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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Ti tie   MATHEMATICS   (Calculus)

Code *Ho.*:   MTH 208-4   (Old Code #MTH 278-•4)

Program: WATER RESOURCE - PULP AND PAPER TECHNOLOGY

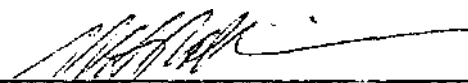Semester: THIRD - WATER RESOURCE   THIRE) - PULP & PAPER

Date: JUNE 1983

> Author: W. MacQUARRIE

                                     New   Revision:

APPROVED: _____
          Chairperson   Date^

PHILOSOPHY/GOALS:

When the student has successfully completed this course, he will have
denonstrated an acceptable ability to pass tests based upon the course
topics as listed elsewhere. If, after completing the course, the student
takes further courses (or employment) in which he is required to apply this
material, he should then, through practice be able to develop a good command
in this subject matter.

METHOD OF ASSESSMENT (GRADING METHOD):

The students will be assessed by written tests, including major periodic
tests based upon large blocks of the subject matter and some 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 mathematic's departments annual publication "TO THE
MATHEMATICS STUDENT" for further details. This publication is made
available to the students early in each academic year.

TEXTBOOK(S):

Calculus with Analytic Geometry - Person

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 refleet 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
1	9	<u>Introduction to Differential</u> <u>Calculus</u> Functional notation, limiting value Differentiation by delta method applications	Person Ch. 9,10,11,12
2	11	<u>Differentiation by Rule</u> Differentiation formulas Composite functions and the Chain rule Implicity differentiations Differentiation *by* Inversion	P. 13,14,19
3	13	<u>Practical Applications of</u> <u>Differentiation</u> Gradients Tangents to curves Maximum and minimum Related rates	P. 15,16,17, 18,20
\	3	<u>Further Differentiation</u> Successive differentiations Linear and angular velocity Differentials and applications of them	P. 15,21,25
)	10	<u>Introduction to Integration</u> Relationship to differentiation Indefinite integral Accelerated motion	P. 22,23,26
i	8	<u>The Definite Integral</u> Integration as a sum, summation, notation Fundamental theorem of integral calculus Area under a curve, area between curves	P. 23,24,27
	10	<u>More Applications of Integration</u> Volumes by integration Work pressure on a submerged plate	P. 25,26

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