SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MATHEMATICS

Code No.   MTH 413-4

Program   COMPUTER SCIENCE, ELECTRICAL, ELECTRONICS &
                  MECHANICAL TECHNOLOGY

Semester:

Date   JUNE, 1985

Author: J. REAL

                              New: Revision   X

APPROVED: Chairperson   Dat*t* ^^ *f//<-*
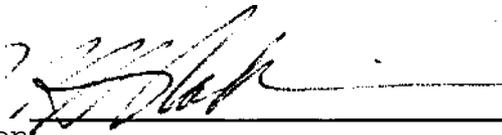
CALENDAR DESCRIPTION

MATHEMATICS   MTH 413-4

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 con-
as listed elsewhere. If, after completing the course, the student'takes
further courses (or employment) in which he is required to apply this mate:
he should then, through practice, be able to develop a good command of thi
subject matter.

METHOD OF ASSESSMENT (GRADING METHOD);

The students will be assess by.tests. These tests will include periodic t
based upon blocks of subject matter and may, at the instructor's discretio
include unannounced surprise tests on current work and/or a final test on
whole course. A letter grade will be based upon a student's weighted aver
of his test results. See also the mathematics department's annual publica
"To the Mathematics Student" which is presented to students early in each
academic year.

TEXTBOOK(S);

        Calter - "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 th
in the solution of problems. For this purpose exercises are assigned. Te
will reflect the sort of work contained in the assignments. The level of
competency demanded is the level required to obtain an overall passing ave
on the tests. The material to be covered is listed on the following page(

<u>NOTE</u>:

MTH 413 will include the topic "COMPLEX NUMBERS" which is needed in all programs except mechanical. A mechanical student with the ability to handl technology program should have no trouble with this topic and it will provi good practice in right triangle trig and in algebra. Students who decide t take a technician program after starting out in technology mathematics may transfer to first semester technician math any time before September 16.

<u>ENTRY TO COURSE</u>;

Grade 12 math is a prerequiste and advanced math is strongly recommended. Students with only a general math background may have difficulty with this course, especially so if their marks were not high. Our mathematics pretes will be written by all incoming students. Results will be made available t major subject instructors who will counsel the students with regard to choi of math courses. Students planning to take a technology program should tak MTH 413. Those planning to take a technician program may take either MTH *4 or MTH 120.

<u>ENTRY TO SUBSEQUENT COURSE (SEMESTER II)</u>;

Any student who has a "C" grade or better in MTH 413 (or a credit) is eligi for admission to either technology or technician math in semester two.

If certain conditions are met a student with an "R" grade in MTH 413 may be granted a "C" grade in MTH 120 and entry to second semester <u>technician</u> mathematics. The conditions are:

        1. 50% to 54% in MTH 413
        2. Good attendance in MTH 413 (80% or better)
        3. All tests in MTH 413 have been written.

Occasionally a student who does not have clear entry to MTH 220 is given special permission to take MTH 120 and MTH 220, both at the same time. Sue permission is given only on the basis of analysis of the student's overall performance. The student will usually be a conscientous, hard working, rec attending student who has trouble in only the one subject. Hence he may be able to afford the time to take an extra subject in semester two. Passing two math courses will put the student back in step with his original class. a student meets the following conditions he should be considered for such special permission;

        1, 40% or better in MTH 413
        2. Good overall attendance (80% or better)

ENTRY OF SUBSEQUENT COURSES (SEMESTER 11) - CONTINUED

3. All MTH 413 tests written
4. All other first semester subjects clear
5. The chairman and/or instructors in the student's major subject
    area support the proposal.

A student who desires such permission should approach his program Chairman,
consultation with the MTH 413 and' MTH 220 instructors, the chairman may gra
permission.

Whenever MTH 120 and MTH 220 are taken in parallel, MTH 120 is regarded as
co-requisite. Hence, if MTH 120 is failed, both courses will have to be
repeated. It is the responsibility of the student to arrange to have his ^
220 instructor officially informed of his grade in MTH 120. If in doubt tl:
MTH 220 instructor should submit an "X" grade pending the results of MTH i:

TOPIC NO.	NO. OF CLASSES	TOPIC DESCRIPTION	ASSIGNMENTS	REFERE
~	5	Numerical Computation-	Ex. 1-8^ 10,11	Ch. I
		Exact and approximate numbers. Units of measurement. Dimensional analysis. Scientific notation. Percentage calculations.		
2	6	Review of Basic Algebra		
		Addition, subtraction, multiplication, and division of algebraic expressions. Exponents-	Ex. 1-4	Ch. 3
		Simple equations and word problems (don't cover extensively) Literal equations and formulas.	Ex. 1-6	Ch. 4
3	18	More Basic Albebra-		
		Factors and factoring. Literal equations and formulas.	Ex. 1-7	Ch. 7
		Fractions and fractional eqns- Ratio and proportion.	Ex. 1-5 Ex. 7	Ch. 8
		Systems of linear equations.	Ex. 1-3,5	Ch. 9
		Determinants. Radicals and radical equations.	Ex. 1-3	Ch. 10
4	7	Review of Basic Trigonometry	Ex. 1-3	Ch. 6
		Angular measurement. Trigonometric functions. Solution of right triangles.		
5	7	Complex Numbers-	Ex. 1-3,5	Ch. 18
		Real and imaginary numbers. Operations with complex numbers in rectangular form. Graphing complex numbers. Trigonometric and polar form. DeMoivre's theorem. Exponential form (optional).	Ex. 4	