

BROOME COMMUNITY COLLEGE
Binghamton, New York

COURSE TITLE APPLIED TECHNICAL MATHEMATICS II MAT 149

CLASS LECTURE HOURS 3 LAB HOURS 0 CREDIT HOURS 3

DIVISION DEAN Julia Peacock

DEPT. CHAIRPERSON Carmelita Keyes DATE November 1996

PREREQUISITE: MAT 148 Applied Technical Mathematics I or equivalent.

Learning objectives of Course:

The student should be able to:

1. Solve equations including exponential, logarithmic, inequalities, or trigonometric functions.
2. Evaluate trigonometric functions and their inverses for angles measured in degrees and radians.
3. Solve oblique triangles using the law of sines or law of cosines.
4. Sketch and interpret graphs of trigonometric, exponential, logarithmic functions, and inequalities.
5. Perform fundamental operations, (addition, subtraction, multiplication, division) on algebraic expressions involving exponents and radicals.
6. Graph functions using log and semi-log paper.
7. Solve inequalities by algebraic and graphing methods.
8. Summarize and interpret data using frequency distribution, measures of central tendency, and measures of dispersion.
9. Apply slope-intercept and point slope forms to determine the equation of a straight line.
10. Read critically and think logically when solving word problems that involve the use of trigonometric, exponential or logarithmic functions.

CATALOG COURSE DESCRIPTION:

The second course in a two-semester sequence of intermediate algebra and trigonometry with technical applications. Topics included are: trigonometric functions of any angle, oblique triangle, graphs of trigonometric functions, exponents and radicals, exponential and log functions, basic operations with complex numbers, inequalities, introduction to statistics. The scientific calculator will be used throughout the course. This course applies to industry specific degree programs only.

4 class hours; Prerequisite: MAT 148 Applied Technical Mathematics I or equivalent.

MAT 149
COURSE OUTLINE

Fundamental Concepts and Operations of Algebra

- Real Numbers
- Exponents
- Operations with Polynomials
- Equations

Geometry

- Basic geometric figures and definitions
- Basic geometric formulas

Units of Measurement and Approximate Numbers

- Unit conversions
- Approximate numbers and significant digits

Trigonometric Functions

- Defining basic trig functions of sine, cosine and tangent
- Values of trig functions
- Right triangles
- Applications of right triangles
- Trigonometric functions of any angle

Vectors

- Introduction to vectors
- Vector addition by components
- Applications of vectors

Factoring and Rational Expressions

- Factoring polynomials
- Fundamental operations involving rational expressions
- Solving equations involving rational expressions
- Applications to word problems

Functions and Graphs

- Functions
- Graphs

Systems of Linear Equations and Determinants

- Solving systems of linear equations in two variables
- Solving systems of linear equations in three variables
- Applications

Variation

- Ratio and proportion
- Variation
- Applications of variation

Quadratic Equations

- Methods of solving quadratic equations
- Graph of the quadratic function