Sea Activities	Human Kinetics	3	Semester	78
DES10679L	Assessment and Control of Sports Performance	Human Kinetics	3	Semester	31
DES10680L	Sports Development	Human Kinetics	3	Semester	78
DES10681L	Regional Development and Sports	Human Kinetics	3	Semester	78
DES10682L	Sport Events	Human Kinetics	3	Semester	156
FIL10683L	Philosophy of Sport	Philosophy	3	Semester	78
HIS10684L	History of Physical Activity and Sport	History	3	Semester	78
DES10685L	Olympism and Paralympism	Human Kinetics	3	Semester	78
DES10686L	Postural Re-education Techniques	Human Kinetics	3	Semester	78
<b>Group of Options</b>					
Component code	Name	Scientific Area Field	ECTS	Duration	Hours
LLT10687L	Technical English	Foreign Languages	3	Semester	78
<b>Group of Free Options</b>					



## Conditions for obtaining the Degree:

\*\*\* TRANSLATE ME: Ciências do Desporto

Para obtenção do grau de licenciado em Ciências do Desporto é necessário obter aprovação a 165 ECTS em unidades curriculares obrigatórias e 15 ECTS em unidades curriculares optativas, distribuídas da seguinte forma:

1º Ano

1º Semestre:

1 UC Obrigatória Anual num total de 12 ECTS. Esta disciplina anual terá a carga equitativamente dividida pelos dois semestres do primeiro ano.

6 UC Obrigatórias num total de 24 ECTS

2º Semestre:

5 UC Obrigatórias num total de 24 ECTS

2º Ano

3º Semestre:

1 UC Obrigatória Anual num total de 9 ECTS. Esta disciplina anual terá a sua carga com 6 ECTS no 3.º semestre e 3 no 4.º semestre.

7 UC Obrigatórias num total de 24 ECTS

4º Semestre:

4 UC Obrigatórias num total de 21 ECTS

1 UC Optativa num total de 6 ECTS

3º Ano

5º Semestre:

1 UC Obrigatória Anual num total de 12 ECTS. Esta disciplina anual terá a sua carga equitativamente dividida pelos dois semestres do 3º ano.

5 UC Obrigatórias num total de 18 ECTS

1 UC Optativa num total de 6 ECTS

6º Semestre:

6 UC Obrigatórias num total de 21 ECTS

1 UC Optativa num total de 3 ECTS

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## Program Contents

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### **Systematic Sports and Expressive Activities I (DES10645L)**

Given that the U.C. is taught by distinct blocks corresponding to different sports, the program contents are specific to each. Thus, we refer to the programs of each modality to query their contents. The procedures covered are the following:

Water activities, football, basketball, rugby, dance, postural reeducation method pilates, tennis, gym classes.



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### **Human Functional Anatomy (DES10646L)**

HISTORY OF HUMAN ANATOMY  
OVERVIEW OF THE HUMAN BODY  
HISTOLOGY: THE STUDY OF TISSUE  
BONES AND JOINTS  
The MUSCLE  
BLOOD VESSELS  
THE LYMPHATIC SYSTEM AND GLANDS  
GENERAL NEUROANATOMY  
THE BODY  
SUPERIOR STATE  
LOWER LIMB

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### **Initiation to Equitation (DES10647L)**

Origin, domestication and evolution of the horse and other equines.  
Objectives of speculation related to the ethnic studs equine.  
Consideration of ethnic horses and diagnosis.  
Zoognósia and functional anatomy of the horse.  
Study locomotor and natural movements of horses.  
Major equestrian activities.  
Playing horses.  
Nutrition and feeding of horses.  
Equine health.  
Prevention of locomotor disorders, digestive and respiratory.  
Management of foals.  
Economic aspects of equinicultura.  
Accommodations, production structures and sports.  
Breeders' associations and their functions.

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### **Fundamentals of Biochemistry (QUI7211L)**

Introduction to Biochemistry and its correlation with the other sciences. The importance of water and inorganic ions in biosystems. Biological buffer systems. Methods and techniques used in biochemistry. Nomenclature, structure and properties of biomolecules: carbohydrates, lipids, amino acids, peptides, proteins and nucleic acids. Lipoproteins. Biomembranes. Enzymes and enzyme kinetics. Bioenergetics and bioelectrochemistry. The importance of ATP in metabolism. Anabolism and catabolism. The main metabolic pathways. Introduction to the metabolism of carbohydrate, fat and protein. Integration and metabolic regulation.

