

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MATHEMATICS
Code No.: MTH 554-4
Program: MECHANICAL TECHNOLOGY
Semester: III
Date: JULY, 1987
Author: W. MACQUARRIE


New

Revision

APPROVED



Chairperson


Date: ^{1/11/87} jr^// " 7

CALENDAR DESCRIPTION

MATHEMATICS
COURSE NAME

MTH 554-4
COURSE NUMBER

PHILOSOPHY/GOALS:

In this course, the student is introduced to the subject of Calculus and will cover functions, limits, derivatives, how to find and use derivative in a variety of engineering problems (maxima/minima, related rates, etc.) and also, an introduction to indefinite and definite integrals, how to work with them and use them to solve a variety of engineering problems (areas under/between, curves, volumes of solids of revolution, and motion problems).

METHOD OF ASSESSMENT (GRADING METHOD);

1. Three to four tests per semester-
2. Several short (possibly unannounced) quizzes per semester.
3. Final grade is a weighted average of the above.
- 4- See also the Mathematics Department's annual publication. To the Mathematics Student for further details, numerical percent equivalents for letter grades, etc.
5. Depending on individual circumstances, a failing grade at the end of a semester may be upgraded by writing a two-hour comprehensive examination,

TEXTBOOK(S):

Cummings, Benjamin, BASIC TECHNICAL MATHEMATICS WITH CALCULUS, J.J. Washington,

MTH544-4...MECHANICAL,..3

TOPIC NUMBER	PERIODS	TOPIC DESCRIPTION	
	^	<u>Introduction to Differential Calculus</u> Functional notation Limiting value of a function Differentiation-delta method Practical applications- rectiline motion	
12		<u>Differentiation by Rule</u> Differentiation formulas Composite function and the chain rule Implicit differentiation Electrical applications Successive differentiation	
10		<u>Practical Application of Differentiation</u> <u>Gradients</u> Tangents to curves Maxima and minima Related rate problems	
	^	<u>Differential and Integral</u> Differential formulas Applications of differential Integration as anti-differentiation Applications of indefinite integration	731- • 736- 763-
9		<u>Definite Integration</u> Areas under a curve Fundamental theorem of integral calculus Computations with definite integrals Application to areas, volume, motion electrical problems	744- 770- 775-