

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: CALCULUS

Code No.: MTH 208-4

Program: WATER RESOURCES - PULP AND PAPER TECHNOLOGY

Semester: FOURTH - WATER RESOURCES FOURTH - PULP & PAPER

Date: JUNE 1990

Author: K. G. CLARKE

New:

Revision:

APPROVED


ChStrperson

^^ f^^.
Date /

MATHEMATICS (Calculus)

MTH 208-4

Course Name

Course Number

PHILOSOPHY/GOALS (CALENDAR DESCRIPTION):

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

METHOD OF ASSESSMENT (GRADING METHOD):

A 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 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.

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

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 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.

MATHEMATICS (Calculus)

MTH 208-4

Course Name

Course Number

METHOD OF ASSESSMENT (Cont'd)

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. The questions on a test do not necessarily have equal values.

TEXTBOOK(S):

"Essentials of Mathematics" - K.V. Person, 5th edition, Wiley,

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.

TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION	REFERENCE
	12	<u>The Derivative</u> Limits, slope, derivative. Delta Method, derivatives of polynomials Higher Derivatives	Text, Ch. 48 Exercises 48-1, 48-2, 48-3, 48-4, 48-5
	14	<u>Applications of the Derivative</u> Distance, Velocity, Acceleration The slope of a curve Tangents and normals Curve sketching Maximum and minimum Differentials	Text, Ch. 49 Exercises 49-1, 49-2, 49-3, 49-4, 49-5
	18	<u>Integration</u> Antiderivatives, power rule, indefinite integral, particular integral, definite integral, power rule applied to algebraic functions	Text, Ch. 50 Exercises 50-1, 50-2, 50-3. 50-4
	20	<u>Applications of Integration</u> Applications of indefinite integral, area, volumes. Pressure on a submerged plate, work, flow over a weir. (Not all covered in text)	Text, Ch. 51 Exercises 51-1, 51-2, 51-3 MSS