THE EDUCATION UNIVERSITY OF HONG KONG

Course Outline

Part I

Programme Title	**:**	Doctor of Education (Mathematics Education – Directed Study)
Programme QF Level	**:**	7
Course Title	**:**	Curriculum Research and Development in Mathematics
Course Code	**:**	MTH7123
Department	**:**	MIT
Credit Points	**:**	3
Contact Hours	**:**	39 hours
Pre-requisite(s)	**:**	Nil
Course Level	**:**	Foundation Stage

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 Undergraduate, Taught Postgraduate 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

This course examines the fundamental ideas in Mathematics curriculum development; the history of Mathematics curriculum changes; Mathematics curriculum organization; the current Mathematics curriculum projects overseas; school-based Mathematics curriculum and assessment. The course aims to provide candidates with knowledge needed to understand and

contribute to Mathematics curriculum development in Hong Kong. There is an additional focus on curriculum inquiry into why certain Mathematics education goals and content are selected. Such inquiry could provide a useful knowledge base for policy as well as school-based curriculum decision and development.

2. Course Intended Learning Outcomes ($CILO_s$)

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

- $CILO_1$ discuss fundamental ideas underpinning the Mathematics curriculum development and changes;
- $CILO_2$ demonstrate understanding of the processes of Mathematics curriculum review;
- $CILO_3$ understand Mathematics curriculum design in a range of educational settings;
- $CILO_4$ anticipate and plan strategically for Mathematics curriculum change within specified context;
- $CILO_5$ comment critically on the local and global Mathematics curriculum decision cases.

3. Content, CILOs and Teaching & Learning Activities

Course Content	CILOs	Suggested Teaching & Learning Activities
A discussion of the nature of curriculum development and its theories and perspectives regarding sociological, psychological and philosophical concepts, and the fundamental ideas underpinning the Mathematics curriculum development and changes.	$CILO_{1,2}$	▪ Lecturer-led Q&A ▪ Guided Research Activities
The processes of Mathematics curriculum review and the history of Mathematics curriculum changes.	$CILO_{1,2}$	▪ Lecturer-led Q&A ▪ Guided Research Activities
Mathematics curriculum decision factors regarding people, context and organization.	$CILO_{,2,3}$	▪ Lecturer-led Q&A ▪ Guided Research Activities
Curriculum inquiry into why certain Mathematics education goals and content are selected and the key components for organizing Mathematics curriculum and reflecting on the contemporary Mathematics curriculum organization practice in Hong Kong and overseas.	$CILO_{3,4}$	▪ Problem-Based Learning Activities ▪ Guided Research Activities
School-based Mathematics curriculum and assessment.	$CILO_{4,5}$	▪ Problem-Based Learning Activities ▪ Guided Research Activities

4. Assessment

Assessment Tasks	Weighting (%)	CILO
(a) A presentation on the articulation of self-selected readings and on possible future research directions.	20	$CILO_{1,2,3}$
(b) An analytical and critical essay of around 4000 words on one of the topics in the Content Themes.	80	$CILO_{1,2,3,4,5}$

5. Required Text(s)

Nil

6. Recommended Readings

Cornbleth, C. (1990). A point of view. In C. Cornbleth (Ed.). *Curriculum in context* (pp. 3-11). New York: State University of New York Press.

Cuban, L. (1992). Curriculum stability and change. In P. Jackson, (Ed.), *Handbook of research on curriculum* (pp.216-247). London: Macmillan.

Douglas, A. G. (1992). Handbook of research on mathematics teaching and learning: a project of the National Council of Teachers of Mathematics. New York: Macmillan Pub. Co.

Elmore, R., Sykes, G., & Spillane, J. P. (1992). Curriculum policy. In P. W. Jackson, (Eds.), *Handbook of Research on Curriculum*. United States: American Education Research Association.

Fok, P. K. (2002). *Decision discourse as politics of control: A case study of the School-based Curriculum Tailoring Scheme catering for student learning differences*. Unpublished doctoral thesis, the Chinese University of Hong Kong.

Hau, K. T., Ip, M. H. & Cheng, Z. (1996). TOC and inter-school comparison. *Education Journal,* 24(2). The Chinese University of Hong Kong.

Howson, A.F., Keitel, C. & Kilpatrick, J. (1983). *Curriculum development in mathematics.* Cambridge: Cambridge University Press.

*Hoyles, C., Morgan, C. & Woodhouse, G. (1999). *Rethinking the mathematics curriculum*. London: Falmer Press.

