SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO
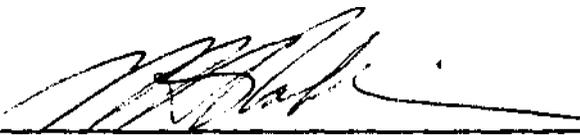

COURSE OUTLINE

Course Title: MATHEMATICS

Code No.:   MTH 120-4

Program: ELECTRICAL AND ELECTRONIC TECHNICIANS

Semester: ONE

Date: JULY, 1986

Author: K. CLARKE

                                    News   Revision:

APPROVED: _____
          Chairperson   Date   ^

<u>CALENDAR DESCRIPTION</u>

MATHEMATICS   MTH 120-4 ELT/ETT

Course Name   Course Number

ELECTRICAL AND ELECTRONICS TECHNICIANS SEMESTER I

<u>PHILOSOPHY/GOALS</u>:

In this course the student is first introduced to the art of technical calculations. This is followed by an extensive review of secondary school algebra and the trigonometry of right triangles.

<u>METHOD OF ASSESSMENT (GRADING METHOD)</u>:

The students will be assessed by written tests, including major periodic tests based upon large blocks of the subject matter and some, perhaps unannounced, short quizzes on current work - the latter being given at the discretion of the instructor. A final test on the whole course may also be included. A letter grade will be based upon a student's weighted average of all his test results. See also the Mathematics department's annual publication "TO THE MATHEMATICS STUDENT" for further details. This publication forms the last two pages of this course outline.

As in any other subject, the student is preparing to be a technologist or technician as well as studying the subject. Hence, on tests, the student is expected to produce neat, legible, well laid out solutions, which show clearly how the answer was obtained. If anything less is required, this will be indicated in the test. Failure to show such solutions may render correct answers worthless. As happens in the workplace, if anything you put on paper <u>can</u> be misread it <u>will</u> be! In addition to loss of marks on individual questions, up to 25% of the marks available on a test can be subtracted as a penalty for untidiness. Marks lost in such penalties can be redeemed by a student willing to put forth the required effort.

Proper solutions as described above should be produced for all your assigned work. Such practice will make it easier for you to produce the required quality of work on tests. If when you look at a page of your work, it makes you feel proud of its appearance, then you are probably on target.

Marks allotted to each question on a test are usually shown. Please enquire if they are not.

TENTATIVE INSTRUCTION AND TEST SCHEDULE

TOPIC NO.	NO. OF PERIODS	TENTATIVE TEST DATE	TOPIC WEIGHT
1	11	To be	44
2	12	announced	48
3	10	early in	40
4	10	the term	40
5	8		32
6	10		40
TOTALS	61		244

Before recording, test results will be adjusted to reflect the value indicated under "Topic Weight". The minimum total required for each letter grade is listed below for your convenience. Please note that in addition to a minimum total mark there are additional requirements to qualify for a grade of I or X.

LETTER GRADE	MINIMUM TOTAL REQ'D
A	219
B	194
C	158
I or X	110

The notes on the last two pages, entitled "To the Mathematics Student" are applicable to all mathematics courses at Sault College.

ENTRY TO COURSE

All incoming students will write our mathematics pre-test. Results
will be supplied to major subject instructors who will interview the
students. Some will be advised to take technician mathematics (MTH
120). Any students who plan to take a technician program may take
either technician or technology mathematics in the first semester.
Once a student elects to take MTH 120, he is committed for the
duration of the semester.

ENTRY TO SUBSEQUENT COURSES

Entry to Semester Two Technician Mathematics (MTH 220) is earned by
passing First Semester Math (MTH 120 or MTH 413).

A student who takes Technician Mathematics in the first semester and
subsequently decides to take a technology program will be permitted to
take Second Semester Technology Mathematics if certain conditions are
met:

1. "A" or "B" grade in MTH 120.
2. The student is accepted into the technology program by the
    department concerned.

A student who fails MTH 120 generally must repeat and pass MTH 120
before being admitted to Semester Two Math (MTH 220). Occasionally,
an otherwise good student who meets certain conditions is permitted to
take both MTH 120 and MTH 220 during Semester Two after failing MTH
120 in the First Semester. Such special permission is based upon an
analysis of a student's overall situation. Each request for such
permission is considered individually. The following conditions might
be considered as a general guide in assessing the suitability of
granting permission:

1. 45% or better in MTH 120.
2. Good attendance (80% or better)
3. All MTH 120 tests written.
4. All other First Semester subjects clear.
5. GPA of 2.5 or better;
6. The Chairman and/or instructors of the student's major subject
    area support the proposal.

A student who desires such permission should approach his program
Chairman. In consultation with the MTH 120 and MTH 220 instructors,
the Chairman may grant permission.

Whenever MTH 120 and MTH 220 are taken in parallel, MTH 120 is
considered to be a 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 MTH 220 instructor officially informed
of his grade in MTH 120. If in doubt, the MTH 220 instructor should
submit an "X" grade pending the results of MTH 120.

TEXTBOOK(S);

Calter: "Technical Mathematics with Calculus" - Prentice Hall

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 page.

