Course Outline for: MATH 1150 Trigonometry

A.   **Course Description:**
1. Number of credits: 4
2. Lecture hours per week: 4
3. Prerequisites: MATH 1100 (C or better); OR
   High School GPA: 2.8-3.29 & High School Pre-Calculus or a
   higher-level math course with a grade of C- or better; OR
   ACT Math Sub-Score: 25-26; OR
   ACCUPLACER Next Gen: Quantitative Reasoning, Algebra and
   Statistics 285-300, Advanced Algebra Functions 275-289
4. Corequisites: None
5. MnTC Goals: Goal 4 Mathematical/Logical Reasoning

This course, together with MATH 1100: College Algebra, is intended to prepare students
for a multiple-term calculus sequence. Course work will involve a thorough exploration
of trigonometric functions, polar coordinates and equations, complex numbers,
DeMoivre's Theorem, vectors and their applications, the conic sections, parametric
equations, sequences, and series. You may not receive credit for both MATH 1150 and
MATH 1500.

B.   **Date last reviewed/updated:** April 2024

C.   **Outline of Major Content Areas:**
1. Right Triangle and Circular Trigonometry with Applications.
2. Inverse Trigonometric Functions.
3. Trigonometric Equations and Trigonometric Identities.
4. Polar Coordinates and Parametric Curves, Complex Plane and DeMoivre's Theorem,
   Conic Sections.
5. Vectors with Basic Physical Applications.
6. Sequences and Series.

D.   **Course Learning Outcomes:**
Upon successful completion of the course, the student will be able to:
1. Apply the unit circle definitions of the trigonometric functions. (Goal 4b, c)
2. Graph trigonometric functions as visual summaries of their properties. (Goal 4a, b)
3. Solve triangles with sufficient information given, including applications. (Goal 2b; 4b,
   c, d)
4. Simplify trigonometric expressions and prove identities using established
   trigonometric identities. (Goal 4a, b, c, d)
5. Define inverse trigonometric functions and use them to solve problems. (Goal 4b, d)
6. Express complex numbers in polar form, and use DeMoivre's Theorem to find powers
   and roots of complex numbers. (Goal 2b; 4b, d)

7. Solve applied problems using vectors. (2c; 4a, d)
8. Describe curves in the plane using polar equations and parametric equations. (4a, c, d)
9. Analyze basic arithmetic and geometric sequences and series. (4b, d)
10. Analyze equations and graphs of conic sections, and use them in applications. (4a, c)

E.   Methods for Assessing Student Learning:
Methods for assessment may include, but are not limited to, the following:
1. In-class testing
2. Take-home testing
3. Assignments
4. Quizzes
5. Attendance
6. Group or individual projects
7. Research

F.   Special Information:
A scientific or graphing calculator may be required.