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### **Elements of Sociology of Sport (SOC10648L)**

The syllabus is structured around six themes:

1. Sociological Perspective of sport.
2. Sport, socialization and culture.
3. Sport, leisure and lifestyles.
4. Sports and inequality: gender, age and social stratification.
5. Sport and globalization.
6. Violence, Ethics and Fair-Play on Sport.



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### **Introduction to the Sciences of Human Physical Activity (DES0383L)**

Block I - Defining the Human Physical Activity Sciences

Block II - The scientific study of Human Physical Activity,

Block III - General Fundamentals of biological mechanisms for Adaptation

Block IV - Energetical, Informational and Affective resources in Human Physical Activity

Block V - Exercise as an intervention tool of Sports Professional

Block VI - The Determinants of Human Performance Factors

Block VII - Analyze the labour market in the framework of the Science of Sport

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### **Organization of Sport (DES10649L)**

1. Global Context of Sport Organizations

2. General Notions of Sports System

2.1. Features and concepts of sports system

2.2. Operators of the national sports system

3. The State Organization of Sport

3.1. The international organization of sport

3.2. The national structures of sport

4. The Voluntary Sport Organization

4.1. International associative movement

4.2. Sports associations in Portugal

5. The Sports Business Organization

5.1. The sports corporations

5.2. The commercial societies

6. The International Sports Systems

6.1. In european territory

6.2. In the Community of Portuguese Language Countries (CPLC)



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### **Physiological Basis of Physical Activity (DES10650L)**

1. Introduction: General and Cell Physiology
2. Water, electrolytes and acid base balance
3. Urinary System
  - a. Constituents, functions and physiological mechanisms
  - b. Urinary system and P.F.
4. Respiratory system
  - a. Constituents, functions and physiological mechanisms
  - b. Respiration and P.F.
5. Cardiovascular System
  - a. Constituents, functions and physiological mechanisms
  - b. Circulation
  - c. Electrical activity and heart contraction
  - d. P.F. and cardiovascular system
6. Digestive System
  - a. Constituents, functions and physiological mechanisms
  - b. Digestive system, nutrition and P.F.
7. Metabolism
  - a. Metabolism of nutrients, energy and P.F.
8. Musculoskeletal System
  - a. Nerve and Muscle
    - i. Membrane potential and action potential
    - ii. Neuromuscular transmission
    - iii. Muscular contraction
  - b. Bone
    - i. Formation, destruction and bone growth
    - ii. P.F. and the musculoskeletal system
9. Hormonal system
  - a. Constituents, functions and physiological mechanisms
  - b. The hormonal system and P.F.





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**Kinesiology (DES10651L)**

**A – BASIC CONCEPTS FOR THE ANALYSIS OF ARTICULAR MOVEMENT**

I. Human Movement Terminology

- Axis and types of articular movement

II. Arthrokinematics of Movement

- Articular classification and degrees of freedom

III. The Muscular System and the Dynamics of Movement

- Mechanical model of the muscle
- Types of muscular contraction and body movements

IV. Neuromuscular Coordination of Human Movement

- Intramuscular coordination mechanisms
- Aspects of intermuscular coordination

V. Organization and Control of Movement

- Medular organization of movement
- Cortical organization of movement

VI. Balance Regulation

**B – LOCOMOTOR ADAPTATIONS TO THE HUMAN MOVEMENT**

I. Neuromuscular Adaptations

II. Bone Adaptations

III. Articular Adaptations

**C – KINESIOLOGICAL ASPECTS OF HUMAN MOVEMENT**

I. Kinesiology of the Upper Limb

- Study of human movement and muscular participation in the shoulder girdle
- Study of human movement and muscular participation in the shoulder
- Study of human movement and muscular participation in the elbow
- Study of human movement and muscular participation in the wrist and hand

II. Kinesiology of the Lower Limb

- Study of human movement and muscular participation in the pelvic girdle
- Study of human movement and muscular participation in the hip
- Study of human movement and muscular participation in the knee
- Study of human movement and muscular participation in the ankle and foot

III. Kinesiology of the Vertebral Column, Thorax and Abdomen.

- Study of human movement and muscular participation in the vertebral column
- Study of human movement and muscular participation in the thorax
- Study of human movement and muscular participation in the abdomen

**D – INTEGRATED MUSCULAR PARTICIPATION IN DIFFERENT ACTIVITIES**

I. Analysis of the Muscular Participation in Different Sporting Contexts



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### **General Didactics of Physical Activity (PED10652L)**

Analysis of teaching-learning process.

