Course Descriptor
MATH 141 Mathematics for Teachers

Proposed Academic Year	2021/2022	**Last Reviewed Academic Year**	2020/2021
Course Code	**MATH 141**	**Course Title**	**Mathematics for Teachers**
Credit hours	3	**Level of study**	Undergraduate
College / Centre	College of Applied and Health Sciences	**Department**	Basic Sciences
Co-requisites	-	**Pre-requisites**	-

1. COURSE OUTLINE

This course is designed for students who wish to study Bachelor of Education in Mathematics. The course introduces elementary mathematical concepts and methods. The course includes numbers and operations, number theory, measurement, algebra, geometry, and critical thinking.

2. AIMS

This course is to introduce a fundamental concepts and skills in mathematics. It includes the following concepts: functions, numeration systems, sets, sets of numbers, subsets, number theory. The course also apply problem solving skills and critical thinking.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes ***(Definitive)*** Upon successful completion of this course, students will be able to**:**	**Teaching and Learning methods** ***(Indicative)***	**Assessment** ***(Indicative)***
1. Explain and model the set of real numbers, integers, and arithmetic operations.	Online Lecture/ electronic board, discussion/ presentations and solving problems. Use of available software.	Quizzes, Midterm, Assignment, Final Exam
2. Explain and model computations with fractions, decimals, ratios, and percentages.	Online Lecture/ electronic board, discussion/ presentations and solving problems. Use of available software.	Quizzes, Midterm, Assignment, Final Exam
3. Apply the concepts of factors, multiples, and prime numbers to solve problems.	Online Lecture/ electronic board, discussion/ presentations and solving problems. Use of available software.	Quizzes, Midterm, Assignment, Final Exam

4. Apply problem solving skills to numerical applications.	Online Lecture/ electronic board, discussion/ presentations and solving problems. Use of available software.	Quizzes, Assignment, Final Exam
5. Represent relationships among sets using the mathematical notation.	Online Lecture/ electronic board, discussion/ presentations and solving problems.	Quizzes, Final Exam
6. Compare structures of numeration systems.	Online Lecture/ electronic board, discussion/ presentations and solving problems.	Quizzes, Final Exam

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Quiz 1	10%
Quiz 2	10%
Assignment	10%
Participation	10%
Midterm	20%
Final Exams	40%
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%**

6. COURSE CONTENT (Indicative)

Chapter 1. An Introduction to Problem Solving
1.1 Mathematics and Problem Solving

Chapter 2. Introduction to Logic and Sets
2.2 Describing Sets.
2.3 Other Set Operations and Their Properties.

Chapter 3. Numeration Systems and Whole Numbers Operations
3.1 Numeration Systems
3.2 Addition of Whole Numbers
3.3 Subtraction of Whole Numbers
3.4 Multiplication of Whole Numbers (introduce Cartesian product)
3.5 Division of Whole Numbers

Chapter 4. Number Theory
4.1 Divisibility (divisibility rules if time permits)
4.2 Prime and Composite Numbers
4.3 Greatest Common Divisors and Least Common Multiple

Chapter 5. Integers 5.1 Addition and Subtraction of Integers 5.2 Multiplication and Division of Integers	
Chapter 6. Rational Numbers and Proportional Reasoning 6.1 The Set of Rational Numbers 6.2 Addition, Subtraction and Estimation with Rational Numbers 6.3 Multiplication, Division, and Estimation with Rational Numbers 6.4 Proportional Reasoning	
Chapter 7. Decimals, Precents and Real Numbers 7.1 Terminating Decimal 7.2 Operations on Decimals 7.3 Repeating Decimals (if time permits) 7.4 Precents (computing interest if time permits) 7.5 Real Numbers	
TOTAL HOURS	
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
TOTAL COURSE HOURS	

7. RECOMMENDED REFERENCES

Core text/s:

A Problem-Solving Approach to Mathematics for Elementary School Teachers 11th Edition by Rick Billstein (Author), Shlomo Libeskind (Author), Johnny Lott (Author)

Library + online resources: https://www.khanacademy.org/

Open Educational Resources: