Degree Applicable _X_ Glendale Community College
Non-Degree Applicable___ January, 1993

COURSE OUTLINE

Technical Education 143

I. Catalog Statement

Technical Mathematics II - 3 units

Prerequisite: Satisfactory completion of Technical Education 142, or equivalent.

Technical Education 143 is an advanced study of the fundamentals of algebra, trigonometry, and quadratic equations as required in the mechanical trade programs. Problems are drawn from the industrial field.

Lecture 3 hours

II. Objectives

Given lectures, demonstrations, films, simulations, written and other assignments, students will demonstrate their knowledge by:
l. demonstrating their knowledge and critical thinking skills in the essentials of higher levels of technical mathematics
2. attaining satisfactory scores on examination procedures covering all phases
3. including advanced algebra, geometry, trigonometry, and logarithm concepts

III. Text

Technical Mathematics, Lynn, Wiley Pub., l985
Workbook to Accompany Technical Mathematics, Lynn, Wiley Publ, l985

IV. Course Outline

A. Introduction 6 hours
   l. Review of Number Concepts
   2. Review of Scientific Notation and Calculator Use
   3. Summary of Percents, Ratios, and Proportions

B. Algebra 12 hours
   l. Review of Algebraic Expressions
   2. Factoring and Algebraic Fractions
   3. Linear Equations
      (a) One Unknown
      (b) Two Unknown
         (l) Simultaneous Equations

(2) Determinants

4. Dimensional Analysis
5. Inequalities
6. Polynomials and Higher Degree Equations
7. Quadratics
8. Applications

C. Geometry — 9 hours

l. Review of Basic Geometric Concepts
2. The Pythagorean Theorem Revisited
3. Measurements Associated with Solids
4. Parabola and Hyperbola
5. Applications

D. Trigonometry — 12 hours

l. Review of Right Triangle
2. Review of Basic Trigonometric Functions
3. Introduction of Advanced Trigonometric Functions
   (a) Cotangent
   (b) Secant
   (c) Cosecant
4. Oblique Triangles
5. Vectors
6. Applications

E. Logarithms — 9 hours

l. Exponential Notations
2. Laws of Logarithms
3. Common Laws
4. Natural Logs
5. Logarithm Computations and Equations
6. Applications

V. Examination/Evaluation Procedures

Comprehensive written examinations will be administered at mid-term and during finals week of the semester. Both examinations will be composed of essay, problem solving, and concept analysis type questions. Additionally, periodic quizzes will be given to measure the student's learning progress. Scores of 70 percent or better on examinations will result in a satisfactory grade.

VI. Special Features

All class problems are solved with emphasis on the use of the scientific calculator. Classes are instructed by lectures and concept demonstrations

Student Learning Outcomes

Upon successful completion of the required coursework, the student will be able t

1. Student will attain satisfactory scores on examination procedures covering all phases.
2. Student will demonstrate knowledge and critical thinking skills in the essentials of higher levels of technical mathematics.
3. Student will include the use of scientific calculators to solve problems in arithmetic, practical algebra, and applied geometry and trigonometry concepts.