

## Master Syllabus

### **MAT 1410 - Numerical Concepts for Teachers**

**Division:** Science, Mathematics and Engineering

**Department:** Mathematics

**Credit Hour Total:** 4.0

**Lecture Hrs:** 4.0

**Prerequisite(s):** MAT 0200

**Other Prerequisite(s):** AND Other with a grade of C or better or satisfactory score on math placement test

**Date Revised:** April 2017

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#### **Course Description:**

Introduction to the basic mathematical concepts of arithmetic and problem solving as appropriate for early- and middle-childhood teachers. An inquiry- and activity-based approach is used to explore problem solving, sets, functions, numeration systems, whole numbers, basic number theory, integers, rational numbers and real numbers.

#### **General Education Outcomes:**

- ▣ Critical Thinking/Problem Solving Competency

#### **Course Outcomes:**

##### **Functions, arithmetic operations, and prime numbers**

Explain the definition of a function numerically, algebraically, graphically, and verbally; the methods for performing arithmetic operations with whole numbers, integers, fractions, and decimals; the significance of prime numbers for factoring and the reasonableness of a solution to a problem.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on locally developed exams with a score of 70% or better.

##### **Numeration systems**

Compare and contrast various numeration systems.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on locally developed exams with a score of 70% or better.

##### **Application problems**

Solve application problems involving ratios, proportions, percents and linear relationships and interpret the solutions.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on locally developed exams with a score of 70% or better.

##### **Operations on number systems**

Perform operations with whole numbers, integers, fractions, and decimals by using the order of operations, the field properties, mental computation strategies and estimation methods; perform arithmetic operations in various numeration systems.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Passing grade on locally developed exams with a score of 70% or better.

#### **Outline:**

Problem solving  
Sets, whole numbers, and functions  
Basic ideas of functions  
Numeration systems and whole number computation  
Integers and number theory  
Rational numbers as fractions  
Decimals, percents, and real numbers