CLOUD COUNTY COMMUNITY COLLEGE

Our Mission: Cloud County Community College prepares students to lead successful lives and enhances the vitality of our communities.

**GENERAL INFORMATION**

**Course Number and Title:** MA 112 Trigonometry

**Term and Year:**Academic Year 2022-2023

**Credit Hours**: 3

**Course Description**: This course is a study of trigonometric functions and their applications, solutions to right and oblique triangles, trigonometric identities, inverse functions, graphs of trigonometric functions, and vectors.

**Prerequisites**: Appropriate test scores or College Algebra with a grade of C or better.

****Division:**** Mathematics, Science, and Technical Programs   
**Department:** Mathematics and Engineering

**STUDENT LEARNING OUTCOMES AND ASSESSMENT**

**Course Learning Outcomes**

For this course, students are expected to demonstrate the skills associated with the course learning goals as described by the student learning outcomes below:

1. Define the trigonometric functions using both a right triangle and the unit circle
2. Define and interpret radian measurement. Recognize and apply circular functions as real‐valued functions
3. Solve for unknown sides/angles within right triangles and know trigonometric function values for special angles (multiples of π/6 and π/4)
4. Analyze the graphs of the six basic trigonometric functions and their arithmetic transformations using the concepts of period, phase shift, amplitude, and displacement
5. Derive/verify trigonometric identities, including but not limited to double angle, half angle, angle sum, and angle difference identities 6.
6. Define, graph, and apply inverse trigonometric functions
7. Solve equations involving trigonometric functions
8. Find solutions of oblique triangles using the Law of Cosines or Law of Sines
9. Solve applications, including but not limited to vectors
10. Derive the trigonometric form of complex numbers and perform calculations with them including products, quotient, and exponentiation
11. Define, recognize, and graph equations and points within the polar coordinate system

The learning outcomes detailed in this syllabus meet or exceed the learning outcomes specified by the Kansas Core Outcomes Project for this course as sanctioned by the Kansas Board of Regents to ensure transfer between Kansas colleges and universities. Systemwide Transfer (SWT) Code: MAT1030

In class, students are assessed on the mastery of these outcomes using the learning management system. Student names will not be used when reporting results. Outcomes-based assessment is used to improve the instructional planning, design, and quality of student learning throughout the college

**General Education Outcomes**

For this course, students are expected to demonstrate the skills associated with the college wide learning goals as described by the general education/program outcomes below:

GEM1. Recognize the mathematical concepts that are applicable to a scenario.

GEM2. Apply technology in analysis.

GEM3. Accurately interpret, validate, and communicate the result.

Artifacts of student work are collected from general education course and reviewed by a faculty committee to assess general education outcomes. Artifacts may also be reviewed by a professional outside the college. Student names will not be used when reviewing artifact nor reporting results. Program accomplishment is partially measured through performance on program outcomes. Outcomes-based assessment is used to improve the instructional planning, design, and quality of student learning throughout the college.

**Institutional Learning Outcomes**

For this course, students are expected to demonstrate the skills associated with the college wide learning outcomes as described below.

*Employment*

ILO\_Em1. Demonstrate knowledge of norms and expectations of professional environments.

ILO\_Em2. Demonstrate skills in working with others in a professional and constructive manner.

In class, students are assessed on the mastery of these outcomes. Student names will not be used when reporting results. Outcomes-based assessment of the institutional learning outcomes is used to ensure we are meeting the mission of the college, following the guiding values and enhance instructional planning, design, and quality of student learning throughout the college.