Course Description

MEDD6388 Curriculum Research and Development in Mathematics

Course description

This course discusses issues that revolve around the mathematics curriculum and its development in schools. Without limiting the discussion to Hong Kong, a deeper understanding of the issues and concepts concerned with curriculum research and development is expected to be emerging from a better knowledge about the mathematics curricula in various other countries. Important issues to be discussed include: the ongoing development of curriculum in mathematics; current mathematics curriculum projects overseas; the history of the mathematics curriculum; forces that shape the mathematics curriculum in Hong Kong; the relevance of school mathematics; mathematics across the curriculum; assessment in mathematics; school mathematics that caters for individual differences; and diversification and standardization of the mathematics curriculum.

Course objectives

The objectives of the course are to enable students to

(a) understand the notion of curriculum and what mathematics curriculum means in an education system;
(b) understand the various factors and forces that shape the mathematics curriculum in an education system (e.g. that in Hong Kong, United States);
(c) reflect critically the relevance of mathematics curriculum in light of a student-centered approach to mathematics education;
(d) understand the meaning and significance of a variety of research studies on mathematics curriculum and those inform curriculum innovation;
(e) explore the complexity of the development of mathematics curriculum through the examination and construction of curricular materials

Course learning outcomes (CLOs)	**Aligned programme learning outcomes (PLOs)**
1. Demonstrate a general understanding of the inter-relationships among the nature of mathematics, the purposes of learning it, and the mathematics curriculum	PLO1
2. Demonstrate a general understanding of the forces, both local and global, that shape the mathematics curriculum in schools	PLOs 1, 4
3. Show the capacity to reflect critically on extant curriculum and associated practices through a student-centered perspective	PLOs 2-5
4. Demonstrate mastery of knowledge and skills in comparing, analyzing, critiquing curriculum materials	PLOs 2, 3, 5
5. Demonstrate mastery of knowledge about research studies on curriculum and studies that inform curriculum change	PLOs 2, 3
6. Show the capacity to explore the role of a professional mathematics teacher in the curriculum development of mathematics and proactively make curriculum innovation based on research findings, theories, and student thinking	PLOs 2, 3, 5

Course assessment methods

- Reflective reading
- Group presentation
- Individual essay

Course content and topics

- What is mathematics? What is curriculum
- Mathematics curriculum reforms
- Decentering, second-order modeling, and mathematical caring
- Research informing curriculum innovation
- Research methods for curriculum innovation
- Curriculum research
- Epistemology and curriculum development

Required / recommended readings and online materials

To be advised during lectures

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