

Course Outline**Part I**

Programme Title	:	Bachelor of Education (Honours) (Physical Education)
Programme QF Level	:	5
Course Title	:	Principles of Sports Biomechanics
Course Code	:	PES4170
Department	:	Health and Physical Education
Credit Points	:	3
Contact Hours	:	39 (33 hrs Classroom, 6 hrs Laboratory)
Pre-requisite(s)	:	PES2161 Essentials of Human Anatomy and Physiology
Medium of Instruction	:	EMI
Course Level	:	4

Part II

The University's Graduate Attributes and seven Generic Intended Learning Outcomes (GILOs) represent the attributes of ideal EdUHK graduates and their expected qualities respectively. Learning outcomes work coherently at the University (GILOs), programme (Programme Intended Learning Outcomes) and course (Course Intended Learning Outcomes) levels to achieve the goal of nurturing students with important graduate attributes.

In gist, the Graduate Attributes for Sub-degree, Undergraduate, Taught Postgraduate, Professional Doctorate and Research Postgraduate students consist of the following three domains (i.e. in short "PEER & I"):

- Professional Excellence;
- Ethical Responsibility; &
- Innovation.

The descriptors under these three domains are different for the three groups of students in order to reflect the respective level of Graduate Attributes.

The seven GILOs are:

1. Problem Solving Skills
2. Critical Thinking Skills
3. Creative Thinking Skills

- 4a. Oral Communication Skills
- 4b. Written Communication Skills
- 5. Social Interaction Skills
- 6. Ethical Decision Making
- 7. Global Perspectives

1. Course Synopsis

Through lecture, laboratory work, problem-solving activities and other forms of learning in and outside the classroom, students will acquire the biomechanical knowledge applicable and relevant to their future work, which includes teaching physical education classes and coaching school sport teams. This course will equip students with knowledge of the essential mechanical concepts and principles that govern human movement. Emphasis will be placed on relating the principles to the implementation of physical education and sports programmes in Hong Kong secondary schools.

2. Course Intended Learning Outcomes (CILOs)

Upon completion of this course, students will be able to:

- CILO₁ Explain and apply the basic biomechanical principles that govern how humans move, including a) how skeletal muscles produce the forces necessary for human movement; b) what are the anthropometrics of the human body and how these attributes affect human movement; and c) how the body can be injured and how to prevent common injuries.
- CILO₂ Develop and demonstrate their biomechanics problem-solving skills as applied to real-life situations commonly faced by PE teachers in Hong Kong.
- CILO₃ Exhibit their ability to reflect on their personal learning about sports biomechanics within the context of their overall PE teacher education curriculum.

3. Content, CILOs and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
<ul style="list-style-type: none"> • Understanding basic 'biomechanics' concepts • Kinematics of human movement • Kinetics of human movement 	CILO _{1,2}	Lectures and Laboratory Experiences on the assessment of physical abilities of athletes.

• Interpretation of biomechanics information		
<ul style="list-style-type: none"> • Basic muscle mechanics <ul style="list-style-type: none"> ○ Structures ○ Functions ○ Force-length ○ Force-velocity ○ Fatigue 	<i>CILO_{1,2}</i>	Lectures and Laboratory Experiences on the improvement of physical abilities of athletes.
• Understand the areas covered in the DSE Biomechanics	<i>CILO_{1,2,3}</i>	Lectures and discussions
<ul style="list-style-type: none"> • Sports Injuries <ul style="list-style-type: none"> ○ Common injuries ○ Serious injuries • Injury Prevention <ul style="list-style-type: none"> ○ Pre-activity prevention ○ Prevention in class, on the pitch, in the pool, etc. 	<i>CILO_{1,2,3}</i>	Library Research and Essay Under guidance of the lecturer, students will learn how to find research about common injuries that occur during P.E. lessons and in sports competitions. Further, students will also learn about the common and practical ways a PE teacher can use this knowledge to help students prevent injuries from occurring.

4. Assessment

Assessment Tasks	Weighting (%)	CILO
a. Mid-Term Test	30	<i>CILO₁</i>
b. Individual Assignment: develop teaching material on a selected topic in the DSE Biomechanics syllabus (about 900 words per student).	30	<i>CILO_{1,3}</i>
c. Group Presentation: Sport Injuries and Injury Prevention in Schools	40	<i>CILO_{1,2,3}</i>

5. Use of Generative AI in Course Assessments

Please select one option only that applies to this course:

Not Permitted: In this course, the use of generative AI tools is not allowed for any assessment tasks.

Permitted: In this course, generative AI tools may be used in some or all assessment tasks. Instructors will provide specific instructions, including any restrictions or additional requirements (e.g., proper acknowledgement, reflective reports), during the first lesson and in relevant assessment briefs.

6. Required Text(s)

Hall, S.J. (2015). *Basic biomechanics* (7th ed.). McGraw-Hill Education.

7. Recommended Readings

Bartlett, R. (2014). *Introduction to sports biomechanics: analyzing human movement patterns* (3rd ed.). Routledge, Taylor & Francis Group.

Blazevich, A. (2017). *Sports biomechanics: The basics: Optimizing human performance* (2nd ed.). A. & C. Black.

Knudson, D.V. (2007). *Fundamentals of Biomechanics* (2nd ed.). Accessible via Library:
<http://www.lib.eduhk.hk/cgi-bin/doi?10.1007&978-0-387-49312-1>

8. Related Web Resources

American Alliance for Health, Physical Education, Recreation & Dance www.aahperd.org

International Society of Biomechanics <http://www.isbweb.org>

International Society of Biomechanics in Sport <http://www.twu.edu/biom/isbs/>

Physics of Sport <http://www.angelfire.com/mo/PhysicsSports/>

The Physics Classroom <http://www.physicsclassroom.com>

9. Related Journals

International Journal of Sport Biomechanics

Journal of Applied Biomechanics

Journal of Biomechanics

Sports Biomechanics

10. Academic Honesty

The University upholds the principles of honesty in all areas of academic work. We expect our students to carry out all academic activities honestly and in good faith.

Please refer to the Policy on Academic Honesty, Responsibility and Integrity

(<https://www.eduhk.hk/re/uploads/docs/00000000016336798924548BbN5>). Students

should familiarize themselves with the Policy.

11. Other

NIL