香港教育大學
The Education University of Hong Kong

課程手冊

Certificate in Professional Development Programme on STEAM in Physical Education

教師專業進修課程證書（體育學與教之科學、科技、工程、藝術及數學範疇）

2023 - 2024

Department of Health and Physical Education

本校力求編入此「課程手冊」內的資料準確無誤，惟本校得隨時更改或修訂其內容，毋須另行通知。

如此「課程手冊」所載資料與本校整體或個別課程之政策與條例出現分歧，又或於內容詮釋上出現歧義，以本校之最後決定作準。

本「課程手冊」內容以 2024 年 5 月為準。

Faculty of Liberal Arts and Social Sciences
博文及社會科學學院

Department of Health and Physical Education
健康與體育學系

Certificate in Professional Development Programme on STEAM in Physical Education
教師專業進修課程證書（體育學與教之科學、科技、工程、藝術及數學範疇）

PDP (STEAM in PE)（課程編號：BWP131）
2023-2024

目錄

注意：

有關本大學之教務架構、溝通渠道、學員學務事宜、投訴機制、教學支援服務介紹、膳食服務、校園設施、校園及校園安全、常用電話/傳真號碼、地圖、香港教育大學版權政策等資料，請瀏覽以下網址：互聯網教務處網頁內的「學生手冊」（https://www.eduhk.hk/re/student_handbook/）或到大學辦事處或諮詢中心查詢。

第一部份：課程資料

1.	**課程目標**
	本課程由科學、科技、工程、藝術及數學（STEAM）範疇出發，授予現職體育教師有關的知識與技能，以助他們設計相關的體育課程和創新學習活動，推動學生的體育科學習成果，並鼓勵跨領域協作。為照顧學生多樣的學習需要及能力，課程將介紹各種適用於體育教學的 STEAM 策略，並作進一步的研究、應用及實踐，以激發學生對體育的興趣，培養定期運動的習慣，促進身心健康。
2.	**授課語言**
	本課程主要以粵語授課，適時輔以英語。
3.	**修讀時間**
	本課程是一項「全日整段時間給假制」課程，每學年開辦一期。本學年修讀日期為 2024 年 5 月 27 日至 6 月 28 日。 詳情請參見：https://www.eduhk.hk/acadprog/pdp/ch_bwp131.htm
4.	**課程結構**
	學員須修讀以下三個核心科目，合共 9 個學分： 科目一、創新科技在體育與競技運動之應用 科目二、運動科學概論 科目三、體育學與教之科學、科技、工程、藝術及數學(STEAM)範疇 各科目的課時分別為三十小時的課堂理論與實踐及九小時的課後研習。本課程的總上課時數為一百一十七小時，另有三十三小時的建議研習活動。課程主要學習活動包括授課、討論、實習工作坊、試教、課堂分析及課程策劃，學員可能被要求返回所屬學校作出試教。課程評核內容包括反思報告、教案及單元大綱設計、分組匯報等。
5.	**學業評核及獲取證書資格**
	學員必須於所有評核習作中獲得及格成績，並達到課程所要求的出席率，方可獲頒授畢業證書。

	在校方現行的課業評核制度下，課業評核結果均由有關考試委員會負責審核，並向準畢業生頒授學歷。 委員會議決的評核成績會於內聯網 The Portal (https://portal.eduhk.hk) 公布，學員可於 The Portal 列印成績單或向教務處申請由校方簽發之正式「成績報告表」，每份申請費用為港幣五十元正，其內詳錄學生於課程內每一科目的名稱及考取的成績等級。 學員若要求覆核經審核之成績，須於成績公布後十四天內致函博文及社會科學學院院長提出申請。詳情請瀏覽教務處網頁 (www.eduhk.hk/re)，逾期申請，恕不受理。 本課程的考試委員會會議暫定於 2024 年 8 月 16 日舉行。學員將於此期間收到有關成績公布及覆核成績詳情的電郵通知，並須定時檢閱學員之電子郵件戶口。
6.	**科目概要**
	科目一　　創新科技在體育與競技運動之應用 New Technology in Sports and Physical Education 編號：　PES5244 目前教育發展漸趨以科技作為主導，現行趨勢也反映運用創新科技提升體育教與學的需要。本科目將介紹計步器、心跳監測儀、應用程式、影片資源等科技應用，以設計富活力的課堂，同時審視在體育課應用創新科技的可行性，探討其如何提升學生對體育課的投入程度。為協助學員掌握相關技巧及知識，以及學習在體育上採取科學化的探究，本科目亦會介紹在競技運動和體育教學採用的最新科技，鼓勵設計多樣的體育教學活動，提升不同能力學生對體育的興趣。 **科目二　　運動科學概論** Introduction to Sports and Exercise Science 編號：　PES5245 本科目將介紹持續演進的運動科學領域及衍生分科，並解釋其與體育教學的關連，讓現職體育教師在人體表現和促進健康兩個背景下，對生物力學、運動生理學及運動心理學等有

