I.   GENERAL COURSE INFORMATION

Subject and Number: Mathematics 170S
Descriptive Title: Trigonometry Support
Course Disciplines: Mathematics
Division: Mathematical Sciences

Catalog Description:
This course is designed to support students concurrently enrolled in Trigonometry (Math 170). As needed, students review core skills and topics necessary to meet the Trigonometry student learning outcomes and objectives. Students explore strategies and habits used by successful independent learners. Topics reviewed in this support course may include: operations on polynomial, rational, and radical expressions; functions and transformations of their graphs; solving equations and inequalities; a review of topics from geometry; and setting up and solving application problems.

Conditions of Enrollment:
Co-requisite   Mathematics 170

Course Length: X Full Term Other (Specify number of weeks):
Hours Lecture: 1.00 hours per week
Hours Laboratory: 0.00 hours per week
Course Units: 1.00

Grading Method: Pass/No Pass
Credit Status: Non-Degree Credit

Transfer CSU: No
Transfer UC: No

General Education:
El Camino College:
CSU GE:
IGETC:

II. **OUTCOMES AND OBJECTIVES**
   A. COURSE STUDENT LEARNING OUTCOMES (**The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee**).

   1. Understanding Concepts: *Students will explain and demonstrate basic trigonometric concepts and definitions.*
   2. Solving Problems: Students will solve trigonometric application problems, including those involving the laws of sines and cosines.
   3. Graphs: Students will create, interpret and analyze the graphs of trigonometric functions and their inverses.
   4. Proofs: Students will analyze and construct proofs of trigonometric identities.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

   B. COURSE OBJECTIVES (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each).

   1. Carry out numerical operations and manipulate algebraic expressions, including polynomial, rational and radical expressions.
      (Objective Exams)

   2. Recognize functional relations in the form of graphs, data, or symbolic equations.
      (Written Homework)

   3. Solve equations using algebraic and graphical methods, including polynomial, radical and rational equations.
      (Quizzes)

   4. Graph functions using transformations.
      (Objective Exams)

   5. Use numerical, symbolic, and graphical methods to model application problems and solve them.
      (Written Homework)

III.OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topics
Lecture	3	I	OPERATIONS AND MANIPULATIONS Concepts and skills as needed through just-in-time work to support: A. Operations on polynomial, rational, and radical expressions B. Factoring polynomial expressions C. Operations on complex numbers
Lecture	6	II	FUNCTIONS AND GRAPHING Concepts and skills as needed through just-in-time work to support: A. Definition of function, domain, and range B. Functions as rules, as sets of ordered pairs, as algebraic equations, and as graphs C. Composite, one-to-one, and inverse functions D. Determining a function based on a graph or sufficient data E. Transformations of graphs of functions, including translations, reflections, and scaling
Lecture	6	III	EQUATIONS AND INEQUALITIES Concepts and skills as needed through just-in-time work to support: A. Algebraic and graphical methods for solving equations B. Solving equations by factoring C. Solving quadratic, rational, and radical equations D. Finding domains by setting up and solving appropriate inequalities E. Using interval notation to represent domain and range
Lecture	1	IV	ESSENTIAL GEOMETRY Concepts and skills as needed through just-in-time work to support: A. Pythagorean Theorem B. Special right triangles C. Sum of interior angles in a triangle
Lecture	2	V	APPLICATIONS Concepts and skills as needed through just-in-time work to support:

		A. Modeling verbally expressed problems numerically, symbolically, and graphically
		B. Solving problems numerically, symbolically, and graphically
Total Lecture Hours	18	
Total Laboratory Hours		
Total Hours	18	

IV. PRIMARY METHODS OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION
Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION
Perform the operation and simplify: $\frac{100}{x^2-25} - \frac{x+5}{x-5}$

C. COLLEGE LEVEL CRITICAL THINKING ASSIGNMENTS
1. Consider the function: $f(x) = 4 - \sqrt{x + 9}$
   (a) What transformations of $y = \sqrt{x}$ lead to the graph of f(x)?
   (b) What are the y-intercepts, if any?
   (c) What are the x-intercepts, if any?
   (d) What are the domain and range?
   (e) Sketch the graph

2. Solve the equation: $-6x^3 + 36x = 15x^2$

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:
Objective Exam
Other Exams
Quizzes
Homework Problems
Written Homework

V. INSTRUCTIONAL METHODS:
Lecture
Group Activities
Discussion

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS:
        Study
        Answer questions
        Skill practice
        Required reading
        Problem solving activity

Estimated Study Hours Per Week: 2

VII.   TEXTS AND MATERIALS

    A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS
    Intermediate Algebra, Tussy/Gustafson, 5th edition, Cengage Learning, 2013.
    Intermediate Algebra: Functions & Authentic Applications, Jay Lehmann, 5th edition, Pearson, 2015.

    B. REQUIRED TEXTS (title, author, publisher, year)

    C. REQUIRED SUPPLEMENTARY READINGS

    D. OTHER REQUIRED MATERIALS

VIII.   CONDITIONS OF ENROLLMENT

    A.   Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Math 170	Corequisite

    B.   Requisite Skills

Requisite Skills
Solve problems involving angles and right triangles.   MATH 60 - Use the properties of right triangles to solve problems.

    C.   Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification

    D.   Recommended Skills

Recommended Skills

    E.   Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by **Greg Fry**
BOARD APPROVAL DATE: 1/22/2019
LAST BOARD APPROVAL DATE:
Last Reviewed and/or Revised by Greg Fry 10/17/18