MTH 120-4
ELECTRICAL AND ELECTRONIC TECHNICIANS
SEMESTER I

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
	11	Numerical Computation	Ex. 1-1 Ch
			to 1-12
		The real numbers,	Ex. 17-4 #1
		Exact and Approximate Numbers.	to 24 only
		Addition and Subtraction.	Ex. 17-5 #1
		Multiplication, division,	to 24 only
		reciprocals, powers, roots.	
		Combined Operations.	
		Units of measure.	
		Substituting into formulas.	
		Scientific notation.	
		Percentage.	
		Solving percentage problems.	
		Percent change and percent difference	
		Percent error.	
		Percent concentration.	
		Percent efficiency.	
		Common and natural logarithms.	
	12	Review of Elementary Algebra	Text Texi
		Algebraic expressions.	Ex. 3-1 to CI
		Addition and subtraction of	3-7 plu:
		algebraic expressions.	4-1 sect
		Integral exponents.	1 &
		Multiplication of algebraic	of <
		expressions.	
		Division of algebraic expressions.	
		Equations.	
	10	Factoring	Text Tex
		Common factors.	Ex. 7-1 to Ch.
		Difference of Two Squares.	7-7
		Factoring trinomials.	(odd numbered
		Trinomials with a leading	questions
		coefficient other than one.	only)
		The perfect square trinomial.	
		Sum or difference of two cubes.	
		Factoring by grouping.	
		Literal equations.	

MTH 120
ELECTRICAL AND ELECTRONIC TECHNICIANS
SEMESTER I

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
	10	Fractions	Text
		Definitions. Manipulation of fractions. Multiplication and division of fractions. Addition and subtraction of fractions. Complex fractions. Fractional equations. Ratio and proportion.	Ex. 8-1 to 8-5 & 8-7 (odd numbered questions only)
		<u>Systems of Linear Equations and Determinants</u>	Text
		Systems of linear equations. Systems of fractional, non-linear and literal equations, Determinants. Systems of three or more equations.	Ex. 9-1,2, Ch. 3,5 omitt (omit word w problems) probl
	10	<u>Right Triangles and Basic Trigonometry</u>	Text Text
		Angles and their measures The trigonometric functions.. Solution of right triangles. Vectors.	Ex. 6-1 to 6-4

GRADES

Each Mathematics grade is based upon a weighted average of test scores on the following basis:

90-100%	A+
80%-89%	A
65%-79%	B
55%-64%	C
45%-54%	I, X, OR R (See #5 & 6)
0% -44%	R

First semester students who are proceeding into second semester Electrical, Electronic or Mechanical Technician Programs may have a different set of grade requirements which will be defined in class.

The method of calculating your weighted average will be defined by your instructor. Since grades are based upon averages, it follows that good marks in some tests can compensate for a failing mark in another test. If there are extenuating circumstances, an instructor can make an exception and assign an "I" or "X" grade even if the average is below 45%.

TESTS

While regular tests will normally be scheduled and announced beforehand, there can be an unannounced test on current work at any time. Such tests, at the discretion of the instructor, can be used for up to 30% of the overall mark.

At the discretion of the instructor, there can be a final test which can be used for up to 30% of the overall mark. Anything included in the work of the semester is fair game on such a final test.

ABSENCE FROM CLASS

If you are absent from class, it is your responsibility to find out from another student what work was covered and assigned and to complete this work before the next class. Your absence indicates your acceptance of this responsibility.

<u>TEST ABSENCE</u>

Unexcused absence from a scheduled test will result in a zero mark. Absence may be excused on compassionate grounds such as verified illness or bereavement. On return from an excused absence, you should ask your instructor about writing a make-up test.

If your instructor uses short unannounced tests, the following will apply. Unexcused absence from such a test will result in a zero mark. If absence from such a test is excused, then, at your request, the marks for that test will be excluded from the calculation of your course average.

<u>MAKE-UP PERIOD</u> (IF APPLICABLE)

An "X" grade may be assigned at the end of the regular semester if your have achieved an overall average between 45%-54% and your attendance and effort on the course have been satisfactory. <u>Satisfactory attendance and effort will include writing all the topic tests and attending at least 80% of the scheduled classes.</u> If you are assigned an "X" grade, you may convert it to a "C" grade by passing a make-up test on the whole course. This test will be available only at the time specified by your instructor. At the end of the regular term, it is the student's responsibility to obtain his/her results from his/her instructor and, in the event of an "X" grade, to inquire when the make-up test will be available. At the discretion of the instructor, a topic make-up test may be used instead of an overall test in special circumstances. No student will be permitted more than one such topic make-up test.

<u>"R" AND "X" GRADES</u> - AT <u>THE END OF THE SEMESTER</u>

If an "X" grade is not cleared by the specified date, it will become an "R" grade. Except for extenuating circumstances, an "X" grade in Math will not carry on into the next semester.

<u>"R" GRADES DURING THE SEMESTER</u>

A student with a failing grade and poor attendance (less than 80% attendance) may be given an "R" at any time during the semester.