1. Pedagogical relationship
2. Phases of teaching-learning process:
3. Success Factors in Teaching Physical Education Activities
4. Educational Intervention Techniques
5. Effective Teaching

Teaching Strategies in Physical Activity

1. Teaching Styles
2. Forms of organization

Goal Setting in Physical Activity

1. Objectives and competencies
2. Relevance in the formulation of objectives
3. Functions of the objectives
4. Educational objectives

Evaluation in Physical Activity

1. Importance of evaluation
2. Types of evaluation

Planning for Physical Activity

1. Planning stages
2. Model planned in stages and blocks
2. Types of planning for each model
3. Components of the types of planning
4. Analysis of different types of planning

Observation Systems in Physical Activity

1. Relevance of observation
2. Phases of observation
3. Registration rules
4. Study of observation systems

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### **Statistics Applied to Physical Activity (MAT0917L)**

The main topics to be addressed in the Course are:

Descriptive Statistics

Introduction to Probability

Theoretical Probability Distributions, Sampling and Sampling Distributions Probability

Estimation: Point and Interval

Hypothesis Testing.

Simple analysis of variance (one factor).

Nonparametric test.

Simple Linear Regression.

These contents are broken down in other more specific, which can be found on the CU program

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### **Psychology of Development (PSI10653L)**

1 Concept of Development:

2. From birth to school entry in: Development in infancy
3. Entry into the School to Adolescence: The developing child
4. Development and adolescence
5. Development and adulthood
6. Development and aging



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### **Systematic Sports and Expressive Activities II (DES10654L)**

Given that the U.C. is taught by distinct blocks corresponding to different sports, the program contents are specific to each. Thus, we refer to the programs of each modality to query their contents. The procedures covered are the following:

Handball, Horse Riding, Volleyball, Athletics, Sports gímnicos.

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### **Kinanthropometry (DES10655L)**

I - Growth and Proportionality

II - Sexual dimorphism

III - Body composition

IV - Morphology Typology

V - Secular trends

VI - Maturation

VII - Body composition densitometry

VIII - Somatotype

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### **Motor Development (DES10656L)**

1. Introduction to Motor Development

1.1. Fundamental concepts

1.2. Theoretical Perspectives

2. Growth and aging

2.1 Development of organic systems

3. Development of motor skills

3.1 Movements reflexes and spontaneous movements

3.2. Rudimentary skills

3.3. Core Skills

4. Perceptual-motor development

4.1. Sensory and perceptual development

4.2. Perception-action development

5. Constraints of Motor Development

5.1. Socio-cultural Constraints

5.2. Structural constraints

6. Motor Development and disability

6.1. Down Syndrome

6.2. Cerebral Palsy

7. The Motor Development in Aging

8. Secular trend and Motor Development

9. Valuation techniques in Motor Development

9.1. Framework

9.2. The Bruininks-Oseretsky Test

9.3. Peabody Development Motor Scales

9.4. KTK test

9.5. Fitnessgram

9.6. Test of Gross Motor Development

9.7. Fullerton batteries for older people



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### **Sports Facilities (DES10657L)**

1. The types and classification of spaces and sports facilities.
2. Indicators for ordering of artificial sports facilities.
3. Planning methodologies for sports facilities.
4. Planning stages of sports facilities.
5. Main parameters for management of sports facilities.
6. Upkeep and maintenance of sports facilities.
7. Management of sporting equipping.

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### **Introduction to Neuroscience (DES10658L)**

Anatomical and functional organization of the nervous system (micro and macro)

Organizational principles that govern the structure and functioning of the nervous system (micro and macro).

Morphology and physiological processes of functioning of nerve cells

The nerve stimulus

Reception, transduction, transmission and processing of stimulus.

