

I. **CATALOG DESCRIPTION**

Mathematics; Math 103; Plane Trigonometry

Lecture: 4 hours per week = 4 units

The study of trigonometric functions, identities, trigonometric equations, periodicity, graphs of the trigonometric functions, inverse trigonometric functions, and the solutions of triangles.

Prerequisite: Math 102: College Algebra with a grade of C or better or eligibility for Math 103 as determined through the SBVC assessment process.

Departmental Recommendation: Completion of Math 093: Geometry

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS

**Upon successful completion of the course, the students should be able to:**

- A. Evaluate and analyze the trigonometric functions in both radian and degree mode
- B. Construct the graphs of trigonometric functions and their inverses
- C. Use trigonometric identities to simplify complex trigonometric expressions
- D. Solve trigonometric equations
- E. Apply trigonometric functions to solve triangles and applications

IV. CONTENT

- A. Right triangle ratios
  - 1. Angles, degrees, arcs
  - 2. Similar triangles
  - 3. Right triangle applications
- B. Trigonometric functions
  - 1. Degrees and radians
  - 2. Circular functions
  - 3. Applications
- C. Graphing trigonometric functions
  - 1. Basic graphs
  - 2. Amplitude, shifts and period change
- D. Identities
  - 1. Fundamental identities and their use
  - 2. Verifying identities
  - 3. Sum and difference identities
  - 4. Cofunction identities
  - 5. Double-angle and half-angle identities
- E. Additional Topics
  - 1. Inverse trigonometric functions
  - 2. Trigonometric equations
  - 3. Law of sines and cosines
  - 4. Vectors (at instructor's discretion)

V. Methods of Instruction

- A. Lecture
- B. Discussion
- C. Collaborative Methods
- D. Multimedia-aided Instruction

- VI. TYPICAL ASSIGNMENTS:
  - A. Daily reading and/or problem assignments will reinforce and extend classroom presentations
  - B. Written assignments will include solutions of various problems illustrative of the appropriate mathematical concepts and processes
  
- VII. EVALUATION(S)
  - A. Three to six regularly scheduled examinations
  - B. Quizzes, textbook and/or supplementary assignments
  - C. Comprehensive final examination
  
- VIII. TYPICAL TEXT(S)
  - Barnett/Ziegler, Analytic Trigonometry
  
- IX. OTHER SUPPLIES REQUIRED OF STUDENTS: Graphing Calculator – Texas Instruments 85 or equivalent model