Klein, M. F. (1991). A conceptual framework for curriculum decision making. In M. F. Klein (Ed.), *The politics of curriculum decision making: Issues in centralizing the curriculum*. New York: State University of New York.

*Mason, J. & Johnston-Wilder, S. (Eds.) (2004). *Fundamental constructs in mathematics education*. London/NewYork: Routledge Falmer

McClelland, G. (1991). Attainment targets and related assessment in schools. In N. Crawford & E. R. D. Hui (Eds.). *The curriculum and behavior problems in schools: A response to the Education Commission Report*, 4, 127-145. Hong Kong: Faculty of Education, The University of Hong Kong.

Ornstein, A. C. (2003). Philosophy as a basis for curriculum decisions. In A. C. Ornstein, L. S. Behar-Horenstein, & E. F. Pajak (Eds.), *Contemporary issues in curriculum* (3rd ed.) (pp.3-9). Boston: Allyn and Bacon.

Philip, W. J. (1992). *Handbook of research on curriculum: a project of the American Educational research association*. New York: Macmillan Pub. Co.

Short, E. C. (2008). Curriculum policy research. In F. M. Connelly, M. F., He, J. Phillion (Eds.), *The Sage Handbook of Curriculum and Instruction* (pp.420-430). United States: Sage Publication.

Sowell, E. J. (1996). *Curriculum: An integrative introduction.* Englewood Cliff, New Jersey.

*Tang, K. C., Wong, N. Y., Fok, P. K., Ngan, M. Y., & Wong, K L. (2007). Hong Kong Primary Mathematics Curriculum Development in the Past Five Decades and Its Implications for the Future Mathematics Curriculum Development, *Journal of Basic Education*, 16(1): 115-131, Hong Kong: Chinese University of Hong Kong, Education Research Institute.

Wong, N. Y., Tang, K. C., Fok, P. K., Ngan, M. Y., & Wong, K L. (2007, March). *Rethinking our child centre Mathematical Education: The insights learned from mathematical curriculum development in Hong Kong.* In Taiwan Journal of Mathematics Teachers, 9, 3-25. On line retrieved: http://www.math.ntnu.edu.tw/~tame/tameteachers/TJMT09.pdf (In Chinese). Taipei: Taiwan Association for Mathematics Education.

*Wong, N. Y., Han, J. W., & Lee, P. Y. (2004). The mathematics curriculum: Towards globalisation or Westernisation? In L. Fan, N. Y. Wong, J. Cai, & S. Li (Eds.), *How Chinese learn mathematics: Perspectives from insiders* (pp. 27-70). Singapore: World Scientific.

Young, M. F. D. (1998). *The curriculum of the future*. London: The Falmer Press.

黃德華、殷勤思 (2009) :《從中國數學課程改革探討形成性課程評鑑的原則》，《數學教育》，第三十八期，頁 10-19，中國香港，香港數學教育學會。

Those marked with (*) are highly recommended.

7. Related Web Resources

1. http://www.edb.gov.hk/index.aspx?nodeID=2365&langno=1 (EdB Curriculum Development, Hong Kong)
2. http://www2.edc.org/mcc/about/default.asp (The K–12 Mathematics Curriculum Center)
3. http://www.nctm.org/ (National Council of Teachers of Mathematics)
4. http://www.iejme.com/ (International Electronic Journal of Mathematics Education)

8. Related Journals

1. International Journal for Mathematics Teaching and Learning.
2. Journal of Curriculum and Instruction.
3. Journal of Mathematics Teacher Education
4. Educational Studies in Mathematics.

9. Academic Honesty

The University adopts a zero tolerance policy to plagiarism. For the University's policy on plagiarism, please refer to the *Policy on Academic Honesty, Responsibility and Integrity with Specific Reference to the Avoidance of Plagiarism by Students* (https://www.eduhk.hk/re/modules/downloads/visit.php?cid=9&lid=89). Students should familiarize themselves with the Policy.

10. Others

Nil

Last update: 18-07-2017

Annex

TPg Courses with other Study Modes

Programme Title **:** Doctor of Education (Mathematics Education – Directed Study)
Course Title **:** Curriculum Research and Development in Mathematics
Course Code **:** MTH7123
Offering Unit **:** MIT
Credit Points **:** 3

Delivery mode:

☐ **Online learning as the primary delivery mode**

Range of classroom-based contact hours (0-15)	**Range of hours for online learning (24-39)**	**Total No. of-Contact Hours**
		39

☑ **Directed study mode**

Range of classroom-based contact hours (4-15)	**Range of guided independent learning hours (24-35)**	**Total No. of-Contact Hours**
6	33	39