



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: Student is not undertaking work experience in industry.

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:

Topics 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, S4, S5, A1-3.	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%
K1-6, S4, A2.	Review of theoretical material presented throughout the course.	Final Test	40-60%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a Course level. Although Units must undertake MiCS mapping, there is NO expectation that Units will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS Course level reporting highlights how each Course embraces the principles and practices associated with the Co-Operative Model. Evidence of Course alignment with the MiCS, can be captured in the Course Modification Form.

MICS Mapping has been undertaken for this Unit No

Date:

Adopted Reference Style:

APA

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

Fed Cite - [referencing tool](#)