Lassen Community College Course Outline

MATH 7 Trigonometry   3.0 Units

I.   Catalog Description

A study of the numerical, graphical, and analytical properties of trigonometric functions, oblique triangles, inverse functions, and applications. This course has been approved for online and hybrid delivery. This course uses a free Open Educational Resource textbook.

Prerequisite(s): Math 60 Intermediate Algebra or equivalent multiple measure placement.

Prerequisite skills: Before entering this course the student will be able to:
1. Apply the real number properties to simplify expressions.
2. Add, subtract, multiply, divide, and factor polynomials.
3. Solve linear and quadratic equations.
4. Graph lines and use functional notation.
5. Solve systems of linear equations by the elimination, substitution, and graphing methods.
6. Add, subtract, multiply, and divide radical expressions.
7. Solve radical equations.
8. Add, subtract, multiply, and divide rational expressions.

Transfers to CSU
General Education Area: D2
CSU GE Area: B4
51 Hours Lecture
Scheduled: Fall

II.   Coding Information

Repeatability: Not Repeatable, Take 1 Time
Grading Option: Graded or Pass/No Pass
Credit Type: Credit - Degree Applicable
TOP Code: 170100

III.   Course Objectives

A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:
> Solve problems involving right and oblique triangles and trigonometric functions using your mathematical computational skills, intermediate algebra properties and rules and the trigonometric concepts.

B. Course Objectives

Upon completion of this course the student will be able to:
1. Convert degrees to radians and vice versa.
2. Define and calculate the six trigonometric functions corresponding to any given angle.
3. Graph the six basic trigonometric functions, their variations and inverses.

4. Solve trigonometric equations and use trigonometric identities in a variety of contexts and applications.
5. Use various methods, including the law of cosines and the law of sines, to solve triangles.
6. Write the algebraic representation of a vector.
7. Use vector operations to: find the angle between two vectors and determind whether two vectors are orthogonal.
8. Solve applied word problems.

IV. Course Content
A. Angles and degree measure
B. Trigonometric functions
C. Graphs of trigonometric functions and their inverses
D. Trigonometric equations
E. Trigonometric identities
F. Solutions of triangles and their applications
G. Vectors

V. Assignments
A. Appropriate Readings
Students will be required to read and study the assigned chapters in textbook. Supplemental readings are generally not assigned, but may be assigned.
B. Writing Assignments
1. Prepare for class and review material and concepts presented in class.
2. Complete homework assignments, including applications of representative symbol systems and/or work problems.
3. Understand and apply the theories and techniques taught in class.
C. Expected Outside Assignments
Students expected to spend a minimum of 2 hours outside of class in practice and preparation for each hour of class. Assignments may include: reading the text, application of formulas and theorems, practice problems from the text, and assignments in the math lab.
D. Specific Assignments that Demonstrate Critical Thinking
Students will be required to interpret mathematical principles and techniques to solve broader and more difficult problems than those presented in class. Students will solve a variety of problems, including those that demand the application of principles in a number of different contexts. Mulitple measures of student performance including in-class, out-of-class work, multiple exams and final exam.

VI. Methods of Evaluation
Traditional Delivery Evaluation
Traditional measures of student performance, based on in-class work, out of class work, quizzes, exams, and a comprehensive final.
Hybrid Delivery Evaluation
All quizzes and exams will be administered during the in-person class time or by proctored exams online. Students will be expected to complete online assignments and activities equivalent to in-class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous (chat/forum) will

be evaluated for participation and to maintain effective communication between instructor and students.

Online Delivery Evaluation
A variety of methods will be used, such as asynchronous and synchronous discussions (chat/forum), online quizzes and exams, online assignments and activities, postings to online website, and email communications.

Web-enhanced Delivery Evaluation
Additional information and resources may be made available to students online. , and students may be required to do research and complete and/or submit assignments online. Quizzes may be administered online, but exams and summative assessments must be administered face-to-face.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

☒ **Traditional Classroom Delivery** ☐ Correspondence Delivery

☒ Hybrid Delivery   ☒ **Online Delivery**

☒ Web-enhance course

Traditional Classroom Course Delivery
Lecture, questions and answers, demonstrations and discussion.

Online Course Delivery
Student will access course materials over the Internet. These will include a syllabus, homework assignments and tests. Instruction shall include video lectures, animations, and guided tutorials. Password protected asynchronous discussion, and synchronous messaging is also provided to allow for collaboration.

Hybrid Course Delivery
A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 17 hours will be taught face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

Web-Enhanced Course Delivery
Same as face to face with additional information and resources made available to students online, and students may be required to do research and complete and/or submit assignments online. Quizzes may be administered online, but exams and summative assessments must be administered face-to-face.

VIII. Representative Texts and Supplies

Open Educational Resource Textbook: *PreCalculus*, Jay Abramson Senior Contributing Editor, Openstax, 2017, Available in class Canvas section (free), online (free at https://openstax.org/details/books/precalculus) or LCC Bookstore (minimal cost for printing).

Supplies: Scientific Calculator

IX.   Discipline/s Assignment
Mathematics

X.   Course Status
Current Status: Active
Original Approval Date: 5/15/1990
Revised By: Robert Schofield
Curriculum/Academic Standards Committee Revision Date: 05/17/2022