Process and transmission of information for performance (motor or otherwise)

Anatomy, organization and morphology of the different constituents of the central nervous system to perform their specific functions

Specific sensory reception

Structuring, planning and motor control

Emotion, cognition and motor action

Cognition and emotion in motor activities

Embodied cognition

Higher cortical functions, language and motor skills

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### **Nutrition and Sportive Dietetics (DES10659L)**

Concept of Human Nutrition

Energy metabolism and nutrient

Carbohydrates and fiber

Protides or proteins

Lipids or fats

Vitamins

Minerals

Water

Diet during training, competition and pre-contest diet and recovery

Nutritional ergogenic substances

Nutrition in special conditions

Influence of Alcohol and care of athletes with eating



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### **General Theory of Sports Training (DES0404L)**

The major topics of the syllabus this Course are:

Block I - Fundamentals of General, Biological Mechanisms of Adaptation

Block II - Operational Bases for the Organization of Training Process

Block III - Motor Skills

A. The coordination abilities

B. Conditional Capabilities

1. Strength

C. Conditional Capabilities Coordinator

1. The Velocity

2. The Flexibility

Block IV - Planning and Periodization of Sports Training

Block V - Variability in Preparation Processes Sports

Block VI - The Practice of Decision Making in Sport

Block VII - Preparation of Children and Youth Sports

(The blocks shown are subdivided into many other content, which are contained in the Course program)

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### **Traumatology and Means of Intervention (DES10660L)**

I. Traumatology in physical activity and sports

- The competitive nature of the athlete;
- The pathophysiological process of sports injuries;
- Early return to the sporting activity;
- Injury prevention as the key issue;
- Injuries in different physical activities and sports
- The first aid

• The importance of inflammation control (PRICE)

II. Functional training as a methods of regeneration

- Assessment in functional training
- Anatomy and functional movement
- Movement analysis
- Functional movement systems and patterns
- Movement correction strategies
- Implementation of movement correction strategies
- Development of functional training programs

III. Equipment Resources in Functional Training

- Equipment choice in functional training
- Adaptation of equipment to meet the needs of the exercises
- Equipment and evaluation

IV. Exercise progression and equipment



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### **Motor Control and Learning (DES10661L)**

1. Motor learning
2. Performance measures: the variable product and process
3. Sensory receptors
4. Motor skills
5. Learning operations
6. Theories of Attention
7. Information theory
8. Memory
9. Models and Theories of learning
10. Theories of Motor Control
11. Phases of learning
12. Factors affecting the learning

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### **Didactics of Sports and Expressive Activities I (PED10662L)**

1. Conceptual framework to Team Sports
1. Concepts and definitions
2. Fundamental characteristics of the TS
3. The Fundamental Problems of TS
4. The approach of the TS - the past and the present
5. Conceptual Models Approach to the Game
2. Structural and Functional Characterization of Team Sports
1. Analysis of formal structure
2. Analysis of the functional structure
3. Methodological Evolution Process of Teaching Sports Games Collective
1. The emergence of Model Technical and Traditional
2. The Models of Teaching Game for Understanding - TGfU
3. The Tactical Model Bunker & Thorpe (1982)
4. The JDC in Curriculum Enrichment Activities (CEA)
1. Program Guidelines of the CEA
2. Objectives of the TS as sporting activities in CEA
3. Intervention strategies
5. The Approach Based on Constraints
1. The Interaction Model of Constraints Newell (1986)
2. The modified forms of Gambling
3. How to Build Forms Modified Game - Practical Examples
6. A Systemic Model for Teaching the Game
1. Ecological Dynamics of the Game
2. The modified forms as Strategy Game of the Central Model
3. The Evaluation Indicators Level Game
4. Levels of Complexity Growing Game
5. Problems like Tactical Contents Teaching / Training
6. The All-Parts-All Alternation Logic
7. The Structure of Sessions
8. Practical Aspects of Preparation of Lesson Plan / Training
9. Leadership, Organization and Control of Activity
10. Instruction and Communication
11. Mobilization of Practitioners for Activity
12. The Conception of the Task
13. The Management and Regulation during Task
14. The Capacity of Self-Observation



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### **Effort Physiology (DES10663L)**

1. Introduction to the Physiology of Stress
2. Control muscle movement
3. Cardiovascular control during exercise
4. Regulation of breathing during exercise
5. Cardiorespiratory adaptations to training
6. Metabolic adaptations to training and hormonal response to exercise
7. Quantification of sports training
8. Ideal body weight for sports performance
9. Thermoregulation and exercise
10. Exercise hypobaric and hyperbaric environments

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### **Theory and Method of Specific Sport Training I (DES10664L)**

Given that the U.C. is taught by several teachers in the different options chosen by students, the syllabus are particular to each. Thus, we refer to the programs of each option to query their contents.

