

# Dakota County Technical College

## MATS 1320: College Trigonometry

### A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 2

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

MATS 1300 - College Algebra

Corequisites: MATS 1300

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

A foundation in trigonometry which, taken with college algebra, prepares students for a rigorous calculus sequence. Topics include right-triangle trigonometry, the laws of sines and cosines, the unit circle, trigonometric graphs with transformations, trigonometric identities, inverse trigonometric functions, trigonometric equations, polar coordinates, complex numbers and vectors.

Meets MnTC Goal 4.

**B. COURSE EFFECTIVE DATES:** 08/21/2006 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

### D. LEARNING OUTCOMES (General)

1. convert between degrees and radians
2. calculate area and perimeter of circular sectors
3. define the six trigonometric functions
4. solve right triangles
5. apply the law of sines to practical problems
6. apply the law of cosines to practical problems
7. memorize the unit circle
8. graph the trigonometric functions
9. read the amplitude, frequency/period, phase shift, and bias from equations and graphs of a sine and cosine waves
10. write sine and cosine functions which match a graph
11. prove trigonometric identities
12. apply trigonometric identities in solving trigonometric equations
13. graph inverse trigonometric functions
14. convert between rectangular and polar coordinates
15. perform arithmetic with complex numbers
16. convert imaginary numbers between polar and rectangular form
17. find roots and powers using the root circle (DeMoivre's Theorem)
18. apply vectors to model velocity and force
19. apply the dot product to find components and projections of vectors

## **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

Goal 04 - Mathematical/Logical Reasoning

1. Clearly express mathematical/logical ideas in writing.
2. Explain what constitutes a valid mathematical/logical argument(proof).
3. Apply higher-order problem-solving and/or modeling strategies.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

None noted