SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
MTH 126S MATHEMATICAL FOUNDATIONS I
3 Credit Hours (2 hour lecture, 2 hour lab)

COURSE DESCRIPTION

First of a two course sequence designed for elementary education majors. Topics covered include origin of numbers and systems of numeration; systems of whole numbers, integers, and rational numbers; and sets and logic. Prerequisite: satisfactory math assessment score and high school Algebra I, Geometry and Algebra II or a grade of "C" or better in MTH 099D.

COURSE GOALS

The student will:

Bloom's Level		Gen Ed Outcomes
2,3	1. Describe and demonstrate use of the basic methods of problem solving.	1,2,3,4,6
5	2. Identify true and false conclusions using inductive and deductive reasoning.	1,2,3,4,6
3,4	3. Interpret and construct Venn Diagrams as a means of demonstrating an understanding of the basic elements of set theory.	1,2,3,6
2,4	4. Explain and illustrate the difference between relations and functions using tables, mappings, coordinates, graphs, and equations.	1,2,3,4,5,6
1	5. Demonstrate proficiency in performing arithmetic operations with whole numbers, integers, and rational numbers in both fractional and decimal form.	3
4	6. Compare properties of ancient number systems to properties of the Hindu-Arabic system.	1,2,3,4,5,6
3,4	7. Use manipulative materials to demonstrate and explain why our addition, subtraction, multiplication, and division algorithms work with whole numbers, integers, and rational numbers in both fractional and decimal form.	1,2,3,4,5,6
5	8. Construct algorithms for addition, subtraction, multiplication, and division in bases other than base ten.	1,2,3,4,5,6
2,3	9. Define and give examples to demonstrate a working understanding of the number properties such as associative, commutative, distributive, and closure.	2,3
2	10. Use relations of equality to express and explain equivalent relationships for whole numbers, integers, rational numbers and irrational numbers. This includes using exponents and scientific notation.	1,2,3,4,5,6
5	11. Describe own growth in problem solving ability.	1,2,3,4,5,6
3	12. Express value of estimating and demonstrate various estimating strategies.	3
1,5	13. Use the divisibility tests and justify their validity.	1,2,3,4,5,6
5	14. Use the understanding of composite and prime numbers to find multiples and factors.	1,2,3,4,5,6
5	15. Relate clock arithmetic to Mod arithmetic used in upper level mathematics.	1,3

CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will incorporate and reinforce these Core Values frequently.

TOPIC OUTLINE

1. Problem Solving
2. Basic Logic Theory
3. Set Theory
4. Functions
5. Numeration Systems
6. Elementary Number Theory
7. Whole Numbers
8. Integers
9. Rational Numbers
10. Decimals and Real Numbers