UNIVERSITI TEKNOLOGI MARA

MAE573: MATHEMATICAL PROBLEM SOLVING FOR SCHOOL

Course Name (English)	MATHEMATICAL PROBLEM SOLVING FOR SCHOOL APPROVED
Course Code	MAE573
MQF Credit	3
Course Description	This course is designed to introduce prospective instructors to both theory and practice related to mathematical problem solving. Students will explore pedagogical issues and participate in a variety of exercises, problems, and investigations as they explore mathematics concepts from a problem solving perspective in an interactive manner. The problems are of a variety of types and may include problems involving puzzles or patterns, word problems, algebraic problems, counting and probability problems, problems dealing with geometry, and other related problems. The emphasis is on applying critical thinking skills on the exploration of various mathematics contexts to learn and teach mathematics, to solve problems, and to communicate mathematical demonstrations.
Transferable Skills	Communication Skill, problem solving skill
Teaching Methodologies	Lectures, Tutorial, Simulation Activity, Presentation
CLO	CLO1 Apply heuristics techniques to the process of solving routine and non-routine problems CLO2 Generalize problem-solving skills. CLO3 Explain and apply problem-solving process and connect with real life problems.
Pre-Requisite Courses	No course recommendations

Topics
1. Teachers as Learners 1.1) N/A
2. Concept of a mathematical problem 2.1) N/A
3. Stages of Problem Solving 3.1) N/A
4. Heuristics Process 4.1) N/A
5. Problem Posing 5.1) N/A
6. Cognition and Metacognition 6.1) N/A

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Final Test	Students will be able to demonstrate their conceptual knowledge of problem solving and solve non-routine problems. During a test, students will display their conceptual understanding of what constitutes a problem, problem solving process, heuristics and solve non-routine problems.	40%	CLO2
Group Project	Students will be able to solve three set of non-routine activity in group. Students need to think and discuss in group to solve given set of activity.	30%	CLO1
Journal/Article Critique	Students will be able express their thoughts based on classroom discussion in a journal. Students will write reflective journals based on their own ideas, thoughts, feelings, belief system or description of own experiences from classroom discussion. It will help students to know themselves better in relations to what they have learned.	10%	CLO3
Presentation	Lead a class discussion based on a given activity. During the presentation based on problem solving., students will be judged based on the depth of content, presentation skills, ability to lead discussion and language usage	20%	CLO3

Reading List	This Course does not have any book resources
Article/Paper List	This Course does not have any article/paper resources
Other References	• **Book Parmjit Singh; Lim Chap Sam 2005, *Improving Teaching and Learning of Mathematics: From Research to Practice* , Pusat Penerbitan Universiti (UPENA), Shah Alam** • **Book Parmjit Singh 2012, *MATH GYM: Your Problem Solving Challenge* , Venton Publishing Sdn. Bhd., Kuala Lumpur**