

COURSE OUTLINE

Department of Science and Mathematics Education. Faculty of Education	Page : 1 of 4
Course Code : Teaching and Learning Models in Mathematics (MPS 1803) Total Contact Hours: 42 hours	Semester: 2 Academic Session: 2008/2009

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Synopsis : This course is design to develop students' deep understanding on the models of teaching and learning in mathematics. Students are required to understand child development: physical, cognitive, personal and moral development, understanding the learning and teaching process of mathematics. behavioral theories; classical and operant conditioning, implications of behavioral theories in mathematics education, cognitive theories; information processing theory, Bruner's, Ausubel's, constructive theory, multiple intelligence, and problem based learning and implications of cognitive theories in mathematics education will be discussed. Students are also required to make critical analysis of selected readings, writing assignments, design a small scale research and project work s through classroom

LEARNING OUTCOMES

By the end of the course, students should be able to:

No.	Course Learning Outcome	Programme Learning Outcome(s) Addressed	Assessment Methods
1.	Describes physical , cognitive, personal and moral development in mathematics teaching and learning	P1	HW
2.	Describes behavioral theories and its implication in teaching and learning mathematics	P1,P2, LO1	HW,Pr
3.	Describes cognitive theories and its implication in teaching and learning mathematics.	P1,P2, LO1	HW,Pr
4.	Make critical analysis on selected reading (e.g. learning mathematics and its implication to constructive teaching model in mathematics)	P1,P2, LO1	HW
5.	Design a small scale research in teaching and learning problem	P1,P2,P3,LO1, LO2	PR,Pr KEY PR=Project Pr= Presentation HW= Homework

STUDENT LEARNING TIME

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Department of Science and Mathematics Education. Faculty of Education	Page : 2 of 4
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Teaching and Learning Activities	Student Learning Time (hours)
1. Lecture	42
2. Self Study - self learning - information search - library search - reading - group discussion	30
3. Project - information search - library search - small scale research	40
4. Presentation	8
Total	120

TEACHING METHODOLOGY

Lecture, Demonstration, and Discussion, Co-operative Learning, Self Study, Group Work,

WEEKLY SCHEDULE

Week 1	:	Introduction of the course
Week 2	:	Child development: physical, cognitive, personal and moral development
Week 3	:	Behavioural theories: classical and operant conditioning, implications of behavioural theories in science education .
Week 4	:	Cognitive theories: Piaget theory
Week 5	:	Information processing theory
Week 6	:	Bruner and Ausubel theory.
Week 7	:	Multiple intelligence and Constructivism
Week 8	:	Mid-Semester Break
Week 9	:	Problem Based Learning, Learning Styles

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Department of Science and Mathematics Education. Faculty of Education	Page : 3 of 4
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Week 10 : Design Small Scale : Identify Problem Week 11 : Continue Design small scale research: Developing Instrument Week 12 : Continue Design small scale research: Field work. Week 13 : Continue Design small scale research: Result and Discussion. Week 14 : Small scale research: Presentation Week 15 : Small scale research: Presentation Week 16-18 :	
REFERENCES : Ai-Choo Ong, Gary D. Borich (2006). Teaching strategies that promote thinking : models and curriculum approaches . Singapore : McGraw-Hill Ausubel, D.P. (1968) Educational Psychology: A Cognitive View, New York: Holt, Rhinehart dan Winston. Clark, L.H. and Starr, I.R. (1992) Secondary and Middle School Teaching Methods. New York: MacMillan Publishing Company. Demetriou, A. Shayer, M and Efklides, A. (eds)(1992) The Neo-Piagetian Theories go to School. London: Routledge dan Kegan Paul. Eggen, P. and Kauchak, D. Educational Psychology: Window on Classroom. New Jersey: Prentice Hall Joyce, B., Calhoun, E., Hopkins, D. (2002). Models of Learning: Tools for Teaching. Buckingham Open University Laurie Brady (1985)Models and methods of teaching Sydney : Prentice-Hall Ginsburg, H. and Oppen, S. (1987) Piaget's Theory of Cognitive Development. Englewood Cliffs; Prentice Hall. Richard Lesh, Helen M. Doerr (2003). Beyond constructivism : models and modeling perspectives on mathematics problem solving, learning, and teaching N. J. : Lawrence Erlbaum Associates Tan Oon Seng, Parsons, R.D., Hinson, S.L. and Sardo-Brown, D (2003)Educational Psychology, A Practitioner-Reseacher Approach. Singapore: Thomson Asia Pte Ltd. Yudariah Mohamad Yusof (1997). Teaching Mathematical Thought vs Teaching Mathematical Thinking in Undergraduate Mathematics. Skudai: Universiti Teknologi Malaysia GRADING:	

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(Provide details on the allocation of marks and the time schedule for all quizzes, tests, assignments, etc.)

EVALUATION	PERCENTAGE (%)
Individual written assignment	10
Group written assignment	25
Individual Presentation	10
Group Presentation	15
Student Participation	20
E-Portfolio	20
TOTAL	100