

SYLLABUS  
PART I  
EDISON STATE COMMUNITY COLLEGE  
MTH 123S TRIGONOMETRY  
3 CREDIT HOURS

**COURSE DESCRIPTION**

Part of an algebra-trigonometry sequence. Topics include basic trigonometric ratios; radians as angle measure; trigonometric functions and their graphs; trigonometric identities; trigonometric description of complex numbers and roots and powers of real and complex numbers. Prerequisite: satisfactory math assessment score and high school Algebra I, Geometry and Algebra II or a grade of “C” or better in MTH 099D. Lab fee.

**COURSE GOALS**

The student will:

Bloom's Level		Gen Ed Outcomes
3	1. Solve triangles by using trigonometric ratios.	1, 2, 3, 5
3	2. Solve application problems with right and oblique triangles using both degree and radian measures.	1, 2, 3, 5
2	3. Explain the nature of trigonometric functions and their identities.	1, 2, 3, 5
3	4. Construct the graphs of trigonometric and inverse trigonometric functions.	1, 2, 3, 5
4	5. Analyze and represent transformations of graphs of trigonometric and inverse trigonometric functions.	1, 2, 3, 5
2	6. Describe the inverse trigonometric functions and use this description to solve problems.	1, 2, 3, 5
4	7. Derive the Laws of Sines and Cosines and apply to applications.	1, 2, 3, 5
4	8. Interpret physical situations using vectors and their operations.	1, 2, 3, 4, 5
2	9. Describe the location of points in the plane by polar coordinates.	1, 2, 3, 5
2	10. Describe the relationship between polar coordinates and rectangular coordinates and translate between coordinate systems.	1, 2, 3, 5
3	11. Express complex numbers in trigonometric form.	1, 2, 3, 5
3	12. Perform operations on complex numbers.	1, 2, 3, 5
3	13. Find ratios and powers of complex numbers.	1, 2, 3, 5
3	14. Solve trigonometric and inverse trigonometric equations including those requiring trigonometric identities.	1, 2, 3, 5
4	15. Prove trigonometric identities using the properties of the functions.	1, 2, 3, 5

**CORE VALUES**

The Core Values are a set of principles that guide in creating educational programs and environments at Edison State Community College. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

**TOPIC OUTLINE**

1. Radian measure
2. Trigonometric ratios
3. Trigonometric functions and their graphs
4. Inverse trigonometric functions

5. Trigonometric identities and techniques for problem solving
6. The Law of Sines and The Law of Cosines with applications
7. Solution of triangles
8. Vectors
9. Trigonometric description of complex numbers and operations
10. Polar coordinates, equations and graphics