



IDENTIFYING DATA

Biomechanics of sports techniques

Subject	Biomechanics of sports techniques			
Code	P02G050V01903			
Study programme	(*)Grao en Ciencias da Actividade Física e do Deporte			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language				
Department				
Coordinator	García García, Óscar			
Lecturers	García García, Óscar Mato Corzón, Marta María			
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Web				
General description	Knowledge and application of the laws of the mechanics for the analysis of the sportive technician with the intention to improve the performance and reduce the incidence of injuries.			

Competencies

Code	
B2	Knowledge and comprehension of the scientific literature of the area of the physical activity and the sport.
B3	Knowledge and compression of the physiological factors and biomechanics that determine the practice of the physical activity and the sport
B7	Knowledge and comprehension of the foundations, structures and functions of the skills and bosses of the motricity humanizes.
B12	Application of the technologies of the information and communication (TIC) to the area of the Sciences of the Physical Activity and of the Sport.
B13	Habits of excellence and quality in the professional exercise.
B18	Aptitude to apply the physiological beginning, biomechanics, behavioral and social, to the different fields of the physical activity and the sport.
B20	Aptitude to identify the risks that stem for the health of the practice of physical inadequate activities.
B23	Aptitude to select and to be able to use the material and sports equipment adapted for every type of activity.
B25	Skill of leadership, capacity of interpersonal relation and teamwork.
B26	Adjustment to new situations, the resolution of problems and the autonomous learning.
C3	Aptitude to apply the physiological and biomechanical skills, comportamentales and social, in the offer of tasks in the processes of education - learning across the physical activity and sport.
C4	Aptitude to identify the risks that stem for the health of the students due to the practice of inadequate physical activities .
C8	Aptitude to apply the physiological biomechanical, comportamental and social principles, during the process of the sports training
C10	Aptitude to identify the risks, which stem for the health of the sportsmen, of the inadegute practice of physical activities in the context of the sports training
C15	Aptitude to identify the risks that stem for the health of the development of the physical inadequate activities between the population who realizes physical practice orientated to the health
C16	Aptitude to apply the physiological, biomechanical, comportamental and social principles to the field of the physical activity and the health
C28	Aptitude to apply the physiological biomechanicl, comportamental and social principles, in the physical - sports recreative activities
C29	Aptitude to identify the risks that stem for the health, of the practice of physical inadequate activities in the medical instructors of physical - sports recreative activity
D1	
D2	

Learning outcomes

Expected results from this subject	Training and Learning Results		
The student will be able to know the principles and applications of the *biomecánica to the sportive practice	B2 B3 B7		
The student will be able to comprise like the cinematic, the dynamics and the fluid mechanics are the foundation of the *biomecánica	B2 B3 B18	C3 C8 C16 C28	
The student will be able to know and use tools of analysis *biomecánico of simulation and prediction	B2 B7 B12 B18 B23 B26	C3 C8 C16 C28	D1 D2
The student will be able to know and use distinct types of analysis *biomecánicos of the sportive technician	B12 B13 B20 B23 B25 B26	C3 C4 C8 C10 C15 C16 C28 C29	D3

Contents

Topic	
1. Introduction to the *biomecánica sportive	1.1 Concept 1.2 Aims 1.3 Applications
2. *Mécánica Applied to the *biomecánica sportive	2.1 general Principles 2.2 Cinematic 2.3 Dynamics 2.4 Fluids
3. Tools of simulation and prediction	3.1 Aims 3.2 Characteristics 3.3 Applications
4. Analysis *biomecánico of the sportive technician	4.1 quantitative Analyses 4.2 qualitative Analyses 4.3 Analyses according to criteria of performance 4.4 Evaluation of the sportive technician

Planning

	Class hours	Hours outside the classroom	Total hours
Troubleshooting and / or exercises	12	12	24
Presentations / exhibitions	12	12	24
Laboratory practises	20	32	52
Practice in computer rooms	10	10	20
Group tutoring	1	0	1
Master Session	10	10	20
Reports / memories of practice	1	8	9

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Troubleshooting and / or exercises	Apply the principles biomechanics in the resolution of problems of application and practical cases
Presentations / exhibitions	Exhibition of the biomechanics analyses realised of clear form, concise and scientific
Laboratory practises	Determination of aims, obtaining, treatment, presentation and analysis of biomechanics data in experimental and real situations
Practice in computer rooms	Obtaining, treatment, presentation and analysis of biomechanics data in experimental and real situations

Group tutoring	Resolution of doubts and difficulties in the contents of the matter posed and resolved of collective way
Master Session	Exhibition by part of the professor/to of fundamental theoretical contents of the matter

Personalized attention

Methodologies	Description
Troubleshooting and / or exercises	The personalised attention to the student/to will realise in the dispatch of the professors and according to the schedule of *tutoría of the professor/to in the course
Laboratory practises	The personalised attention to the student/to will realise in the dispatch of the professors and according to the schedule of *tutoría of the professor/to in the course

Assessment

	Description	Qualification	Training and Learning Results	
Troubleshooting and / or exercises	Continuous evaluation, delivery in time and form of problems *biomecánicos	30	B2 B3 B7 B12 B13 B18 B23	C3 C4 C10 C16 C28
Presentations / exhibitions	Continuous evaluation, exhibition in the classroom of the analysis *biomecánico of a sportive technician	30	B12 B13 B20 B23 B25 B26	D1 D2 D3
Laboratory practises	Continuous evaluation, assistance and implication of the student/to	5	B26	D1 D2 D3
Practice in computer rooms	Continuous evaluation, assistance and implication of the student/to	5	B26	D1 D2 D3
Reports / memories of practice	Continuous evaluation, delivery in time and form of the relative reports to the analyses realised	30	B2 B3 B7 B12 B18	C8 C15 C29

Other comments on the Evaluation

In the case of negative continuous evaluation and second announcement, the student/to will realise a final proof on the contents of the consistent matter in the short answer and resolution of problems *biomecánicos. For positive evaluation of the matter, will be indispensable requirement in addition to a positive evaluation in the final proof, the presentation in paper and/or digital format of the analyses *biomecánicos realised during the course (Apt or no apt)

Sources of information

Aguado, Xabier, **Eficacia y Técnica Deportiva**, 2º edición,

Hay and Prentice-Hall, **The Biomechanics of Sport and Exercise**,

Bartlett, **Sport Biomechanics**, 1º edición,

Izquierdo, Mikel, **Biomecánica y bases neuromusculares de la actividad física y el deporte**,

Bartlett y Hong, **Routledge Handbook of Biomechanics and Human Movement Science**,

Recommendations

Subjects that it is recommended to have taken before

Anatomy: Human Anatomy and kinesiology/P02G050V01201

Statistics: Research methodology and statistics in physical activity and sport/P02G050V01302

Physiology: Exercise physiology II/P02G050V01401