COURSE OUTLINE

Lecturer	:	Assoc. Prof. Dr. Mohammad Yusof bin Arshad
Room No.	:	C14 340 Tel : 15 307/C15 310
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Synopsis	:	This course is design to develop students' deep understanding on the models of teaching and learning in chemistry. Students are required to understand child development: physical, cognitive, personal and moral development, understanding the learning and teaching process of chemistry. behavioral theories; classical and operant conditioning, implications of behavioral theories in science education, cognitive theories; information processing theory, Bruner's, Ausubel's, constructive theory, multiple intelligence, and problem based learning and implications of cognitive theories in science 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.	describe physical , cognitive, personal and moral development in chemistry teaching and learning	PO1	HW
2.	describe the behavioural theories and its implication in teaching and learning chemistry	PO1,PO2, LO1	HW,Pr
3.	describe the cognitive theories and its implication in teaching and learning chemistry.	PO1,PO2, LO1	HW,Pr
4.	make critical analysis on selected reading (e.g. learning chemistry and its implication to constructive teaching model in chemistry)	PO1,PO2, LO1	HW
5.	design a small scale research in teaching and learning problem	PO1,PO2,PO3,LO1, LO2	PR,Pr KEY PR=Project Pr= Presentation HW= Homework

STUDENT LEARNING TIME

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Teaching and Learning Activities	Student Learning Time (hours)
1. Lecture	42
2. ISelf 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
Week 10	:	Design Small Scale : Identify Problem

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Week 11   :   Continue Design small scale research: Developing Instrumen

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 :

References

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Osborne, R. and Freyberg P. (1990) Learning in Science: The Implication of Children's Science. Auckland: Heinemann

Osborne,R & Wittrock, M.C. (1985) The generative learning model and it's implication for science education'. Studies in Science Education, 12, 59-87.

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

EVALUATION	PERCENTAGE (%)
Assignment 1: individual	5
Assignment 2: Group	20
Assignment 3 small scale research report	20
Presentation: individual	20
Presentation: small scale research) (	20
Participation and attendant	15
TOTAL	**100**