SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS

I. **TITLE OF COURSE: MA1183 - Trigonometry**

II. **COURSE DESCRIPTION: 3 credit hours**
   3 credit hours of lecture and 0 credit hours of lab per week.

   A study moving from triangular to analytical trigonometry. The course further serves as necessary background for the calculus sequence in mathematics and for a study of physics. For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

   Pre-requisite:
   a C or better in College Algebra.

III. **PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:**

   The Mathematics Department at Seward County Community College will enhance a student's ability to think critically using mathematical principles, ideas, and concepts in order to function in a society with ever-changing technology.

IV. **TEXTBOOK AND MATERIALS:**

1. Lial,Hornsby,Schneider,Daniels, Trigonometry,Pearson,12th Edtitian,2021
2. MyMathLab Access Code (Given in Class)
3. Texas Instruments 83 Plus, 84 or 84 Plus Graphing Calculator

IV. **SCCC OUTCOMES:**

   4: Demonstrate mathematical skills using a variety of techniques and technologies.

   5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

V. **COURSE OUTCOMES:**

   Expected learning outcomes of this course are in alignment with the learning objectives established by the Statewide Core Competencies.
1. To define the trigonometric functions using both a right triangle and the unit circle.
2. To define and interpret radian measurement. Recognize and apply circular functions as real-valued functions.
3. To solve for unknown sides/angles within right triangles and know trigonometric function values for special angles (multiples of $\pi/6$ and $\pi/4$).
4. To analyze the graphs of the six basic trigonometric functions and their arithmetic

combinations using the concepts of period, phase shift, amplitude, and displacement.

5. To derive/verify trigonometric identities, including but not limited to double angle, half angle, angle sum, and angle difference identities.
6. To define, graph, and apply inverse trigonometric functions.
7. To solve equations involving trigonometric functions.
8. To find solutions of oblique triangles using the Law of Cosines or Law of Sines.
9. To solve applied problems including but not limited to vectors.
10. To derive the trigonometric form of complex numbers and perform calculations with them including products and quotients.
11. To translate between rectangular and polar coordinates and graph within the polar coordinate system.

VII.   COURSE OUTLINE:

1. Fundamental concepts: basic terms and definitions of the six trigonometric functions.
2. Right triangle trigonometry: definitions of the trigonometric functions, values for the special angles, use of the calculator, solving right triangles and applications including bearing problems.
3. Radian measurement and circular functions: radian definition, arc length, sector area, and circular functions as applied to the real number.
4. Graphs: graph and analysis of the six basic trigonometric functions, consideration of amplitude, period & shift.
5. Trigonometric identities: fundamental identities, method of verifying, development and use of the more complex identities (sum and difference relations, double and half angle identities, and sums and products).
6. Equations and inverse functions: solving trigonometric equations and values of inverse trigonometric functions.
7. Triangles and vectors: Law of Sines and Cosines, and solutions of oblique triangles with vector applications.
8. Complex numbers: trigonometric form of a complex number, products, and quotients.
9. Polar coordinates: translate between rectangular and polar coordinates and graph within the polar coordinate system.

VIII.   INSTRUCTIONAL METHODS:

1. Lecture/Discussion
2. In class and out of class assignments
3. Calculator and computer exercises
4. Whiteboard drills
5. Calculator demonstrations
6. Quizzes and Examinations
7. Individual help

IX.   INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Textbook
2. Library mathematics reference books
3. Supplementary material prepared by the instructor
4. Computer programs
5. SMART Podium and whiteboards used for computer demonstrations and lecture

X.   METHODS OF ASSESSMENT:

SCCC Outcome #4 will be assessed and measured by class participation and tests. SCCC Outcome #5 will be assessed and measured using assignments, tests, and non-traditional problem solving activities.

XI.   ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room A149.

XII.   CORE OUTCOMES PROJECT:

The learning outcomes and competencies detailed in this course outline or syllabus meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents

KRSN: MAT1030

Syllabus Reviewed: 5/17/2022