Minor in Sports Biomechanics Studies
Physical Education & Sports Science Academic Group
National Institute of Education

Curriculum

Students are expected to complete 5 modules: 3 compulsory core modules, and 2 elective modules (choice of 4). All modules have a value of 3 Academic units. The modules for the Sports Biomechanics Studies minor are listed below:

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<th>Human Functional Anatomy</th>
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<th>Elective Modules</th>
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Module Description (Semester offered)

**PEB104 – Human functional anatomy (July 2004)**
Anatomy is the study of form and structure of the body. Emphasis will be placed on the nervous, muscular, skeletal, cardiovascular and digestive systems, bone growth and development, and the relationship of anatomy to physical education and sports.

**PEB204 – Biomechanics (January 2005)**
This module introduces the basic mechanical concepts and principles that govern human movement. Specifically, the focus is to enable students to conduct detailed qualitative analyses of sports performance using appropriate concepts of mechanics and anatomy, in order to determine if a performance can be corrected or enhanced in a safe and scientific manner. (Pre-requisite: PEB 104)

**PEB205 – Quantitative methods in biomechanics (July 2005)**
This module introduces students to quantitative methods for determining mechanical parameters of movement. Students will be provided with opportunities to gather and examine kinematic and kinetic quantities of human movement by means of an appropriate choice of instruments, through laboratory work. The use of such quantitative procedures will allow the teacher or coach to effectively analyse movement, explain causes of observed effects and to remediate errors using a safe and scientific approach. (Pre-requisites: PEB 104 & 204)

**PEB235 – Neuromuscular Control of Human Movement (January 2005)**
This module examines concepts associated with motor control and the neuromuscular basis of human movement. The control of movement from a single joint perspective, with movement strategies and adaptations of the motor system as a whole will be explored. (Pre-requisite: PEB 104)
PEB334 – Sports Biomechanics (January 2006)
A quantitative analysis of sports using basic biomechanical concepts will be introduced to explain movements required in various activities. Students will learn how to design a quantitative analysis, collect, analyze and interpret data obtained from the equipment associated with the measurement technique. From the analysis, students will examine any possible relationship between the measured performance and the technique to gain insights into the technique used. Students will have the opportunity to explore the underlying processes that is involved in the production of this human movement in sports. (Pre-requisites: PEB 104, 204 & 205)

PEB335 – Kinematic Analysis Systems in Sports Biomechanics (July 2006)
This module examines the different modalities in kinematic analysis systems that are used to study human movement in Biomechanics, such as the PEAK-Motus system and Silicon Coach. The theory of two- and three-dimensional kinematic analyses in human movement in Sports will be introduced. Students will evaluate the use of these systems in the analysis of sports performance. (Pre-requisites: PEB 101, 204 & 205)

PEB336 – Current Research and Issues in Sports Biomechanics (July 2006)
This module provides the student with an overview of research and issues in Sports Biomechanics. The development of anthropometry, dynamometry, simulation and optimization techniques and other new developments in Sports Biomechanics will be introduced and discussed. The module will also focus on study designs, methods of analysis and how conclusions are derived from data. (Pre-requisites: PEB104, 204 & 205)

Assessment

All modules will require students to submit assignments that constitute about 40% to 50% of continuous assessment, and a final examination that accounts for 50% to 60% of the total mark, accordingly.