Alabama Community College System

MTH 116
Mathematical Applications

I. **MTH 116 Mathematical Applications – 3 Semester Hours**

II. **Course Description**

This course provides practical applications of mathematics and includes selected topics from consumer math, algebra, and geometry. The course covers integers, percent, interest, ratio and proportion, measurement systems, linear equations, and problem solving.

III. **Prerequisite**

None

IV. **Textbook**

Due to the varied selection of quality college-level textbooks, each college will select the textbook needed to meet the requirements of this course.

V. **Course Objectives**

By the end of the course, students will be able to:
1. perform arithmetic operations on real numbers using the order of operations;
2. solve problems using ratios and proportions;
3. solve problems involving percent and interest;
4. convert units within and between the U.S. customary system and the metric system;
5. demonstrate basic algebra skills;
6. calculate the perimeter, area, and volume of simple geometrical figures; and
7. apply principles of introductory statistics.

VI.   Course Outline of Topics

1. Reading, writing, and rounding whole numbers and decimals
2. Identifying factors, prime factors, and composite factors
3. Comparing decimals
4. Simplifying fractions
5. Converting improper fractions to mixed numbers and vice versa
6. Comparing fractions
7. Adding, subtracting, multiplying, and dividing real numbers, decimals, common fractions, mixed numbers, and signed rational numbers
8. Using the correct order of operations with whole numbers, decimals, common fractions, mixed numbers, signed rational numbers, and calculating square roots
9. Solving application problems involving whole numbers, decimals, common fractions, and mixed numbers
10. Writing a ratio
11. Solving proportions
12. Solving application problems using proportions
13. Converting fractions and decimals to percent
14. Converting percent to fractions and decimals
15. Solving the three-basic types of percent problems
16. Solving percentage application problems including sales tax, discounts, commission, and percent change
17. Solving special applications of percent calculation involving simple interest and compound interest
18. Converting units within the U.S. customary system
19. Converting units within the metric system
20. Converting between U.S. customary and metric system units
21. Evaluating formulas
22. Solving literal equations
23. Evaluating algebraic expressions
24. Simplifying algebraic expressions
25. Solving linear equations in one variable
26. Converting scientific notation to and from standard form
27. Applying the Pythagorean Theorem
28. Solving application problems using algebraic equations
29. Finding the perimeter and area of geometrical plane figures
30. Finding the circumference and area of a circle
31. Finding the volume of geometrical solid figures
32. Solving application problems involving perimeter, area ,or volume of a geometrical plane or solid figure
33. Reading and interpreting bar graphs, line graphs, and circle graphs
34. Calculating the range
35. Calculating measures of central tendency: mean, median, and mode

VII. Evaluation and Assessment

Grades will be given based upon A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

VIII. Attendance

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

IX. Statement on Discrimination/Harassment

It is the official policy of the Alabama Community College System and entities under its control, including all Colleges, that no person shall be discriminated against on the basis of any impermissible criterion or characteristic, including, without limitation, race, color, national origin, religion, marital status, disability, sex, age, or any other protected class as defined by federal and state law. (ACCS Policies 601.02 and 800.00)

X. Americans with Disabilities

The Rehabilitation Act of 1973 (Section 504) and the *Americans with Disabilities Act* of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's responsibility to provide appropriate disability documentation to the College.