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### **Field Activities (DES10676L)**

- 1 - Group Dynamics games
- 2 - Sight Orientation (urban and rural)
- 3 - Mapped Orientation (urban and rural)
- 4 - Mountain Biking mapped orientation
- 5 - The mountain bike components
- 6 - The safety in rope maneuvers
- 7 - Ropes, the fittings and unions
- 8 - The anchorages and moorings
- 9 - The assembly techniques, monitoring ascents, descents and crossings in natural and artificial obstacles
- 10 - Kayak and canoe: safety, navigation and rescue in dams and small rivers
- 11 - Sailing Ships: the typology, navigation and rescue dams and bays
- 12 - The concepts of project planning
- 13 - Projections of project development
- 14 - The forecasting techniques applied to planning
- 15 - Hierarchy of planning
- 16 - Techniques of planning and scheduling a project
- 17 - Permits and licenses
- 18 - Conceptualization of the project
- 19 - Support and Sponsorship
- 20 - Management of resources (human and material)
- 21 - Communication and event publicity

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### **Mountain Activities (DES10677L)**

Mountain Activities

- Ski,
- Snowboard.



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### **Sea Activities (DES10678L)**

Watersports:

Canoeing,  
Sailing,  
Windsurfing,  
Bodyboarding  
Surf  
Snorkeling,  
Scuba Diving.

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### **Assessment and Control of Sports Performance (DES10679L)**

Fundamentals of Assessment and Monitoring of Sport Performance  
Systematic Model Assessment  
Fundamentals of testing programs  
The Sessions Control  
Assessment and control of motor skills  
Strength Assessment  
Speed Rating  
Agility Assessment  
Evaluation of Resistance  
Note methodologies in the evaluation and monitoring of training  
Means and Methods of Observation  
Analysis of the Game as a method of assessment in Games Team Sports  
Modeling of Exercise Training in Sports Games Panels  
Physiological Characterization  
Time and Motion Analysis (TMA)

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### **Sports Development (DES10680L)**

Basic sports development  
The Portuguese Sports System  
The role of Local Authorities  
The aspect of the sport hall  
Public Policy Municipal Sports  
The responsibilities of Municipal Agencies  
Intervention models of Departments of Sport  
Municipal services, sports





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### **Regional Development and Sports (DES10681L)**

1. Sports in Municipalities
  - 1.1. The Portuguese sports system
  - 1.2. The role of local authorities
  - 1.3. Public policies municipal sports
  - 1.4. The missions of the municipal
  - 1.5. Social functions of municipalities
2. Legal Responsibilities of Municipalities
  - 2.1. Regime powers and duties of municipalities
  - 2.2. Legislation applied to the sport in the counties
3. Responsibilities Intervention Models of Sport
  - 3.1. Areas of intervention in sport
  - 3.2. Municipal services to sport
  - 3.3. Municipal enterprises and sport
  - 3.4. Success stories
4. Municipal Management of Sport
  - 4.1. The instruments of municipal action
  - 4.2. Sports Development Strategic Plans
  - 4.3. Atlas Sports Halls
  - 4.4. Networking Municipal Sports Equipment, Artificial
  - 4.5. Municipal Programs Association Support Sport
5. Future Prospects and International
  - 5.1. The European reality
  - 5.2. The administrative regionalization of sport in Portugal

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### **Sport Events (DES10682L)**

1. Classification of Events
  - 1.1. The characteristics of the event
  - 1.2. The types of sport events
2. Structure and Organization of Sport Events
  - 2.1. Phases of sporting events
  - 2.2. Organization models of sport events
  - 2.3. Organization areas and work
3. Funding and Impact of Sport Events
  - 3.1. The socio-economic and socio-political sporting events
  - 3.2. The repercussion on the image of cities
  - 3.3. The impact on tourism
  - 3.4. The state system support of to international events
  - 3.5. The sponsorship of sporting events
4. Case study
  - 4.1. Presentation of case studies relating to the organization of international sports competitions such as the European and World Championships and Olympic Games, among others.



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### **Philosophy of Sport (FIL10683L)**

1. Introduction.
2. Sport as competition.
3. Body, physical activity and sport in the western tradition.
4. Modern sport and the Olympics (Pierre Coubertin).
5. Sport and education.
6. Problems with modern sport.

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### **History of Physical Activity and Sport (HIS10684L)**

History of Physical Activity and Sport: its goals and functionalities. Basic concepts for the History of Physical Activity and Sport. A descriptive and / or interpretative History?