		關分科具基本瞭解。學員將認識相關領域與體育教學之間的關係，以及各領域本身如何應用於提升運動表現及促進健康。
	科目三	**體育學與教之科學、科技、工程、藝術及數學範疇** Learning and Teaching in PE with STEAM Approach
	編號：	PES5298
		本科目旨在授予現職體育教師有關 STEAM 教育的知識與技能，以設計體育課程和運用有效及創新的教學法，提高學生在各階段的學習成果，包括 STEAM 認知及思考模式、社交能力、精神運動和文化學習等。本科目將採用多種學習策略，包括問題為本學習、發現式學習、探究式學習，並強調利用科學、科技、工程、藝術、數學範疇的知識，以照顧學生多樣的學習需要及能力。本科目也會探討創新的課程設計和教學模式，如混合式學習和翻轉學習等，以研究和應用各種策略，解決學校體育教學面對的問題。

THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title	**:**	Certificate in Professional Development Programme on STEAM in Physical Education
Programme QF Level	**:**	QF Level 6
Course Title	**:**	New Technology in Sports and Physical Education
Course Code	**:**	PES5244
Department	**:**	Health and Physical Education
Credit Points	**:**	3
Contact Hours	**:**	30 hours (lecture, workshop, lesson for analysis) + 9 hours (Blended learning)
Pre-requisite(s)	**:**	In-service Primary and Secondary School PE teachers
Medium of Instruction	**:**	Chinese
Course Level	**:**	5

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"):

- **P**rofessional **E**xcellence;
- **E**thical **R**esponsibility; **&**
- **I**nnovation.

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

The emergence and use of technology in this century is a significant development affecting the learning and teaching of PE. The current education is faced with a new dimension dominated by new technology. The current trend is also reflected by the necessity to improve the learning and teaching in PE. The use of new technology to create more dynamic classes, such as pedometers, heart rate monitors, Apps, video resources, and so on will be explored and examined in enhancing students' engagement in PE lessons in this course. In order to help school students develop understanding beyond technical replication and towards rational and reasoned investigation around their learning in PE, the course aims to provide serving PE teachers with the updates on the new technology used in sports and PE in order to appeal to the interests of diverse students' needs and ability types as well as using new technology to create more activities for PE lessons.

2. Course Intended Learning Outcomes ($CILO_s$)

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

$CILO_1$ examine different technological advances available for application in sports and physical education;

$CILO_2$ apply technologies for monitoring and tracking physical and physiological parameters related to bodily exertion and movement;

$CILO_3$ appraise critically the feasibility of implementing relevant technology in school setting to enrich learning and teaching experiences.

3. Content, CILOs and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
The development of technology in sports and physical education in the 21st century	*$CILO_{1,3}$*	Lectures and group discussion
Laboratory setting to assess parameters related to bodily exertion	*$CILO_{1,2,3}$*	Lectures, group discussion, demonstration and practical experiment
Field experimental setting to assess parameters related to bodily exertion	*$CILO_{1,2,3}$*	
Using technology to assess sports functional performance (i.e. power, speed, agility)	*$CILO_{1,2,3}$*	
Using technology for motion analysis	*$CILO_{1,2,3}$*	
Using technology to enrich learning	*$CILO_{1,2,3}$*	

and teaching experiences		
Concerns of applying technology in PE classes	*CILO*$_{1,2,3}$	Lectures and group discussion

4. Assessment

Assessment Tasks	Weighting (%)	CILO
(a) Individual portfolio with not less than 1800 words comprising critical appraisal on the use of new technology in PE.	60%	*CILO*$_{1, 2}$
(b) A group presentation to examine an innovative use of one new technology in a school-based PE curriculum.	40%	*CILO*$_{1, 3}$

5. Required Text(s)

Nil

6. Recommended Readings

Chow, G.C.C., Kong, Y. H., & Pun, W.Y. (2023). The concurrent validity and test-retest reliability of possible remote assessments for measuring countermovement jump: My Jump 2, HomeCourt & Takei Vertical Jump Meter. *Applied Sciences, 13*, 2142. https://doi.org/10.3390/app13042142

Chow, C.C.G., Kong, Y.H., & Wong, C.L. (2022). Reactive-agility in Touch plays an important role in elite playing level: Reliability and validity of a newly developed repeated up-and-down agility test. *Journal of Sports Science and Medicine, 21*, 413–418. https://doi.org/10.52082/jssm.2022.413

Chow, G.C.C., Sun, F., Kam, K.W.K., Kong, Y.H., Zhang, B. (2023). Short vs. long bouts of all-out rope skipping: effects on metabolic and perceptual responses. *Applied Sciences, 13*, 7072. https://doi.org/10.3390/app13127072

Fouché, R. (2017). *Game changer: The technoscientific revolution in sports*. Johns Hopkins University Press.

Hilvoorde, I. van, & Koekoek, J. (Eds.). (2018). *Digital technology in physical education: Global perspectives*. Routledge. https://doi.org/10.4324/9780203704011

Kerr, R. (2016). *Sport and technology: An actor-network theory perspective (Globalizing Sport Studies).* Manchester: Manchester University Press.

Mohnsen, B. (2010). *Using technology in physical education* (7th ed.). Bonnie's Fitware.

Schmidt, S. L. (2020). *21st Century sports: How technologies will change sports in the digital age* (1st ed.). Springer International Publishing AG.

