ACADEMIC AFFAIRS

Course Number: MATH 232   Department: Mathematics

Course Title: Technical Mathematics 2   Semester: Spring   Year: 1997

Objectives/Competencies

Course Objective	Competencies
1. Solve Oblique Triangles.	1. Solve oblique triangles using the law of sines and the law of cosines. 2. Solve applied problems requiring oblique triangles. 3. Determine the resultant of two vectors.
2. Solve Trigonometric Equations.	1. Write a trigonometric expression in terms of sine and cosine. 2. Simplify a trigonometric expression using fundamental identities. 3. Prove trigonometric identities using fundamental identities. 4. Solve trigonometric equations. 5. Add a sine wave and cosine wave. 6. Evaluate inverse trigonometric functions.

Course Objective	Competencies
3. Analyze Exponential Functions.	1. Graph exponential functions. 2. Solve exponential growth and decay problems and equations. 3. Solve applied problems involving exponential equations.
4. Analyze Logarithmic Functions.	1. Convert expressions between exponential and logarithmic form. 2. Evaluate common and natural logarithms and antilogarithms. 3. Evaluate, manipulate, and simplify logarithmic expressions. 4. Solve logarithmic equations. 5. Graph logarithmic functions. 6. Make graphs on logarithmic and semilogarithmic paper.
5. Understand Complex Numbers.	1. Simplify radicals having negative radicands. 2. Write complex numbers in rectangular, polar, trigonometric, and exponential forms. 3. Evaluate powers of j. 4. Find the sums, differences, products, quotients, and powers of complex numbers. 5. Add, subtract, multiply, and divide vectors using complex numbers. 6. Solve alternating current problems using complex numbers.
6. Analyze Conic Sections.	1. Determine the slope of a line given two points.

Course Objective	Competencies
	2. Find slope of line given its angle of inclination.
	3. Determine the slope of any line perpendicular to a given line.
	4. Write equations of a line using the slope-intercept or point-slope formulas.
	5. Solve applied problems involving the straight line.
	6. Write the equation of a circle, ellipse, parabola, or hyperbola from given information.
	7. Determine all features of interest of any conic section and make a graph.
	8. Write a new equation for a curve with the axes shifted when given the equation of that curve.
7. Solve Systems of Nonlinear Equations and Inequalities.	9. Solve applied problems involving any of the conic sections.
	1. Find a graphical solution to a system of two equations.
	2. Solve a system using substitution.
	3. Solve a system using elimination.
	4. Write a system of equations to describe a given word problem.
8. Apply Fundamental Concepts of Calculus.	5. Solve linear and nonlinear inequalities.
	1. Compute the limit of a function.
	2. Compute the derivative of a function using the definition.
	3. Compute the derivative of a function using the power, product, quotient, or chain rules.
	4. Solve applied problems requiring the use of the derivative.

Course Objective	Competencies
9. Understand Series and Sequences. 10. Understand the Binomial Theorem.	5. Integrate functions using the power rule or u-substitution. 6. Solve applied problems requiring the use of integration. 1. Identify various types of sequences and series. 2. Write the general term or a recursion relation for many series. 3. Compute any term or the sum of any number of terms of an arithmetic progression or a geometric progression. 4. Compute the sum of an infinite geometric progression. 5. Solve application problems using series. 1. Raise a binomial to a power using the binomial theorem. 2. Find any term in a binomial expansion.