- 1 - The body and physical activity in prehistoric societies. Kinetics and human evolution.
- 2 - Physical activity and sports in pre-classical civilizations. Enhancement and social uses of the body.
- 3 - The major manifestations of physical activity and sport in the classical world. Historical contexts, meanings and functions attributed to the practice of physical activities. From the Greek agon to the Roman ludus.
- 4 - From the Middle Ages to the Industrial Revolution. The role of physical activity and sport in the feudal society. The European Renaissance: a new view on the body and physical activity. Enlightenment rationalism and naturalism: physical activity and sport in the new educational thinking. The affirmation of the ideology of progress through physical activity and sport.
- 5 - Physical activity and sport in contemporary societies. The sport as a tool of nationalist disputes and war in Europe. Sport and international relations. Economic, institutional changes and consolidation of organized sport. Social change, physical activity and sport: professional sports and leisure industry; the growth of amateur sport; physical activity and sport in schools; women in sport; physical activity and sport in the age of communication.
- 6 - The modern Olympic movement: a demonstration cultural relevance of contemporary history of physical activity and sport. The beginning of the modern Olympic movement. The Portuguese pioneers of the modern Olympic movement. Critical analysis of the conditions and determinants of current Olympic movement

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### **Olympism and Paralympism (DES10685L)**

1. Olympic and Paralympic Evolution
  - 1.1. Olympic and paralympic background
  - 1.2. Olympic and paralympic values
2. Olympism and Paralímpic Organization
  - 2.1. Olympic and paralympic movement
  - 2.2. Institutional structure of olympic and paralimpic
  - 2.3. Olympic and paralimpic in Portugal
3. Olympic and Paralympic Events
  - 3.1. Olympic and paralympic applications
  - 3.2. Olympic and paralympic competitions
  - 3.3. Olympic and paralympic missions
  - 3.4. Olympic and paralympic legacy



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### **Postural Re-education Techniques (DES10686L)**

#### I. Basic Anatomy of Posture

1. Osteology and Myology
  - 1.1. Spine and upper and lower limbs
  - 1.2. Joint movements
  - 1.3. Types of muscle contraction
  - 1.4. Role of agonists, antagonists and synergists
  - 1.5. Muscular balance
  - 1.6. Work on strength and flexibility
  - 1.7. Pelvic and scapular stability

#### 2. Postural alignment and postural assessment

- 2.1. Ideal posture
- 2.2. Methods of assessing posture

#### II. Pathologies and prescription in Postural Reeducation

1. Pathologies of postural alignment
  - 1.1. Pathologies of the spine
  - 1.2. Pathologies of the lower limbs
2. Prescription of exercise for postural disorders
  - 2.1. Theoretical study of postural reeducation techniques
  - 2.2. Planning and teaching sessions
3. Experience of postural reeducation techniques

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### **Technical English (LLT10687L)**

#### Reading comprehension in English

1. Reading for general orientation
2. Reading for information and argument
  - 2.1. for gist
  - 2.2. for specific information
  - 2.3. for detailed information
  - 2.4. for implications
3. Reading and following instructions

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### **Theory and Method of Specific Sport Training II (DES10665L)**

Given that the U.C. is taught by several teachers, where students are integrated into technical teams from several institutions, the program contents are specific to each of the different options. Thus, I refer to the programs of each option to query their contents.

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### **Nature Exploration Activities II (DES10666L)**

- 1.1 - animation techniques and group dynamics
- 1.2 - Guidance and Mapping
- 1.3 - Mountaineering and Climbing
- 1.4 - Canoeing and Sailing
- 1.5 - Mountain bike



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## **Didactics of Sports and Expressive Activities II (DES10667L)**

A. Contents cutting across all sports

1 - Aspects related to the teaching-learning process

Purpose of teaching objectives and teaching-learning process

Functions and powers of the teacher

Planning and evaluation

2 - General conditions of planning factors

space available

material conditions

Characteristics of the group

Characterization of individual students

3 - Specific factors that condition the planning lessons

Thematic unit plan

Structure of the swimming lesson

contents

specific objectives

educational functions

Organization of class

Number of tasks to be performed

Degree of difficulty of the tasks

Length of session and exercise

Intensity of effort

Relationship between the content

Lesson Plan

- The teacher in class

Levels at which the teacher

discipline

climate

management

instruction

feedback

Specificity of the teacher / student relationship

Procedures facilitating and encouraging the good teacher / student relationship

- Assessment of teacher performance

- Use of checklists

B. The sports to address:

1. In Curricular Enrichment Activities

1.1. Physical Activities

Exploration of Nature

Displacements and equilibrium

Rhythmic and expressive

Games

Handling activities

Opposition and struggle

2. In more advanced levels of education

1.2. Individual sports activities

athletics

gymnastics

swimming

2.1 - Athletics:

Racing

Releases

jumps

2.2 - Swimming:

Adaptation to aquatic

Teaching swimming techniques

Teaching techniques starting

Teaching techniques for turning

2.3 - Gymnastics:

Rhythmic Gymnastics sports



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## **Introduction to Research Methods in Human Kinetics (DES10668L)**

- 1) Introduction to Research in physical activity
  - 1.1) Concept research
  - 1.2) The nature of research
  - 1.3) Steps of research
  - 1.4) The scientific method
  - 1.5) Types of studies
- 2) Development study problem
  - 2.1) Problem identification study
  - 2.2) Objectives of the literature review
  - 2.3) Basic strategies search of the literature
- 3) Research project
  - 3.1) Context
  - 3.2) Hypotheses
  - 3.3) Objectives
  - 3.4) Methods:
    - Type of Study
    - Local
    - Sample
    - Procedure (intervention, randomization, analysis)
  - 3.5) Organization of tasks
  - 3.6) List of materials needed
  - 3.7) Budget
  - 3.8) References
- 4) Formulation of the method
  - 4.1) Importance of planning method
  - 4.2) Description of subjects
  - 4.3) Description of instruments
  - 4.4) Description of procedures
  - 4.5) Description of tests
- 5) Questions ethical research and scholarly work
  - 5.1) Areas of scientific dishonesty
  - 5.2) Questions ethical issues related to copyright
  - 5.3) Protection of subjects
- 6) Writing and presentation of research
  - 6.1) Format thesis or dissertation
  - 6.2) Format scientific article
- 7) Introduction to concepts statist
  - 7.1) Importance of statistics
  - 7.2) Statistical Symbols
  - 7.3) Basic concepts of statistical techniques
- 8) Introduction to Statistical Package for Social Sciences (SPSS)
  - 8.1) Information on SPSS
  - 8.2) Introduce the variables
  - 8.3) Select the analysis procedure
  - 8.4) Result Screen
- 9) Conditions application of parametric tests
  - 9.1) Kolmogorov-Smirnov
  - 9.2) Shapiro-Wilk
  - 9.3) Test Levene
- 10) Parametric tests
  - 10.1) t-student test
  - 10.2) ANOVA
  - 10.3) MANOVA
- 11) Tests nonparametric
  - 11.1) Wilcoxon
  - 11.2) Mann-Whiney
  - 11.3) Friedman Test
  - 11.4) Krusal-Wallis Test
- 12) Factorial analysis



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### **Psychology of Physical Activity (PSI1405L)**

- 1 - Presentation and introduction to sports psychology
- 2- The intervention of the psychologist in sport. Evolution. Functions.
- 3 - Knowledge of the practitioner and the dossier of the athlete. Collecting and recording information.
- 4- The psychological assessment in sport.
- 5 - Personality and sport. The relationship between personality and sports.
- 6 - The motivation and the context of sport. The motivational orientation. The increases and intrinsic motivation.
- 7 - The emotional processes. Stress, anxiety and activation. The self-confidence.
- 8 - The relationship coach - athlete. The affective and instrumental aspects.
- 9 - The group and team dynamics. Group cohesion and leadership processes.
- 10 - The psychology of exercise. Exercise and specific populations.
- 11 - The psychological training.
- 12 - The training of psychological skills. The concentration and imagery
- 13 - The physiological training and strategies
- 14 - A model of psychological intervention.

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### **Health and Physical Condition (DES10669L)**

- 1 - Diabetes Mellitus
- 2 - Dyslipidemia
- 3 - Hypertension
- 4 - Obese
- 5 - Metabolic Syndrome
- 6 - Osteoporosis
- 7 - Arthritis
- 8 - Fibromyalgia
- 9 - The elderly
- 10 - Children



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### **Movement-Biomechanical Analysis (DES10670L)**

Kinematic analysis using video.

- Linear and Angular Kinematics
- Coordinate System
- Position, Velocity and acceleration
- analytical method and numerical calculation
- direct measurement techniques (accelerometry, goniometry).
- Instrumentation and Methodology used in the analysis Kinematics through video.
- Procurement procedures.
- Estimation of error data processing.
- Accuracy, consistency, validity and noise.
- Two-dimensional and three-dimensional analysis.
- Procedures for calculation.
- Analysis two-dimensional and three-dimensional analysis.
- Instrumentation, software and calculation procedures for kinematic analysis.