課程發展議會 (2022)：《進行網上體育課安全措施及學與教資源》，香港，課程發展議會。https://www.edb.gov.hk/tc/curriculum-development/kla/pe/web_based_teaching/index.html

課程發展議會 (2017)：《體育學習領域課程指引(小一至中六)》，香港，課程發展議會。

課程發展議會 (2015)：《推動 STEM 教育—發揮創意潛能》，香港，課程發展議會。

課程發展議會與香港考試及評核局(2007)：《體育課程及評估指引(中四至中六)》，香港，課程發展議會。

7. Related Web Resources

Education Bureau Website
http://www.edb.gov.hk/
PE Summer School
http://www.ied.edu.hk/pesummerschool/

8. Related Journals

Balsalobre-Fernández, Tejero-González, Del Campo-Vecino, & Bavaresco. (2014). The Concurrent Validity and Reliability of a Low-Cost, High-Speed Camera-Based Method for Measuring the Flight Time of Vertical Jumps. *Journal of Strength and Conditioning Research, 28*(2), 528-533.

Chakraborty, T. R. & Cooperstein, D. F. (2017), Exploring anatomy and physiology using iPad applications. *American Association of Anatomists.* doi:10.1002/ase.1747

Düking, P. Holmberg, H., & Sperlich, B. (2017). Instant biofeedback provided by wearable sensor technology can help to optimize exercise and prevent injury and overuse. *Frontiers In Physiology*. https://doi.org/10.3389/fphys.2017.00167

Mertz, L. (2013). Technology comes to the Playing field: New world of sports promises fewer injuries, better performance. *Pulse, IEEE, 4*(5), 12-17.

Nation-Grainger, S. (2017). "It's Just PE 'till' It Felt Like a Computer Game": Using Technology to Improve Motivation in Physical Education. *Research Papers in Education, 32*(4), 463-480.

Romero-Franco, N., Jiménez-Reyes, P., Castaño-Zambudio, A., Capelo-Ramírez, F., Rodríguez-Juan, J. J., González-Hernández, J., Toscano-Bendala, F. J., Cuadrado-Peñafiel, V., & Balsalobre-Fernández, C. (2017). Sprint performance and mechanical outputs computed with an iPhone app: Comparison with existing reference methods. *European Journal of Sport Science, 17*(4), 386-392.

Seshadri, D., Drummond, C., Craker, J., Rowbottom, J., & Voos, J. (2017). Wearable Devices for Sports: New Integrated Technologies Allow Coaches, Physicians, and Trainers to Better Understand the Physical Demands of Athletes in Real time. *Pulse, IEEE, 8*(1), 38-43.

Simperingham, K.D., Cronin, J. B., Pearson, S. N., & Ross, A. (2017). Reliability of horizontal force–velocity–power profiling during short sprint-running accelerations using radar technology. *Sports Biomechanics*. DOI: 10.1080/14763141.2017.1386707

Tran, J. F., & Finch, C. (2014). Are implementation science advances and digital technology developments important in sports medicine? Sports medicine Australia thinks so. *British Journal of Sports Medicine, 48*(8), 675-676.

9. 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/00000000001633679892454 8BbN5). Students should familiarize themselves with the Policy.

10. Others

Nil

THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title	**:**	Certificate in Professional Development Programme on STEAM in Physical Education
Programme QF Level	**:**	QF Level 6
Course Title	**:**	Introduction to Sports and Exercise Science
Course Code	**:**	PES5245
Department	**:**	Health and Physical Education
Credit Points	**:**	3
Contact Hours	**:**	30 hours (lecture, workshop, lesson for analysis) + 9 hours (Blended learning)
Pre-requisite(s)	**:**	In-service Primary and Secondary School PE teachers
Medium of Instruction	**:**	Chinese
Course Level	**:**	5

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.

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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

The course will introduce the evolving discipline of sports and exercise science including its academic sub-disciplines and how these relate to the teaching of PE. The course aims to provide course participants with a fundamental understanding of aspects of biomechanics, physiology, and psychology in the context of human performance and health promotion. Course participants will be introduced to the interaction between relevant fields and how each of these can be used to improve sports performance and/or health.

2. Course Intended Learning Outcomes ($CILO_s$)

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

$CILO_1$ show critical understanding of the knowledge of sports and exercise science, as well as relationships among different sub-disciplines;

$CILO_2$ show clear understanding of the application of academic discipline of sports and exercise science in improving sports performance and/or health;

$CILO_3$ apply knowledge of sports and exercise science innovatively to PE teaching and sports coaching.

3. Content, CILOs and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
Introduction of discipline and sub-discipline of sports and exercise science	$CILO_{1,2}$	Lectures and group discussion
Biomechanics, physiology, and psychology in the context of human performance and health promotion	$CILO_{1,2,3}$	Lab-based and field-based activities
Sports and exercise science in Physical Education and Health Promotion	$CILO_{1,2,3}$	Problem-based learning and blended learning

4. Assessment

Assessment Tasks	Weighting (%)	CILO
(a) Individual portfolio with not less than 1,800 words comprising critical evaluation on scientific theories in sports science through experiments and lab/field activities.	60	$CILO_{1, 2, 3}$
(b) A group presentation to examine an application of sports and exercise science to develop a school-based learning activity.	40	$CILO_{1, 2, 3}$

5. Required Text(s)

Potteiger, J. A. (2022). *ACSM's introduction to exercise science* (4th ed.). Lippincott Williams & Wilkins.

