MTH 113
Precalculus Trigonometry

I. MTH 113 Precalculus Trigonometry - 3 Semester Hours

II. Course Description

This course includes the study of trigonometric (circular functions) and inverse trigonometric functions, and includes extensive work with trigonometric identities and trigonometric equations. The course also covers vectors, complex numbers, DeMoivre’s Theorem, and polar coordinates. Additional topics may include conic sections, sequences, and using matrices to solve linear systems.

III. Prerequisite

A minimum prerequisite of high school Algebra I, Geometry, and Algebra II with an appropriate mathematics placement score. An alternative to this is that the student should successfully pass with a C or higher in MTH 112.

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

The objective of this course is to provide an understanding of concepts, develop competent skills, and demonstrate applications in the following areas:

1. circular and right triangle approaches to trigonometry
2. vectors
3. complex numbers and their relationship with trigonometry and vectors
4. polar coordinates and polar graphs

While building on the manipulative skills from algebra this course strives to develop analytic skills as a preparation for further mathematical applications or courses in mathematics requiring knowledge of trigonometric functions.
VI. Course Outline of Topics

A. This course shall include the following topics as a minimum.
   1. Radian and degree measure
   2. The trigonometric functions and the unit circle
   3. Trigonometric functions and right triangles
   4. Trigonometric functions of any angle
   5. Graphs of trigonometric functions
   6. Inverse trigonometric functions
   7. Applications of trigonometry
   8. Verifying trigonometric identities
   9. Solving trigonometric equations
   10. Sum and difference formulas
   11. Multiple-angle and product-sum formulas
   12. Law of sines
   13. Law of cosines
   14. Trigonometric form of a complex number
   15. DeMoivre’s Theorem and nth roots
   16. Polar coordinates
   17. Vectors

B. Optional topics may include the following.
   1. Conic sections
   2. Sequences
   3. Matrices to solve linear systems

VII. Evaluation and Assessment

Evaluation and assessment techniques may include any or all of the following.

Exams
Projects
Homework
Computer assignments
Participation

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**

The College and the Alabama State Board of Education are committed to providing both employment and educational environments free of harassment or discrimination related to an individual’s race, color, gender, religion, national origin, age, or disability. Such harassment is a violation of State Board of Education policy. Any practice or behavior that constitutes harassment or discrimination will not be tolerated.

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.