



Unit Outline (Higher Education)

Institute / School: Institute of Health and Wellbeing

Unit Title: Applied Biomechanics

Unit ID: EXSCI2008

Credit Points: 15.00

Prerequisite(s): (EXSCI1701)

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 010913

Description of the Unit:

This unit enables students to apply mechanical principles from the prerequisite unit to the understanding of efficient movement in a range of specific sporting, recreational and workplace situations. Qualitative analysis modelling, charting, quantitative analysis, photographic, two-dimensional video, force, acceleration and electromyography measurement procedures are used.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Intermediate	■	■	✓	■	■	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

Knowledge:

- K1.** Illustrate how the biomechanical principles of human movement are applied in a variety of exercise and sport settings to analyse movement, improve technique and prevent injury.
- K2.** Discuss the processes of conducting qualitative and quantitative biomechanical analyses of movement by identifying the factors that govern efficient human movement patterns.
- K3.** Explain the patterns of temporal, kinematic and kinetic variables that are commonly assessed by clinical gait analyses.
- K4.** Critically appraise the electromyographic, kinematic and kinetic changes that occur with skill acquisition.
- K5.** Identify and explain the role of fluid mechanics in sports technique and equipment design.
- K6.** Compare and contrast the function and limitations of various biomechanical equipment.

Skills:

- S1.** Collect and interpret biomechanical data in a variety of contexts using widely accepted equipment.
- S2.** Develop proficiency in retrieving information, and communicating about biomechanical analysis of human movement
- S3.** Critically review current biomechanical literature and present a clear, coherent report of the findings.
- S4.** Solve kinematic and kinetic problems by calculate biomechanical parameters using established formulae and equations.
- S5.** Work effectively in a group setting by efficiently planning and conducting the group projects.

Application of knowledge and skills:

- A1.** Design, conduct and present a group research project on an applied biomechanics topic.
- A2.** Interpret the results of research investigations and determine the applications in real-world contexts.
- A3.** Explore and implement the use of biomechanical equipment in a variety of contexts.

Unit Content:

This may include:

- Applied biomechanical principles in a variety of exercise and sports settings;
- Qualitative and quantitative biomechanical analysis;
- Review of biomechanical literature and advancements;
- Equipment familiarisation;
- Data collection;
- Gait analysis.

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
S1, S2, S3, S5, A1, A2, A3	Attendance and participation in laboratory sessions to complete formative assessments of practical skills.	Ongoing formative assessments	Satisfactory/Unsatisfactory
S2, S3	Review of theoretical material, including reviewing relevant biomechanics literature.	Review of literature paper	15-25%
K2, K6, S2, S5, A1, A2, A3	Development, conduct and presentation of an applied biomechanics group project.	Group project including presentation of results	25-40%
K1, K2, K3, K4, K5, K6, S4, A2	Review of theoretical material presented throughout the course.	Final Test	40-60%

Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

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