

2024 / 25

School of Science and Computing

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**SE
TU**

Ollscoil
Teicneolaíochta
an Oirdheiscirt

South East
Technological
University

Module Descriptor

Sport & Exercise Biomechanics I (Computing and Mathematics)

Sport & Exercise Biomechanics I (A22541)

Short Title: Sport & Exe Biomech 1
Department: Sport and Exercise Science
Credits: 5

Level: Introductory

Description of Module / Aims

The aim of this module is to provide students with an introduction to the core elements of sport and exercise biomechanics. The module will use applied examples and demonstrations to highlight the relevance of these elements in exercise, physical activity and sport.

Programmes

stage/semester/status		
SPRT-0401	BSc (Hons) in Software Systems Development (WD_KDEVP_B)	2 / 4 / E
	BSc (Hons) in Nutrition and Exercise Science (WD_T0010_X)	1 / 2 / M
	BSc (Hons) in Health and Exercise Science (WD_T0011_X)	1 / 2 / M
	BSc (Hons) in Sport and Exercise Science (WD_T0012_X)	1 / 2 / M

Indicative Content

- Introduction to linear and angular kinematics.
- Introduction to linear and angular kinetics.
- Qualitative biomechanics (e.g. non numerical description of a movement based on direct observation by coaches and teachers).
- Quantitative biomechanics (e.g. numerical measures from data collected during a movement).
- Exemplars of biomechanical skill breakdown
- Introduction to equipment used by sports biomechanists to collect data (e.g. Motion analysis systems, force plates and jump mats, timing gates, and video)
- Fluid dynamics

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Outline the basic biomechanical concepts underpinning movement in sport.
2. Perform basic applied calculations relating to kinematic and kinetic quantities (e.g. velocity, acceleration, force).
3. Identify the key aspects and applications of equipment used during biomechanical testing.
4. Collect biomechanical data of a sports movement (e.g. speed, angular data, jump data).
5. Report on collected/sample biomechanical data.

Learning and Teaching Methods

- Lectures
- Practicals

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Practical	12	
Independent Learning	99	

Assessment Methods

	Weighting	Outcomes Assessed
Final Written Examination	50%	1,2,3
Continuous Assessment	50%	
Lab Report	10%	4
Lab Report	40%	5

Assessment Criteria

Final exam

Labs

Essential Material(s)

- Blazeovich, A. *Sports Biomechanics - The Basics: Optimising human performance..* London: A&C Black, 2007.

Supplementary Material(s)

- Hamill, J. and K.M. Knutzen. *Biomechanical Basis of Human Movement* . Maidenhead: McGraw-Hill, 2009.
- Zatsiorsky, V.M. *Biomechanics in Sport - Performance enhancement and injury prevention*. Baltimore : Lippincott Williams & Wilkins, 2008.