

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 (3 HRS./WEEK)
Date: JULY, 1988
Author W. MACQUARRIE

New:

Revision:

X

APPROVED

Chairperson

Date

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CALENDAR DESCRIPTION

MATHEMATICS

MTH 554-4

COURSE NAME

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 derivatives 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



PERIODS	TOPIC DESCRIPTION	REFERENCE
	<u>Introduction to Differential Calculus</u>	
	Functional notation	Washington
	Limiting value of a function	Pgs 52-58
	Differentiation-delta method	646-670
12	Practical applications- rectiline motion	
	<u>Differentiation by Rule</u>	
	Differentiation formulas	671-678
	Composite function and the chain rule	687-993
	Implicit differentiation	702-707
	Electrical applications	
10	Successive differentiation	
	<u>Practical Application of Differentiation</u>	
	Gradients	694-698
	Tangents to curves	711-718
	Maxima and minima	721-728
	Related rate problems	707-711
	<u>Differential and Integral</u>	
	Differential formulas	731-735
	Applications of differential	736-744
	Integration as anti-differentiation	763-770
	Applications of indefinite integration	
	<u>Definite Integration</u>	
	Areas under a curve	744-753
	Fundamental theorem of integral calculus	770-775
	Computations with definite integrals	775-780
	Application to areas, volume/ motion electrical problems	