6. Recommended Readings

Biddle, S., Mutrie, N., & Gorely T. (2015). *Psychology of physical activity: Determinants, well-being, and interventions* (3rd ed.). Routledge.

Coker, C. A. (2021). *Motor learning and control for practitioners.* Routledge.

Haff, G. G., & Dumke, C. (2022). *Laboratory manual for exercise physiology* (3rd ed.). Human Kinetics.

Kenney, W. L., Wilmore, J. H., & Costill, D. L. (2021). *Physiology of sport and exercise* (8th ed.). Human Kinetics.

McArdle, W. D., Katch, F. I., & Katch, V. L. (2022). *Exercise physiology: Nutrition, energy, and human performance* (9th ed.). Lippincott Williams & Wilkins.

McGinnis, P. (2020). *Biomechanics of sport and exercise* (4th ed.). Human Kinetics.

Powers, S. K., & Howley, E.T. (2018). *Exercise physiology: Theory and application to fitness and performance* (10th ed.). McGraw-Hill Education.

Watkins, J. (2017). *Laboratory and field exercises in sport and exercise biomechanics.* Taylor and Francis.

Weinberg, R. S., & Gould, D. (2023). *Foundations of sport and exercise psychology* (8th ed.). Human Kinetics.

7. Related Web Resources

American College of Sports Medicine
http://www.acsm.org

Australian Institute of Sport
http://www.ais.org.au

Education Bureau Website
http://www.edb.gov.hk/

Gatorade Sports Science Institute
http://www.gssiweb.org

PE Summer School
http://www.ied.edu.hk/pesummerschool/

中國香港運動醫學及科學學會
http://www.hkasmss.org.hk

8. Related Journals

Applied Physiology, Nutrition and Metabolism
British Journal of Sports Medicine
European Journal of Applied Physiology
Gait and Posture
International Journal of Sports Medicine
International Journal of Sports Physiology and Performance
International Journal of Sport and Exercise Psychology
Journal of Teaching in Physical Education
Journal of Applied Physiology
Journal of Science and Medicine in Sport
Journal of Sports Sciences
Medicine and Science in Sports and Exercise
Psychology of Sport and Exercise

Sports Biomechanics

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10. Others

Nil

THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title	**:**	Certificate in Professional Development Programme on STEAM in Physical Education
Programme QF Level	**:**	QF Level 6
Course Title	**:**	Learning and Teaching in PE with STEAM Approach
Course Code	**:**	PES5298
Department	**:**	Health and Physical Education
Credit Points	**:**	3
Contact Hours	**:**	30 hours (lecture, workshop, lesson for analysis) + 9 hours (Blended learning)
Pre-requisite(s)	**:**	In-service Primary and Secondary School PE teachers
Medium of Instruction	**:**	Chinese
Course Level	**:**	5

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.

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

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1. Problem Solving Skills
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4a. Oral Communication Skills

4b. Written Communication Skills

5. Social Interaction Skills

6. Ethical Decision Making
7. Global Perspectives

1. Course Synopsis

The course aims to acquaint serving PE teachers with knowledge and skills in STEAM education to develop relevant curriculum and implementing effective and innovative pedagogies for strengthening the learning experiences for students' cognitive STEAM thinking skills, social, psychomotor as well as cultural learning for students at Key Stage 2, 3 and 4. A variety of learning methods are employed, such as problem-based learning (PBL), discovery learning, and exploratory learning. This program emphasizes science, technology, engineering, arts and mathematics to cater to students with a diversity of needs and abilities. Students who actively participate in PE learning will learn about, apply, research and practice solutions for problems in schools. Within the course, innovative curricular and pedagogical models like blended learning, flipped learning strategies, problem-based learning strategies and so on will also be studied.

2. Course Intended Learning Outcomes ($CILO_s$)

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

$CILO_1$ demonstrate critical understanding of the rationales behind pedagogical and curricular innovation advancement with STEAM education in PE;

$CILO_2$ develop and test curricular plans for the application of STEAM with curricular and pedagogical models for cultivating students' creativity, collaboration skills, problem solving skills, critical thinking skills, computational skills, engineering design process skills, aesthetic sensitivity, social, psychomotor and cultural learning through PE and interdisciplinary collaboration;

$CILO_3$ appraise critically the feasibility of promoting and implementing various innovative models for teaching PE in Hong Kong.

