

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE. ONTARIO

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COURSE TITLE: MATHEMATICS
CODE NO.: MTH 612-4 SEMESTER:
PROGRAM: AVIATION TECHNOLOGY
AUTHOR: J. McGAULEY
DATE: JUNE 1996 PREVIOUS OUTLINE DATED: JULY 1995

APPROVED:


DEAN


DATE

MATHEMATICS

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TOTAL CREDIT HOURS: 64

PREREQUISITE(S): None

SUBSTITUTE(S): MTH 143

I. PHILOSOPHY/GOALS:

Students will develop skills needed to solve problems in technical mathematics. Topics include a detailed review of algebra followed by a study of quadratic equations, exponential and logarithmic functions and trigonometric functions.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student develop an understanding of the methods studied, demonstrate a knowledge of the facts/presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed below.

III. TOPICS TO BE COVERED:

1. Basic Algebraic Operations (13 hours)
2. Systems of Equations and Graphing (6 hours)
3. Factoring and Fractions (8 hours)
4. Exponents and Radicals (6 hours)
5. Quadratic Equations (6 hours)
6. Trigonometry (14 hours)
7. Exponential and Logarithmic Functions (8 hours)

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IV. LEARNING ACTIVITIES

REQUIRED RESOURCES:

2.0	Systems of Equations and Graphing	Pgs. 84-91, 128-144
2.1	Rectangular Coordinates	Exercises 3-3, 3-4 5-1 to 5-4
2.2	The Graph of a Function	
2.3	Linear Equations	
2.4	Graphs of Linear Equations	
2.5	Solving Systems of Two Linear Equations Graphically	
# 2.6	Solving Linear Systems Algebraically	
3.0	Factoring and Fractions	Pgs. 164-198
3.1	Special Products	Exercises 6-1 to 6-8
3.2	Factoring: Common Factor and Difference of Squares	
3.3	Factoring Trinomials	
3.4	Sum and Difference of cubes	
3.5	Equivalent Fractions	
3.6	Multiplication and Division of Fractions	
3.7	Addition and Subtraction of Fractions	
3.8	Equations Involving Fractions	
3.9	Chapter Review	Review Exercises (p.

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

6.0 Trigonometry

Pgs. 104-127
Exercises 4-1 to 4-5
Review Exercises (pg. 124)

6.1 Angles

6.2 Defining the Trigonometric Functions

6.3 Values of the Trigonometric Functions

6.4 The Right Triangle

6.5 Applications of Right Triangles

Pg, 221-231
Exercises 8-2, 8-3

6.6 Trigonometric Functions of Any Angle

6.7 Radians

6.8 Oblique Triangles, The Law of Sines

Pg. 257-268
Exercises 9-5, 9-6

6.9 The Law of Cosines

6.10 Fundamental Trigonometric Identities

Pg. 504-510
Exercise 20-1

7.0 Exponential and Logarithmic Functions

Pgs. 349-377
Exercises 13-1 to 13-6
Review Exercises (pg. 375)

7.1 The Exponential and Logarithmic Functions

7.2 Graphs

7.3 Properties of Logarithms

7.4 Logarithms to the Base 10

7.5 Natural Logarithms

7.6 Exponential and Logarithmic Equations

7.7 Chapter Review