

## Module specification

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Module Code	SES404
Module Title	Mechanisms to Explain Human Movement
Level	4
Credit value	20
Faculty	FSLS
HECoS Code	100433
Cost Code	GASP
Pre-requisite module	N/A

### Programmes in which module to be offered

Programme title	Core/Optional/Standalone
BSc (Hons) Sport and Exercise Science	Core

### Breakdown of module hours

Learning and teaching hours	20 hrs
Placement tutor support hours	0 hrs
Supervised learning hours e.g. practical classes, workshops	16 hrs
Project supervision hours	0 hrs
<b>Active learning and teaching hours total</b>	<b>36 hrs</b>
Placement hours	0 hrs
Guided independent study hours	164 hrs
<b>Module duration (Total hours)</b>	<b>200 hrs</b>

### Module aims

- Introduce and develop knowledge, understanding and analysis of Biomechanics through technique analysis.
- Introduce and develop knowledge, understanding and analysis of Performance through notation analysis.
- Study how performance analysis can inform the sports scientist, coaching practitioner, sports official and athlete.
- Use a variety of tools and techniques to study gross and fine movements and Technical / tactical patterns in sports.

## Module Learning Outcomes

At the end of this module, students will be able to:

1	Demonstrate a comprehension of simple biomechanical principles involved in sport
2	Use audio visual technology for effective biomechanical analysis.
3	Design an appropriate system for analysing aspects of performance within a sporting context
4	Describe how performance analysis processes can be used to assess performance in sports
5	Demonstrate an ability to present assignments appropriately.

## Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

**Written Assignment** - The students will write a report that shows their skills in capturing an action with a suitable audio-video tool whilst completing a basic biomechanical analysis of the captured action. Calculations will be completed to indicate the kinematic and kinetic biomechanical elements presented.

**Coursework** - The student will produce a piece of work which draws upon the importance and approaches to notation analysis for performance improvement. This information will underpin their design of a system for analysing a sporting performance or physical activity, culminating in an effective strategy to promote performance enhancement.

Assessment number	Learning Outcomes to be met	Type of assessment	Duration/Word Count	Weighting (%)	Alternative assessment, if applicable
1	1 - 2	Written Assignment	2000 words	40	N/A
2	3 - 5	Coursework	2000 words	60	N/A

## Derogations

N/A



## Learning and Teaching Strategies

This module will be taught through a series of lectures, seminars, practical workshops, and blended learning, with the primary emphasis on the application of theory to practice. Whilst lectures and seminars will be used for delivery of the theoretical components of the module, students will also be required to learn how to effectively use workplace-leading computer software (Hudl Sportscode, Nacsport, Kinovea and Qualysis); these will be taught through workshops and blended learning opportunities.

As an additional aid to learning external links and reading materials will be highlighted. These will enable the student to identify strengths and weaknesses in their knowledge as well as opportunities to access resources in their own time. Formative learning opportunities will be provided throughout the module.

Elements of this module are maths based; additional support will be offered in-class as well as through the academic skills department.

## Welsh Elements

The programmes will be delivered through the medium of English. Students are entitled to submit assessments in the medium of Welsh. If students wish to converse in Welsh, they will be assigned a Welsh speaking personal tutor. Students will be sign posted to relevant opportunities via the VLE and MS Teams page.

## Indicative Syllabus Outline

- An appreciation of the physiological demands on players (player profiles, movement patterns, activity rates, training versus match demands, player-specific demands).
- An appreciation of the psychological demands on players (team cohesion/dynamics, roles and responsibilities linked to goal setting).
- The assessment and calculation of kinematic principles in sports technique.
- The assessment and calculation of kinetic principles in sports technique.
- The understanding of projectile motion with respect to sports performance.
- Newtonian and non-Newtonian ways to describe motion.
- The use of IT, Kinovea and recording media to analyse biomechanics in sport.
- The use of hand and computerised notation systems in the analysis of sport (use of, benefits and limitations).
- The use of types of feedback (knowledge of performance, knowledge of results, verbal, visual and video).
- The use of hand and computerised notation systems in the analysis of sport (use of, benefits and limitations).
- Applied use of Sportscode and Nacsport.
- The use of types of feedback (knowledge of performance, knowledge of results, verbal, visual and video).
- Types of feedback (knowledge of performance, knowledge of results, verbal, visual and video).

## Indicative Bibliography

Please note the essential reads and other indicative reading are subject to annual review and update.

### Essential Reads

Hughes, M. and Franks, I. (2015), *The Essentials of Performance Analysis*. London: Routledge.

### Other indicative reading

Bartlett, R. (2014), *Introduction to Sports Biomechanics: Analysing Human Movement Patterns*. 3rd Ed. London: Routledge.

Blazevich, J. (2017), *Sports Biomechanics, the Basics: Optimising Human Performance*. 3rd ed. London: Bloomsbury.

Carling, C., Williams, A. M. and Reilly, T. (2006), *Handbook of Soccer Match Analysis*. London: Routledge.

Franks, I. and Hughes, M. (2016), *Soccer Analytics: Successful Coaching Through Match Analysis*. Maidenhead: Meyer & Meyer Sport.

Grimshaw, P., Fowler, N., Lees, A. and Burden, A. (2006), *Instant Notes in Sport & Exercise Biomechanics*. London: Routledge.

McGarry, T., O'Donoghue, P., and Sampaio, J. (2013), *Routledge Handbook of Sports Performance Analysis*. London: Routledge.

O'Donoghue, P. (2014), *An Introduction to Performance Analysis of Sport*. 2nd ed. London: Routledge.

Payton, C. and Bartlett, R. (2007), *Biomechanical Evaluation of Movement in Sport & Exercise*. London: Routledge.

Watkins, J. (2014), *Fundamental Biomechanics of Sport and Exercise*. London: Routledge.

## Administrative Information

For office use only	
Initial approval date	08/12/2021
With effect from date	01/09/2022
Date and details of revision	July 2025 – module updated with sports validation for Sept 2025



<b>For office use only</b>	
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