3. Content, CILOs and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
Critical review on the rationales behind pedagogical and curricular advancement with STEAM education in PE	*$CILO_1$*	Lectures and group discussion
Development of relevant curriculum and its implementation of effective and innovative pedagogies in PE: ● Mosston's Spectrum of Teaching Styles in PE ● Inquiry-based learning ● Project-based learning ● Fitness and Health Education model ● Cooperative learning	*$CILO_{2,3}$*	Lecture, group discussion, practical workshop and curriculum planning

● Problem-based learning ● Blended learning ● Flipped learning ● Apply Computational thinking into STEAM learning ● Engineering design process		

4. Assessment

Assessment Tasks	Weighting (%)	CILO
(a) Individual portfolio with not less than 1800 words comprising critical evaluation of rationales for respective programme designs, content development, planning for teaching, and the selection of teaching resources related to learning and teaching activities and safety precautions with STEAM approach.	60	$CILO_{1, 2}$
(b) A group presentation on the application of alternative curriculum and pedagogical models to design and develop a school-based PE curriculum with STEAM approach.	40	$CILO_{1, 3}$

5. Required Text(s)

Khine, M. S., & Areepattamannil, S. (Eds.). (2019). *STEAM Education: Theory and Practice*. Springer.

6. Recommended Readings

Capraro, M. M., Whitfield, J. G., Etchells, M. J., & Capraro, R. M. (editors). (2016). *A companion to interdisciplinary STEM project-based learning: For educators by educators* (2nd ed.). Sense Publishers.

Casey, A., Goodyear, V. A., Armour, K. M., (editors). & ebrary, Inc. (2017). *Digital technologies and learning in physical education: Pedagogical cases.* Routledge.

Fletcher, T., Ovens, A., (editors). (2014). *Self-study in physical education teacher education: Exploring the interplay of practice and scholarship.* Springer.

Gumilang, E. S., Martini, T., & Budiana, D. (2022). Self-regulated learning based-STEM model: How it impacts students' self-directed learning in physical education classes. *Journal Sport Area, 7*(3), 465-472. https://doi.org/10.25299/sportarea.2022.vol7(3).10550

IGI Global, publisher. & Information Resources Management Association, (editor). (2015). *STEM education: Concepts, methodologies, tools, and applications.* IGI Global.

Lansiquot, R. D. (editor). (2016). *Technology, theory, and practice in interdisciplinary STEM programs: Connecting STEM and non-STEM approaches.* Palgrave Macmillan US. https://doi.org/10.1057/978-1-137-56739-0

Lee, H. S., & Lee, J. (2021). Applying artificial intelligence in physical education and future perspectives. *Sustainability (Basel, Switzerland), 13*(1), 1-16. https://doi.org/10.3390/su13010351

Li, C., Kevin Kam, W. K., & Zhang, M. (2019). Physical education teachers' behaviors and intentions of integrating STEM education in teaching. *The Physical educator, 76*(4), 1086-1101. https://doi.org/10.18666/TPE-2019-V76-I4-9104

Li, N., & Xue, Y. (2022). Artificial intelligence-based assessment of physical education and training effectiveness. *Computer-Aided Design and Applications*, 75-84. https://doi.org/10.14733/cadaps.2023.S5.75-84

Li, Z., & Wang, H. (2021). The effectiveness of physical education teaching in college based on artificial intelligence methods. *Journal of Intelligent & Fuzzy Systems*, *40*(2), 3301-3311. https://doi.org/10.3233/JIFS-189370

Ponce, P., López-Orozco, C. F., Reyes, G. E. B., Lopez-Caudana, E., Parra, N. M., & Molina, A. (2022). Use of robotic platforms as a tool to support STEM and physical education in developed countries: A descriptive analysis. *Sensors (Basel, Switzerland)*, *22*(3), 1037-. https://doi.org/10.3390/s22031037

Rink, J. (2014). *Teaching physical education for learning* (7th ed.). McGraw-Hill.

Rovegno, I., & Bandhauer, D. (2017). *Elementary physical education: Curriculum and instruction* (2nd ed.). Jones & Bartlett Learning.

The Curriculum Development Council. (2014). *Basic Education Curriculum Guide – To sustain, deepen and focus on learning to learn (Primary 1 – 6)*. The Curriculum Development Council.

The Curriculum Development Council. (May 2017). *Secondary Education Curriculum Guide* (Draft). The Curriculum Development Council.

The Curriculum Development Council. (May 2017). *Physical Education Key Learning Area Curriculum Guide (Primary 1 – 6).* (Draft). The Curriculum Development Council.

Thorburn, M. (2017). *Transformative learning and teaching in physical education.* Routledge.

Wajciechowski, M., & Hemphill, M. (2019). STEM and physical education: Making connections for our students, building strength for our profession. *Strategies (Reston, Va.), 32*(6), 43-45. https://doi.org/10.1080/08924562.2019.1658435

Wang, Y. (2021). Physical Education Teaching in Colleges and Universities Assisted by Virtual Reality Technology Based on Artificial Intelligence. *Mathematical Problems in Engineering, 2021*, 1-11. https://doi.org/10.1155/2021/5582716

Yang, D., Oh, E.-S., & Wang, Y. (2020). Hybrid physical education teaching and curriculum design based on a voice interactive artificial intelligence educational robot. *Sustainability (Basel, Switzerland), 12*(19), 1-14. https://doi.org/10.3390/su12198000

Yanru, L. (2021). An artificial intelligence and machine vision based evaluation of physical education teaching. *Journal of Intelligent & Fuzzy Systems, 40*(2), 3559-3569. https://doi.org/10.3233/JIFS-189392

Zhang, Y. A. (2015). *Handbook of mobile teaching and learning.* Springer.