Analysis of Musculoskeletal loading.

- Linear and Angular Kinetics
- Newton's Laws
- Impulse, Work and Power
- Moment of Inertia, and Angular Moment and Torque
- Mechanical Work, Energy and Muscle Power
- Methods and instrumentation for kinetic analysis.
- Direct measurement of forces (Dinamografia - Platform Forces, Isokinetic).
- Application of the platform in motion analysis.
- Analysis and interpretation of data obtained.
- Synchronization between kinematic and kinetic data.
- Differences between Centre of mass (CoM) and Centre of pressure (CoP).
- Methods of calculating the load on the Musculoskeletal System.
- Muscle forces in inverse dynamics.
- Mechanical Work, energy and power.
- Causes of Muscular inefficiency.
- Calculation of internal work and external work.
- Instrumentation, software and calculation procedures for kinematic analysis.

Biomechanics and Motor Control.

- Posture.
- Posture Control.
- Methods and Cinematic and Kinetic analysis of posture.
- Centre of Pressure (CoP)
- Importance of the analysis of CoP sway to the study postural control.
- Variability and movement.
- Analysis of the variability in a time series.
- Non linear parameters used in the analysis of the movement.
- Mathematical models of sporting movements.
- Simulation, optimization and sensitivity analysis.
- Instrumentation, software and calculation procedures for the analysis of time series.
- Use of nonlinear methods to study time series collected.

Muscle Mechanics.

- Mechanical properties of skeletal muscle.
- Characteristics of the relationship between muscle length and strength, force - speed.
- Muscular Efficiency.
- Fundamentals of Mechanics of materials.
- Injury and Biomechanics.
- Surface Electromyography (EMG) and Biomechanics.
- Procurement procedures.
- Processing and analysis of data obtained.
- Processing time domain and frequency domain.
- Using EMG to estimate muscle strength.
- Collection, processing, and data for use in group work.



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### **Adapted Physical Activity (DES10671L)**

1. WHO Concepts
2. Placement of the AFA
3. Special Educational Needs (SEN)
4. Disability specific legislation
5. Paralympics Games
6. Deficiencies and diseases / chronic conditions
7. Physical Education

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### **Nature Exploration Activities II (DES10672L)**

- 1.1 - animation techniques and group dynamics
- 1.2 - Guidance and Mapping
- 1.3 - Mountaineering and Climbing
- 1.4 - Canoeing and Sailing
- 1.5 - Mountain bike
- 1.6 - Alternative Sports

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### **Equitation Didactics (DES10673L)**

- Vaulting with saddle and vaulting without saddle (without stirrups)
- Vaulting in Saddle (with stirrups)
- Horseback on Gymnastics
- Horse Ridding
- Horse Ridding outside
- Guidance for a Training Session
- The " Dressage"
- Show Jumping
- Profiles of Horse Riding Teachers
- The Introduction to Horse Riding Teaching and pedagogy.
- Horse Base Gymnastics
- The Teaching of the Horse
- The Theory of Training in Horse Riding





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### **Practices of Physical Activity in Basic Education (DES10674L)**

1. The educational system and the curriculum in the 1st cycle of basic education;
2. Educational foundations and normative framework in the area of Physical Activity and Sport and Expression and Physical-motor Education in the 1st cycle of basic education;
3. Programmatic guidelines for Physical Activity and Sports in the 1st cycle and the Program of Expression and Physical Education Motor
4. Methodologies for pedagogical intervention of the various programmatic contents of Physical Activity and Sport:
5. Planning of teaching: sources of structural planning, coordination between the various levels of planning; conception of lesson plans.
6. Evaluation of teaching: criteria and evaluation indicators, diagnostic, formative and summative assessment, conception and implementation of tools for assessment of learning.
7. The pedagogical intervention in the classroom: factors structuring the lesson plan, the management of classroom and techniques of pedagogical intervention; strategic decisions for classroom organization and pedagogical success; developing real situations of teaching and learning and their critical analysis

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### **Practices in Exercise and Health (DES10675L)**

- 1 - Practical Application Protocols assess cardiorespiratory
- 2 - Practical Application Protocols muscle strength evaluation
- 3 - Practical Application Protocols flexibility assessment
- 4 - Practical Application of the Exercise Prescription
  - 4.1 - Exercise type, intensity, duration, frequency
  - 4.2 - Types of exercise programs
- 5 - Practical Preparation of Group Classes