ILLINOIS EASTERN COMMUNITY COLLEGES
DUAL CREDIT COURSE SYLLABUS
Flora High School

College: Frontier Community College   **Term:** Spring   **Year:** 2020

IECC Course Number: MTH 1105   **Section:**   **Title:** Trigonometry

High School Course Number: 2008.01, 2008.03, 2008.05   **Credit:** 3

Instructor Information:

Name: Rachel Webb

Office location and phone number: Flora High School   **Office hours:** N/A

Class Meeting Times, Days, Locations: M-F 8:58-9:43, 9:47-10:32, 1:39-2:24, Room 7C Flora High School

Course Catalog Description / Prerequisites: This course develops the theory and applications of trigonometry. Topics include systems of angle measurement, trigonometric functions, inverse trigonometric functions; application to triangle solutions, law of sines and cosines, trigonometric identities, trigonometric equations and complex numbers. PREREQUISITE: PRE 0420 Intermediate Algebra or three years of college preparatory math with a grade of C or better, or a sufficient score on placement test, or consent of instructor. Lecture.

Required Textbooks, Reference, and Other Materials: TRIGONOMETRY. Lial. Cengage. Current edition. (FCC)

Attendance Requirements: Attendance Regular class attendance is necessary if a student is to receive maximum benefits from work. Regular attendance is the responsibility of the student. All absences and arrangements for make-up work are arranged directly with the instructor, who is responsible for determining whether the absence is excused. When the quality of work has been affected by absences or tardiness, the instructor may recommend that the student be dropped from the course. The student will be notified of the administrative withdrawal. Make up work for illness and other absences may be accepted at the discretion of the instructor

Methods of Instruction: Lecture/Discussion will be the primary means of instruction, with emphasis on problem-solving.

Americans with Disabilities Act - For students with disabilities, there are ADA-related support services through the Learning Skills Center.

Methods of Student Evaluation and Grading Scale:
The primary means of evaluating students will be their performance on tests and quizzes. Projects and papers may also be used as determined by individual instructor. Student effort as demonstrated on assignments, participation in class, and attendance also may be considered.

A semester hour is the unit used to measure credit. One semester credit hour is awarded for the successful completion of one hour per semester of lecture activity or two hours per week per semester of lab activity. While credit is awarded to recognize that the student has accomplished all course requirements, the following grades and symbols are awarded to reflect the quality of that performance.

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Flora Grading Scale

Grade	Range
A	95-100
A-	94
B+	93
B	87-92
B-	86
C+	85
C	78-84
C-	77
D+	76
D	70-75
D-	69
F	0-68

Student Learning Outcomes: Successful completers will:
1. Angle Measurement:
A. Convert between angle measurement in degrees or radians.
B. Solve story problems involving angle measurement and angular motion.

2. Trigonometric Functions and Plane Triangles: First quadrant angles where all trigonometric functions >0:
A. Relate the trigonometric functions sine, cosine, tangent, cosecant, secant and cotangent to geometric drawings of plane right angles. The student will develop skills in solving story problems involving plane right triangles.

3. Extension of Trigonometric Functions all Quadrants:
A. Answer questions involving the following concepts of trigonometric function theory, the geometric definition of trigonometric function theory, the geometric definition of trigonometric functions in terms of the reference triangles, and the arc length on the unit circle. The student will be able to relate all six trigonometric functions to the Cartesian coordinates on the unit circle.

4. Graphical Properties of Trigonometric Functions. Graphing calculator technology will be used extensively in this section:
A. The student will analyze the graphs of trigonometrics and answer questions involving the following concepts: domain, range, turning points, periodicity, and asymptotes. The student is expected to sketch accurate graphs of functions of the following forms: Asin (Bx+C) and similar forms involving the other five basic trigonometric functions.

5. Trigonometric Inverse Functions and Trigonometric Equations:
A. The student will solve trigonometric equations using the inverse trigonometric functions. The student will be able to solve problems involving the following concepts: principle interval, geometric projections using reference triangles,

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extension of principle solutions using the periodic properties. The student will be able to make accurate sketches of the graphs of the fundamental inverse functions: sin -1 x, cos -1 x, and tan -1 x.

6. Algebra of Trigonometric Functions and Trigonometric Identities:
A. The student will simplify expressions involving algebraic manipulation of trigonometric functions. The student will be able to recognize and use the most important trigonometric identities. The student will show competence in using identities to simplify and solve trigonometric equations.

7. Law of Sines and Cosines:
A. The student will be able to solve general plane triangles using the law of sines and cosines.

8. Vectors:
A. The student will use reference triangles and / or the law of sines and cosines to perform vector addition and subtraction. The student will solve problems involving the trigonometric and algebraic definition of dot product.

9. Complex numbers:
A. The student will be able to display complex numbers in trigonometric form. The student will find the complex roots of simple algebraic equations using DeMoivre's Theorem.

Detailed Course Outline: (Note: *The instructor reserves the right to modify the detailed course outline when necessary.*)
Topical Outline:

I.	Angle measurement and calculator usage	3
II.	Definition of circular functions, plane right triangles, reference angles, geometric definitions of the unit circle	9
III.	Graphing of trigonometric functions	9
IV.	Inverse functions and simple equations	3
V.	Trigonometric identities and algebra of trigonometry, trigonometric equations, inverse functions, identities, and graphing calculator	12
VI.	Law of sines and cosines	3
VII.	Vectors and applications	3
VIII.	Complex numbers and De Moivre's Theorem	3

Total Contact Hours: 45

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