甘偉強、李宗、高達倫、周佩瑜、潘凱琳、歐陽效章 (2014)：《競技運動教育模式在香港的研究與推展》，香港：香港教育學院健康與體育學系。

李宗、甘偉強、高達倫、周佩瑜、歐陽效章(2013)：《Mosston 教學光譜在香港的研究與推展》，香港：香港教育學院健康與體育系。

課程發展議會(2017)：《體育學習領域課程指引(小一至中六)》，香港：課程發展議會。

課程發展議會(2015)：《推動 STEM 教育—發揮創意潛能》，香港：課程發展議會。

課程發展議會與香港考試及評核局(2015)：《體育課程及評估指引(中四至中六)》(二零一五年十一月更新)，香港：課程發展議會。

7. Related Web Resources

Education Bureau Website

http://www.edb.gov.hk/

PE Summer School
http://www. ied.edu.hk/pesummerschool/

8. Related Journals

Physical Educator
Journal of Teaching in Physical Education

9. 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/00000000001633679892454 8BbN5). Students should familiarize themselves with the Policy.

10. Others

Nil

第二部份：學員須知

1.	**學生編號**
	每一位學員在註冊時均獲發一個八位數字的學生編號（首兩位數字為第一次註冊年份）。從未註冊入讀本校課程的新學員，其學生編號即其申請編號。過往曾註冊入讀本校課程的學員，其學生編號即其第一次註冊時本校所發的學生編號。在此情況下，其學生編號則有別於申請編號。註冊後，學員與本校的一切聯絡及通訊，均請引述學生證上的學生編號而非申請編號。
2.	**「教大通」卡**
	入學註冊手續辦妥後，學員將免費獲發「教大通」卡，卡上載有持卡人之個人資料及相片，是本校學員之身份證明。使用校內設施或參加校內考試及與課程有關的活動時，學員或須出示「教大通」。「教大通」的有效期至持卡人註冊修讀之課程完結為止。如有遺失，應盡快通知教務處，並繳付港幣一百元補領費。 有關「教大通」之使用說明，請參閱學生手冊 第四章「條例與規例」的第八節「學生證『教大通』使用說明書」：https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/Edu-Card-Users-Guide.html 中途退學或學生證有效期屆滿者，均須在離校前將證件交回教務處，否則教務處可從其保證金中扣除港幣一百元。
3.	**圖書證**
	「教大通」卡可作圖書證，學員可在指定的有效日期內使用圖書館資源。在課程完結後，學員可申請「教大校友圖書證」以繼續享用圖書館之借閱服務。申請辦法可瀏覽圖書館網頁 (https://www.lib.eduhk.hk/zh/information-for-alumni) 或到圖書館服務台 (C-G/F) 查詢及索取申請表格。
4.	**電子郵件戶口**
	電子郵件為本校主要的溝通渠道。學員須定時檢閱其電子郵件戶口（如：s0312345@s.eduhk.hk）以獲得最新的資訊，有關查詢請致電資訊科技服務處 2948 6601。

5.	**更改個人資料**
	學生在註冊時所申報的個人資料將存於學生紀錄內。如欲在修讀本校課程期間，更改任何個人資料如地址、電話號碼，應立即通知教務處。學生可登入 The Portal （http://portal.eduhk.hk/）***[Navigation: The Portal> e-SIS > e-SIS > Main Menu > Personal Information]*** 隨時使用網上自助服務更改其個人地址及/或聯絡電話，或於諮詢中心 (A-G/F-11)、各學院事務處或市區分校事務處索取「申請更改個人資料」表格或於此網址下載（https://www.eduhk.hk/re/Current-Students/Useful-Forms/General.html），並填妥交回。 如更改的個人資料為香港身分證號碼、姓名、出生日期，則須隨申請表附上法律證明文件佐證。 若學生已完成有關課程或已退學，更改個人資料的申請，將不獲受理。
6.	**出席率及請假**
	同學因特殊情況未能出席課堂而需要請假，必須向課程統籌主任遞交請假申請及需附上請假證明（如醫生紙或學校信等），並獲課程統籌主任批准，才為有效的請假。學員的每科出席率不得低於 80%，否則會被評為不合格。
7.	**惡劣天氣期間之上課及考試安排**
	有關惡劣天氣期間之特別考試安排，同學請參閱學生手冊 第十五章「惡劣天氣期間之上課及考試安排」（https://www.eduhk.hk/re/student_handbook/tc/Class-Examination-Arrangements-During-Bad-Weather.html）或可致電教務處熱線 2948 6196。 遇有熱帶氣旋或暴雨警告時，所有學員應注意以下上課和考試的應變安排。下列安排適用於大埔校園及市區分校。學員亦可致電教務處熱線 2948 6196，查詢本校的特別措施。學員應注意教育局於電視台／電台宣布之安排並**不適用**於本校。校方或會就上課／考試作出特別措施，同學應留意本校「大學網站」(The Portal)的教大公布。 除非校方另行公布，否則於三號熱帶氣旋或紅色暴雨警告生效期間，所有課堂和考試將如常舉行。 當天文台預告將於未來兩小時內發出八號或以上熱帶氣旋警告訊號，本校將因應當時的天氣狀況而就上課及考試作出特別安排（包括停課）。學員應留意電台

