SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO


COURSE OUTLINE


Course Title:     MATHEMATICS

Code No.:         MTH 413

Program:          COMPUTER SCIENCE, ELECTRICAL & ELECTRONICS TECHNOLOGY

Semester:         I                    *^ rA^c\x/kA;vc4^.L T^>A 1

Date;             MAY 31, 1983

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                                    New              Revision


APPROVED:                                         *Af^/ '93*
            Chairperson                            Date

MATHEMATICS                                              MTH 413
Course Name                                         Course Number

PHILOSOPHY/GOALS:

When the student has successfully completed this course he 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 is required to apply
this material he should then, through practice, be able to develop a good
coninand 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 test results.  See also the mathematics department's
annual publication "To the Mathematics Student" which is presented to the
students early in each academic year.

TEXTBOOK(S):

Washington - "Basic Technical Mathematics with Calculus"
              Benjamin Cummings

## 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 wil  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
page(s).

## NOTE:

The two year technician students and the three year technology students will
all take this course.  In the semester 2 they will separate with the
technology students taking Mth 426 and the technician students taking 126.
A higher standard of achievemnet will be required of the student who wishes
to enter 426

## MTH 413

### COMPUTER SCIENCE, ELECTRICAL AND

### ELECTRONICS TECHNICIAN AND TECHNOLOGY

### First Semester

| Topic No. | No, of Classes | Topic Description | Assignments | References |
|---|---|---|---|---|
| | 4 | Scientific Notation, Estimation & Uiinensionai Analysis<br><br>-exact and approximate numbers<br>-scientific notation & estimation of answers<br>-practical problems<br>-dimensional problems<br>-conversion of units & the (SI) metric system | Text Exercises BI, B2, B3, 04, 1-5 | Text App, B, C  1-5 |
| | 12 | Review of Basic Algebra<br><br>-special products & factoring<br>-operations with fractions<br>-linear equations in one unknown<br>-problems based on linear equations<br>-exponents and radicals | Text Exercises 1-1 to 1-4, 1-6, 5-1 to 5-8, 10-1 to -7 | Text Ch. 1 5, 10 |
| | 7 | Review of Basic Trigonometry<br><br>-angles & systems of measurement<br>-functions of 30, 45, 50<br>-use of the calculator<br>-solution of right triangles | Text Exercises 3-1 to 3-6 | Text Ch. 3 |
| | 8 | Introduction to Complex Numbers<br><br>-real & imaginary numbers<br>-operations with complex numbers<br>-geometric representation of complex numbers<br>-trigonometric, polar & exponential numbers<br>-powers and roots of complex numbers<br>-demoivre's theorem | Text Exercises 11-1 to 11-8 | Text Ch. 4 |

| Topic | No. of Classes | Topic Description | Assignments | References |
|-------|----------------|-------------------|-------------|------------|
| | | <u>Systems of Linear Equations</u><br><br>-solving systems of two equations<br> in two unknowns a) graphically,<br> b) algebraically, c) by<br> determinants<br>-solving systems of three equations<br> in three unknowns a) algebraically<br> b) by determinants | Text Exercises<br>4-1 to 4-7 | Text<br>Ch. 4 |
| | | <u>Variation</u><br><br>-ratio and proportion<br>-variation | Text Exercises<br>17-1 to 17-3 | Text<br>Ch. 17 |