COURSE OUTLINE

Department & Faculty: Department of Science and Mathematics Education, Faculty of Education UTM	Page : 1 of 4
Course Code: MPS1313: Problem Solving in Chemistry. Total Lecture Hours: 42 hours	Semester: 1 Academic Session: 2009/2010

Lecturer : Assoc. Prof. Aziz bin Nordin

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Synopsis : Strategies in problem solving. The importance of problem solving. Teaching and research and other related issues in problem solving will be discussed.

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.	Discuss the rationale, philosophy and chemistry problem solving in chemistry education.	PO1, PO2	WA
2.	Apply the qualitative and quantitative methods of problem solving.	PO1, PO2	WA
3.	Discuss issues and problems in teaching and learning chemistry in secondary school.	PO1, PO2, PO3	WA
4.	Apply chemistry problem solving processes in research in chemistry education.	PO3, PO6,PO7	PR, WA
5.	Understand the role of problem solving in teaching and learning of chemistry in school.	PO2, PO3,PO5, PO6	PR, WA
6.	Increase the awareness on the individual and community's role in problem solving in society.	All -PO1 to PO7	Report of Projek Work [WA-written assignment;PR-project work]

STUDENT LEARNING TIME

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Teaching and Learning Activities	**Student Learning Time (hours)**
1. Lecture	42
2. Independent Study - self learning - information search - library search - reading - group discussion	35
3. Project (4X) - information search - library search - Report Writing	34
4. Individual presentations	3
5. Group Presentations	6
Total	120

TEACHING METHODOLOGY

Lecture, Demonstration, and Discussion, Co-operative Learning, Independent Study, group discussion and library search.

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WEEKLY SCHEDULE

Week 1	:	Introduction. Problem solving in chemistry education.
Week 2	:	Quantitative and qualitative problem solving The differences between qualitative and quantitative problem solving.
Week 3	:	Problem solving model and its importance in chemistry education.
Week 4	:	Problem solving in chemistry curriculum – *hands-on* dan *minds-on activities.*
		MID-TERM BREAK
Week 5	:	Students' chemistry problem solving.
Week 6	:	Continuation of Students' chemistry problem solving.
Week 7	:	Factors that contribute to successful in problem solving.
Week 8	:	Problem solving: How to teach problem solving.
Week 9	:	Developing and inculcating of creative problem solving.
Week 10	:	Means and medium of problem solving.
Week 11	:	Problem based learning
Week 12	:	Research in problem solving in chemistry education.
Week 13	:	Individual presentation: Issues in chemistry problem solving
Week 14	:	Group presentation: Problem solving in chemistry
Week 15	:	Revision week (1 week).
Week 16	:	Final examination (3week).

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GRADING:

EVALUATION	PERCENTAGE (%)
Individual Assignment	20
Group Project work	40
Final Examination	40
TOTAL	**100**