／電視台的廣播或致電教務處熱線 (2948 6196) 查詢有關的應變措施。

八號或以上熱帶氣旋或黑色暴雨警告生效時，所採取之措施如下：

7.1 上課或考試前

天氣狀況	應變措施
上午課堂或考試 八號或以上熱帶氣旋警告訊號、「極端情況」或黑色暴雨警告於早上六時或以後仍然生效	所有在下午一時三十分前開始的上午課堂和考試將會取消。原定的考試將按已訂之應變考試措施另日進行。
下午課堂或考試 於上午六時一分至上午十一時期間: • 當八號或以上熱帶氣旋警告訊號除下，及沒有發出「極端情況」公布; 或 • 當「極端情況」取消; 或 • 當黑色暴雨警告取消	所有在下午一時三十分至五時三十分開始的下午課堂和考試將如常進行。
• 八號或以上熱帶氣旋警告訊號、「極端情況」或黑色暴雨警告於早上十一時或以後仍然生效	所有在下午一時三十分至五時三十分開始的下午課堂和考試將會取消。原定的考試將按已訂之應變考試措施另日進行。
晚間課堂或考試 於下午三時或之前: • 當八號或以上熱帶氣旋警告訊號除下，及沒有發出「極端情況」公布; 或 • 當「極端情況」取消; 或 • 當黑色暴雨警告取消	下午五時三十分及以後開始的晚間課堂和考試將如常進行。
於下午三時一分至下午四時期間: • 當八號或以上熱帶氣旋警告訊號除下，及沒有發出「極端情況」公布; 或 • 當「極端情況」取消; 或 • 當黑色暴雨警告取消	下午六時三十分及以後開始的晚間課堂和考試將如常進行。

• 八號或以上熱帶氣旋警告訊號、「極端情況」或黑色暴雨警告於下午四時或以後仍然生效	所有晚間課堂和考試將會取消。原定之考試將按已訂之應變考試措施，另日進行補考。

7.2 上課或考試中

天氣狀況	應變措施
八號或以上熱帶氣旋警告訊號生效	所有課堂將立刻終止。 除非首席監考決定暫停考試，所有考試（除戶外之考試外）將繼續進行，直至該考試完結為止。
黑色暴雨警告生效	除非講師或首席監考決定暫停有關課堂或考試，所有課堂和考試（除戶外課堂和考試外）將繼續進行，直至該課堂或考試完結為止。

7.3 惡劣天氣期間之應變考試安排

由教務處統籌之考試若因天氣惡劣而取消，學員可即時查看內聯網所載之「應變安排時的考試時間表」，有關資料亦會於考試日期前三星期於教務處網頁公佈。而其他非由教務處安排之考試，學員須向有關講師或學系查詢。

「應變安排時的考試時間表」網址：
https://www.eduhk.hk/re/modules/content/item.php?categoryid=9&itemid=23

8. 列印及影印服務

學員可到資訊科技服務處列印功課，而每位學員會獲發價值港幣一百二十元的免費列印配額。詳情請瀏覽資訊科技服務網頁 (www.eduhk.hk/ocio)。另外，學員可在圖書館或學生會休息室利用八達通卡享用自助影印服務。

9. 學員巴士（校車）服務

本校學員校車服務，由強記旅運有限公司（港鐵大學站來往教大）承辦。服務詳情請參閱校內布告板或內聯網上通告。遇有熱帶氣旋或暴雨警告，服務將有特別安排，學員可於內聯網 (The Portal) 或物業處網頁(https://www.eduhk.hk/eo/transportation/types-transport) 下載並保存有關資料，以備參考。如有查詢，請於辦公時間致電物業處，電話 2948 6714，或聯絡強記旅運有限公司（2396 2088）。

10.	**車位安排**
	學員可向物業處申請車位，詳情及申請表格可瀏覽以下網頁 (https:/www.eduhk.hk/eo/service-forms/students)或致電物業處（電話：2948 6120）查詢。
11.	**學員保健服務**
	校園保健中心 (A-1/F-09) 為學員提供西醫門診服務。所有全職及兼讀制課程學員的普通科門診收費每次為港幣二十元。學員宜預約診症以免費時輪候。中心開放時間、聯絡電話、各項服務及收費之詳情，請參閱學生事務處網址（https://www.eduhk.hk/sao/info/campus_life/health_care_services/on_campus_health_centre/）。
12.	**運動及康樂設施**
	請參閱學生手冊 第十七章「校園設施及安全」: https://www.eduhk.hk/re/student_handbook/tc/Campus-Facilities-And-Safety.html
13.	**布告板**
	校園內設有布告板以展示重要資訊包括政策改動、重要公布等訊息。如欲查看上課時間和與本系相關等訊息，歡迎學員瀏覽本系網頁(https://www.eduhk.hk/hpe)。
14.	**課程及科目教學評估**
	每期課程完結前，學員均須填寫科目及課程評估表，以表達對本課程整體運作的意見。

