SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

# COURSE OUTLINE

Course Title: MATHEMATICS

Code No.: MTH 118-4

Program: WATER RESOURCES

Semester: TWO

Date: JUNE, 1984

Author: W. MacQUARRIE

New: Revision:

APPROVED: _____ (v_J^fft^t & 16/8 C,

Chairperson Date

# CALENDAR DESCRIPTION

| MATHEMATICS | MTH 118-4 |
|---|---|
| Course Name | Course Number |

## PHILOSOPHY/GOALS:

When the student has successfully completed this course he/she will have demonstrated an acceptable ability to pass tests based upon the course contents as listed elsewhere. If, after completing the course, the student takes further courses (or employment) in which he/she is required to apply this material he should then, through practice, be able to develop a good command of this subject matter.

## METHOD OF ASSESSMENT (GRADING METHOD):

The students will be assessed by tests. These tests will include periodic tests based upon blocks of subject matter and may, at the instructor's discretion include unannounced surprise tests on current work and/or a final test on the whole course. A letter grade will be based upon a student's weighted average of his/her test results. See also the mathematics department's annual publication "TO THE MATHEMATICS STUDENT" for further details. This publication is made available to the students early in each academic year.

## TEXTBOOK(S):

Washington - "Basic Technical Mathematics With Calculus"

## OBJECTIVES:

The basic objective is for the student to develop an understanding of the methods studied, knowledge of the facts presented and an ability to use these in the solution of problems. For this purpose exercises are assigned. Tests will reflect the sort of work contained in the assignments. 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 on the following pages.

| PERIODS | TOPIC DESCRIPTION | REFERENCE |
|---|---|---|
| | Algebra review (continued)<br>Functions and graphs<br>Simultaneous equations | Text, Ch. 14 |
| | Quadratic Equations<br>Factoring, completing the square, formula | Text, Ch. 18 |
| 10 | Exponents and Radicals<br>Integral and fractional exponents<br>Simplest radical form<br>Addition, subtraction, multiplication and division of radicals<br>Radical equations | Text, Ch. 16, 17 |
| 8 | Exponential and Logarithmic Functions"<br>Definitions, graphs of functions, properties of logarithms, logarithms to Base 10 using a calculator, computations using logarithms, natural logarithms using a calculator logarithms to other bases, exponential and logarithmic equations.<br>Note: Since each student is expected to have a scientific calculator, the use of tables may be omitted when interpolation exerpience is not required. Also the use of log trig functions is unnecessary. In Ex. 12-7 the instructions should be modified to reflect the use of calculators. | Text, Ch. 33-35 |
| 4 | Ratio, Proportion, Variation | Text, Ch. 23 |

| PERIODS | TOPIC DESCRIPTION | REFERENCE |
|---|---|---|
| 12 | Review of Basic Trigonometry<br>Angles, trigonometric functions, rt. triangles, trig functions of any angle, Sine Law, Cosine Law, areas, applications.<br>Also the instructions in exercises should be amended to avoid the use of loose approximations for (such as 3.14). For areas of triangles additional problems can be used or text exercises can be altered to require areas. | Text, Ch. 36-39, 42j 44 |
| 12 | Analytic Geometry<br>Definitions, straight line, circle, parabola, translation of axes, general second degree equation. Graphical and algebraic solutions of systems of second degree equations. | Ch. 21 and any analytic geom. manuscript |