

ID	609
Curricular Unit	Biomechanics
Regent	Antonio Prieto Veloso
Learning Outcomes	<p>- To develop the competence to recognize, assess and analyze, within the Human Behaviour domain, the biomechanical functions resulting from the adaptation to Mechanical Laws.</p> <p>- To develop the competence to work with the Biomechanics methods, by the basic physics and mathematical applications in theory either in Laboratory situations, both in general motor patterns and in the specific motor tasks.</p>
Syllabus	<p>1 - BASIC CONCEPTS AND PHILOSOPHICAL APPROACH - The aim and definition of Biomechanics within the Human Movement Behavior.</p> <p>2- MODELING OF HUMAN BODY - Single point representation of the body, rigid body and multi-body approach in association with intrinsic factors, such as morphology and anatomy. 3 - KINEMATICS FOR BIOMECHANICAL ANALYSES - General concepts for both linear and angular position, velocity and acceleration. Numerical methods to compute derivatives using experimental kinematical data.</p> <p>4 - KINETIC FOR BIOMECHANICAL ANALYSIS - Specific definition of load, pressure and ground reactive force. Study of the ground reaction force during foot contact..</p> <p>5- DYNAMIC FOR BIOMECHANICAL ANALYSIS- Concepts of Inertia and Moment of Inertia; Linear Momentum and Angular Momentum, Force and Work.</p>
Evaluation	<p>60 % - Written tests covering all the contents.</p> <p>40 % - Problem solving tests</p>
Bibliography	<p>The basic documents to support the classes, as well as other relevant information may be found on the course website (www.fmh.utl.pt/disciplinas/biomecanica). This should also be completed with the following books:</p> <p>- Raymond A. Serway; John W. Jewett, J. (2004). Princípios de Física: Mecânica Clássica (Vol. 1). São Paulo: Thomson.</p> <p>- Enoka, R. (2002). Neuromechanics of Human Movement (3.^a ed.). Champaign: Human Kinetics.</p>