第三部份：附錄

1. 課程學務政策及規則

1.1 學分制度

1.1.1 教師專業進修課程證書（體育學與教之科學、科技、工程及數學範疇）採用科目學分制，相關的學習組合成一個科目，以學分來表示。

1.1.2 每個學分相等於十三個授課小時。學員另須利用課外時間閱讀。

1.1.3 學員必須達至課程手冊規定的學分要求，方可畢業。

1.2 修業期限

1.2.1 上課周數如課程手冊所示，通常為期五星期。

1.2.2 要完成課程，學員須遵從各課程科目的指示，完成所有功課、專題報告、教學報告、評估、校本工作或教學實踐等活動。

1.3 科目評估與等級

1.3.1 評核方法及評級制度

科目的評核將按下列評級制度：

等級	標準	變換積點
A+*	優異	4.33
A		4.00
A-		3.67
B+	良好	3.33
B		3.00
B-		2.67
C+	滿意	2.33
C		2.00
C-		1.67
D**		1.00
F	不及格	0.00

*「A+」級只給予表現超卓之學員

**「D」級為修畢科目之最低要求

請參閱學生手冊第四・一章「學務規則」的第九項「科目評核與等級」(https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#9) 及第五章「學務規則的操作指引」

的第七節「與評核有關」(https://www.eduhk.hk/re/student_handbook/tc/Operational-Guidelines-Supporting-General-Academic-Regulations.html#ch7)

1.3.2 遲交習作及缺席評核活動

i. 學生須於最後限期前呈交習作，並依時出席所有測驗、考試及其他指定之評核活動。

ii. 學生不能在指定限期內呈交習作，須先獲得有關導師批准，惟須提交有力證明以作考慮。所有經核准申請，其副本必須呈交課程統籌主任。

iii. 未能完成測驗、考試或其他評核活動之學生，必須經由授課導師向系主任請准，申請時須附交相關證明文件，如因患病或能力受損則須提交醫療證明。

iv. 如系主任確信學生具有充分理由缺席課堂測驗、考試或其他評核活動，可准予學生完成附加之評核課業，其形式由系主任經諮詢授課導師後訂定。該附加評核課業之成績，視個別情況而定，可被調低最多一整個等級。

v. 如系主任在審閱有關資料後，拒絕學生之申請，該科目內未參與評核的部分，會被評為「不及格」(F 級)。

1.3.3 畢業要求

i. 學生必須符合下列各項之畢業規定，方可獲頒授學歷：

一、 達到所修課程之最低學分要求，並符合課程之其他所有規定；
二、 平均積點在 2.00 或以上。

ii. 考試委員會會根據下列的指引評定學歷等級：

學歷等級	最低整體平均積點
優異	3.40
良好	2.70
及格	2.00

iii. 學員完成指定的評核及符合出席要求，可獲頒授「結業證書」。

詳情請參閱學生手冊第四・一章「學務規則」的第十項「畢業要

求」：https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#10

1.4 守時、出席率、缺席及請假

1.4.1 本校十分重視學生之守時及出席率。課堂參與是學習中的重要環節，學生須培養強烈的責任感及守時習慣，以幫助建立及維繫一個有助學習的課堂環境，並為日後在社會工作作好準備。因此，學生應出席所有已編定之課堂及活動。

1.4.2 同學因特殊情況未能出席課堂而需要請假，必須向統籌主任遞交請假申請並獲批准。如有需要，學生也必須遵守個別課程/學系所定下的出席要求。

詳情請參閱學生手冊第四・一章「學務規則」的第十三項「請假」：https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#13

1.5 退學、終止學籍及開除學籍

請參閱學生手冊第四・一章「學務規則」的第十二項「終止學籍」(https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#12)及第十四項「休學及退學」(https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#14)

1.6 學術誠信

請參閱學生手冊第四・一章「學務規則」的第十八項「學術誠信」：https://www.eduhk.hk/re/student_handbook/tc/Rules-And-Regulations/General-Academic-Regulations.html#18

2. 課程統籌小組聯絡方法

2.1 健康與體育學系

署理系主任：謝采揚博士

2.2 課程辦事處

地址：D4-2/F-03
查詢：2948 7617

	傳真：2948 7848 電郵：hpe@eduhk.hk
	辦公時間 星期一至五：8:30 am – 5:20 pm 星期六、日及公眾假期：休息 **2.3 課程統籌小組** 黃凱偉博士（課程統籌主任） 地址：D4-2/F-14 電話：2948 7094 傳真：2948 7848 電郵：hwwong@eduhk.hk
3.	**教學支援部門常用電話及網址**
	請參閱學生手冊 第二十一章「常用電話號碼及網址」： https://www.eduhk.hk/re/student_handbook/tc/Useful-Telephone-Numbers-And-Websites.html
4.	**學術著作引證系統**
	本校十分重視學術誠信。有關學術誠信的內容，請細閱教務處網上版學生手冊第八章「學術誠信及版權」(https://www.eduhk.hk/re/student_handbook/tc/Academic-Honesty-And-Copyright.html)及第十四章「學術著作引證」(https://www.eduhk.hk/re/student_handbook/tc/Citation-System.html)
5.	**校園地圖**
	校園地圖：https://www.eduhk.hk/googlemap/