Module Title:	Motor Control / Biomechanics
Language of Instruction:	English

Credits:	10

NFQ Level:	6

Module Delivered In	No Programmes

Teaching & Learning Strategies:	Motor control: This part of the module will be taught in semester one of the academic year. This part of the module will be delivered in three theory classes on one hour duration per week for 15 weeks and one practical class of one hour duration per week for 15 weeks. Lectures will be delivered using powerpoint presentations, group discussions, and any course-related issue or questions that may arise will be discussed at lectures. Biomechanics: This part of the module will be taught in the second semester of the academic year. It will comprise of two one-hour lectures and one two-hour practical per week for 15 weeks. Lecture notes and announcements will be available on Blackboard, a virtual learning environment. Practical classes will be delivered in the Physiology Laboratory, Lab notes will be available on Blackboard.

Module Aim:	To provide the student with a basic understanding of movement and how movement is controlled. To understand processes involved in motor learning. To develop the student's knowledge and understanding of external biomechanics and their effect on human movement. To introduce the student to equipment and protocols related to quantitative analysis of human movement.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Explain the role of the nervous and sensory systems in motor performance and analyse how the environment influences motor performance.
LO2	Understand the stages of learning and apply practice and training theories involved in motor skill acquisition.
LO3	Explain concepts in relation to linear kinetics, linear kinemtatics, work, power and energy applied to human movement.
LO4	Demonstrate a knowledge and understanding of selected experimental biomechanical techniques related to human movement.
LO5	Collect, analyse and interpret biomechanical data of a human movement and present the findings with interpretation.

Pre-requisite learning	
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*	
No recommendations listed	
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*	
Successful completion of year 1 or equivalent	

Module Content & Assessment

Indicative Content

Theory
Motor control: Motor Skill Classification, Performance measures - Outcome v Performance, Neurophysiological basis of motor control. Organisation of movement - motor control hierarchy. Motor Development - reflexes, rhythmic, voluntary movement. Feedback ,feed forward control. Proprioception and vision (somatosensation). Motor programmes. Motor abilities. Motor Learning - Stages of learning, skill acquisition and maturation. Practice Schedules. Biomechanics: This part of the module will focus on the theory and related equations for the following area - linear kinetics and kinematics; work , power and energy.

Practical
Motor control: Motor Skill Classification, Reaction Time - Simple and Choice Sitations, Somatosensation, Proprioception, Static and Dynamic Balance, Motor Learning - Constant v Variable Practice Schedules. Biomechanics: The practical classes will develop the student's ability with collecting and assessing quantitative data using biomechanics equipment and respective protocols. Undertake a quantitative analysis of a human movement.

Assessment Breakdown	%
Continuous Assessment	30.00%
Practical	40.00%
End of Module Formal Examination	30.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Three separate exams/assessments which may take the form of MCQ, short answer exam questions, presentations or essay type course work	1,2	30.00	n/a

No Project

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Motor control: Practical/oral examination during which the students will answer questions on material covered in both practical and theory classes throughout the module. Completion of motor control practical worksheets. Biomechanics: Powerpoint presentation to lecturer and peers on a topic covered from the lectures and / or practical classes. Motor control comprises 20% of the practical assessment and Biomechanics comprises 20% of the practical assessment.	1,2,4,5	40.00	Week 30

End of Module Formal Examination				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	Written examination of two hours duration answered on biomechanics section only.	3,4	30.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time

Workload Type	Frequency	Average Weekly Learner Workload
Lecture	30 Weeks per Stage	2.50
Laboratory	30 Weeks per Stage	1.50
Estimated Learner Hours	30 Weeks per Stage	1.33
	Total Hours	160.00