SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: CALCULUS

CODE NO.: MTH 208-4   **SEMESTER;**

PROGRAM; ENV. ENGINEERING/ PULP & PAPER/ WATER RESOURCES

AUTHOR K. CLARKE

DATE: JUNE 1991   **PREVIOUS OUTLINE DATED:** JUNE 1990

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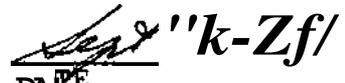
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TOTAL CREDIT HOURS: 64

PREREQUISITE(S): MTH220

I. PHILOSOPHY/GOALS:

This course provides an introduction to calculus. It begins with an
introduction to derivatives and differentials and their applications
and continues with indefinite and definite integrals of algebraic
functions and their elementary applications, particularly to mechanics
and fluid mechanics. It should be noted that logarithmic, exponential
and trigonometric functions are not covered.

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.

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Iir. TOPICS TO BE COVERED

TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION	REFERENCE
	12	The Derivative	Text, *Ch.* 4 8
		Limits, slope, derivative. Delta Method, derivatives of polynomials Higher Derivatives	
	14	Applications of the Derivative	Text, Ch. 49
		Distance, Velocity, Acceleration The slope of a curve Tangents and normals Curve sketching Maximum and minimum Differentials	
	18	Integration	Text, Ch. 50
		Antiderivatives, power rule, indefinite integral, particular integral, definite integral, power rule applied to algebraic functions	
	20	Applications of Integration	Text, Ch. 51
		Applications of indefinite integral, area, volumes. Pressure on a submerged plate, work, flow over a weir. (Not all covered in text)	MSS

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IV. **LEARNING ACTIVITIES:**   **REQUIRED RESOURCES:**

     The student will be   Textbook:
     expected to attend all
     classes punctually and do   "Essentials of Mathematics"
     all the assigned work.   R.V. Person, 5th Edition, Wiley

     Work will be assigned   Protractor, scale, compass,
     from the following   eraser, sharp pencils,
     exercises in the   1/4" grid paper
     textbook:

Exercises:
     48-1, 48-2, 48-3, 48-4,
     48-5

     49-1, 49-2, 49-3, 49-4,
     49-5

     50-1, 50-2, 50-3, 50-4

     51-1, 51-2, 51-3

     At the discretion of the
     instructor, other
     exercises in the textbook
     may be used and work may
     be assigned from handouts
     supplied by the
     instructor.

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V. EVALUATION METHODS: (INCLUDES ASSIGNMENTS, ATTENDANCE REQUIREMENTS ETC.)

The student's progress will be assessed by periodic written tests.
The student's final grade is based upon a weighted average of the test
results. ATTENDANCE AT ALL TESTS IS REQUIRED. Unexcused absence from
a test will result in a mark of zero for that test. A student may be
prevented from attending a test by illness or bereavement. Upon
return to classes, the student must see the instructor at the end of
the first mathematics class attended to arrange a time and place for a
make up test. In addition, if the absence is due to illness the
student must present a note from the student's doctor or from the
College nurse.

If, at the end of the semester, a student has an average between 45%
and 54%, the instructor will consider permitting the student to do
make up work in hope of raising his/her standing to a passing level.
If a student has not written all of the topic tests, or if the student
has attended fewer than 80% of the scheduled classes, or if the
student has not done all of the assigned work during the semester,
then the make up privilege will not be granted. At the discretion of
the instructor a student who is granted the make up privilege may be
required to write one topic test in hope of raising his/her average or
he/she may be required to write an examination on the whole course.
Such tests and examinations are not provided for the purpose of
obtaining grades higher than "C".

Due to circumstances beyond the control of the instructor, the time
available for the student to prepare for the make up test or
examination is usually so limited that the student has little
opportunity to improve. Hence, the student should make diligent
efforts to avoid any need for make up privileges.

Make up tests will not be made available in this course in any other
circumstances than those described above.

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V. EVALUATION METHODS: (cont'd)

As in any other subject the student is preparing for his working
career 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 answers were 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 _can_ be misread it _will_ 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, than you are probably on target,

Marks allotted to each question on a test are usually shown. Please
enquire if they are not. *The* questions on a test do not necessarily
have equal values.

Average	Grade
90 to 100%	A+
80 to 89%	A
65% to 79%	B
55% to 64%	C

VI.   REQUIRED STUDENT RESOURCES:

"Essentials of Mathematics", R.V. Person, 5th Edition, Wiley

VII. SPECIAL NOTES

Students with special needs (e.g. physical limitations, visual
impairments, hearing impairments, learning disabilities) are
encouraged to discuss required accommodations confidentially with the
instructor.

Your instructor reserves the right to modify the course as he/she
deems necessary to meet the needs of students.

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