SOUTHERN STATE COMMUNITY COLLEGE

I. COURSE TITLE: College Trigonometry

COURSE NUMBER: 142               CATALOG PREFIX: MATH

II. PREREQUISITES: One of the following:
    - Three years of college prep math
    - Appropriate score on placement test
    - Math 118

III. CREDIT HOURS: 4               LECTURE HOURS: 4
     LABORATORY HOURS:
     OBSERVATION HOURS:

IV. COURSE DESCRIPTION:

This course includes a study of trigonometric functions and their applications. Topics include circular functions, trigonometric functions, trigonometric identities, vectors, systems of equations, rational functions, polar coordinates, and conic sections.

V. ADOPTED TEXT (S):

ALGEBRA & TRIGONOMETRY
by: Sullivan
ISBN# 0-13-091465-7

VI. COURSE OBJECTIVES: (GENERAL)

At the completion of this course the student will:

1. use the unit circle to define trigonometric functions.
2. graph trigonometric functions
3. prove trigonometric identities.
4. know the properties of inverse trigonometric functions
5. solve trigonometric equations
6. solve right triangle problems and use this skill in applications.
7. solve problems involving oblique triangles using the law of sines and the law
COURSE OBJECTIVES  Cont'd

8. graph using polar coordinates.
9. find powers and roots of complex numbers.
10. use vectors to solve problems.
11. sketch and identify the properties of conic sections.
12. solve systems of equations of the first and second degree.
13. develop mathematical models to solve applied problems.
14. be able to use a scientific calculator and recognize its limitations.

VII. GRADING:

Grading will follow policy in the catalog.

VIII. COURSE OUTLINE:

Chapter 7  Trigonometric Functions
7.1  Angles and Their Measure
7.2  Right Triangle Trigonometry
7.3  Computing the Values of Trigonometric Functions of Given Angles
7.4  Trigonometric Functions of General Angles
7.5  Properties of the Trigonometric Functions; Unit Circle Approach
7.6  Graphs of the Sine and Cosine Functions
7.7  Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions (optional)
7.8  Phase Shift; Sinusoidal Curve Fitting

Chapter 8  Analytic Trigonometry
8.1  The Inverse Sine, Cosine, and Tangent Functions
8.2  The Inverse Trigonometric Functions (Continued)
8.3  Trigonometric Identities
8.4  Sum and Difference Formulas
8.5  Double-Angle and Half-Angle Formulas
8.6  Product-to-Sum and Sum-to-Product Formulas
8.7  Trigonometric Equations I
8.8  Trigonometric Equations II

Chapter 9  Applications of Trigonometric Functions
9.1  Applications Involving Right Triangles
9.2  The Law of Sines
9.3  The Law of Cosines
9.4  The Area of a Triangle
9.5  Simple Harmonic Motion; Damped Motion; Combining Waves  (Optional)
VIII. COURSE OUTLINE: Continued

Chapter 10 Polar Coordinates; Vectors
10.1 Polar Coordinates
10.2 Polar Equations and Graphs
10.3 The Complex Plane; De Moivre's Theorem
10.4 Vectors
10.5 The Dot Product (Optional)

Chapter 11 Analytic Geometry
11.1 Conics
11.2 The Parabola
11.3 The Ellipse
11.4 The Hyperbola
11.5 Rotation of Axes; General Form of a Conic (Optional)
11.6 Polar Equations of Conics (Optional)
11.7 Plane Curves and Parametric Equations (Optional)

Chapter 12 Systems of Equations and Inequalities
12.1 Systems of Nonlinear Equations (Optional)

IX. OTHER REQUIRED BOOKS AND MATERIALS:

A scientific calculator is required; a graphing calculator is recommended for those planning to take Calculus. Supplemental materials are available in the Learning Resource Center.

X. EVALUATION:

Instructor will distribute the method of evaluation to students.

XI. SPECIFIC MANAGEMENT REQUIREMENTS:

Assignments will be evaluated according to instructor directives.